BULLIES, VICTIMS AND BULLY-VICTIMS
Impact on health profile

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Bullying affects an important number of students in school today. Following the concept of health defended by the World Health Organization (WHO), which focuses on physical, mental and social well-being, in this paper we will present some results of a study concerning the relation between involvement in bullying and some health behaviors (self-esteem, mental health, psychosomatic symptoms and substance use). Data were collected from a random sample, using the Health Behaviours in School-Aged Children (HBSC) used by the WHO, the Susan Harter Self-Perception Profile for Adolescents, a Peer Nomination Inventory and a Sociometric Questionnaire. A total of 581 Portuguese adolescents aged 12 to 17 years, who attended eleven public middle schools in the Lisbon region, were selected. The students were defined as bullies, victims, bully-victims and not involved, on the basis of the Peer Nomination Inventory. Results show a connection between these four groups and some health behaviors, providing a distinctive profile for each one. In general, bullies show a more positive health profile compared to victims, with the exception of substance use. Bully-victims show the most controversial profile, similar to bullies in their higher levels of self-esteem and self-confidence, but also similar to victims in their higher levels of rejection and weakness.

Keywords: bullying, health, school violence

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Introduction

School violence, and especially bullying, is a very serious and visible problem in many schools, and it becomes particularly problematic during early adolescence, when youngsters are in middle school. Bullying is a specific type of aggression in school, in which the behavior is intended to harm or disturb; it occurs repeatedly over time and there is an imbalance of power, with a more powerful person or group attacking a less powerful one.

Recent studies in America (Craig et al., 2009; Finkelhor et al., 2005; Moura, Cruz, & Quevedo, 2011; Nansel et al., 2001; Schneider et al., 2012; Tokunaga, 2010; Unnever & Cornell, 2004; Wang et al., 2009; Williams & Guerra, 2007), Europe (Baldry, 2004; Carvalhosa & Matos, 2004; Didaskalou, Andreou, & Vlachou, 2009; Garaigordobil & Oñederra, 2008; Karatzias, Power, & Swanson, 2002; O'Moore & Kirkham, 2001; Smith et al., 2008; Tani et al., 2003; Vieno, Gini, & Santinello, 2011; Woods & Wolke, 2004), Africa (Brown, Riley, Butchart, & Kann, 2008; Liang, Flisher, & Lombard, 2007), Asia (Alikasifoglu et al., 2007; Wei, Williams, Chen, & Chang, 2010; Wenxin, 2002; Wong, Lok, Lo, & Ma, 2008) and Australia (Ahmed & Braithwaite, 2004; Perren, Dooley, Shaw, & Cross, 2010; Rigby, 2003; Wilkins-Shurmer et al., 2003; Roeger et al., 2010) indicate that a significant number of students are regularly victimized. Research carried out in Portugal in the field of school violence, and more specifically bullying, has been performed both by the official authorities and the scientific community (Carvalhosa, Moleiro, & Sales, 2009).

Depending on the study, the subject's age and the country, the percentage of students frequently victimized varies between 7.1 per cent and 70.2 per cent (Due & Holstein, 2008). According to the Portuguese data from the HBSC, while the percentage of students bullying others remains stable, the percentage of students being bullied shows a decrease from 2002 to 2012 (Ferreira, Matos, & Equipa Aventura Social, 2012). In Portugal, bullying behavior is mainly verbal and takes place mainly in the playground (*ibidem*, 2012; Pereira, Silva, & Nunes, 2009). Although peer conflicts are typical in children's development, bullying behavior on a regular basis is potentially a more serious threat for healthy development.

Past research has shown that involvement in bullying and poor physical and mental health are related, though in different ways according to the different groups of students involved (bullies, victims or bully-victims) (Karatzias, Power, & Swanson, 2002; Undheim & Sund, 2010). A meta-analysis of studies investigating the relation between victimization and psychosocial maladjustment found a stronger association with measures of depression, anxiety, unhappiness, loneliness or self-esteem. In general, victims reported elevated levels of psychological distress (Juvonen, Graham, & Schuster, 2003; Reijntjes, Kamphuis, Prinzie, & Telch, 2010; Schneider et al., 2012).

Regarding feelings of happiness, in students attending the fourth through tenth grades, a great number of studies have verified that victimized students show greater unhappiness (Fekkes, Pijpers, & Verloove-Vanhorick, 2004; Jankauskiene, Kardelis, Sukys, & Kardeliene, 2008; Matos & Carvalhosa, 2001). Concerning feelings of sadness, Berthold and Hoover (2000) found that victimized students show three times more feelings of sadness than their peers.

Understanding self-esteem as another health and well-being psychological indicator, several studies have demonstrated that bullies, victims, and students not involved in bullying behaviors differ in their levels of self-esteem. Great similarity has been observed in the results obtained by different studies, in different countries, with students from 7 to 16 years old. Generally, victims exhibit statistically lower levels of self-esteem than the remaining students (Bandeira & Hutz, 2010; Engert, 2001; Jankauskiene et al., 2008; Matsui, Kaxuyama, Tsuzuki, & Onglatco, 1996; Muscari, 2002). Other studies have verified that students not involved in bullying behaviors show the highest levels of self-esteem, with those levels only being statistically significant when compared to victimized students (both victims and bully-victims), but not when compared to bullies (Duck, 2005; Kokkinos & Panayiotou, 2004). The results of these studies also show that bullies exhibit similar levels of self-esteem when compared to not involved peers, i.e., elevated. Other results show an interesting interaction between gender and participants' roles in bullying behavior, in relation to self-esteem (Bandeira & Hutz, 2010).

There are also many studies that identify the victimized students as the group that show more feelings of loneliness and a smaller number of friends (Didaskalou, Andreou, & Vlachou, 2009; Forero, McLellan, Rissel, & Bauman, 1999; Juvonen et al., 2003; Nansel et al., 2001; Storch, Brassard, & Masia-Warner, 2003).

One of the most frequently studied indicators of mental health, whose results are more consistent, refers to depression. In several studies with schoolchildren from 8 to 16 years old, depression is significantly correlated with victimization (Baldry, 2004; Engert, 2001; Fekkes et al., 2004; Haynie et al., 2001; Juvonen et al., 2003; Karatzias et al., 2002; Klomek et al., 2008; Lund et al., 2008; Matsui et al., 1996; Muscari, 2002; Owens, Slee, & Shute, 2000; Perren et al., 2010; Schneider et al., 2012; Seals & Young, 2003).

Finally, being victimized was found to be positively associated with physical and psychosomatic symptoms in students aged between 8 and 16 (Baldry, 2004; Brown et al., 2008; Karin-Natvig, Albrektsen, & Qvarnstrom, 2001; Matos & Carvalhosa, 2001; Wolke, Woods, Bloomfield, & Karstadt, 2001), observing a tendency for the symptoms to be more frequent and intense the greater the frequency of victimization. Particular emphasis is placed on symptoms of tiredness, irritability, nervousness, and sleeping difficulties (Fekkes et al., 2004; Karin-Natvig et al., 2001). Other studies have also verified higher levels of psychoso-

matic symptoms in both bullies and bully-victims (Forero et al., 1999; Kaltiala-Heino, Rimpelä, Rantanen, & Rimpelä, 2000). In view of these results, it has been suggested that the development of poor physical health might be a psychosomatic reaction of students frequently victimized in school. This fact is particularly relevant in studies where aggressive behaviors were not associated with physical and psychosomatic symptoms (Baldry, 2004; Fekkes et al., 2004).

Regarding substance use, we can find a similar tendency in several studies, in which substance consumption is positively correlated to bullying, but negatively correlated to victimization (Alikasifoglu et al., 2007; Berthold & Hoover, 2000; Carvalhosa, Lima, & Matos, 2001; Forero et al., 1999; Haynie et al., 2001; Jankauskiene et al., 2008; Kaltiala-Heino et al., 2000; Matos & Carvalhosa, 2001; Nansel et al., 2001; Peleg-Oren, Cardenas, Comerford, & Galea, 2012; Vieno et al., 2011). According to these studies, youngsters with the highest tobacco and alcohol consumption are more frequently bullies. In the same way, youngsters that have already experimented with any other drugs are more likely to be bullies. Evidence from longitudinal studies indicates that bullying others at school predicts subsequent antisocial behavior, namely later violence and substance use (Kim, Catalano, Haggerty, & Abbott, 2011).

Students who tend to show the lowest levels of substance consumption are not involved in aggressive behaviors (Haynie et al., 2001; Vieno et al., 2011).

Given the literature review, we confirm the existence of different associations between some health indicators and student involvement in bullying behaviors. The aim of this study is to access a more holistic and integrated view of the students in terms of the social psychological impact of bullying on health, evaluating how certain health problems during adolescence are associated with bullying. This study shows how being a bully, a victim or a bully-victim can affect health behavior.

Method

Sample

In this work we chose to study bullying in the Lisbon metropolitan area. Our sample was selected through a multi-phase random sampling process. First, a selection was made of five subdivisions of the Lisbon district; second, one to three schools were selected in each subdivision (according to the existing number of middle schools); and finally three classes were selected at each school, relating to each of the three grades considered (respectively seventh, eighth, and ninth grades).

The initial sample was composed of 680 students attending eleven public middle schools. However, as two variables were used to classify the four categories of bullying behavior, 99 students whose scores were between the cut-off values were excluded, as suggested by Bastin (1970), in order to avoid ambiguous bullying ranks.

Our final sample was composed of five hundred and eighty-one (n = 581) students aged from 12 to 17 old (M = 13.94, SD = 1.40). Fifty-four per cent were girls (54.7%) and forty-five per cent boys (45.3%).

Measures

All subjects completed the *Health Behaviour in School-Aged Children*, a *Sociometric Questionnaire*, a *Peer Nomination Inventory,* and the *Susan Harter Self-Perception Profile for Adolescents.*

The *Health Behaviour in School-Aged Children* (HBSC) is a questionnaire used by the World Health Organization (WHO) cross-national study in the field of adolescent health research, and includes a set of questions covering, among others: perceptions of personal health and well-being; psychosomatic symptoms and substance use.

We examined five items assessing dimensions of mental health. Happiness was assessed by asking the students how they felt generally about life at present (responses dichotomized as happy or unhappy). Loneliness was measured by asking the students if they ever felt lonely (responses dichotomized as lonely or not lonely). Confidence was measured by asking the students whether they felt confident in themselves, whether they felt rejected, and whether they felt incapable or weak.

Psychosomatic symptoms defined as physical complaints as well as psychological complaints, were measured by asking «*During the past six months, did you experience any of the following symptoms? How frequently?*». The list of physical complaints includes headache, stomachache, backache, difficulties getting to sleep, and feeling dizzy. The list of psychological complaints includes depression, irritability or bad temper, nervousness, and feeling low.

In substance use, tobacco, alcohol, and drug consumption were considered. Tobacco consumption was measured by asking «*Did you ever smoke?*» and «*Do you smoke presently?*» Excessive drinking was measured by asking «*Did you ever drink so much alcohol that you were really drunk?*». The frequency of alcohol consumption, such as wine, beer, strong drinks, juice with alcohol and other alcohol, was also considered.

We also elected to develop a peer nomination device whose advantages have been highlighted by several studies (Branson & Cornell, 2009; Juvonen et al., 2003; Pakaslahti &

Keltikangas-Jaervinen, 2000; Perry, Kusel, & Perry, 1988; Seixas, 2005). The advantages identified by these authors include the fact that it is a collective assessment (which tends to increase reliability) of one of the first groups of reference of the child; the most likely to provide truthful answers; the fact that the pairs are probably more attentive to those who frequently attack or are victimized; and the fact that it reduces the influence of individual predispositions. As Kim et al. defend, «a self-report measure may lack objectivity and underestimate bullying involvement» (2011: 142).

Our *Peer Nomination Inventory*, based on Schwartz, Dodge, Pettit, & Bates (1997), requires children to name peers who are the perpetrators and targets of specific forms of physical and verbal abuse and contains six behavior descriptions, three of which were keyed for victimization and three of which were keyed for aggression. Each child was asked to nominate up to three peers (male or female) who fit each of the three victimization descriptors («gets picked on», «gets teased», and «gets hit or pushed»), and each of the three aggressive behavior descriptors («starts fights», «says mean things», and «gets mad easily»).

With regard to its application, students were reminded of the following: to make choices only within the class group; to use names and surnames, and to avoid using nicknames. It became necessary to ensure the anonymity and confidentiality of the questionnaire responses, highlighting their research nature. Blank responses were allowed whenever the students felt there was no one in the class, or anyone else, who fitted that behavior descriptor.

For each child, a victimization score was calculated from the sum of the nominations received for the three victimization items, and an aggression score was calculated from the sum of the three aggression items. All scores were standardized within the classroom, following the sociometric procedures of Bastin (1970). The peer victimization and aggression scores were used to classify each child into one of the following categories: bullies (students who were above the classroom mean in the number of nominations received for aggressor roles); victims (students who were above the classroom mean in the number of nominations received for victim roles); bully-victims (students who were above the classroom mean in the number of nominations received for both aggressor and victim roles); and not involved (students who were under the classroom mean in the number of nominations received for both aggressor and victim roles).

Since this scale was the only one that was translated and was applied to the Portuguese population for the first time, we proceeded to determine the reliability of this instrument through two types of reliabilities and also assess convergent validity and discriminant validity. Internal reliability was tested using Cronbach alpha coefficients: 0.91 for the items of victimization, 0.85 for the items of aggression and a global alpha of 0.78 for this measure, values that may be considered good or even very good. The construct reliability was attested using

composite reliability measure assessing the extent to which items in a construct measure latent construct: 0.95 for the items of victimization and 0.91 for the items of aggression, which is quite adequate since 0.7 has been considered acceptable (Hair et al, 2006).

Convergent validity occurs when the items which are reflective of a factor strongly saturate in this factor. The convergent validity was also measured by the average variance extracted (AVE), which represents the overall amount of variance in the indicators, accounted for by the latent construct (Fornel & Larker, 1981). AVE is also adequate (AVE ≥ .50) for each construct: 0.87 for the items of victimization, 0.79 for the items of aggression.

Discriminant validity measures the extent to which the constructs are conceptually distinct. The discriminant validity was assessed by comparing the AVE for victimization and for aggression with the squared correlation between these variables ($r^2 = (.18)^2 = 0.03$) (Bhattacherjee & Premkumar, 2004; Wixom et al. 2005). Considering the aforementioned AVE values for each construct, they are both higher than the squared correlation, thereby showing discriminant validity.

The *Susan Harter Self-Perception Profile for Adolescents* is a standardized 40-item scale that measures the self-esteem and self-regard of adolescents. The scale provides separate scores for each domain, and subjects respond on a 4-item agree-disagree scale. It contains a global self-esteem scale (the extent to which the youngster likes him/herself as a person), as well as several domain specific scales of perceived competence or ability, like scholastic competence, social acceptance, athletic competence, physical appearance, behavioral conduct, intimacy, and romantic appeal self-perceived competence.

Statistical analysis

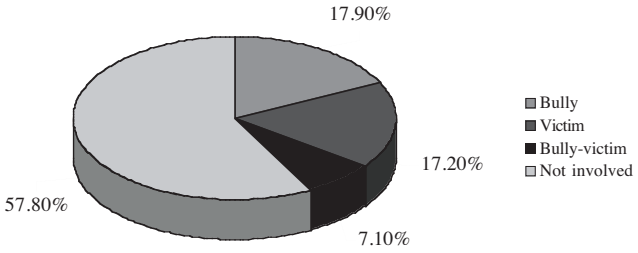
Data was analyzed using SPSS 2013. As our measures used categorical or ordinal scales and the scores under analysis were drawn from a non-normally distributed population, we applied nonparametric and distribution-free techniques of hypothesis testing. Kruskal-Wallis (K-W) One-Way Analysis of Variance by Ranks statistic (Siegel & Castellan, 1988) was used to decide whether there was any difference or not for our four bullying behavior groups, the medians of the self-esteem domain on the Susan Harter scale. If the result was statistically significant ($p \leq .05$), the Mann-Whitney test was used for two independent samples to identify the pairs of bullying categories with significant differences. This test is one of the most powerful nonparametric tests and a useful alternative to the parametric t-test (*ibidem*, 1988).

Results

Prevalence of bullying

FIGURE 1

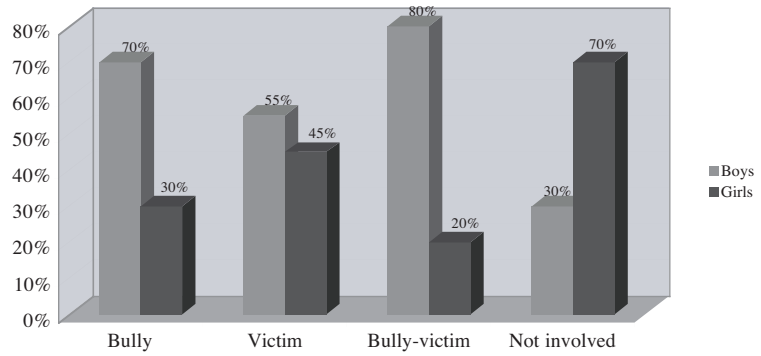
Involvement in bully/victim problems



Involvement in bullying behavior was assessed with the *Peer Nomination Inventory*. Of the total sample, 17.9% of the students were classified as bullies, 17.2% as victims, 7.1% as bully-victims and 57.8% as not involved (Figure 1). It means that almost half of the sample is in some way involved in bullying behaviors.

FIGURE 2

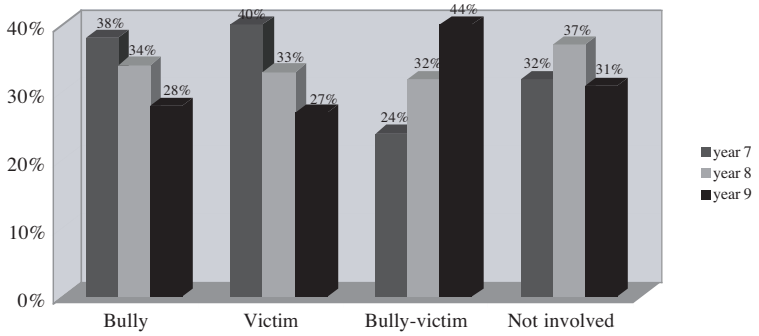
Gender differences in bully/victim problems



Boys received more nominations as bullies and bully/victims than girls, while girls received more nominations as not involved in bullying problems (Figure 2). Although there were not so many differences in the victim group, suggesting that both boys and girls are

equally targets of bullying, boys still received more nominations. 55% of the boys and 45% of the girls had been bullied during the current school term, 69.2% of the boys and 30.8% of the girls had bullied others. Among girls, there are few students who are both a victim and a bully (19.5%) compared to boys (80.5%).

FIGURE 3
Grade differences in bully/victim problems



Bullying behavior and victimization has its highest «peak» at year 7 with an age decline until year 9. In contrast, bully-victim students show an increased tendency over the three grades.

Self-esteem

TABLE 1
Self-esteem (Mann-Whitney tests)*

	Bully	Victim	Bully-victim	Not involved
Bully		107.47; 97.34	72.80; 73.50	248.20; 211.25
Victim	z = 2.17 (p = .03)		66.38; 82.27	217.65: 218.10
Bully-victim	az = .09 (p = .93)	z = 2.11 (p = .04)		221.46; 184.47
Not involved	z = 2.60 (p = .01)	v = .03 (p = .98)	z = 2.06 (p = .04)	

* The mean rank values appear above the diagonal (row; column).

Self-esteem was measured using the *Susan Harter Self-Perception Profile for Adolescents.* We tested the hypothesis of self-esteem being different between all groups. Significant statistical differences were found. (Mean rank and (n): 327.26 (104) for bully, 276.42 (100) for vic-

tim, 335.42 (41) for bully-victim and 335.82 (335) for not involved; K-W statistic: $X_{(3)}^2 = 10.61$; $p = .01$). Subsequently, each two groups were compared. The hypothesis that each aggressive behavior group has a higher level of self-esteem than victimized and not involved students was tested. We can observe (Table 1) that both bullies and bully-victims show statistically significant higher levels of self-esteem than victimized and not involved students. At one extreme, the victim group presents the lowest level of self-esteem, followed by the not involved group; at another extreme the bully-victim group with the highest level followed by the bullies.

Mental health

Concerning mental health, for each dimension considered (self-confidence, feeling rejected, and feeling incapable/weak), we tested the hypothesis of statistical differences among all groups in each dimension. There were no statistically significant differences between the groups in happiness (Mean rank and (*n*): 314.74 (103) for bully, 291.96 (100) for victim, 287.80 (41) for bully-victim and 283.14 (336) for not involved; K-W statistic; K-W statistic: $X_{(3)}^2 = 4.02$; $p = .26$) and loneliness (Mean rank and (*n*): 297.09 (103) for bully, 283.34 (100) for victim, 302.05 (41) for bully-victim and 290.05 (336) for not involved; K-W statistic: K-W statistic: $X_{(3)}^2 = .64$; $p = .89$). However, there were significant differences between the groups in self-confidence (Mean rank and (*n*): 329.67(103) for bully, 275.53 (100) for victim, 332.21 (41) for bully-victim and 277.86 (336) for not involved; K-W statistic: K-W statistic: $X_{(3)}^2 = 12.00$; $p = .01$), in feeling rejected (Mean rank and (*n*): 333.18 (103) for bully, 247.84 (100) for victim, 274.65 (41) for bully-victim and 292.05 (336) for not involved; K-W statistic: $X_{(3)}^2 = 15.23$; $p = .00$), and feeling incapable or weak (Mean rank and (*n*): 337.44 (103) for bully, 263.60 (100) for victim, 275.13 (41) for bully-victim and 285.12 (336) for not involved; K-W statistic: $X_{(3)}^2 = 13.64$; $p = .00$).

One-sided hypotheses comparing groups for the dimensions showing omnibus statistically significant differences in Mann-Whitney z-test were assessed. The group of bullies shows the most confident scores, followed by the group of bully-victims and the not involved group, while the victims show the lower scores. Statistically significant higher scores were observed for the bullies than for victims and bullies and not involved students. Furthermore, the bully-victims were more confident in comparison to the not involved students (Table 2). In the dimension of feeling rejected, the bullies felt less rejected, followed by the not involved students, the bully-victims and the victims, who had the highest feeling of rejection (Table 2). Statistically significant differences were observed between the bullies compared with the other

TABLE 2
Mental health dimensions (Mann-Whitney Z tests)*

Self-confidence				
	Bully	**Victim**	**Bully-victim**	**Not involved**
Bully		110.91; 92.82	72.49; 72.54	250.27; 210.72
Victim	z = 2.32 (p = .02)		67.11; 80.50	216.60; 219.07
Bully-victim	z = .01 (p = .99)	z = 1.86 (p = .06)		221.17; 185.07
Not involved	z = 2.91 (p = .00)	z = .18 (p = .86)	z = 2.1 (p = .04)	
Feeling rejected				
	Bully	**Victim**	**Bully-victim**	**Not involved**
Bully		116.16; 87.42	62.18; 76.61	244.42; 212.51
Victim	z = 3.69 (p = .00)		69.07; 75.72	192.36; 226.28
Bully-victim	z = 2.02 (p = .04)	z = .92 (p = .36)		178.74; 190.25
Not involved	z = 2.38 (p = .02)	z = 2.50 (p = .01)	z = .68 (p = .50)	
Feeling Incapable / weak				
	Bully	**Victim**	**Bully-victim**	**Not involved**
Bully		114.34; 89.29	77.17; 60.76	249.92; 210.15
Victim	z = 3.39 (p = .00)		70.01; 73.43	205.30; 221.79
Bully-victim	z = 2.44 (p = .02)	z = .48 (p = .63)		182.95; 189.18
Not involved	z = 3.08 (p = .00)	z = 1.25 (p = .21)	z = .38 (p = .71)	

* The mean rank values appear above the diagonal (row; column).

three groups (victims, bully-victims, and not involved). The same pattern observed in feeling rejected was detected in the incapable/weak item, with the bullies feeling less incapable, followed by the not involved students, the bully-victims and the victims, with the highest feeling of weakness and incapability. In all cases, the bullies reported less weakness and incapability, even when compared to the not involved group (Table 2). No other difference was found between the groups.

Psychosomatic symptoms

The hypothesis of different psychosomatic symptoms between the studied groups was assessed in each physical complaint considered: no statistically significant differences were revealed between the groups for each symptoms: headache ($X_{(3)}^2$ = 20.80; p = .05 (2-sided); stomachache ($X_{(3)}^2$ = 16.70; p = .16 (2-sided); backache ($X_{(3)}^2$ = 5.47; p = .22 (2-sided); diffi-

culties getting to sleep ($X_{(3)}^2$ = 12.30; p = .42 (2-sided); and feeling dizzy ($^-2$ = 8.13; p = .78 (2-sided).

Identically, in psychological complaints there were no statistically significant differences between the groups in depression ($X_{(3)}^2$ = 14.21; p = .29 (2-sided); irritability or bad temper ($X_{(3)}^2$ = 8.94; p = .71 (2-sided); nervousness ($X_{(3)}^2$ = 12.08; p = .44 (2-sided); and feeling low ($X_{(3)}^2$ = 20.19; p = .06 (2-sided).

Substance use

An omnibus test for several substance use hypotheses of different abuse between groups was undertaken. There were no statistically significant differences between the groups in tobacco consumption, nor in «*did you ever smoke?*» (Mean rank and (*n*): 271.60 (104) for bully, 321.88 (100) for victim, 281.13 (41) for bully-victim and 289.02 (336) for not involved; K-W statistic: $X_{(3)}^2$ = 7.21; p = .06), nor «*do you smoke presently?*» (Mean rank and (*n*): 287.28 (104) for bully, 298.13 (100) for victim, 280.88 (41) for bully-victim and 291.26 (336) for not involved; K-W statistic: $X_{(3)}^2$ = 2.13; p = .55). Neither were there any statistically significant differences in excessive drinking (Mean rank and (*n*): 305.02 (104) for bully, 287.21 (100) for victim, 287.88 (41) for bully-victim and 288.17 (336) for not involved; K-W statistic: $X_{(3)}^2$ = 2.02; p = .57).

With regard to alcohol consumption, with the exception of wine (Mean rank and (*n*): 291.77 (104) for bully, 280.94 (100) for victim, 306.82 (41) for bully-victim and 291.83 (336) for not involved; K-W statistic: $^-2$ = 1.87; *df* = 3; p = .60), statistically significant differences were observed between the groups in all other drinks: in alcohol consumption (Mean rank and (*n*): 291.77 (104) for bully, 280.94 (100) for victim, 306.82 (41) for bully-victim and 291.83 (336) for not involved; (Mean rank and (*n*): 291.77 (104) for bully, 280.94 (100) for victim, 306.82 (41) for bully-victim and 291.83 (336) for not involved; K-W statistic: $X_{(3)}^2$ = 8.19; p = .04); beer consumption (Mean rank and (*n*): 247.48 (104) for bully, 306.10 (100) for victim, 299.51 (41) for bully-victim and 298.94 (336) for not involved; K-W statistic: $X_{(3)}^2$ = 12.7; p = .00); strong drinks (Mean rank and (*n*): 246.77 (104) for bully, 306.59 (100) for victim, 306.65 (41) for bully-victim and 297.15 (336) for not involved; K-W statistic: $X_{(3)}^2$ = 12.38; p = .01); juice with alcohol consumption (Mean rank and (*n*): 256.88 (104) for bully, 330.73 (100) for victim, 317.39 (41) for bully-victim and 285.64 (336) for not involved; K-W statistic: $X_{(3)}^2$ = 14.97; p = .00); and other alcohol consumption (K-W statistic: $X_{(3)}^2$ = 7.81; p = .05).

TABLE 3
Substance use (Mann-Whitney tests)*

Alcohol				
	Bully	**Victim**	**Bully-victim**	**Not involved**
Bully		92.94; 112.44	70.72; 78.79	200.35; 226.74
Victim	z = 2.82 (p = .00)		72.64; 67.01	230.46; 214.94
Bully-victim	z = 1.30 (p = .19)	z = .86 (p = .39)		187.56; 189.18
Not involved	z = 2.21 (p = .03)	z = 1.27 (p = .20)	z = .11 (p = .92)	
Beer				
	Bully	**Victim**	**Bully-victim**	**Not involved**
Bully		92.21; 113.20	69.42: 82.09	190.85; 229.68
Victim	z = 2.98 (p = .00)		71.43; 69.95	222.47; 217.32
Bully-victim	z = 1.87 (p = .06)	z = .25 (p = .80)		189.48; 188.94
Not involved	z = 3.27 (p = .00)	z = .45 (p = .65)	z = .04 (p = .97)	
Strong drinks				
	Bully	**Victim**	**Bully-victim**	**Not involved**
Bully		91.57; 112.75	68.37; 82.88	190.83; 228.94
Victim	z = 2.94 (p = .00)	90.06; 112.75	70.95; 71.12	223.90; 216.89
Bully-victim	z = 2.8 (p = .03)	z = .03 (p = .98)		194.65; 188.31
Not involved	z = 3.12 (p = .00)	z = .59 (p = .56)	z = .43 (p = .67)	
Juice with alcohol				
	Bully	**Victim**	**Bully-victim**	**Not involved**
Bully		90.06; 115.44	68.37; 83.79	203.08; 225.25
Victim	z = 3.57 (p = .00)		72.03; 68.49	244.26; 210.16
Bully-victim	z = 2.18 (p = .03)	z = .60 (p = .55)		207.11; 186.22
Not involved	z = 1.76 (p = .08)	z = 2.77 (p = .01)	z = 1.33 (p = .18)	
Other alcohol				
	Bully	**Victim**	**Bully-victim**	**Not involved**
Bully		94.32; 111.01	69.74; 81.27	198.77; 227.22
Victim	z = 2.39 (p = .02)		71.17; 70.59	225.10; 216.54
Bully-victim	z = 1.2 (p = .09)	z = .10 (p = .92)		194.26; 188.36
Not involved	z = 2.38 (p = .02)	z = .73 (p = .46)	z = .40 (p = .69)	

* The mean rank values appear above the diagonal (row; column).

Once again, one-sided omnibus hypotheses comparing groups for the dimensions showing statistically significant differences in Mann-Whitney z-test were assessed. On the question «did you ever drink alcohol?» and about beer consumption, it was observed that the bullies

have greater alcohol consumption compared to victims and not involved students (Table 3). As far as strong drinks (liqueurs or whisky) are concerned, once more greater consumption was observed in the bully group with a statistically significant difference compared to the victims, bully-victims, and not involved students (Table 3). Bullies' increased consumption of juice with alcohol is statistically significant compared to victimized students (including both victims and bully-victims). Not involved students do not differ significantly from other groups, maintaining consumption between victims and bullies (Table 3). In other alcohol consumption, greater consumption was observed in the bully group compared to victims and not involved students (Table 3). We can see that, in general, drinking alcohol was most common among bullies and next most common among bully-victims. Victims reported even less drinking than those students not involved in bullying.

Finally, we assessed the hypothesis of different consumption of other drugs between groups (hashish, ecstasy, heroin, and cocaine). Use of these drugs was not common among all groups. There were no statistically significant differences between the groups in any of the drugs considered: hashish (K-W statistic: $X_{(3)}^2 = 2.44$; $p = .49$); ecstasy (K-W statistic: $X_{(3)}^2 = 5.11$; $p = .16$); heroin (K-W statistic: $X_{(3)}^2 = 2.42$; $p = .49$); and cocaine (K-W statistic: $X_{(3)}^2 = 2.24$; $p = .52$).

Health profile

In this section, we present the profile of the four groups according to the variables previously analyzed. The original average values for each variable in each group were standardized to Z notes ($M = 0$, $SD = 1$) to allow easy comparison of results.

Whatever the variable considered, the higher the mean scores, the healthier the perception or behavior, whereas the lower the mean scores, the less healthy the behavior or perception. So, in the negative mean scores we can find a low level of self-esteem (increasing from bottom up) as well as a high level of alcohol consumption (which decreases from bottom up), both negative health behaviors (Figure 4).

Victimized students show the highest deviation in self-confidence, and feelings of rejection and incapacity, thus resulting in lower levels of self-confidence and higher levels of feelings of rejection and incapacity. They also show the lowest level of self-esteem. On the other hand, they are the group with the lowest mean score in substance use (alcohol and tobacco). Although the difference is not statistically significant, when compared to the remaining groups, victims also show the lowest levels of happiness as well as the lowest levels of loneliness.

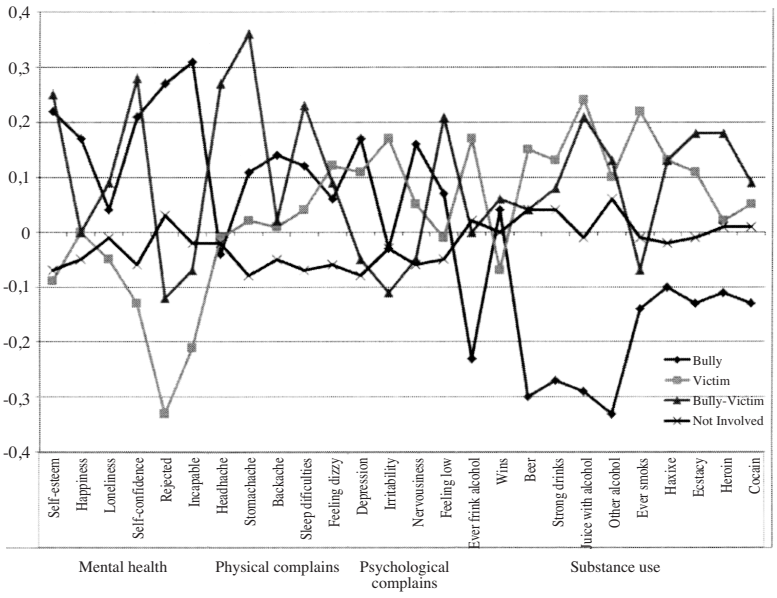
Bullies exhibit an increased self-confidence and self-esteem, as well as the lowest levels of feelings of rejection and incapacity. They also show the highest feeling of happiness which

suggests that, compared to the other three groups, they have a more positive perception of well-being. They do not stand out significantly (from the other groups) as far as physical and psychological symptoms are concerned. They show, however, the lowest levels of nervousness and depression. The highest deviation is observed in substance use, the consumption of drugs, alcohol (except wine), and tobacco being the highest compared to the other remaining groups.

Bully-victims apparently show a more controversial profile, as they have the highest levels of self-confidence and self-esteem (just as bullies do) as well as the highest feelings of incapability, rejection (like the victims show), and irritability. Though just a little further on from the remaining groups, they also show the lowest levels of loneliness. Their levels in some of the physical and psychological symptoms are lower as well, namely sleeping difficulties, stomachache, and headache. They also have low levels of substance use, regardless of the substance (drugs, alcohol, or tobacco).

In general, students not involved in bullying behaviors are closer to the mean (0.00), having a lower deviation compared to any of the remaining groups involved in bullying behaviors (bullies, victims, and bully-victims). However, this group does not stand out on any of the considered variables, though they manifest a greater frequency of dizziness, sleeping problems, backache, and stomachache, facts of no statistical significance. Compared to the other groups, their substance use can be considered as average.

FIGURE 4
Health profile



Discussion

The available evidence indicates that the incidence of bullying is not decreasing and some evidence suggests that it is on the increase. It is a problem that affects nearly 40% of the students in Portugal, which is not substantially higher than that reported in any comparable European data. Perry et al. (1988) reported similar rates of victimization based on peer reports. Their data suggest that 20% of students chronically suffer peer abuse. However, there is no way of determining the degree to which the bullying experienced by the respondents was chronic or severe. In future studies it will be important to control for severity methods.

The greater involvement of boys in bullying behaviors was expected on the basis of previous literature (Engert, 2001; Forero et al., 1999; Haynie et al., 2001; Kaltiala-Heino et al., 2000; Malta et al., 2010; Nansel et al., 2001; Vieno, et al., 2012). The fact that males both bullied others and were bullied more than females was statistically significant.

Consistent with the extensive literature on bullying, findings from this investigation offer further evidence that children who were involved in bullying behaviors experienced greater adjustment difficulties than their not involved counterparts (Forero et al., 1999; Schneider et al., 2012; Undheim & Sund, 2010). However, different patterns of association occurred among bullies, those bullied, and those who both bullied others and were bullied themselves.

Bullies and victims were statistically differentiated in relation to confidence in themselves. It seems that being aggressive is related to feeling more confident in oneself, less rejected and less incapable. The highest risk of feeling rejected was seen among students who were bullied. Generally, victims show poorer social and emotional adjustment, greater difficulties in making friends, poorer social relations with peers and more feelings of loneliness (Alikasifoglu et al., 2007; Nansel et al., 2001). On the other hand, students that are socially isolated and have poor social competences are more easily targets of bullying behaviors, with the reason most frequently pointed out by their peers being the fact that they do not fit in (Hoover, Oliver, & Thomson, 1993).

Besides this motive, socially isolated and withdrawn students increase rejection by their peers which, in turn, might lead to victimization. Thus, rejected and victimized schoolchildren are more likely to feel alone. According to the results of Nansel et al. (2001), bullies exhibit greater facility in making friends, not identifying themselves either as being socially isolated or rejected.

From the physical and psychological health point of view, bullies, victims, and bully-victims did not differ as much as might be expected given their characterizations in the previous literature (Fekkes et al., 2004; Forero et al., 1999; Karin-Natvig et al., 2001; Sharp, Thompson, & Arora, 2000). Although there were no significant relations between victimization and physi-

cal and psychological symptoms, Fekkes et al. (2004) hypothesized that victimization might lead to a greater number of health complaints because it constitutes a source of stress. Since stress contributes to the development of mental and psychosomatic health problems, being victimized contributes, in a similar way, to a greater prevalence of health symptoms.

Engert's research (2001) helps to understand these unexpected results, pointing out the importance of the instrument selected to identify victimized students. By distinguishing two groups of victimized students, according to their self-report or nomination by peers, this author verified the existence of some differences in the variables studied, depression among them. While students identified by their peers as victimized did not show statistically significant differences in depression compared to bullies, students identifying themselves as victims correlated with high levels of depression. A justification for the disagreement in these results may rely on Schuster's explanation (1999), by identifying sensitive victims like those students who felt victimized, thus, with reasons to be depressed, even though it might be unnoticed/unobserved among their classmates. Since the instruments of his study were peer nomination as well as self-reporting, it may justify the inexistence of statistically significant differences namely in depression, self-esteem, loneliness, and unhappiness, symptoms considered by other authors as internalized and significantly higher in victimized students.

Several studies have shown that bullies, victims, and not involved children may differ in their levels of self-esteem. Victims usually have lower levels of self-esteem than the other two groups, whereas bullies tend to have comparable levels to not involved children. Slee and Rigby (1993) suggest that the higher levels of bullies' self-esteem, is due to the feeling of power those students feel by dominating and humiliating weaker classmates. Therefore, a positive relation is established among their self-esteem levels and their dominance objectives. This tendency was clearly verified in the present study, with both groups with aggressive behaviors (bullies and bully-victims) having the highest levels of self-esteem while the victimized group had the lowest.

Future studies would benefit from considering the causal relation between low self-esteem and victimization, since it remains possible that low self-esteem may predict victimization (Egan & Perry, 1998; Matsui et al., 1996). In fact, in several longitudinal studies, it was found that internalizing problems function as both antecedents and consequences of peer victimization (Kaltiala-Heino, Fröjd, & Marttunen, 2010; Reijntjes et al., 2010) suggesting the establishment of a vicious cycle.

Bullies and victims differed essentially in relation to drinking alcohol, which was most prevalent among bullies and not at all among victims. As expected on the basis of the previous literature, it seems that alcohol misuse is strongly linked to being a bully, with greater consumption of every alcoholic drink compared to any other group (Alikasifoglu et al., 2007;

Berthold & Hoover, 2000; Forero et al., 1999; Haynie et al., 2001; Kaltiala-Heino et al., 2000; Matos & Carvalhosa, 2001).

The effects of bullying contribute substantially to the development of an unsafe environment in schools and to a decline in the academic and social performance of students involved in bully/victim experiences. For instance, according to some results in a Portuguese sample, most victims and aggressors do not seem to feel comfortable in school. However, victims feel worse, particularly in relation to colleagues, friends and themselves, while aggressors feel worse in relation to learning and teachers, but feel good about themselves and friends (Martins, 2005).

The association of various problems with all types of involvement in bullying emphasizes the importance of understanding involvement in bullying as an indicator of high risk for a number of health problems among adolescents.

The gathered data concerning health problems (psychosomatic symptoms, physical, and psychological complaints, substance use) highlights different health profiles according to the students' involvement in bullying, allowing us to identify priority areas for intervention with aggressors, victims, and victim-aggressive students. Our findings confirm the need for early intervention efforts that address both the participants' role in bullying and their relation to physical, social and mental health. Consistent with longitudinal studies, early intervention to prevent childhood bullying and victimization may reduce several adverse outcomes later in life.

This study has certain limitations that should be taken into consideration when interpreting the findings, particularly the nature of the instrument used to identify students involved in *bullying*. Despite numerous studies that have highlighted the advantages of a *Peer Nomination Inventory*, namely the reliability of the results, one of his limitations consists in the inability to determine the severity and frequency of bullying and victimization behaviors. On the other hand, since the sample was collected in a single time, it was impossible to evaluate the stability of the students' involvement in bullying over time and the directionality of the associations among the variables. Thus, this study would have benefited from a longitudinal research, one that would allow us to establish the etiology of becoming an aggressor and/or a victim in the school context.

Finally, it is important to clarify that the variables considered here show that some adolescents' health behaviors contribute to a health profile exclusively associated with bullying behaviors. The aim here was not concerned with adolescents' health behaviors in general, but rather with a health profile of youngsters who are involved in bullying behaviors at school.

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