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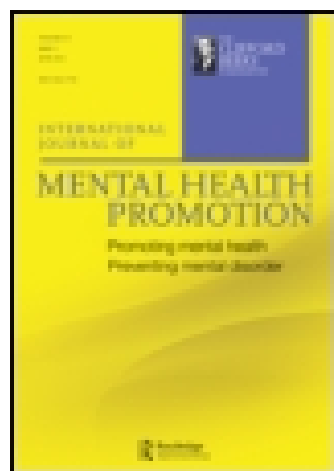
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## Peer violence, mental health and suicidal ideation in a sample of French adolescent

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The aim of this study was to investigate the link between suicidal ideation, psychological morbidity and experiences with peer violence (victim or perpetrator) among adolescents. This study examined direct and indirect violence separately. A sample of 361 high school students from France completed a self-administered survey consisting of the Suicidal Ideation Questionnaire, the Rosenberg Self-Esteem Scale and the General Health Questionnaire. Indirect peer victimization experienced by girls and direct peer victimization experienced by boys were more strongly linked to suicidal thoughts. Indirect aggression was also related to suicidal ideation among boys only. Indirect victimization at school was linked to a drop in self-esteem, a factor strongly related to the level of suicidal ideation, particularly for boys. These findings show that adolescent peer violence must be given particular attention in educational institutions due to its links not only with suicidal ideation, but also more broadly with students' psychological distress.

**Keywords:** Aggressive behavior, suicidal ideation, adolescence, victimization.

### Introduction

Teenage suicide is a major public health problem in Western societies, especially in France. In 2006, the number of adolescent deaths through suicide is estimated at 600–800 per year in France (Aouba, Péquignot, Camelin, Laurent, & Jougla, 2009). According to the WHO (2007), France has the third highest suicide rate in Europe. In 2007 in France, this rate reached 0.7‰ for young people aged between 15 and 24 years. In this context, a better understanding of factors that may contribute to increased suicidal ideation (thoughts of harming or killing oneself) in adolescence is a priority because these may predict suicide attempts (Groleger, Tomori, & Kocmur, 2003; Ten Have et al., 2009). Currently, much of the research to investigate the relationships between suicidal ideation in adolescence and psychological well-being (anxiety, depression or self-esteem) has examined psychological factors in an isolated or unidimensional manner (Chabrol, Rodgers, & Rousseau, 2007; Chatard, Selimbegovic, & N'Dry Konan, 2009; Creemers, Scholte, Engels, Prinstein, & Wiers, 2012; Evans, Hawton, & Rodham, 2004; Wild, Flisher, & Lombard, 2004). Despite a general consensus, these results rarely integrate the dynamic effects of the interaction between adolescent mental health, severity of suicidal ideas and the influence of the interpersonal environment.

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Adolescence is characterized by a transformation of the relational sphere with parental figures being disinvested in favor of peers (Greenberg, Siegle, & Leitch, 1983). In this context, relational peer support is an important indicator of healthy social development in adolescence (Fleming, Catalano, Haggerty, & Abbott, 2010; Laursen, Hafen, Kerr, & Stattin, 2012). One factor that may contribute to the emergence of suicidal ideation in adolescence could be characterized by conflictual peer relationships (Beautrais, Joyce, & Mulder, 1997). Specifically, peer violence (peer aggression or peer victimization) can cause psychological problems in some adolescents. Peer violence (aggression and/or victimization) can be either direct or indirect (Stassen-Berger, 2007). Direct peer aggression is defined as a relatively open attack on a victim (face-to-face physical or verbal confrontations), whereas indirect peer aggression (so called relational) is a form of social isolation and intentional exclusion from a group, for example by spreading rumors. Estimates of the prevalence of peer violence vary according to the different definitions of the phenomenon and also to the time period students have been asked to take into account to identify aggressive events (Espelage, Bosworth, & Simon, 1999; Stassen-Berger, 2007): prevalence rates of peer violence vary between 10% and 59% (Nansel et al., 2001; Stassen-Berger, 2007; Wang, Iannotti, & Nansel, 2009). More adolescents indicate that they have been victims than perpetrators (Stassen-Berger, 2007). Overall, direct peer aggression, in particular verbal abuse, is more frequent than indirect peer aggression (Wang, Iannotti, & Luk, 2012; Williams & Guerra, 2007). Forms of direct aggression decrease from middle school to high school (Pepler et al., 2006), except with regard to verbal abuse which persists (Williams & Guerra, 2007). More sophisticated indirect forms are more frequent in older adolescents (Bjorkqvist, Lagerspetz, & Kaukiainen, 1992) and among girls (Craig et al., 2009; Eisenberg & Aalsma, 2005; Viding, Simmonds, Petrides, & Frederickson, 2009; Wang et al., 2009). Regarding gender, boys reported being perpetrators more often than girls (Eisenberg & Aalsma, 2005; Scheithauer, Hayer, Petermann, & Jugert, 2006; Undheim & Sund, 2010). Regarding victims in general, many studies agree that there is no significant gender difference, with very similar prevalence (Eisenberg & Aalsma, 2005; Jolliffe & Farrington, 2006; Morris, Zhang, & Bondy, 2006). However, when considering direct victimization, boys are significantly more involved than girls (Baldry, 2004; Scheithauer et al., 2006; Undheim & Sund, 2010).

Various studies have examined psychological and psychopathological repercussions of peer violence. Adolescents who are victimized may experience psychological distress. The victims clearly risk short- and long-term maladjustment after incidents of peer victimization, with poor social acceptance (Undheim & Sund, 2010) or poor academic achievement (Beran, 2009). Adolescent victims of direct violence present internalized symptoms (Menesini, Modena, & Tani, 2009): loneliness, depressive affects (Kaltiala-Heino, Frojd, & Marttunen, 2010; Karatzias, Power, & Swanson, 2002), psychosomatic symptoms (Kaltiala-Heino, Rimpelä, Rantanen, & Rimpelä, 2000), negative self-esteem or self-concept (Farrow & Fox, 2011; O'Moore & Kirkham, 2001; Wilkins-Shurmer et al., 2003). Although being a victim of indirect peer violence is associated with social withdrawal, psychosomatic symptoms, and anxious and depressive affects, direct victimization predicts somatic symptoms, anxiety and depression (Baldry, 2004; Kowalski & Limber, 2013). Perpetrators are also vulnerable to psychological maladjustment. They are more likely to engage in other forms of relationship aggression (i.e. physical fighting, dating aggression) and externalizing behavior such as delinquent and aggressive behaviors (Menesini et al., 2009; Pepler et al., 2006; Undheim & Sund, 2010). These psychological and psychopathological repercussions are important from the point of view of their

pathogenic impact and are of particular concern if focused on the question of self-harm, associated with suicidal cognition, ideation and behaviors.

Few studies have investigated the link between peer violence and suicidal ideation, and their results are not consistent and remain general. Victims tend to have more suicidal thoughts than non-victims (Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2008; Cui, Cheng, Xu, Chen, & Wang, 2010). However, the studies have not compared suicidal ideation based on the role played (perpetrator or victim) or the strategies (direct or indirect) involved. Problems in peer relationships and being victimized were significantly related to suicidal ideation and suicide attempts in adolescence (Cui et al., 2010; Hepburn, Azrael, Molnar, & Miller, 2012; Kaminski & Fang, 2009; Klomek et al., 2008). This association was independent of the presence of psychiatric morbidity (Skapinakis et al., 2011). In contrast, being a perpetrator was not associated with suicidal ideation in studies by Herba et al. (2008) and Skapinakis et al. (2011). Regarding relationships between aggressive strategies (direct or indirect) and suicidal ideation, Van der Wal, Hirasing, and de Wit (2003) found that direct aggression had a significant effect on suicidal ideation for girl victims, but not for boys. They also found that boy and girl perpetrators of direct aggression reported suicidal ideation more often than other students. This is in contrast to the results of Herba et al. (2008), Skapinakis et al. (2011) or Espelage and Holt (2013). These results underline the need for research looking at males' and females' involvement in peer violence (Kowalski & Limber, 2013) and the mechanisms how peer violence leads to suicidal ideation. That is particularly serious taking into consideration result of Klomek et al. (2013) who demonstrated that peer violence is a strong risk factor for the later suicidality.

It is therefore necessary to determine whether findings from the current literature could be generalized to a more diverse, non-clinical sample of French adolescents. The purpose of this study was to test the hypothesis that being involved in peer violence would account for a significant portion of the variance in suicidal ideation, while taking into account the effects of traditional suicide risk factors (self-esteem and mental health), in a community sample of adolescents. We also hypothesized that being involved in peer violence would lead significantly to suicide ideation for both males and females.

## Methods

### *Subjects*

The participants consisted of 361 adolescents from general (52.6%), technical (28.7%) and vocational (18.7%) high schools (10th grade) (four institutions). There were 43% boys ( $n = 151$ ) and 57% girls ( $n = 204$ ). The mean age was 16.58 years ( $SD = 0.87$ , range: 15.3–20.0 years), without a significant difference between gender [ $F(1, 353) = 1.26$ ,  $p = 0.26$ ]. At the time of evaluation, only four students did not wish to participate in this survey.

### *Material*

*The Peer Violence Questionnaire.* This questionnaire is inspired by Roland's methodology (Roland, 1998, 2002). Victimization and aggression were assessed by giving the students a standard definition comprising examples of this type of behaviors (see Roland, 2002):

Peer violence or harassment occurs when one or more students (together) are unfriendly or unpleasant towards a student who cannot defend him/herself very easily. This can include that

the student is kicked, hit or pushed. Another definition of peer violence is when a student is teased, or if a student is ostracized.

This questionnaire included items estimating direct and indirect aggressiveness and recorded the incidences of being victimized or victimizing others. The students were asked how often they had been a victim and how often they had assaulted other students at school during the current school year ('never' = score 0, 'now and then' = score 1, 'weekly' = score 2 and 'daily' = 3). The four items of the scale concerned peer violence (perpetrator or victim), according to two strategies (direct or indirect). The internal consistency of the scale, estimated by Cronbach's  $\alpha$  was 0.79 for 'peer victimization' and 0.78 for 'peer aggression'.

*The Suicidal Ideation Questionnaire (SIQ).* The SIQ developed by Reynolds (1988) is a 30-item self-report inventory of suicidal ideation, designed for use with adolescents in grades 10–12 (see Potard, Kubiszewski, Gimenes, & Courtois, 2014, for the French version). This questionnaire measures specific thoughts and cognition about suicide and death over the previous month (with a seven-point scale from 'almost every day' to 'never thought about it'). It was not designed to predict suicide, but to identify a broader range of individuals who had thoughts of death. Total scores range from 0 to 180 with higher scores indicating a greater level of suicidal ideation. Reynolds (1988) considered a cut-off score of 41 (89th percentile of the normative sample) as an indicator of potentially significant psychopathology and acute suicidal risk. The psychometric properties of the SIQ are well established. Cronbach's  $\alpha$  coefficient was 0.97 in this study.

*The General Health Questionnaire-12 (GHQ-12).* The GHQ-12 (Goldberg, 1992; Goldberg & Williams, 1988) is a self-administered 12-item questionnaire concerning mental health status. It assesses 12 symptoms of psychiatric disorders that have been experienced during the previous month. For each item, respondents were asked to compare their recent state with their usual state. Each item was evaluated on a four-point Likert scale ('less than usual', 'no more than usual', 'rather more than usual', 'much more than usual'). The total score was the sum of individual item scores (ranging from 0 to 12), higher total scores indicating a poorer state of mental health. This questionnaire has good psychometric properties for adolescent populations (Tait, French, & Hulse, 2003). Cronbach's  $\alpha$  for this scale was 0.90 in this study.

*The Rosenberg Self-Esteem Scale (RSES).* The RSES (Rosenberg, 1965, Vallières & Vellerand, 1990) contains 10 items, and measures global self-esteem. Responses were given on a four-point Likert scale (from 1 = strongly disagree to 4 = strongly agree). Scores ranged from 4 to 40; a high score indicates high self-esteem. Cronbach's  $\alpha$  coefficient for this scale was 0.83 in our study.

### *Procedure*

The study was conducted in classrooms randomly selected and was supervised by two experimenters (the first and sixth authors). Anonymity was guaranteed, and the head teachers of the schools and parents gave their written consent. After the data collection, preventive actions were conducted in each establishment.

### Statistics

Students' *t*-tests were performed to compare group means between girls and boys on the different measure used in this study. Then, the role of peer violence, self-esteem and mental health in suicidal ideation was assessed using multiple regression analyses and path analysis. Analyses were conducted separately for boys and girls because of gender differences in many psychological variables. Statistical analyses were carried out using Statistica® and the structural equation modeling (SEM) with AMOS®.

## Results

### Descriptive results

Table 1 presents means and standard deviations for each variable in the study population according to sex. Boys and girls differed significantly on suicidal ideation, general mental health and self-esteem, with girls being more affected. Boys used more direct aggression than girls. In our sample, there was no gender effect on the way the adolescent was victimized, or in terms of the indirect aggression strategies used.

### Suicidal ideation, self-esteem, general mental health and peer violence for boys and girls

Multiple regression analyses were carried out to test the hypothesis that the different forms of aggression and victimization would significantly predict current suicidal ideation even when general psychological health and self-esteem were included in the analysis. Scores on the SIQ were entered as the dependent variable, and total scores on the peer violence questionnaire, GHQ and RSES were entered as independent variables. Analyses were performed for each sex separately (see Table 2).

The model accounted for 34% of the variance in SIQ scores for boys and for 36% in girls. Self-esteem and being involved in peer violence were significant predictors of current suicidal ideation. However, there was a difference between boys and girls according to the forms of aggression encountered: for boys, both being an indirect perpetrator or being victimized directly predicted suicidal ideation, whereas for girls being victimized indirectly was the only form of peer violence that predicted suicidal ideation. For girls, general mental health was also linked to suicidal ideation.

Table 1. Comparisons of mean and standard deviation of study measures for boys and girls

Variables	Boys		Girls		
	Mean	SD	Mean	SD	
SIQ <sup>a</sup>	18.40	25.28	36.16	37.78	***
GHQ 12 <sup>b</sup>	3.58	2.70	5.12	2.71	***
RSES <sup>c</sup>	30.02	6.03	25.53	5.99	***
Victimization					
Direct	1.39	0.60	1.46	0.59	ns
Indirect	1.47	0.66	1.61	0.70	ns
Aggression					
Direct	1.43	0.68	1.22	0.48	**
Indirect	1.59	0.81	1.46	0.62	ns

Note: ns, non-significant; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

<sup>a</sup>The Suicidal Ideation Questionnaire.

<sup>b</sup>The General Health Questionnaire-12.

<sup>c</sup>The Rosenberg Self-Esteem Scale.



Table 2. Multiple regression results in predicting suicidal ideation for boys and girls

Model	$\Delta R^2$	Total $R^2$	$\beta$	$t$	$p$ Value
Boys					
RSES	0.27	0.27	−0.49	−7.04	***
Indirect aggression	0.05	0.32	0.16	2.27	*
Direct victimization	0.02	0.34	0.17	2.24	*
Girls					
GHQ 12	0.27	0.27	0.39	5.35	***
Indirect victimization	0.06	0.33	0.18	2.86	**
RSES	0.03	0.36	−0.19	−0.19	*

Note: \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

SEM was conducted to account for the inter-relationships between our variables, in a more holistic model for girls and boys separately (see [Figures 1](#) and [2](#)). SEM provides a parsimonious explanation of relationships observed for the variables measured. The models combined the different forms of peer violence (direct/indirect aggression – direct/indirect victimization). Values of the indices are acceptable for the two models, with a  $\chi^2/\text{df}$  close to 2, comparative fit index  $> 0.90$ , and root mean square error of approximation  $< 0.08$ .

Discussion

In adolescence, manipulation of the notion of death is common and even constructive. Suicidal ideation is not necessarily emblematic of a morbid process, notably when it

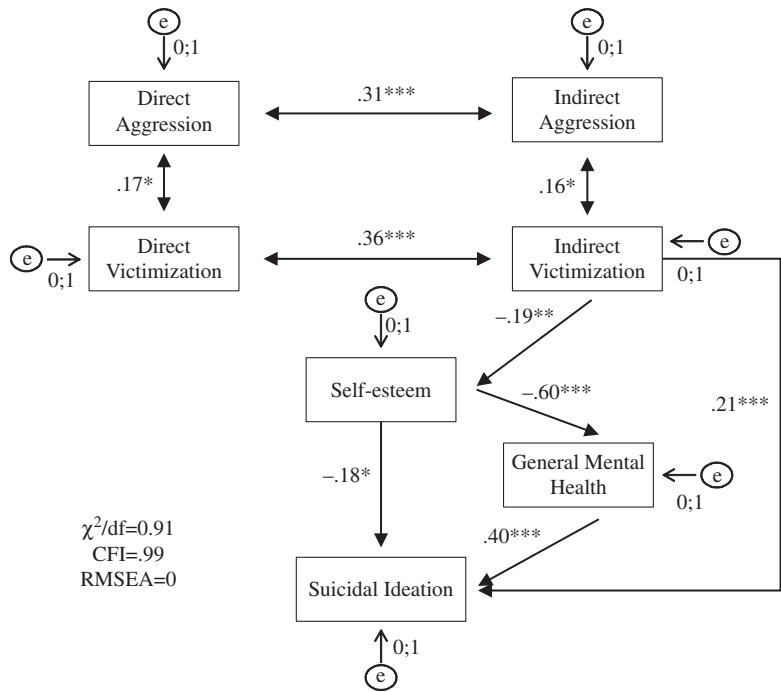


Figure 1. Analysis of relationships between forms of peer aggression, self-esteem, general health and suicidal ideation for girls ( $n = 204$ ). Note: \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .  $\chi^2/\text{df}$ , degree of freedom; CFI, comparative fit index; RMSEA, root mean square error of approximation

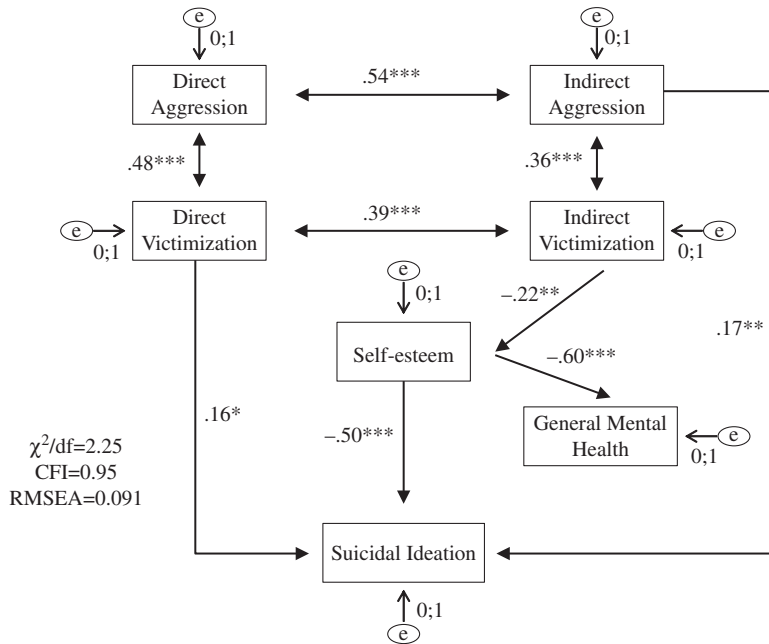


Figure 2. Analysis of relationships between forms of peer aggression, self-esteem, general health and suicidal ideation for boys ( $n = 151$ ). Note:  $*p < 0.05$ ;  $**p < 0.01$ ;  $***p < 0.001$ .  $\chi^2/df$ , degree of freedom; CFI, comparative fit index; RMSEA, root mean square error of approximation

remains externalized and not associated with acting-out strategies. In general, it reflects a malaise or psychological distress. Given the high rate of teenage suicide in France, it is particularly important to have a better understanding of factors that may trigger major suicidal ideation.

This study aimed to highlight the relationship between peer violence and suicidal ideation. We considered this from a broad perspective, including in our model an understanding of self-esteem and general mental health when investigating the link between peer violence and suicidal thoughts or acts. We initially considered boys and girls separately, as gender differences about the level of suicidal ideation, anxiety, depression and self-esteem in adolescence have already been well identified in the literature (Baldry, 2004; Roland, 2002). The present study found lower general mental health and self-esteem and greater severity of suicidal ideation among girls. This result is consistent with those of a number of studies and could be explained by the fact that boys externalize their distress more than girls (Baldry, 2004; Card, Stucky, Sawalani, & Little, 2008). For boys, the severity of suicidal ideation is primarily explained by their level of self-esteem and then, in a lesser degree, by indirect aggression and direct victimization. Regarding girls, general mental health is the main predictor of suicidal ideation, whereas self-esteem and indirect victimization contribute less. SEM reflects the strong inter-relationship between aggression and victimization, and also between forms of peer violence (direct and indirect). Involvement in victimization, whatever its form, has a negative relationship with the level of self-esteem and a positive relationship with the severity of suicidal ideation.

We found that boys were involved more in direct aggression than girls, in line with previous research (Baldry, 2004; Card et al., 2008). Boys seem to assert themselves in more visible acts and their behavior is more externalized. This gender difference could

partly be explained by the fact that boys, unlike girls, perceive direct physical violence as more acceptable, and some can even use it as a source of self-worth. Another explanation is that girls may be less likely to acknowledge perpetrating this form of aggression than boys, given that aggressive behavior is more consistent with the traditional male stereotype (Pepler et al., 2006).

The links between forms of peer violence, including those linking aggression and victimization reported in this study are in line with other results (Camodeca, Goossens, Terwogt, & Schuengel, 2002; Card et al., 2008; Wang et al., 2012). Direct victimization also tends to be linked with direct aggressive behaviors, whereas indirect victimization is linked with indirect aggression. These observations suggest a phenomenon of victims reproducing an identical strategy on others. Furthermore, a few students have been shown to be both perpetrators and victims (Camodeca et al., 2002; Solberg, Olweus, & Endresen, 2007), which could help explain the correlation observed between victimization and aggression in our study.

Low self-esteem can be linked significantly with mental health, including suicidal ideation. For boys and girls, the results of this study show that indirect peer victimization have a significant link with lower self-esteem than peer aggression. These results are in line with those obtained by O'Moore and Kirkham (2001), and Overbeek and Zeevalkink (2010). Rigby (2003) suggested that adolescents who have a low self-esteem in some way attract this violence, or alternately, that being a victim may further reduce self-esteem by causing humiliation (especially for situations of indirect victimization). Shame and helplessness experienced during victimization could lead to psychological distress being internalized (Card et al., 2008; Hawker & Boulton, 2000) and may increase suicidal ideation (Brunstein Klomer, Marrocco, Kleinman, Schonfeld, & Gould, 2008; Brunstein Klomek, Sourander, & Gould, 2010; Chatard et al., 2009; Kumpulainen, 2008; Skapinakis et al., 2011).

In contrast to peer victimization, our model showed no link between peer aggression and self-esteem. Although the victims react to their suffering by withdrawing into themselves, perpetrators appear to express their difficulties with violence and have problems controlling their hostility and aggressiveness (Card et al., 2008). Perpetrators of peer aggression would deflect their dissatisfaction by inflicting pain on others. This externalization of their suffering has been highlighted by several authors (Ivarsson, Broberg, Arvidsson, & Gillberg, 2005; Klomek et al., 2008).

In particular regarding suicidal ideation, the results for our model are different from those of previous studies which have shown that perpetrators had a high prevalence of suicidal ideation (Hepburn et al., 2012; Roland, 2002; Van der Wal et al., 2003). Our results show that only boys who are involved in indirect aggression have higher suicidal ideation. Furthermore, direct peer victimization of boys is the only peer violence linked to suicidal ideation, in line with the results of Skapinakis et al. (2011). It should be noted however, that Van der Wal et al. (2003) found this link among girls and not boys. On the other hand, for girls, only indirect victimization is linked with suicidal ideation. These results highlight the need to take into account the type of violence involved (i.e. aggression or victimization, direct or indirect) to prevent students from suffering. Moreover, it would seem that the psychological consequences of being involved in this kind of violence, as a victim or a perpetrator, differ according to gender.

This study demonstrates the relationships between the degree of direct or indirect peer violence, as victim or perpetrator, and suicidal ideation. Being involved peer victimization increases the risk of crystallization of suicidal ideation (and may increase suicidal plans) through a deterioration of self-esteem.

As with other social science research, this study has some limitations. First, due to the cross-sectional nature of the results, it is not possible to conclude that experiencing peer violence causes suicidal thoughts. Future research should deal with this limitation by investigating peer violence and suicidal ideation at different times during the school year. Second, although traditional suicidal ideation risk factors were included, we did not control for other variables such as previous suicide attempts, parental attachment or child abuse (Borowsky, Taliaferro, & McMorris, 2013). In addition, the use of self-reporting leads to an inevitable underestimation of actual violent behavior (Crothers & Levinson, 2011).

Despite the limitations mentioned above, this study highlights that peer violence is an important factor linked to suicidal ideation in adolescents. These results indicate that victimization in the context of school is a risk factor for suicidal ideation. As the risk of suicide is high during this period of life, these results demonstrate that antecedents of exposure to peer violence should be considered as a potential risk factor in programs of suicide prevention and intervention. Victims should be a target population for future research and clinical intervention. One way of helping indirect victims might be to focus on remediating the self-esteem of victims, because it seems that this is a significant mediating variable in the relation between victimization and suicidal ideation among students.

### Notes

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