

Expression of self-concept and adjustment against repeated aggressions: the case of a longitudinal study on school bullying

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Abstract Bullying between students in the school setting is an increasing problem. Bullying can be defined as any form of repeated mental or physical violence carried out by one or several individuals on a person who is not capable of defending himself (Roland and Idsoe, *Aggress Behav* 27:446–462, 2001). The aim of this paper is to observe the expression of self-concept and adjustment strategies developed by children subject to this kind of violence. Five hundred twenty-four students between the ages of 8 and 12 ($m=9.44$) participated in the longitudinal study. Two measurements were made during the same school year at an interval of 6 months. The results show that the student victims of bullying present weaker self-conceptions than the control group. Recourse to avoidance strategies would be dominant among student victims of bullying. Moreover, recourse to “avoidance” type strategies would lead to an increase in the frequency of bullying while recourse to “approach”-type strategies would lead to a reduction in it. Furthermore, it would seem that recourse to avoidance strategies at T1 lowers the student’s self-concepts at T2. The opposite effect is observed with the approach strategies. These different results emphasize the necessity to establish prevention programs which allow an intervention simultaneously on the level of the school, the family, and the student.

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Résumé Les agressions entre élèves en milieu scolaire constituent un problème grandissant. Le *bullying* peut être défini comme toutes formes de violences physiques ou mentales répétées, effectuées par un ou plusieurs individus sur une personne qui n'est pas capable de se défendre elle-même (Roland and Idsoe 2001). Cette étude a pour objectif d'observer l'expression des concepts de soi et les stratégies d'ajustement mises en place auprès des enfants impliqués dans ce type de violence. 524 élèves âgés de 8 à 12 ans ($m=9.44$) ont participé à l'étude longitudinale. Deux mesures ont été réalisées au cours de la même année scolaire à 6 mois d'intervalle. Les résultats montrent que les élèves victimes d'agressions répétées présentent des conceptions de soi plus faibles que le groupe contrôle. Le recours aux stratégies d'évitement serait dominant auprès des élèves victimes de *bullying*. En outre, le recours aux stratégies de type «évitement» conduirait à une augmentation de la fréquence des agressions alors que le recours aux stratégies de type «approche» conduirait à une diminution de celle-ci. Par ailleurs, il semblerait que le recours aux stratégies d'évitement à T1 vienne dégrader les concepts de soi de l'élève à T2. Nous observons l'effet inverse avec les stratégies d'approche. Ces différents résultats soulignent la nécessité qu'il y a à instaurer des programmes de prévention permettant une intervention simultanée au niveau de l'institution, de la famille et de l'élève.

Keywords Adjustment · Bullying · Self-concepts · Repeated aggressions among students

Introduction

Violence in the school setting is a subject which has preoccupied both researchers and politicians for several decades. Effectively, in all of the studies done throughout the world, the results found estimate cases of serious victimization at about 5% and that of a lesser intensity between 15% and 30% are found (Baldry 1998; Brandibas et al. 2002; Fontaine and Réveillère 2004; Frisen et al. 2007; Hunter et al. 2004, 2007; Kaltiala-Heino et al. 1999; Kepenekci and Cinkir 2006; O'Moore 1989; Pepler et al. 1993; Slee and Rigby 1993; Smith et al. 2004; Yang et al. 2006; Withney and Smith 1993), and it has become a real problem for public health. As a result, an abundant literature has been developed on the subject as well as prevention programs. Bullying can be defined as the continued exposure to repeated negative actions on the part of one or several individuals (Olweus 1989). Different terms are commonly used: The term "victimization" is found in American literature; the Canadians use intimidation or harassment (Smith et al. 2002). However, whatever the term used, three characteristics are specific to this concept: the frequency of the aggressions, the intention to harm, and the asymmetrical relation between the aggressor and the aggressed. This violence can also be direct or indirect and can be expressed verbally (threats, mockery, teasing, or nicknames), by physical contact (hitting, pushing, kicking, pinching, pulling), or even by social relations (ostracism, manipulating bonds of friendship; Berkowitz 1993; Dodge and Coie 1987; Olweus 1984; Smith and Sharp 1994).

Bullying, of course, has consequences for the students. The deterioration of self-concept is one of them. Effectively, numerous authors have studied the student's expression of self-concept. It appears that child victims of bullying invariably judged themselves to be socially "incompetent". They are generally unpopular in relation to their peers, more anxious, more unstable, and show little self-confidence (Craig 1997; Kahtri et al. 2000; Olweus 1989; Perry et al. 1988; Slee 1995). More exactly, high scores on certain scales of victimization are often associated with low scores on those concerning "scholastic skills",

“social acceptance”, “athletic skills”, “physical appearance”, and “global self-esteem” (Andreou 2000; Boulton and Smith 1994; O’Moore and Kirkham 2001; Wild et al. 2004). It has been shown that victimization is negatively linked to the way in which the child perceives his body (Lunde et al. 2006). According to Tanaka (2001), bullying corresponds to a loss: a loss of the individual’s place in his class or a loss of confidence in human beings. Numerous other research studies show that victims of bullying tend to have a more negative concept of themselves than do all of the other students (Boulton and Underwood 1992; Graham et al. 2007; Houbre et al. 2006; Lagerspetz et al. 1982; Lodge and Feldman 2007; Olweus 1978, 1984; Yang et al. 2006).

Only two longitudinal studies were done in this domain. These have the advantage of going beyond the descriptive level to arrive at an explanatory level. The results show that victimization contributes to bringing down the student’s self-perception in the areas of social skills and global self-esteem (Egan and Perry 1998; Marsh et al. 2001).

In spite of the evidence of a unidirectional factorial link, several authors ask the question: does the weakness of self-concept engender victimization or does victimization weaken the self-concept? Effectively, the characteristics proper to the individual could generate repeated aggressive behaviors toward them (Olweus 1973, 1978; Smith and Thompson 1991). Thus, a shy student suffering from a feeling of inferiority and with a negative self-image would more easily be the target of bullying. This paper examines this point by weighing self-concept as a cause and/or a consequence of bullying.

However, each individual does not remain passive when confronted by a stressful event and tries to deal with the situation. The term coping is used to designate this tendency in order to express the way in which the individual adjusts to a difficult situation (Lazarus and Folkman 1984). Two distinct taxonomies regarding coping strategies can be cited: The first differentiates emotion-focused coping from problem-focused coping (Folkman and Lazarus 1980; Lazarus and Folkman 1984). The second taxonomy results in a distinction based on approach/avoidance opposition (Roth and Cohen 1986). The second typology is the most suitable in the context of studies on bullying. Effectively, the age of the subjects (Atschuler and Ruble 1989; Haan 1977; Leiderman 1983; Seiffe-Krenke 1995) and the very characteristics of bullying (since it presents low controllability, passive strategies are more likely to be used) motivate this choice among different authors (Bijttebier and Vertommen 1998; Causey and Dubow 1992; Houbre et al. 2006; Kristensen and Smith 2003). The approach strategy then involves the search for social support and problem solving; avoidance strategy, on the other hand, includes distance and an emotional reaction.

In the framework of our study, we attempt to see what strategies the children are likely to develop against bullying, faced with violence over which they think they have very little control since this is one of the characteristics which can condition the coping strategy used. Generally, it would seem that victimization is linked to the presence of so-called avoidance strategies by simultaneously resorting to internalization and externalization. Effectively, we know that a large proportion of students are unaware of, or endure, bullying.

Thus, almost 14% of the children identified as being victims have never spoken to anyone about it (Naylor et al. 2001). Similarly, Wilton et al. (2000) show that victims of bullying do not know the aggressors (in 25% of the cases). But the authors also point out that the victims can answer with verbal aggression (in 25% of the cases) or with physical aggression (in 16% of the cases). According to their results, the most common strategies are submission (12% of the cases), instrumental coping (8% of the cases), and avoidance (7% of the cases). More precisely, Smith et al. (2001) show that the most common strategies are “ignoring the aggressors” followed by “telling them to stop”, “asking an adult for help”, and “hitting back”. The least used strategies are “running away”, “asking friends for help”,

and “crying”. The relation with the “approach” strategies seems to be less evident. Effectively, only two studies show a positive link between victimization and seeking social support (Andreou 2001; Hunter et al. 2007).

We can also question the efficacy of the strategies developed. It is generally admitted that the so-called active coping strategies (problem solving, seeking information, seeking social support, etc.) are more efficacious than the so-called passive strategies (avoidance, denial, attitude of resignation, etc.). Effectively, while the former only allows a reduction in the tension, the latter allows a reduction of the problem and, consequently, also a reduction in the tension. However, in the framework of our research and as mentioned above, an important point must be emphasized: the perceived control of the situation. In fact, the strategies allowing problem resolution would be used more in a situation which is likely to evolve. On the other hand, in the context of an uncontrollable situation, the individual would preferentially have recourse to strategies which would allow a reduction in the tension. Faced with an event such as bullying, which is perceived as hardly controllable and endures over time, the passive strategies could be efficacious for a short term (in the sense that their use results in a reduction in the tension), but only the active strategies enable a long-term improvement in well-being.

In the context of bullying, the few research studies which have been done attempted to observe if the adjustment strategies developed make it possible to reduce the aggressions or not. In this respect, Kochenderfer and Ladd (1997) showed that “talking to the teacher” and “having a friend’s help” are the strategies the most used by the students whose degree of victimization will diminish over time. On the contrary, responding with physical violence or “running away” seems to be used more frequently by the students whose victimization increases over time. We also know that children consider indifference to be a more constructive response to bullying than counter-attacking or remaining helpless (Salmivalli et al. 1996). It can also be emphasized that each of these strategies refers to avoidance. More recently, Comeda and Gossens (2005) have shown that 11-year-old children choose more often to say nothing. In addition, when the children (nonaggressors) imagine themselves as being the aggressor, they assume that the most efficacious strategies for solving the problem are indifference and not retorting.

Thus, a quick survey of the literature dealing with self-concept and the adjustment strategies developed shows that these two concepts are indissociable from the notion of bullying but, however, they have never been linked. This paper has four objectives: (1) to observe the possible interactions between self-concept and bullying by alternately considering the self-concept as a cause and/or a consequence of bullying, (2) to apprehend the adjustment strategies developed against bullying, (3) to observe the efficacy of these strategies on the frequency of bullying, and (4) to test the model by simultaneously taking into account victimization (factor), adjustment strategies (moderator), and self-concept (indicator).

Thus, this study has a twofold objective which is both methodological by introducing a temporal dimension and theoretical by testing the links between victimization, the expression of self-concept, and the adjustment strategies developed. Several assumptions can thus be made: (1) we assume that bullying on a student can affect the expression of self-concept over the long term, but we also suspect that self-concept is likely to explain the onset of victimization. (2) We also assume that avoidance (as opposed to approach strategies) is the most frequently used strategy against bullying. Moreover, (3) we assume that approach strategies (as opposed to avoidance strategies) are the most efficacious strategies and result in a reduction in aggressions. Finally, (4) we assume that the introduction of coping variables will make it possible to better explain and understand the

expression of self-concept over the long term. It can be assumed that the so-called avoidance strategies do not enable a child to be “protected” on the level of self-concept. On the contrary, we assume that recourse to strategies of the “approach” type will make it possible to “protect” the child on the level of self-concept.

Method

Participants

The sample is made up of 524 children ranging in age from 8 to 12 ($m=9.44$, $SD=0.78$), of which 54% are girls. The children are second (CM1) or third (CM2) grade students in primary schools; 49.04% of the children are in the second grade. The distribution of the socioprofessional categories of the parents is similar to that which is observed for the French population (Table 1). Out of 557 requests made to the parents to authorize participation, 539 gave authorization, and 15 children did not wish to participate in the research study.

Measures

Three questionnaires were administered to the students. The first made it possible to measure the bullying endured, the second to evaluate self-concept, and the third to record the adjustment strategies used against bullying.

Bullying endured

This questionnaire is composed of three subscales constructed from the *Peer Victimization Scale* by Austin and Joseph (1996) which made it possible to evaluate the frequency of physical, verbal, and relational aggressions simultaneously. Each of the subscales is made up of five items whose responses can be noted on a four-point scale. However, it was not possible to distinguish the three types of aggression by analyzing the structure of the scale. This observation resulted in adopting a unidimensional model from which (and in order to obtain a compatibility maximum) three items were removed (two of which are part of the relational aggression scale and one is part of the physical aggression scale). Coming close to a satisfactory model, we then obtain a scale of measure for aggressions endured based on 12 items ($\chi^2=162.39$, $ddl=54$, $p<0.001$; $GFI=0.936$; $AGFI=0.924$; $RMC=0.0431$; $RMSEA=0.065$). The items are formulated in the following manner: “Some children are hit or pushed by other children, but other children are not hit or pushed by other children”. In order to answer, the child must first choose the group of children which resembles him the most and then indicate the degree of similarity (“Exactly like me” vs. “A little bit like me”). A mean score is calculated for each scale (going from 1 to 4). Consequently, a high mean score indicates a high frequency of aggressive behaviors endured. In addition, a cutoff point of 2.50 made it possible to identify the individuals as being victims or not (Austin and Joseph 1996). The internal consistency of the scale is 0.87.

Self-concept

“The perceived competence scale for children” by Harter (1982) was used. The questionnaire was translated from English and validated in French (Pierrehumbert et al.

Table 1 Description of the sample in numbers (and percentage in columns) according to the child's membership group

	Child victims of bullying at T1 and/or T2 (<i>n</i> =185, 35.3%)	Control group (<i>n</i> =339, 64.7%)	Global sample (<i>n</i> =524)
Mean age (SD)	9.84 (0.80)	9.99 (0.76)	9.94 (0.78)
Sex			
Boy, <i>n</i> (%)	73 (39.5)	168 (49.6)	241 (46)
Girl, <i>n</i> (%)	112 (60.5)	171 (50.4)	283 (54)
Class			
First grade, <i>n</i> (%)	99 (53.5)	151 (44.5)	257 (49)
Second grade, <i>n</i> (%)	86 (46.4)	187 (55.2)	267 (51)
Nationality			
French, <i>n</i> (%)	128 (69.2)	213 (62.8)	341 (65.1)
Other, <i>n</i> (%)	57 (30.8)	126 (37.2)	183 (34.9)
Father's situation			
White-collar, Lib. Prof., <i>n</i> (%)	15 (8.1)	33 (9.7)	48 (9.2)
Teacher, Intermediary Prof., <i>n</i> (%)	33 (17.8)	64 (18.9)	97 (18.5)
Employee, technician, <i>n</i> (%)	78 (42.2)	130 (38.3)	208 (39.7)
Self-employed/shopkeeper, <i>n</i> (%)	15 (8.1)	13 (3.8)	28 (5.3)
Farmer/worker, <i>n</i> (%)	34 (18.4)	72 (21.2)	106 (20.2)
No activity/unemployed, <i>n</i> (%)	10 (5.4)	27 (7.9)	37 (7.1)
Mother's situation			
White-collar, Lib. Prof., <i>n</i> (%)	9 (4.9)	23 (6.8)	32 (6.1)
Teacher, Intermediary Prof., <i>n</i> (%)	23 (12.4)	48 (14.2)	71 (13.6)
Employee, technician, <i>n</i> (%)	68 (36.8)	127 (37.5)	195 (37.2)
Self-employed/shopkeeper, <i>n</i> (%)	1 (0.5)	5 (1.5)	6 (0.1)
Farmer/worker, <i>n</i> (%)	2 (1.1)	4 (1.2)	6 (0.1)
No activity (housewife/unemployed), <i>n</i> (%)	82 (44.2)	132 (38.9)	214 (40.8)

1987). It is the most commonly used scale in the context of studies on bullying in the school setting. Moreover, it measures self-concept from a multidimensional perspective. The questionnaire is constructed around the self-evaluation of skills in different areas and is done in a way so that it avoids suggesting a contemplative self-image which proves to be of little accuracy among younger children. The areas covered by the items are school (scholastic or cognitive skills), social skills (easily makes friends, popularity), athletic skills (physical or athletic skills), appearance (satisfaction with one's own physical appearance), behavior (self-control), and self-worth (global self-esteem). The answers are then graded on a four-point Likert scale going from 1 to 4, with 4 representing the most favorable level of self-concept. The results can then vary from 5 to 20 for each of the dimensions. The internal consistency of each of the dimensions varies from 0.75 to 0.86.

Adjustment strategies (or coping)

The scale developed by Causey and Dubow (1992) was used to measure the adjustment strategies developed by primary school children. Its construction is based on the approach/

avoidance theorization of coping. The measure for approach includes seeking social support and problem solving. The measure for avoidance includes distance and emotional reaction. Each item began with “When I argue with a student in my class or my school, I usually...” in order to contextualize the questions. Each of the 34 items is evaluated on a five-point Likert scale (1 = “Never”, 5 = “Always”). Each subscale includes a different number of items, and the calculation of the mean score is recommended. The internal consistency of the dimensions varies from 0.74 to 0.77.

Procedure

The schools ($n=11$) which participated in the study were chosen at random. After the research project was endorsed by the principals of the schools and the teachers concerned, a request for parental authorization, which included a brief description of the study, was given to each student. The data were collected once in December (T1) and again in June (T2) of the same school year. The questionnaires were administered collectively during school hours. The experimenter acted alone. He/she recalled that the questionnaires were anonymous and that no one in their circle (parents, teachers, or friends) would have knowledge of the responses given. It was also pointed out that it was not a test and that there are no right or wrong answers. The students were given a definition of bullying before answering the questionnaire: “We say that a student is aggressed when another student, or a group of students, say and think bad things about him. Consequently, a student is aggressed when he is hit and insulted, when he is kicked, when he is locked in a room, when he receives nasty letters, when nobody talks to him, or anything else like that. These things can happen often and it is difficult for the student to defend himself. A student is then aggressed when he is repeatedly bothered with the aim of being hurt. However, it is not aggression when two students of the same size have a simple quarrel” (Piers 1984). The questionnaires were then distributed and the children were given the amount of time necessary to complete them.

Results

Prevalence

Out of the entire sample, 35.3% of the students are victims of bullying at T1 and/or at T2 (T1: $m=2.09$, $SD=0.65$; T2: $m=1.91$, $SD=0.67$). The results show that at T1, 29.97% ($n=157$) of the children are victims of bullying. This percentage drops at T2 with 19.85% ($n=104$) children involved. But, in a general manner, a positive link is found between the bullying endured at T1 and T2 ($r=0.63$, $p<0.001$). The children with a stable status represent 14.5% ($n=76$) of the global sample, and the majority of them are girls (63.2%, $n=48$). Although the difference according to sex is not significant, a tendency was observed ($\chi^2=2.96$, $ddl=1$, $p<0.10$).

Bullying and the expression of self-concept: cause or consequence?

Diver links are observed between the aggressions endured and the dimensions of self-concept. Effectively, the self-concepts at T1 are negatively linked to victimization at T2 (scholastic: $r=-0.31$, $p<0.001$; social: $r=-0.36$, $p<0.001$; physical: $r=-0.19$, $p<0.001$; appearance: $r=-0.31$, $p<0.001$; behavior: $r=-0.31$, $p<0.001$; self-worth: $r=-0.36$,

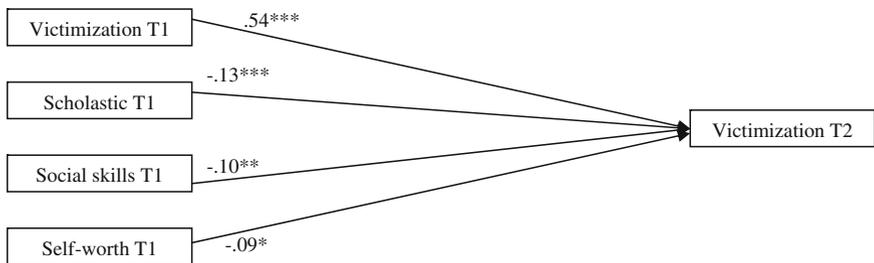
$p < 0.001$). Similarly, victimization at T1 is negatively correlated to all of the dimensions of self-concept at T2 (scholastic: $r = -0.29, p < 0.001$; social: $r = -0.43, p < 0.001$; physical: $r = -0.24, p < 0.001$; appearance: $r = -0.34, p < 0.001$; behavior: $r = -0.26, p < 0.001$; self-worth: $r = -0.38, p < 0.001$).

The analyses of the regressions gave us more information about the quality of the links. A stepwise regression carried out based on the aggressions endured at T2 with victimization at T1 and the different dimensions of self-concept at T1 results in four models. The first model ($R^2 = 0.40; F(1, 522) = 353.41, p < 0.001$) includes the variable “victimization T1” ($\beta = 0.63, p < 0.001$). The second model ($R^2 = 0.41; F(2, 521) = 265.07, p < 0.001$) includes the variables “victimization T1” ($\beta = 0.60, p < 0.001$) and “scholastic” ($\beta = -0.19, p < 0.001$). The third ($R^2 = 0.43; F(3, 520) = 185.15, p < 0.001$) includes the variables “victimization T1” ($\beta = 0.56, p < 0.001$), “scholastic” ($\beta = -0.15, p < 0.001$), and “social skills” ($\beta = -0.12, p < 0.01$). The fourth and last model ($R^2 = 0.45; F(4, 519) = 166.23, p < 0.001$) include “victimization T1” ($\beta = 0.54, p < 0.001$), “scholastic” ($\beta = -0.13, p < 0.001$), “social skills” ($\beta = -0.10, p < 0.01$), and “self-worth” ($\beta = -0.09, p < 0.05$; Fig. 1).

Linear regressions are also carried out based on the different dimensions of self-concept at T2, with the self-concept and the degree to victimization at T1. The variable victimization is maintained in several models. It permits us to partly explain the variations observed at T2 concerning the social self-concept (social self-concept T1: $\beta = 0.59, p < 0.001$; victimization T1: $\beta = -0.15, p < 0.001$; $R^2 = 0.46; F(2, 521) = 219.13, p < 0.001$), physical and athletic (physical T1: $\beta = 0.56, p < 0.001$; victimization T1: $\beta = -0.10, p < 0.01$; $R^2 = 0.44; F(2, 521) = 222.04, p < 0.001$), behavior (behavior T1: $\beta = 0.57, p < 0.001$; victimization T1: $\beta = -0.09, p < 0.05$; $R^2 = 0.36; F(2, 521) = 145.71, p < 0.001$), and self-worth (self-worth T1: $\beta = 0.55, p < 0.001$; victimization T1: $\beta = -0.13, p < 0.01$; $R^2 = 0.39; F(2, 521) = 163.65, p < 0.001$). Therefore, the more important dimensions are distributed in decreasing order as follows: social skills, self-worth, athletic skills, and behavior. The dimensions “appearance” and “scholastic skills” are excluded from the models.

The expression of self-concept can be compared at T1 between the students identified as being victims and those who are not at the time of T2 on a purely descriptive level. The results support our first observations (Table 2).

Effectively, the victims at T2 ($n = 156$) have mean scores which are significantly lower than those of the control group ($n = 368$) and this for each of the dimensions at T1. If the



*** $p < .001$; ** $p < .01$; * $p < .05$

Fig. 1 Fourth model of the stepwise regression carried out, based on the aggressions endured at T2 with victimization at T1 and the different dimensions of self-concept at T1 ($R^2 = 0.45; F(4, 519) = 166.23, p < 0.001$)

Table 2 Means and standard deviations of the self-conceptions obtained at T1 by the victims of bullying vs. the control group

		Mean	SD	<i>T</i> of Student (ddl=522)
Scholastic ($m=2.82$, $SD=0.68$)	Victim	2.66	0.72	-4.98*
	Control	2.98	0.65	
Social ($m=3.12$, $SD=0.72$)	Victim	2.87	0.83	-7.90*
	Control	3.38	0.61	
Physical ($m=2.82$, $SD=0.75$)	Victim	2.66	0.76	-4.64*
	Control	2.99	0.75	
Appearance ($m=2.94$, $SD=0.80$)	Victim	2.71	0.87	-6.25*
	Control	3.18	0.73	
Behavior ($m=2.98$, $SD=0.60$)	Victim	2.86	0.62	-4.28*
	Control	3.11	0.59	
Self-worth ($m=3.18$, $SD=0.68$)	Victim	2.98	0.75	-6.34*
	Control	3.38	0.61	

* $p<0.001$

expression of self-concept at T1 is now compared depending on whether the student is a victim or not at T2, significant differences also appear for each of the dimensions concerning scholastic skills (victim: $m=2.55$, $SD=0.68$, control group: $m=2.91$, $SD=0.64$, $t(522)=-5.12$, $p<0.001$), social (victim: $m=2.79$, $SD=0.81$, control group: $m=3.23$, $SD=0.66$, $t(522)=-5.81$, $p<0.001$), physical and athletic (victim: $m=2.69$, $SD=0.76$, control group: $m=2.98$, $SD=0.72$, $t(522)=-3.58$, $p<0.001$), appearance (victim: $m=2.59$, $SD=0.75$, control group: $m=3.07$, $SD=0.75$, $t(522)=-5.91$, $p<0.001$), behavior (victim: $m=2.69$, $SD=0.60$, control group: $m=3.02$, $SD=0.58$, $t(522)=-5.29$, $p<0.001$), and the global self-worth that the student gives himself (victim: $m=2.78$, $SD=0.73$, control group: $m=3.27$, $SD=0.61$, $t(522)=-7.09$, $p<0.001$). Thus, the individuals identified as being victims at T2 ($n=105$) present lower mean scores at T1 than those of the control group ($n=419$).

Bullying and adjustment strategies

Children confronted with bullying mobilize all of the strategies evaluated: problem solving ($m=3.60$, $SD=0.78$), seeking social support ($m=3.03$, $SD=0.87$), internalization ($m=2.81$, $SD=0.75$), externalization ($m=2.03$, $SD=0.89$), and distance ($m=2.76$, $SD=0.70$). It can be asked how the strategies of adjustment developed are conditioned by the aggressions endured. In order to answer this question, we calculated linear regressions based on the different dimensions of coping at T2 with the different dimensions of coping at T1 and the aggressions endured at T1. The results show that victimization is only retained in the case of avoidance strategies mobilized at T2 (avoidance T1: $\beta=0.50$, $p<0.001$; victimization T1: $\beta=0.12$, $p<0.01$; $R^2=0.04$; $F(2, 521)=114.36$, $p<0.001$). Effectively, concerning the approach strategies at T2, the variance is only explained by the strategies mobilized at T1. Therefore, even if internalization and externalization at T1 are the variables which best explain the recourse to these strategies at T2, the victimization at T1 accentuates this effect. Thus, the higher victimization is at T1, the more internalization ($R^2=0.28$; internalization T1: $\beta=0.50$, $p<0.001$; victimization T1: $\beta=0.12$, $p<0.01$; $F(2, 521)=114.36$, $p<0.001$) and externalization ($R^2=0.35$; externalization T1: $\beta=0.60$, $p<0.001$; victimization T1: $\beta=0.09$,

$p < 0.001$; $F(2, 521) = 231.40$, $p < 0.001$) are higher at T2. Distance, seeking social support, and problem solving are excluded from the models.

However, the comparison of the individuals presenting an increase in victimization with those who present a decrease in it (between T1 and T2) shows significant results (or which tend to be) for each of the subdimensions and dimensions of coping at T2 (problem solving: reduction in bullying— $m = 3.49$, $SD = 0.79$, increase in bullying— $m = 3.31$, $SD = 0.84$, $t(483) = 2.334$, $p < 0.05$; social support: decrease— $m = 2.84$, $SD = 0.90$, increase— $m = 2.70$, $SD = 0.88$, $t(483) = 1.66$, $p < 0.10$; distance: decrease— $m = 2.62$, $SD = 0.77$, increase— $m = 2.75$, $SD = 0.69$, $t(483) = -1.99$, $p < 0.05$; internalization: decrease— $m = 2.50$, $SD = 0.73$, increase— $m = 2.64$, $SD = 0.74$, $t(483) = -2.10$, $p < 0.05$; externalization: decrease— $m = 1.84$, $SD = 0.86$, increase— $m = 2.02$, $SD = 0.85$, $t(483) = -2.28$, $p < 0.05$; approach coping: decrease— $m = 3.17$, $SD = 0.71$, increase— $m = 3.00$, $SD = 0.74$, $t(483) = 2.35$, $p < 0.05$; avoidance coping: decrease— $m = 2.31$, $SD = 0.52$, increase— $m = 2.47$, $SD = 0.59$, $t(483) = -3.22$, $p < 0.01$).

Adjustment strategies: what is their efficacy against the bullying endured?

The question was also raised concerning the efficacy of the adjustment strategies developed by children against their aggressions. A stepwise regression, based on the degree of victimization at T2, makes it possible to partially answer this question.

By entering the five variables of coping at T1 (problem solving, social support, distance, internalization, and externalization), three models are then retained by regression (Table 3). The first model includes victimization at T1 with positive regression ($R^2 = 0.40$; $\beta = 0.63$, $p < 0.001$; $F(1, 522) = 353.41$, $p < 0.001$). The second model ($R^2 = 0.41$; $F(2, 521) = 182.28$, $p < 0.001$) integrates two variables with victimization at T1 and externalization. Thus, the higher the score obtained for externalization, the more the degree of victimization at T2 is important. Finally, the third model integrates three variables ($R^2 = 0.43$; $F(3, 520) = 116.03$, $p < 0.001$): Victimization ($\beta = 0.58$, $p < 0.001$), externalization ($\beta = 0.11$, $p < 0.01$), and internalization ($\beta = 0.09$, $p < 0.05$) can be observed. By comparing the students who have shown an increase in victimization to those who have shown a reduction in it, we can observe that the latter obtain higher mean scores at T1 for the dimensions “seeking social support” (reduction: $m = 3.09$, $SD = 0.85$; increase: $m = 2.88$, $SD = 0.94$, $t(483) = 2.52$, $p < 0.05$) and approach coping (decrease: $m = 2.36$,

Table 3 Models retained with stepwise regression done on the basis of the degree of victimization at T2 with the different coping strategies used at T1 on the entire sample

Models	Variables at T1	β	p
1 $R^2 = 0.40$ $F(1, 522) = 353.41$ $p < 0.001$	Victimization	0.63	0.001
2 $R^2 = 0.41$ $F(2, 521) = 182.28$ $p < 0.001$	Victimization	0.61	0.001
3 $R^2 = 0.43$ $F(3, 520) = 116.03$ $p < 0.001$	Externalization	0.13	0.01
	Victimization	0.58	0.001
	Externalization	0.11	0.01
	Internalization	0.09	0.05

SD=0.66; increase: $m=2.21$, $SD=0.77$, $t(483)=2.30$, $p<0.05$). Moreover, those who present an increase in victimization obtain a higher mean score for the dimension “internalization” than those who present a reduction in victimization (reduction: $m=2.72$, $SD=0.74$; increase: $m=2.84$, $SD=0.76$, $t(483)=2.15$, $p<0.05$).

Bullying, adjustment strategies, and self-concept

As shown above, self-concept at T2 can be affected by victimization at T1. However, we can rightly question the real effect of coping on these variables once the victimization remains constant. A stepwise regression in two steps was done in order to answer this question. First, regression is tested only with victimization; then, the five variables of coping (internalization, problem solving, externalization, social support, and distance) are entered. This process is carried out for each of the dimensions and makes it possible to observe how introducing the variables of coping improves the model. Regarding the dimensions of self-concept, the results (Table 4) show that whatever the variable used, the introduction of the different dimensions of coping is beneficial to the model.

Thus, with the dimension “scholastic”, we can observe that introducing the different dimensions of coping allows a gain of about 7% in terms of explaining the variance. More exactly, we can observe that the variables which contribute to this gain are, in descending order, problem solving ($\beta=0.24$, $p<0.001$), internalization ($\beta=-0.12$, $p<0.01$), externalization ($\beta=-0.12$, $p<0.01$), and distance ($\beta=-0.11$, $p<0.001$). It is interesting to point out that all of the variables regress negatively, with the exception of problem solving. Concerning the “social” dimension, a gain of about 3% can be observed. Only two dimensions of coping regress: problem solving ($\beta=0.16$, $p<0.001$) and externalization ($\beta=-0.17$, $p<0.001$). Here too, problem solving at T1 regresses positively with the “social” self-concept at T2. A gain of about 5% can be observed with the

Table 4 Results of the second step of stepwise regression based on the different dimensions of self-concept at T2 with victimization and the adjustment strategies at T1

T2		Scholastic	Social	Physical	Appearance	Behavior	Self-worth
T1							
Step 2	Victimization	-0.21***	-0.38***	-0.21***	-0.27***	-0.17***	-0.29***
	Social support	-0.07	-0.05	-0.01	-0.02	-0.07	-0.04
	Problem solving	-0.24***	-0.16***	-0.08	-0.13**	-0.19***	-0.16***
	Distance	-0.11**	-0.01	-0.02	-0.08	-0.05	-0.05
	Internalization	-0.12**	-0.17***	-0.22***	-0.18***	-0.10*	-0.18***
	Externalization	-0.12**	-0.05	-0.13**	-0.07	-0.24***	-0.12**
	<i>F</i> (6, 517)	16.30	24.10	10.36	16.87	19.25	21.94
	Sig. (<i>p</i>)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	R_2^2	0.16	0.22	0.11	0.16	0.18	0.20
	<i>F</i> of transition	9.22	4.37	5.84	5.79	14.42	7.88
	<i>F</i> (4, 517)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Sig. R_1^2	0.08	0.19	0.06	0.12	0.07	0.14
	ΔR^2	0.07	0.03	0.05	0.05	0.11	0.06

* $p<0.05$; ** $p<0.01$; *** $p<0.001$

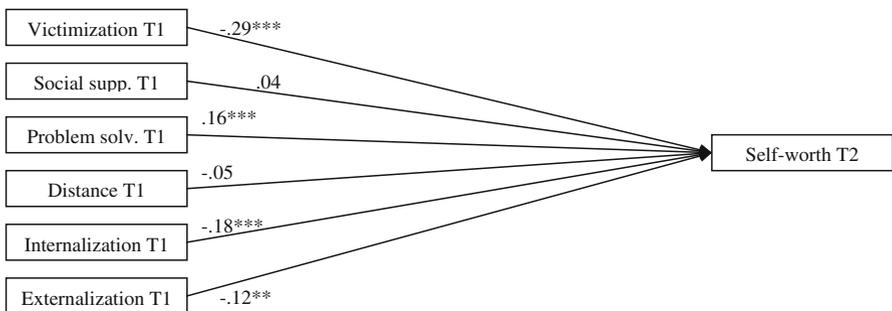
dimension “physical and athletic skills”. The presence of a negative regression with internalization ($\beta=-0.22, p<0.001$) and a positive regression with externalization ($\beta=0.13, p<0.01$) can be observed here. Concerning physical appearance, integrating the dimensions of coping allows a gain of about 5%. The variables which regress with appearance at T2 are internalization ($\beta=-0.18, p<0.001$) and problem solving ($\beta=0.13, p<0.01$). Likewise, introducing coping at T1 makes it possible to better explain the expression of self-esteem at T2 (Fig. 2).

Discussion

These initial results permit us to show how the different dimensions of self-concept can predict victimization. Even if the aggressions endured remain the most predictive variable, the analysis of the links between bullying endured and self-concept shows that certain dimensions seem to explain the long-term victimization. In fact, the presence of a low self-evaluation in the areas of scholastic and social skills at T1 seems to be the most predictive variable of victimization at T2. These results only partly agree with the observations made by Egan and Perry (1998) who have also shown that low self-esteem and a depreciation of social skills can predict the long-term presence of victimization. Hence, even if our study shows the influence of self-esteem, this only remains slightly predictive.

Properly speaking, it is most likely that if the aggressors do not choose their victims, they are able to observe those who know how to defend themselves and those who do not. Consequently, it is easier for them to pick out the individuals who will show passiveness and not retaliate for bullying. Concerning scholastic skills, this observation agrees with the results of Perrenoud (1989) who has suggested that the differences induced by scholastic results cause divisions within the class. These disparities could facilitate the manifestation of bullying. However, according to Olweus (1984), victimization does not seem to be the result of low scholastic performance. This contradiction is perhaps due to the measure of social skills which, depending on the case, can be perceived or real. It would be worthwhile to observe the actual scholastic results of the students and to compare them to their self-evaluation in future research studies.

Bullying also seems to lower self-perception. The results show that even if the victims seem to present a certain predisposition to the bullying endured, these also increase their



*** $p<.001$; ** $p<.01$

Fig. 2 Results of the second step of stepwise regression based on the expression of self-worth at T2 with victimization and the adjustment strategies at T1

sentiment of anxiety and their lack of confidence by enforcing the negative opinion that they have of themselves. Four of the dimensions of self-concept seem to be affected: The best explained dimension is the reduction in self-perception in the area of social skills. The second is global self-esteem, the third, physical appearance, and the fourth, behavior. These observations have been widely corroborated by earlier research (Andreou 2000; Boulton and Smith 1994; Lunde et al. 2006; O'Moore and Kirkham 2001; Wild et al. 2004). Victimization and self-concept then maintain dynamic relations. Self-concept, which is predictive of the bullying endured, is also affected by them. These two dimensions are interdependent and seem to mutually reinforce each other.

In the framework of this study, we were also concerned with the adjustment strategies developed. It can be observed that the bullying endured is positively correlated to internalization and externalization. Effectively, the results show that the more a child will be a victim of bullying, the more he will be susceptible to have recourse to internalization and externalization in the future. This observation is in keeping with earlier works (Kochenderfer-Ladd and Skinner 2002). Thus, as did Wilton et al. (2000), we have found that the child will have recourse to the strategies which enable him to give free rein to his emotions but which will not result in solving the problem. By comparing the students who showed a decrease vs. an increase in bullying during the school year, it can be observed that in the case of increase, the students develop more avoidance strategies at T2 (externalization, internalization, and distance) and fewer approach strategies (problem solving and seeking social support) than the students who showed a decrease in bullying. Thus, it would seem that the more victimization is intensified, the less the strategies are suitable. Approach strategies will progressively yield to avoidance strategies. These observations confirm the image "type" of the "submitted" or "passive" victim who presents low self-esteem, who withdraws from others when he is aggressed, and who shows low social skills (Olweus 1973, 1978).

Adjustment strategies can also prove to be more or less efficacious against bullying. Recourse to externalization or externalization seems to lead to an increase in the bullying endured. Moreover, when the students who showed an increase in aggressions are compared to those who showed a reduction in them, we can observe that the latter had recourse to social support at T1 more often. Those who had an increase in bullying endured developed internalization-type strategies more often. The strategies can then effectively be perceived in terms of the efficacy against the bullying endured. It would seem that only the strategies of the "approach" type make it possible to resolve the problem while strategies of the "avoidance" type seem to intensify it. These observations are congruent with those made by Kochenderfer and Ladd (1997) among younger children. Avoidance strategies only cause a simple reduction in emotional tension and do not allow a long-term reduction in the bullying endured. However, it is worth noting that they perfectly contradict what the children themselves perceive as being efficacious strategies for stopping bullying, that is, indifference, not retorting, the counter-attack, and revenge (Comeda and Gossens 2005; Salmivalli et al. 1996). Effectively, the children use active strategies more when the situation is perceived as "changeable" than when confronted by a situation perceived as "unchangeable" in which they have recourse to passive strategies instead (Folkman and Lazarus 1980). When we know that the victims present an external locus of control (Smorti and Ciucci 2000) and low perceived control over events (Hunter et al. 2007), we can then understand why avoidance strategies are preferred. We see here the necessity to set up prevention programs. Effectively, even if the students show their desire to "settle the problem by themselves", it seems very difficult for them to put an end to their torment (Craig et al. 2007; Frisen et al. 2007). Support from the teachers would most likely help these students in difficulty.

By integrating victimization in the model and then introducing the variables of coping, we could observe more precisely the interest of taking coping into account in order to understand the consequences of victimization on self-concept. Effectively, the results show that introducing adjustment strategies developed against victimization is pertinent. By observing self-concepts, we can observe that the most important gain concerns behavior in general. We can note the presence of an important effect of externalization in this aspect. Effectively, the more a child will have recourse to externalization at T1, the more his self-evaluation of his general behavior will be negative. This result is hardly surprising given the items since externalization refers to behaviors which express a loss of self-control (loudly using swear-words, shrieking to defend oneself, throwing or hitting something) and which are positively linked to victimization.

The second variable which presents the most gain after the introduction of coping refers to scholastic skills. We can observe the most adjustment strategies likely to influence its expression with this dimension. Thus, only the search for social support does not seem to improve the model. We can observe that avoidance type strategies (distance, internalization, externalization) do not seem “to protect” the scholastic concept of self as opposed to problem solving. Effectively, the more the student will have recourse to problem solving against victimization, the more his self-perception in the scholastic area will be positive.

One of the other dimensions for which the introduction of coping seems beneficial is global self-esteem. We can also observe here that the more the child has recourse to “avoidance”-type strategies at T1 (internalization and externalization), the more self-esteem is low at T2. The relation is reversed with recourse to problem solving. The self-evaluation of physical appearance is also positively affected by problem solving and negatively affected by internalization.

Regarding physical and athletic skills, it is interesting to observe that externalization regresses positively with this dimension. This result can be attributed to the fact that externalization is of a behavioral nature. Thus, when a child has recourse to this type of strategy to confront bullying (even if that does not allow a reduction in them), it is possible that this reassures and comforts him regarding his physical skills. In fact, it is hardly surprising to observe that internalization presents the highest negative regression in this area of skills. Effectively, it is possible that here too behavioral passiveness resulting from this strategy (“I withdrew”) more particularly worsens the self-evaluation of physical skills.

We can observe that the introduction of the least beneficial variables of coping concerns social skills. Thus, in spite of the presence of a positive link with problem solving and a negative link with internalization, victimization itself seems to be very important in explaining this dimension. This observation is hardly surprising since one and the other dimensions are very strongly linked. Effectively, how could a child victim of bullying on the part of his classmates succeed in preserving a positive self-evaluation of his social skills?

Thus, even if we could not show an eventual mediator or moderator effect of coping, the fact of apprehending adjustment strategies makes it possible to better understand the impact of victimization on self-concept. We can point out here that the so-called efficacious strategies, in other words those which make it possible to reduce the impact of bullying on well-being, are approach strategies such as seeking social support or problem solving. On the contrary, avoidance strategies seem to affect the well-being of the child. This observation is even more disturbing since children, in light of the low perceived control that they have regarding bullying, perceive avoidance strategies as being the most efficacious against it (Comeda and Gossens 2005). Thus, the children preferentially choose the strategies which will allow them to reduce emotional tension but

which will not enable them to resolve the problem, to the detriment of strategies which could allow a reduction in bullying and a relief from tensions. Nevertheless, the results show that recourse to approach strategies makes it possible to reduce bullying and to safeguard child well-being. This tends to show that bullying is controllable and that it is not a fatality. However, it remains to convince those involved. Effectively, as pointed out by Rosen et al. (2007), a “scheme of the victim” would exist (Perry et al. 2001) which would orient the student on the cognitive, behavioral, and emotional level. These relational schemata would also condition the students’ expectations. The victims would then be hypervigilant to anything that could represent a threat. This attentional bias would also condition the attributions made regarding the behavior of peers which would be more often interpreted as being hostile. In many respects, this idea of the “schema of the victim” can explain the problems of identity that we observe, as well as the difficulty that students have in ending this spiral of victimization.

Finally, we can observe several shortcomings in this study. The first is being that the regressions which permit the observation of the influence of coping or of self-concept on victimization are not carried out on “pure” subjects since a large proportion of them are already victims of bullying at T1. As a result, we observe the conditions for reinforcing bullying rather than the conditions for the appearance of bullying. Future research should be carried out to control this aspect. In addition, the duration between the measure carried out at T1 and the one made at T2 is short. More long-term studies are needed in order to distinguish more clearly the effects of the different variables. Last but not least, we can suggest that the processes of evaluation (primary and secondary) of the situation be taken into account in future research studies. It is probably because of this lack in our study that a sufficiently stable model could not be obtained. Effectively, we know that these evaluations make it possible to orient the coping strategies used to confront a threatening situation. They thus have a central role since they motivate the choices (conscious or unconscious) of the individual. Their absence is, in fact, harmful to any attempt at modeling.

After this study and in spite of the numerous theoretical questions which remain unresolved, it seems imperative to quickly orientate research toward the evaluation of different interventions (primary, secondary, tertiary) in order to implement them. The unsettling diversification of this type of aggression (“cyberbullying”) is only a supplementary argument considering the seriousness of the situation (Smith et al. 2008).

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Most relevant publications in the field of Psychology of Education:

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Current themes of research:

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Most relevant publications in the field of Psychology of Education:

Lemétayer, F., & Lanfranchi, J.-B. (2006). Parental educative practices with an unimpaired or Down's syndrome toddler: comparative study of a joint activity in early period. *Psychologie Française*, 51(4), 461–474.

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