

## Aggressive behavior in adolescence as a predictor of personal, family, and school adjustment problems

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### Abstract

**Background:** The goal of the present study was to determine the extent to which aggressive behavior towards peers predicts greater personal, school, and family maladjustment in adolescent aggressors of both sexes. **Method:** The sample consisted of 1510 Spanish adolescents from 12 to 17 years old, who anonymously and voluntarily completed self-report questionnaires. **Results:** Binary Logistic regression analysis showed that, regarding personal adjustment, aggressive behavior was significantly associated with high scores in depressive symptomatology, perceived stress and loneliness, and low scores in self-esteem, life satisfaction and empathy, for both sexes. In the school setting, aggressive behavior was related to low scores in academic engagement, friends in the classroom, perception of teacher support, and a positive attitude towards school. At the family level, significant relationships were observed between aggressive behavior and high scores in offensive communication and family conflict, and low scores in open communication with parents, general expressiveness, and family cohesion. **Conclusions:** In cases of peer violence it is necessary to give urgent attention to all those involved, since maladjustment in aggressors can be predicted in many levels of intervention.

**Keywords:** Adolescence, aggressive behavior, personal adjustment, school adjustment, family adjustment.

### Resumen

**Conducta agresiva en la adolescencia como predictor de problemas de ajuste personal, familiar y escolar. Antecedentes:** el objetivo del presente estudio fue determinar en qué medida la conducta agresiva hacia los iguales predice un mayor desajuste personal y escolar en los adolescentes agresores de ambos sexos. **Método:** la muestra se compuso por 1.510 adolescentes españoles de entre 12 y 17 años, que completaron de forma anónima y voluntaria escalas de autoinforme. **Resultados:** los análisis de regresión logística binaria mostraron que, en relación con el ajuste personal, el comportamiento agresivo predice significativamente y para ambos sexos altas puntuaciones en sintomatología depresiva, estrés percibido y soledad, y bajas puntuaciones en autoestima, satisfacción vital y empatía. En el ámbito escolar, la conducta agresiva se relacionó con bajas puntuaciones en implicación académica, afiliación con los compañeros, percepción de apoyo del profesor y actitud positiva hacia la escuela. En el ámbito familiar, se observaron relaciones significativas entre el comportamiento agresivo y altas puntuaciones en comunicación ofensiva y conflicto familiar, y puntuaciones bajas en comunicación abierta con los padres, expresividad general y cohesión familiar. **Conclusiones:** en los casos de violencia entre iguales, se necesita prestar una atención urgente a todos los implicados, pues en los agresores se puede establecer un pronóstico de desajuste en múltiples niveles de intervención.

**Palabras clave:** adolescencia, conducta agresiva, ajuste personal, ajuste escolar, ajuste familiar.

Prior scientific literature on the relationship between aggressive behavior towards peers at school and variables of personal, school, and family adjustment has frequently shown the close link between these factors in the adolescent population (Estévez, Emler, Cava, & Inglés, 2014; Stoddard, Zimmerman, & Bauermeisler, 2012). Most of these studies have focused on analyzing, on the one hand, the negative consequences of aggression for the victims, for example, anxiety, depression, or low self-esteem (Cava, Musitu, & Murgui, 2007) and, on the other hand, the risk factors that explain the development of this type of behavior in the aggressors.

Among the risk factors identified in adolescents as potential precursors for the development of aggressive behaviors towards peers are, at the individual level: low self-esteem (Martínez, Murgui, Musitu, & Monreal, 2009), low life satisfaction (Alcántara et al., 2016), feelings of loneliness (Martínez, Povedano, Amador, & Moreno, 2012), psychological distress (Villarreal-González, Sánchez-Sosa, Veiga, & del Moral Arroyo, 2011), deficits in empathic skill (Mestre, Samper, Tur-Porcar, Richaud de Minci, Mesurado, 2012; Moreno, Estévez, Murgui, & Musitu, 2009); at the school level: low academic engagement (Álvarez-García et al., 2010), negative attitudes towards studies, the school, and the teaching staff (Estévez, Inglés, & Martínez-Monteagudo, 2013), and negative social relations at school with classmates and teachers (Eccles & Roeser, 2011; Murray & Murray, 2004); and at the family level: negative communication between parents and adolescent's siblings (Marković, 2015), the presence of frequent intense conflicts in the family (Wienke et al., 2009), and the lack

of affective cohesion among the family members (Estévez et al., 2014).

However, empirical evidence about the consequences derived from engaging in aggressive behavior for the aggressor's personal, family, and school adjustment is very scarce. For example, does aggressive behavior have consequences on the aggressor's self-esteem, attitude towards studies, relationship with classmates, degree of family communication and affective cohesion with parents? The present study aims to contribute to the scientific knowledge on this issue, analyzing the associated probability of aggressive behavior with the main variables of personal, school, and family adjustment identified as relevant in previous studies.

The aggressive behavior exhibited by some adolescents towards their peers in the school setting refers to a series of behaviors aimed at other classmates in order to cause harm intentionally, at the physical, psychological, verbal, or relational level (Estévez, Moreno, Jiménez, & Musitu, 2013; Little, Henrich, Jones, & Hawley, 2003). The few studies in which this aggressive behavior has been considered as a predictor of the maladjustment of the adolescents who commit it suggest that they are at high risk for emotional, psychological, and school difficulties at the short and long term (Vanderbilt & Augustyn, 2010). In the review carried out by these authors, it was concluded that engagement in aggressive behaviors at school is related to subsequent health problems and to different diagnoses such as stress, anxiety disorders and antisocial personality. This study and others also report that participating in acts of aggression at school increases the rates of psychological distress, depression, and negative attitudes toward school (Brunstein-Klomek et al., 2011; Zimmer-Gembeck, 2012). Other reviews, such as that carried out by Ostrowsky (2010), underline the importance of continuing to investigate the relation between aggressive behavior and aggressors' self-esteem, as the results in current scientific literature are still inconclusive.

There is greater agreement among authors in identifying peer aggression in adolescents as a predictor for other later antisocial behaviors in adulthood (Olweus, 2011; Ttofi, Farrington, & Lösel, 2012), an aspect that reflects the feedback between aggression and psychosocial maladjustment in which some adolescents are immersed. A clear example is that aggressive behavior and academic goals are usually separated (Álvarez-García et al., 2010), and the presence of violent behaviors in the classroom is related to more negative teacher-students interactions (Mikami, Griggs, Reuland, & Gregory, 2012; Murray & Murray, 2004).

With regard to family relations, in previous studies, the presence of negative elements in the functioning of the family system with aggressive adolescents has been confirmed, including frequent family conflicts and a lack of a feeling of affective union among the members (Cerezo, Sánchez, Ruiz, & Areense, 2015; Espelage, Low, Rao, Hong, & Little, 2013; Estévez et al., 2014). It has also been found that communication in these families is usually indirect and highly incriminating (León-del-Barco, Felipe-Castaño, Polo-del-Río, & Fajardo-Bullón, 2015; Marković, 2015).

The greater part of published work on adolescent aggressors is of a correlational nature, or they discuss the relation between the indicators of psychosocial maladjustment as predecessors of subsequent violent behavior. However, one could also wonder what sequelae does engagement in aggressive behaviors have on adolescents' emotional well-being, as well as on their experiences and perceptions of the family and school contexts. Moreover, the studies usually do not consider the gender variable in their

analyses, whereas the scientific literature indicates the existence of differences between boys and girls in the engagement in aggressive behaviors and related variables, such as self-esteem and depression among others (for a review see Postigo, González, Mateu, Ferrero, & Martorell, 2009; Povedano, Estévez, Martínez, & Monreal, 2012).

Taking into account these limitations, the objective of the present study was to analyse the associated probability of showing different adjustment problems in the individual, school, and family levels, in adolescent aggressors of both genders. Individual variables included self-esteem, depressive symptomatology, stress, life satisfaction, feeling of loneliness, and empathy; school variables included attitude towards school and teachers, academic engagement, friends in the classroom, and perceived teacher support; and family variables included communication with the mother and father, family cohesion, general family expressiveness, and family conflict.

## Method

### Participants

Participants in the study were 1510 adolescents (52% boys) enrolled in nine Secondary Compulsory Education schools, in 1<sup>st</sup> to 4<sup>th</sup> grade. Participants' ages ranged between 12 and 17 years ( $M = 13.4$ ,  $SD = 1.25$ ). Random cluster sampling in the geographical areas of Valencia and Andalusia was used for sample selection. The primary sampling units were the urban and rural geographic areas of the two communities (representing the 68% and 32% respectively). The secondary units were the public and private institutes in each area, which were selected randomly and proportionally (representing the 71% and 29% respectively). A series of prior analyses of differences of means were conducted as a function of the location of the school and of its public or private condition on the target variables of the study, without identifying statistically significant differences.

### Instruments

*Rosenberg Self-esteem Scale* (RSE; Rosenberg, 1965; Spanish version of Echeburua, 1995). This scale consists of 10 items which provide a general index of self-esteem, rated on a four-point Likert-type response scale ranging from 1 (*Strongly disagree*) to 4 (*Strongly agree*). Five items are formulated positively (e.g., "I think I have many positive qualities") and five negatively (e.g., "Sometimes, I really feel useless"). The internal consistency coefficient measured with Cronbach's alpha was .76 in this study.

*Center of Epidemiological Studies Depression Scale* (CES-D; Radloff, 1977; bidirectional translation). This scale is made up of 20 items that assess symptomatology related to depressed mood on a four-point Likert-type scale ranging from 1 (*Never*) to 4 (*Always*). The CES-D provides a general index of depressed mood that does not assess depression itself but the symptomatology that is usually associated with it (e.g., "during the past week..., I have felt sad"). The reliability of the instrument according to the alpha of Cronbach obtained in the present sample was .81.

*Perceived Stress Scale* (PSS; Cohen, Kamarck, & Mermelstein, 1983; brief four-item Spanish version of Herrero & Meneses, 2006). The PSS evaluates the degree to which the person has perceived certain situations as stressful during the past month (e.g., "In this

past month, I have felt that I was incapable of controlling the most important things of my life”) by means of a four-point Likert-type scale ranging from 1 (*Never*) to 4 (*Always*). The internal consistency index in the present sample was .64.

*Satisfaction with Life Scale* (SLS; Diener, Emmons, Larsen, & Griffin, 1985; Spanish version of Atienza, Pons, Balaguer, & García-Merita, 2000). This instrument is composed of 5 items that provide a general index of perceived subjective well-being (e.g., “I am not pleased with my life”). The items are rated on a four-point Likert-type scale ranging from 1 (*Strongly disagree*) to 4 (*Strongly agree*). In the present study, the Cronbach alpha was .74.

*UCLA Loneliness Scale* (Russell, Peplau, & Cutrona, 1980; Spanish version of Expósito & Moya, 1993). This scale consists of 20 items rated on a four point Likert-type scale, ranging from 1 (*Never*) to 4 (*Always*), which provide a general measure of the feeling of loneliness (e.g., “How often do you feel isolated from others?”). In the present sample, the reliability coefficient was .89.

*Index of Empathy for Children and Adolescents* (IECA; Bryant, 1982; Spanish version of Mestre, Pérez-Delgado, Frías, & Samper, 1999). This instrument assesses the general level of empathy in children and adolescents (e.g., “I feel bad when I see another person being hurt”) by means of 22 items rated on a four-point Likert-type response format ranging from 1 (*Never*) to 4 (*Always*). In the present study, Cronbach alpha was .77.

*Attitude to Authority Scale* (Reicher & Emler, 1985; bidirectional translation). This scale is made up of 10 items that assess students’ attitude towards the school and the teachers as an institution and figures of authority (e.g., “I agree with what most of the teachers do and say”). Responses are rated on a four-point Likert-type scale ranging from 1 (*Strongly disagree*) to 4 (*Strongly agree*). In the present study, Cronbach alpha was .74.

*Classroom Environment Scale* (CES; Moos & Trickett, 1973; Spanish version of Fernández-Ballesteros & Sierra, 1989). We used the subscale of Interpersonal Relations at school, which is made up of 30 items with true or false response options that measure three dimensions: Academic engagement (e.g., “the students like to help each other with homework”), Friends in the classroom (e.g., “a lot of friendships are made in this class”), and Perceived teacher support (e.g., “the teachers show personal interest in their students”). The Cronbach alpha obtained in the present sample was .63 for academic engagement, .63 for friends in the classroom, and .68 for perceived teacher support.

*Parent-Adolescent Communication Scale* (PACS; Barnes & Olson, 1982). This scale is composed of 20 items that report of the family communication style among parents and adolescent children, with a response range of 1 (*never*) to 5 (*always*). The original scale presents a two-dimensional factor structure referring to positive (open communication) and negative (communication problems) family communication style (alpha coefficients of .87 and .78, and test-retest reliability of .78 and .77, respectively). However, this factor structure not was replicated in our data because the principal component analysis yielded three dimensions for the father and the mother separately. The first dimension or factor in our study consists of 10 items that account for 30.66% of the variance and refer to the Positive communication style with the parents (e.g., “My father/mother always listens to me”); the second factor explains 21.85% of the variance and contains 6 items referring to an Offensive family communication style (e.g., “My father/mother insults me when he/she is angry with me”); lastly, the third factor explains 9.52% of the variance and groups 4 items that describe an

Avoidant communicative style (e.g., “I am afraid to ask my father/mother what I want”). Other authors have observed this same factor structure of the scale (see Feldman & Rosenthal, 2000; Schmidt, Messoulam, Molina, & Abal, 2008). The reliability of these subscales in the present study (Cronbach’s alpha) was .87, .76, and .75, respectively. Confirmatory factor analyses indicated that the 3-factor model showed a good fit with data, both for father [ $SB\chi^2 = 1031.0699$ ,  $gl = 159$ ,  $p < .001$ , CFI = 0.923, RMSEA = 0.048 (0.045, 0.051)], and mother [ $SB\chi^2 = 1019.2889$ ,  $gl = 158$ ,  $p < .001$ , CFI = 0.923, RMSEA = 0.048 (0.045, 0.050)].

*Family Environment Scale* (FES; Moos & Trickett, 1973; Spanish version of Fernández-Ballesteros & Sierra, 1989). We used the dimension of family Interpersonal Relations, composed of 30 items with a true or false response format that measures three dimensions: Cohesion (e.g., “In my family, there is a strong feeling of union”), Expressiveness (e.g., “At home, we talk openly about whatever we want to discuss”) and Conflict (e.g., “Our family members are in conflict with each other”). The reliability of the subscales in the present study (Cronbach’s alpha) was .85, .80, and .86, respectively.

*Aggressive Behavior Scale* (Little, Henrich, Jones, & Hawley; 2003; bidirectional translation). This scale consists of 25 items about participation in aggressive peer behavior in school population, rated on a four-point Likert-type scale ranging from 1 (*Never*) to 4 (*Always*). The scale measures two types of aggressive behavior—overt or direct, and relational or indirect—and three functions of violence—pure, reactive, and instrumental—, leading to six dimensions of aggression: pure overt (e.g., “I’m the kind of person who often fights with others”), reactive overt (e.g., “When I’m hurt by someone, I often fight back”), instrumental overt (e.g., “I often threaten others to get what I want”), pure relational (e.g., “I’m the kind of person who gossips and spreads rumors”), reactive relational (e.g., “When I am upset by others, I often ignore or stop talking to them”), and instrumental relational (e.g., “To get what I want, I often ignore or stop talking to others”). The Cronbach alpha of the six dimensions in the present study ranged between .72 and .87.

### Procedure

Firstly, we contacted the principals of the selected schools. After they had confirmed their interest and voluntary participation, we held an informational seminar with the teaching staff to explain the goals and scope of the investigation and promote their participation. Next, we sent an explanatory letter about the investigation to the parents of the students in which we requested their written consent for their children’s participation in the study. After obtaining parental consent, data collection was carried out with each group in their regular classroom during a session of fifty-five minutes. A group of skilled and trained researchers was present during the administration of the scales to help the students and supervise the correct completion of the instruments. The administration order of the instruments was counterbalanced in each classroom and school. The adolescents were informed that their participation in the research was voluntary and anonymous and that they could withdraw from the study at any time during the process.

### Data analysis

Binary logistic regression analyses were performed using SPSS 21 statistical software, taking as criterion variables: self-esteem,

depressive symptomatology, perceived stress, life satisfaction, feeling of loneliness, empathy, positive attitude towards school and teachers, academic engagement, friends in the classroom, perceived teacher support, communication with the father and the mother, family cohesion, family expressiveness, and family conflict. These variables were dichotomized as a function of percentiles 25 and 75, with the purpose of identifying the high or low presence of the construct. Aggressive behavior was the independent variable. The regression analyses were calculated separately by gender, considering age as a dummy variable (group 1: early adolescence, 12-14 years; group 2, middle adolescence, 15-17 years).

An OR value higher than one indicates that the increase of the independent variable leads to an increase in the probability of the occurrence of the event. In contrast, an OR value lower than one indicates that an increase in the independent variable leads to a decrease of the probability of occurrence of the event (De Maris, 2003). The proportion of cases correctly classified by the logistic models calculated ranged between 62.2% (friends in the classroom) and 85.1% (perceived stress) in the sample of males, and between 64.7% (friends in the classroom) and 85.10% (perceived stress) in the sample of females. The Hosmer-Lemeshow goodness of fit test for logistic regression showed non-significant p-values, indicating a good fit of the models.

Results

In the sample of males, the ORs indicate that the probability of presenting high depressive symptomatology increases 4.90 times for each point increase on the Aggressive Behavior Scale. As the score in aggressive behavior increased, perceived stress increased 4.84 times, and the feeling of loneliness increased 2.41 times. The

results presented in Table 1 also indicate that the probability of presenting low empathy, low life satisfaction, and low self-esteem increased 6.70, 3.14, and 2.24 times, respectively, for each point increase of aggressive behavior. With respect to the variables of school adjustment, the ORs indicate that the probability of presenting a low positive attitude towards school and teachers and low academic engagement increased 2.91 and 1.31 times, respectively, as aggressive behavior increased. A similar increase was observed for low friends in the classroom and friendship with classmates (OR = 2.68) and low perceived teacher support (OR = 3.90).

Regarding family adjustment, the ORs indicate that the probability of parents and sons communicating offensively increased 4.22 times for the father and 4.31 times for the mother for each point increase in aggressive behavior. Regarding avoidant communication, the ORs obtained were 1.63 and 1.64 for the father and mother, respectively. Likewise, low open communication with the parents increased by 2.82 and 3 points respectively, and low family expressiveness—which reveals the general degree of communication in the family— increased by 2.45 points for each point increase in aggressiveness. An especially significant increase was observed for the variables family conflict (OR = 5.48) and low affective cohesion (OR = 4.87).

In the female sample, the ORs shown in Table 2 indicate that the probability of presenting high depressive symptomatology, perceived stress, and loneliness increased 3.44, 2.73, and 2.35 times, respectively, for each point increase in the score on the Aggressive Behavior Scale. For the rest of variables of personal adjustment, increases were also observed in the probability of presenting low self-esteem (OR = 2.07), low life satisfaction (OR = 2.86), and low degree of empathy (OR = 5.85), as the score in aggressive behavior increased.

Table 1  
Logistic regression with aggressive behavior as predictor in boys

	B	E.T.	Wald	p	OR	95% CI	
						Lower	Upper
<b>High scores</b>							
Depressive symptomatology	1.59	.24	42.07	<.001	4.90	3.03	7.92
Perceived stress	1.57	.25	39.10	<.001	4.84	2.95	7.93
Loneliness	.88	.21	16.36	<.001	2.41	1.57	3.69
Offensive communication father	1.44	.22	41.37	<.001	4.22	2.72	6.55
Offensive communication mother	1.46	.22	42.26	<.001	4.31	2.77	6.69
Avoidant communication father	.49	.24	4.30	.03	1.64	1.03	2.62
Avoidant communication mother	.49	.24	1.07	.05	1.63	1.01	2.62
Family conflict	1.70	.23	52.56	<.001	5.48	3.46	8.68
<b>Low scores</b>							
Self-esteem	.81	.21	14.33	<.001	2.24	1.47	3.42
Life satisfaction	1.14	.21	27.62	<.001	3.14	2.05	4.82
Degree of empathy	1.90	.24	62.99	<.001	6.70	4.19	1.72
Attitude to school/teachers	1.06	.21	23.75	<.001	2.91	1.89	4.47
Academic engagement	.27	.21	1.62	.02	1.32	.86	2.02
Friends in the classroom	.98	.21	21.69	<.001	2.68	1.77	4.07
Teacher support	1.36	.22	37.15	<.001	3.90	2.51	6.04
Open communication father	1.04	.23	20.25	<.001	2.82	1.79	4.43
Open communication mother	1.10	.22	25.23	<.001	3.01	1.95	4.62
Family expressiveness	.89	.21	17.61	<.001	2.45	1.61	3.72
Family cohesion	1.58	.23	46.66	<.001	4.87	3.09	7.67

Table 2  
Logistic regression with aggressive behavior as predictor in girls

High scores	B	E.T.	Wald	p	OR	95% CI	
						Lower	Upper
Depressive symptomatology	1.22	.28	18.66	<.001	3.44	1.95	5.96
Perceived stress	1.00	.30	1.56	<.001	2.73	1.48	4.98
Loneliness	.86	.27	9.73	<.001	2.35	1.37	4.06
Offensive communication father	1.08	.26	16.76	<.001	2.96	1.76	4.96
Offensive communication mother	1.51	.27	29.89	<.001	4.55	2.64	7.83
Avoidant communication father	.69	.27	6.28	.01	1.99	1.16	3.41
Avoidant communication mother	.22	.30	.57	.04	1.26	.69	2.28
Family conflict	2.52	.32	62.25	<.001	12.44	6.65	23.28
<b>Low scores</b>							
General self-esteem	.73	.26	7.89	<.001	2.07	1.24	3.46
Life satisfaction	1.05	.26	15.64	<.001	2.86	1.70	4.83
Degree of Empathy	1.76	.30	33.80	<.001	5.85	3.22	1.62
Attitude to school/teachers	2.23	.30	53.56	<.001	9.31	5.12	16.92
Academic engagement	1.10	.27	16.83	<.001	3.02	1.78	5.12
Friends in the classroom	1.31	.27	23.61	<.001	3.72	2.19	6.33
Teacher support	1.33	.27	23.35	<.001	3.78	2.20	6.48
Open communication father	1.02	.27	13.88	<.001	2.76	1.62	4.71
Open communication mother	1.45	.27	27.27	<.001	4.28	2.48	7.40
Family expressiveness	.59	.25	5.35	.02	1.79	1.09	2.96
Family cohesion	1.67	.29	33.15	<.001	5.33	3.01	9.41

The results in the school adjustment variables indicate that, for each point increase of aggressive behavior, the probability of girls students' to show low positive attitude towards school and teachers increased 9.31 times, their probability of presenting low academic engagement increased 3.02 times, their reports of low friends in the classroom 3.72 times, and 3.78 times their perception of low teacher support.

Lastly, in family adjustment, the girls' *ORs* showed that the probability of identifying offensive communication with their parents increased 4.55 points in the case of the mother and 2.96 points in the case of the father, for each point increase in aggressive behavior. Concerning avoidant communication, the *ORs* obtained were lower, and, in particular, were 1.99 and 1.26 for the father and the mother. The low open communication showed an increase of 4.28 points for the mother and 2.76 points for the father. In the case of general low family expressiveness and low affective family cohesion, we observed *ORs* of 1.79 and 5.33, respectively. The greatest increase was identified in the variable family conflict, with an *OR* value of 12.44 points.

Finally, in regards the age of participants, which as considered as a dummy variable in the model, results indicated that aggressive boys of 15-17 years had 1.85 and 1.74 times more probability of perceiving low teacher support and open communication with mother respectively, in comparison to 12-14 aged boys. Aggressive girls aged 15-17 years, had 2.1 and 1.9 times more probability of perceiving low teacher support and low family cohesion, than girls aged 12-14 years.

### Discussion

The goal of the present study was to determine the extent to which aggressive peer behavior is related to greater personal,

school, and family maladjustment in adolescent aggressors in a broad sample of Spanish students. The results showed that, in both sexes, the scores in peer aggression are significantly related to high scores in the personal dimensions of depressive symptomatology, perceived stress and loneliness, and low scores in the dimensions of self-esteem, life satisfaction, and empathy. It was also found that aggression is associated with low scores in the school dimensions of attitude towards school and teachers, academic engagement, friendship in the classroom, and perceived teacher support. In addition, in the family sphere, aggressiveness is related to high scores in offensive and avoidant family communication and family conflict, and to low scores in open communication with the parents, family expressiveness, and cohesion. Some of these results are consistent with those obtained in previous investigations although they add information about specific indicators of personal, school, and family adjustment associated with peer aggression.

Regarding personal maladjustment, previous studies have also found that greater self-reported peer aggression is related to more symptoms of anxiety (Zimmer-Gembeck & Pronk, 2012) and depression (Zimmer-Gembeck & Pronk, 2012). The results of the present study also suggest that engagement in behaviors of peer aggression can progressively decrease levels of life satisfaction and empathy. In relation with empathy, according to a study of Joliffe and Farrington (2006) being a frequent aggressor (*versus* an occasional aggressor) is significantly related to low affective empathy both in males and in females.

Another interesting result is that concerning self-esteem. In general, aggressive adolescents seem to have a worse self-perception (Inglés, Martínez-González, García-Fernández, Torregrosa, & Ruiz-Esteban, 2012). However, the relation between self-esteem and aggression and violence is still controversial. The results of the present study indicate that aggression is associated

with low self-esteem although this relationship obtained one of the lowest values in both genders. In other studies, it was found that aggressors have high levels of self-esteem (Olweus, 1993), comparable to those of students who are uninvolved in the dynamic of peer aggression (Jiménez et al., 2011). A possible explanation of these results is that the relation between self-esteem and violent behavior is not linear, and that extreme values in self-esteem (very low or very high) are related to this behavior (Ostrowsky, 2010). A similar result was observed in loneliness because, although it is significantly associated with aggression, it obtained low *OR* values. In other studies, it has been confirmed that adolescent aggressors report a lower feeling of loneliness than do victims (Jiménez et al., 2011), so it could be considered that aggression, at least at the short term, appears to offer some benefits in the perception of proximity and connection with a certain peer group.

Regarding school maladjustment, results indicated that the probability of informing about low positive attitude towards school and teachers and low perceived teacher support increase among aggressive adolescents. These results are coherent with previous studies (Vanderbilt & Augustyn, 2010) and with the idea that adolescents who are involved in aggressive behaviors at school do not trust the institution and they might engage in this kind of behavior as a way of self-protection when they feel insecure (Eccles & Roeser, 2011; Estévez, Jiménez, Moreno, & Musitu, 2013). On the other hand, the perception of the classroom climate in terms of reporting having friends in the classroom, is also affected by behaviors of peer aggression. Accordingly, Letamendia (2002) points out that the presence of power inequality in students' relations harms all those involved, aggressors and victims, because it undermines the horizontal interactions among peers whose experience during the school years constitutes a necessary developmental task to achieve adequate personal development.

Regarding family functioning, the results of the present study suggest that, in general and for both sexes, children's aggressive behavior worsens communication both with father and mother, as well as the feeling of affective union among the members of the family. At the same time, conflicts among all the family members seem to increase as a consequence of the adolescent's aggression. These results are consistent with those found in previous investigations where negative family climate, precisely characterized by high levels of family conflict (Lösel & Farrington, 2013), poor or negative communication with parents (Lambert & Cashwell, 2003), and the lack of a feeling of affective union among its members (Espelage, Low, Rao, Hong, & Little, 2013; Estévez et al., 2014) have been identified as risk factors for the development of violent behavior in adolescents (Estévez, Jiménez, & Cava, 2016). The results of this study provide additional information to the consideration of families with high levels of adversity as precursors (not just antecedents) of greater risk for violent behavior in adolescence (LeBlanc, Swisher, Vitaro, & Tremblay, 2008), indicating that such behavior, in turn, is a potential aggravator of the negative family situation.

In comparisons based on gender, both similarities and differences between boys and girls were observed. On the one hand, the family variables acquire remarkable importance in both sexes. The results suggest a marked impairment of the relations

in families with children with aggressive behavioral problems. In fact, the increase in family conflict is the most remarkable aspect in the girls, with the highest *OR* scores, and the second highest in the case of the boys. Offensive communication with both parents and low family cohesion are also among the six variables with the highest *OR* values. Similarly, the degree of empathy seems to decrease substantially both in sons and in daughters (first variable for boys and third for girls).

However, the results show, for example, that boys' aggressive behavior is more closely related to emotional distress (symptomatology and perceived stress) than that of girls. Girls, however, worsen more their attitude towards school and teachers, in comparison with boys. This result may be explained through the hypothesis of gender paradox (Keenan, Loeber, & Green, 1999), according to which, adolescents who develop intense forms of disorders that are atypical of their gender (e.g., aggression in girls) present more deviant behavior than adolescents who develop disorders that are typical of their gender (e.g., aggression in boys). Applying this hypothesis to the present results, we suggest that girls with higher levels of peer aggression develop much more negative attitudes towards the institutional authority and the teachers than boys who have similar levels of peer aggression. Gender differences in the importance of some variables related to aggression (as for example, attitude towards authority) have barely been analyzed in the scientific literature, and more research is required to be able to provide more consistent explanations of these differences.

In summary, results of the present study support the idea that the victims' urgent need for treatment (to repair the harm) should not undermine the importance of dealing with the aggressors, since their behavior has a poor prognosis, and increases the probability of other emotional, psychological, family, and school adjustment problems (Vanderbilt & Augustyn, 2010).

The present study also has some limitations. Firstly, the results obtained cannot be generalized to students from other educational levels where problems of school aggression have also been observed. Secondly, in this investigation only self-report measures were used, which can introduce bias derived from social desirability. Accordingly, future research could use other assessment procedures such as peer rating scales of aggression, which would allow contrasting the information. Thirdly, the reliability of some dimensions of the instruments used (e.g. CES) are improvable. Lastly, the cross-sectional nature of the present study prevents us from establishing causal inferences in the relations between peer aggression and the indicators of adjustment analyzed. Longitudinal designs are recommended to confirm the direction of the relations.

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