

A Cross-Cultural Study in Spain and Mexico on School Aggression in Adolescence: Examining the Role of Individual, Family, and School Variables

Cross-Cultural Research

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Abstract

The purpose of the present study was to examine the relationships between family and classroom environments and the development of particular individual characteristics, including level of empathy, attitude to institutional authority, and perceived social reputation, and the role these characteristics may in turn play in aggressive behavior. These factors and associations were analyzed by gender and in two different Latin contexts, Spain and Mexico, from a cross-cultural perspective. Participants in the study were 1,319 Spanish adolescents and 1,494 Mexican adolescents drawn from secondary schools. Structural equation models were calculated to test mediational effects among variables. Results obtained indicated, in general terms, that the level of empathy, the social reputation, and the attitude to authority partly mediated the relationship between the environment perceived by

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boys and girls at home and school, and their aggressive behavior, in both samples. Other similarities and differences between genders and samples were also found and are discussed.

Keywords

cross-cultural, aggressive behavior, adolescence, family, school

Research analyzing problems of aggressive behavior among children and adolescents at school is reflecting the growing seriousness of these problems in some European and American countries (Blaya, Debarbieux, Del Rey, & Ortega, 2006; Castillo & Pacheco, 2008; Olweus, 2001; Skiba, 2000; Smith, 2003). These behaviors involve aggression against school property and that of other classmates, as well as aggression against teachers and peers themselves (Astor, Pitner, Benbenishty, & Meyer, 2002; Herrero, Estévez, & Musitu, 2006). Nevertheless, the prevalence of these behaviors is not the same in all countries. The latest study by the Organisation for Economic Co-Operation and Development (OECD; 2014) with data from 34 countries showed that Mexico is in first place in physical injuries caused by violence among students (in 10.8% of schools these aggressions occur weekly) and it is fourth in intimidation or verbal abuse (in 29.5% of schools these aggressions occur weekly). In the case of Spain, the frequency of both types of aggression is below average, with only 0.1% for physical aggressions and 13.9% for verbal aggression (OECD, 2014). Previous studies have also indicated higher levels of bullying in Mexico and important differences between Spain and Mexico in its prevalence (Castillo & Pacheco, 2008; Prieto, Carrillo, & Jiménez, 2005; Valadez, 2008).

The association between aggressive behavior in adolescence and individual and social factors, such as the quality of relationships in the family and school contexts, has been previously documented across countries (Ali, Khaleque, & Rohner, 2015). In the school context, an important factor related to school aggression is the classroom environment (Cava, Musitu, Buelga, & Murgui, 2010; Steffgen, Recchia, & Viechtbauer, 2013; Villarreal-González, Sánchez-Sosa, Veiga, & Del Moral, 2011). Perceiving peers in the classroom as friends or colleagues and having positive interactions with teachers have been singled out as an important factor for adolescent psychosocial adjustment (Eliot, Cornell, Gregory, & Fan, 2010; Fox & Boulton, 2006; MacNeil, Prater, & Busch, 2009). Each school has a particular social environment in function of the quality of the relationships between teachers and students. Nevertheless, some general differences between countries have also been found (OECD, 2014). Important differences in the school environment

between Mexico and Spain have been observed, with more positive relationships between teachers and students in Spain (Castillo & Pacheco, 2008; Prieto et al., 2005). Castillo and Pacheco (2008) have pointed out that in Mexican schools, some violent behaviors, such as offensive or insulting nicknames among students, are perceived as normal and are tolerated by teachers. In this context, students may feel unsafe and not sufficiently protected by adults who should provide them with a safe environment; these perceptions may lead students to develop more negative attitudes toward teachers as authority figures and to seek a social reputation among peers through aggressive behavior. The relationships between these perceptions, the negative attitudes toward authority, and adolescent aggressive behavior have been indicated by Emler and Reicher (1995, 2005).

Certainly, previous research has linked the aggressive behavior of adolescents at school with their desire for a young rebel social reputation (Buelga, Ravenna, Musitu, & Lila, 2006; Carroll, Hattie, Durkin, & Houghton, 1999; Emler & Reicher, 2005; Kerpelman & Smith-Adcock, 2005), and their search for social recognition among peers (Rodríguez, 2004). Sometimes, adolescents challenge authority and social norms to form a rebel identity, as a consequence of their perceived lack of protection by adult figures (Emler & Reicher, 1995; Estévez, Herrero, Martínez, & Musitu, 2006; Estévez, Moreno, Jiménez, & Musitu, 2013). A negative relationship with teachers could develop negative attitudes toward authority figures in adolescents. The particular experience of each adolescent is relevant, but the cultural context also has a significant influence. So, the relationships with teachers as authority figures and their perceptions of social norms and other authority figures, such as police, are necessarily influenced by the social and cultural context in which adolescents are living. Along this line, some important differences in the school climate between Spain and Mexico have been found (OECD, 2014). The different teacher–student relationships between Spain and Mexico, and some different levels of violence in each society (Gómez, 2005), might influence adolescent attitudes toward authority and their search for a particular social reputation differently. Therefore, analyzing how the school environment influences aggressive behavior in adolescents from different cultural contexts, such as Spain and Mexico, and how this influence could be mediated by the attitudes toward authority and social reputation of adolescents, could be interesting.

Family context also has a significant influence on school aggression by adolescents. On one hand, prior studies have shown that a negative family environment, characterized by high levels of family conflict (Crawford-Brown, 1999; Cummings, Goeke-Morey, & Papp, 2003), poor or negative communication with parents (Dekovic, Wissink, & Meijer, 2004; Stevens, De Bourdeaudhuij, &

Van Oost, 2002), and a lack of parental support (Barrera & Li, 1996; Sheeber, Hops, Alpert, Davis, & Andrews, 1997) have a substantial and negative effect on the development of particular social skills in children, such as the capacity to identify non-aggressive solutions to interpersonal problems (Demaray & Malecki, 2002; Lambert & Cashwell, 2003), or to put oneself in another's place (Eisenberg-Berg & Mussen, 1978; Henry, Sager, & Plunkett, 1996). On the other hand, previous studies have demonstrated that aggressive adolescents are unable to anticipate the negative consequences of their behaviors upon the victim, showing lower levels of empathy (Dykeman, Daehlin, Doyle, & Flamer, 1996; Evans, Heriot, & Friedman, 2002; Jolliffe & Farrington, 2006; Olweus, 2005). Therefore, the family environment influences individual variables of adolescents, such as empathy, which are related to aggressive behavior. However, the influence of the family environment on adolescent empathy and other individual variables might be different in function of the cultural context.

Spain and Mexico share the same language and many elements of their culture are similar. However, there are also important differences between these countries. Although Spain and Mexico have been seen as fairly close on the axis of collectivism-individualism (Oyserman, Coon, & Kemmelmeier, 2002), Carballeira, González, and Marrero (2015) considered that there are important differences between both countries. In Mexico, social groups are more cohesive and cultural values are closer to collectivism, whereas in Spain, with greater economic development, social ties are less intense and there is a greater influence of individualistic values (Carballeira et al., 2015). These cultural differences may imply differences in the relationships between parents and adolescents. Dwairy and Achoui (2010) have noted that in collectivist cultures, interdependence among family members is greater than in those that are individualistic. The differences in family practices associated with better psychosocial adjustment of adolescents between Spain and Latin American countries may reflect these cultural differences (Lila, Musitu, & Buelga, 2000). Whereas in Spain, indulgent and authoritative family socialization styles are related to a better psychosocial adjustment in adolescents, in Latin American countries an indulgent style is not suitable (García & Gracia, 2009, 2010; Lila et al., 2000). Certainly, the influence of the sociocultural context on the meaning that adolescents give to different parenting practices has also been noted in other studies (Nunes, Bodden, Lemos, Lorence, & Jiménez, 2014), so it would be necessary to pay greater attention to these cultural differences in studies on the influence of the family environment on the aggressive behavior of adolescents.

This study arises to pay greater attention to the cultural context in research on adolescent aggressive behavior. More specifically, the purpose of this study was to examine the relationships between family and classroom environments and the development of particular individual characteristics, including empathy,

perceived social reputation, and attitude toward institutional authority, and the mediational role that these characteristics may play in turn in aggressive behavior of adolescents at school in two different cultural contexts, those of Spain and Mexico.

Moreover, as the review of past research suggests that these variables may contribute differentially to aggressive behavior according to gender (Baxendale, Cross, & Johnston, 2012; Henry, Farrell, Schoeny, Tolan, & Dymnicki, 2011), two different mediational models were executed, respectively, for boys and girls. In relation to these gender differences, most research has shown greater involvement by boys in the different forms of school violence (Card, Stucky, Sawalani, & Little, 2008), as well as more negative attitudes toward authority figures and social norms (Cava, Musitu, & Murgui, 2006; Emler & Reicher, 1987). In contrast, a stronger relation between negative social reputation and aggressive behavior (Carroll, Houghton, Hattie, & Durkin, 2001), and a more significant influence of low parental support in adolescent aggressions (Blum, Ireland, & Blum, 2003; Flood-Page, Campbell, Harrington, & Miller, 2000; Hong & Espelage, 2012) have been found in girls. Also, some differences between boys and girls in factors related to the classroom environment have been shown, with girls tending to have more intimate peer relations in the adolescent period (Moffit, Caspi, Rutter, & Silva, 2001) and more positive interactions with teachers (Bearman, Wheldall, & Kemp, 2006).

From a cross-cultural and a gender perspective, associations between variables were analyzed in two independent samples of Spanish and Mexican adolescents to examine if the hypothesized mediational model was plausible in the two countries and in both genders. The general hypotheses of the study were as follows:

Hypothesis 1: The relationship between the family environment and involvement in aggressive behaviors at school would be mediated, at least in part, by the adolescent level of empathy and social reputational goals.

Hypothesis 2: The relationship between the classroom environment and aggressive behavior at school would be mediated, at least in part, by social reputational goals and the attitude toward authority.

Method

Participants

Participants in the study belonged to two independent samples from Spain and Mexico. The Spanish sample was composed of 1,319 adolescents attending secondary education in seven schools in Valencia, a metropolitan area

with a population of one million. Ages ranged from 11 to 16 ($M = 13.7$; $SD = 1.6$); 47% were boys and 53% were girls. The Mexican sample was composed of 1,494 adolescents from six schools in Culiacán, a metropolitan area similar to Valencia, also with a population close to one million. Ages in this sample ranged from 12 to 18 ($M = 14.8$; $SD = 1.7$); 45% were boys and 55% were girls.

The selection of regions of both countries in the study responded to a convenience sampling, a strategy widely used in cross-cultural studies of psychological differences (Vergara & Balluerka, 2000). The selection of subjects in each sample responded to a stratified cluster sampling (Santos, Muñoz, Juez, & Cortinas, 2003). The sampling units were schools, public and subsidized from a list of schools in the metropolitan areas of Valencia and Culiacán. The strata were established according to the variable course or educational level. Both samples are representative of the adolescent populations in the Valencian Community in Spain and the Sinaloa State in Mexico, respectively, based on distribution of gender and age.

Procedure

Data for this research were collected as part of a larger study of adjustment problems in Mexican and Spanish adolescents. A letter with a summary of the research project was sent to the selected schools as a first step. Subsequently, initial telephone contact with head teachers was established, followed by a briefing with all teaching staff in each school, who were informed of the objectives and methodology of the study during a 2-hr presentation. In parallel, a letter describing the study was sent to the parents requesting that they indicate in writing if they did not wish their child to participate in the study (1% of parents exercised this option). Passive consent was assumed by the rest of parents. In this letter, parents were informed about the purpose of the research, the expected duration, the procedures, their children's right to decline to participate, the confidentiality of the data, and the telephone number of the researchers to contact for questions about the research (American Psychological Association [APA], 2010). Also, following APA (2010) standards, participants were informed of the objectives of the study, students provided written consent, and they participated voluntarily and anonymously.

Both teachers and parents expressed a wish to be informed about the main results of the investigation in a meeting with the research team; this took place once data analyses were completed. The administration of the instruments was carried out by a group of trained and expert researchers in each country. Before data collection, students also attended a short briefing in which they provided the written consent (none of the adolescents refused to

participate). On the agreed dates with the teaching staff, participants filled out the scales in their respective schools during a regular class period. The order of administration of the instruments was counterbalanced in each classroom and school. Those surveys that were suspicious in terms of the response patterns were not coded in the database (these surveys represented 1% of the total original samples).

Instruments

Most of the instruments were adapted into Spanish by the research team in Spain through the Spanish-English bidirectional translation. Following the methodological recommendations for cross-cultural studies by Vergara and Balluerka (2000), and to ensure the equivalence of the instruments used in the Spanish language in Mexico, research collaborators in Mexico made a direct cultural adaptation of the instruments to the linguistic and semantic variations of this country. Next, reliability and confirmatory factorial analyses of the scales were carried out in both samples. These analyses reported close reliability indexes and confirmed the same factorial structure of the instruments in both samples. In particular, the instruments used in the present study were the following:

Relationship dimension of the Family Environment Scale (FES). This scale consists of 27 binary-choice (true–false) items, forming three subscales: (a) Cohesion (nine items referring to degree of commitment and support family members provide for one another, for example, “Family members really help and support one another”), (b) Expressiveness (nine items regarding the extent to which family members are encouraged to express their feelings directly, for example, “Family members often keep their feelings to themselves” reverse coded), and (c) Conflict (nine items referring to the amount of openly expressed anger and conflict among family members, for example, “We fight a lot in our family”; Moos, Moos, & Trickett, 1989). Alpha reliabilities for these subscales in the Spanish sample were .85, .80, and .86, respectively. Alpha reliabilities in the Mexican sample were .82, .78, and .84, respectively.

Relationship dimension of the Classroom Environment Scale (CES). This scale consists of 30 binary-choice (true–false) items, forming three subscales: (a) Involvement (10 items referring to degree of student attentiveness, interest, and participation in class activities, for example, “Students put a lot of energy into what they do here”), (b) Affiliation (10 items regarding the concern and friendship students feel for one another, for example, “Students in this class

get to know each other really well”), and (c) Teacher Support (10 items referring to the amount of help, trust, and friendship the teacher offers to students, for example, “The teacher takes a personal interest in the students”; Moos et al., 1989). Alpha reliability coefficients for these subscales in the Spanish sample were .84, .79, and .89, respectively. Alpha reliability coefficients in the Mexican sample were .82, .77, and .87, respectively.

Index of Empathy for Children and Adolescents (IECA). The IECA is a 22-item measure, its items describing situations in which empathic feelings may occur (e.g., “Seeing a boy who is crying makes me feel like crying”; “I get upset when I see a girl being hurt”). Level of agreement with the statement is indicated on a 4-point rating scale (1 = *never*, 4 = *always*; Bryant, 1982; translated into Spanish by Mestre, Pérez Delgado, Frías, & Samper, 1999). Cronbach’s alpha for this scale in the Spanish sample was .81, and in the Mexican sample .67.

Attitude to Institutional Authority Scale. This scale consisted of 10 items, each rated on 4-point scales (1 = *I totally disagree*, 4 = *I totally agree*) and referring to attitudes toward teachers and school (Reicher & Emler, 1985; translated into Spanish by Cava, Estévez, Buelga, & Musitu, 2013). The scale measures two factors: The first factor is defined by six items reflecting a positive attitude to school and teachers (e.g., “I agree with what my teachers say and do”; “It is usual to disobey teachers if there is no punishment,” inverse coded) while the second factor is defined by four items referring to perception of injustice (e.g., “Teachers only take care of students with good marks”). Cronbach’s alphas for these subscales in the Spanish sample were .77 and .73, respectively. Cronbach’s alphas for these subscales in the Mexican sample were .67 and .70, respectively.

Social Reputation at School Scale. This seven-item scale assesses the social reputation of school-age children as non-conformist and rule-breaking individuals (e.g., “I’m a bully,” “I’m a leader,” “I’m a tough guy”), with responses being given on a 4-point scale (1 = *never*, 4 = *always*; Carroll et al., 1999). Students had to indicate for the 15 items (a) their perceived reputation (“My classmates believe that . . .”) and (b) their ideal reputation (“I would like my classmates to believe that . . .”). Alpha coefficients for measures of perceived and ideal reputation in the Spanish sample were .85 and .79, respectively, and in the Mexican sample were .64 and .59, respectively.

School Aggression Scale. On this scale, adolescents indicated the frequency with which they had engaged in 25 deviant and aggressive behaviors at

school over the last 12 months, on a 5-point scale (0 = *I don't want to share this information*, 1 = *never*, 4 = *many times*; Little, Henrich, Jones, & Hawley, 2003). Approximately 7% of respondents chose the "0" response for some items; these were removed from the analysis. This instrument measures two dimensions: The first factor is defined by 13 items referring to overt aggression (pure, reactive, and instrumental, for example, "I'm the type of person who hits, kicks, or punches others") and the second factor is defined by 12 items referring to relational aggression (pure, reactive, and instrumental, for example, "If other have hurt me, I often try to keep them from being in my group of friends"). Cronbach's alphas for these subscales were .88 and .81, respectively, in the Spanish sample, and .89 and .82 in the Mexican sample.

Analytic Strategy

Missing data were addressed by the regression imputation method. Then, univariate (means and standard deviation) and bivariate statistics (correlations) were computed using SPSS (Version 20). Next, multivariate inferential analyses were conducted using structural equation modeling (SEM) to examine relationships between variables. Data were analyzed using the Structural Equation Program EQS 6.1 (Bentler, 1995) with the Robust Maximum Likelihood estimator, which does not require normal distribution of observed variables.

The main purpose of the statistical analyses was to evaluate the mediating role of empathy, social reputation, and attitude toward institutional authority in the relation between family and classroom environments, and aggressive behavior at school. In the mediating process, the mediating variable is considered one of the factors that explains why the predictor (A) and the outcome (C) are related (Baron & Kenny, 1986). We carried out these analyses for the Spanish and Mexican samples, and for boys and girls separately, following recent recommendations (MacKinnon, 2008; Pardo & Román, 2013) for testing mediational effects.

Assuming that there is a latent predictor variable A (Positive Family and Classroom Environments), a hypothesized latent mediator variable B (Empathy, Positive Attitude Toward Authority, and Social Reputation), and a latent outcome variable C (School Aggression), a mediational model was constructed for each sample. If there is a mediational effect, the fit of the overall model has to be good and the $A \rightarrow C$ path should not be significant. Fulfillment of this condition proves complete mediation (Wu, 2009). To test partial mediations, the significance of the indirect effects was tested, which is mathematically equivalent to testing whether the drop in the total effect is

significant upon inclusion of the mediator in the model (MacKinnon & Dwyer, 1993). To perform the test of the indirect effect, its confidence intervals were calculated using the bootstrap method with 2,000 samples.

In this study, the following goodness-of-fit indices were reported: chi-square test of model fit (χ^2), root mean square error of approximation (RMSEA), comparative fit index (CFI), Bollen's incremental fit index (IFI), and Bentler-Bonett non-normed fit index (NNFI). For the χ^2 , a non-significant value indicates that the model is well adjusted to the data. However, as this fit index is very sensitive to the sample size, other fit indexes must be jointly considered. For the CFI, IFI, and NNFI, values above .90 or higher are acceptable, while for the RMSEA, values of .06 or less indicate a good fit (Batista & Coenders, 2000).

Finally, we checked the robustness of the mediational model further by testing structural invariance across countries for boys and girls separately, and across genders within the same country. To do this, multigroup analyses were calculated (Bentler & Wu, 2002).

Results

Descriptive Preliminary Statistics

We first computed zero-order correlations to examine relationships among the study variables. Table 1 reports Pearson's correlations among the observed variables, means, standard deviations, and ANOVA results by gender in the Spanish sample, and Table 2 reports on the Mexican sample. The ANOVA results indicated statistically significant differences between Spanish boys and girls in family expressiveness and empathy, with girls obtaining higher scores, and in perception of injustice at school, non-conformist reputation, and aggressive behavior, with boys scoring higher. In the Mexican sample, girls informed of more family cohesion and expressiveness, more teacher support, empathy, and positive attitude toward authority in comparison with boys, while boys scored higher in perception of injustice and school aggression.

Preliminary ANOVAs by country were also calculated for each study variable prior to the design of the structural model. In general, Mexican adolescents perceived a more negative classroom environment than Spanish adolescents ($F_{\text{Involvement}} = 18.095, p < .001$; $F_{\text{Affiliation}} = 25.292, p < .001$; $F_{\text{Teacher support}} = 8.297, p < .05$), as well as more negative attitudes toward authority ($F = 7.172, p < .05$). Mexican adolescents also scored significantly higher in non-conformist social reputation ($F_{\text{Perceived}} = 121.789, p < .001$; $F_{\text{Ideal}} = 490.909, p < .001$). Spanish adolescents informed of a higher level of

Table 1. Pearson Correlations Among Observed Variables, Means, Standard Deviations, and ANOVA Results by Gender in the Spanish Sample.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Family Environment–Cohesion	—	.51***	–.58***	.08	.31***	.31***	.18***	.28***	–.21***	–.21***	–.17***	–.19***	–.23***	–.16***	–.16***	–.16***	–.12**
2. Family Environment–Expressiveness	.40***	—	–.27***	.04	.22***	.18***	.13**	.14**	–.14**	–.14**	–.13**	–.13**	–.15***	–.09*	–.13**	–.03	–.06
3. Family Environment–Conflict	–.55***	–.21***	—	–.01	–.18***	–.19***	–.09	–.17***	.13**	.24***	.17***	.22***	.25***	.15***	–.11**	–.13**	–.11**
4. Classroom Environment–Involvement	.11**	.05	–.09*	—	.37***	.19***	.03	.08	–.22***	–.07	–.03	–.09*	–.12**	–.12**	–.16***	–.12**	–.08*
5. Classroom Environment–Affiliation	.34***	.21***	–.26***	.33***	—	.19***	.09*	.04	–.09*	.03	.05	–.07	–.07	–.03	–.08*	–.05	–.09*
6. Classroom Environment–Teacher Support	.27***	.11**	–.19***	.30***	.27***	—	.13**	.25***	–.36***	–.10*	–.05	–.18***	–.17***	–.14**	–.20***	–.15***	–.11**
7. Empathy	.18***	.16***	–.15***	.11**	.07	.13**	—	.17***	–.25***	–.10*	–.06	–.14***	–.15***	–.17***	–.16***	–.09*	–.16***
8. Attitude to Authority–Positive	.24***	.13**	–.19***	.21***	.12**	.25***	.34***	—	–.41***	–.40***	–.32***	–.32***	–.34***	–.26***	–.19***	–.18***	–.17***
9. Attitude to Authority–Perception Injustice	–.23***	–.15***	.15***	–.31***	.15***	–.39***	–.27***	–.37***	—	.36***	.32***	.30***	.332	.32***	–.22***	–.25***	–.20***

(continued)

Table 1. (continued)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
10. Perceived Social Reputation	-.24***	-.14***	.21***	-.19***	-.16***	-.19***	-.19***	-.45***	.39***	—	.70***	.32***	.32***	.29***	-.11**	.21***	.20***
11. Ideal Social Reputation	-.16***	-.03	.13**	-.13**	-.14**	-.15***	-.16***	-.35***	.26***	.66***	—	.31***	.33***	.33***	-.19***	-.25***	-.26***
12. Overt Pure	-.16***	-.09*	.22***	-.14***	-.11**	-.17***	-.24***	-.24***	.34***	.38***	.27***	—	.66***	.73***	.57***	.46***	.53***
13. Overt Reactive	-.17***	-.10**	.19***	-.21***	-.14**	-.17***	-.22***	-.28***	.37***	.39***	.28***	.59***	—	.65***	.44***	.50***	.48***
14. Overt Instrumental	-.21***	-.08*	.24***	-.17***	-.14**	-.20***	-.26***	-.24***	.40***	.36***	.30***	.71***	.57***	—	.58***	.47***	.66***
15. Relational Pure	-.15***	-.10**	-.13**	-.06	-.06	-.13**	-.15***	-.07	-.16**	-.08	-.12**	.41***	.28***	.53***	—	.60***	.64***
16. Relational Reactive	-.11**	-.08*	-.09*	-.14**	-.14**	-.16***	-.12**	-.11*	-.18***	-.05	-.12**	.32***	.35***	.36***	.51***	—	.57***
17. Relational Instrumental	-.19***	-.13**	-.15***	-.04	-.12**	-.15***	-.19***	-.14**	-.23***	-.15**	-.12**	.50***	.37***	.64***	.68***	.55***	—
<i>M</i>	1.74	1.57 ^b	1.65	1.41	1.61	1.52	2.72 ^b	2.56	1.92 ^a	2.25 ^a	2.25 ^a	1.64 ^a	2.00 ^a	1.42 ^a	1.50 ^a	1.96 ^a	1.46 ^a
	1.74	1.61 ^a	1.66	1.40	1.61	1.54	3.05 ^c	2.61	1.69 ^b	2.11 ^b	2.17 ^b	1.46 ^b	1.57 ^b	1.24 ^b	1.42 ^b	1.91 ^b	1.34 ^b
<i>SD</i>	0.259	0.200	0.216	0.212	0.202	0.268	0.401	0.635	0.744	0.370	0.325	0.483	0.676	0.512	0.452	0.526	0.490
	0.273	0.211	0.220	0.211	0.213	0.261	0.372	0.613	0.696	0.309	0.264	0.406	0.535	0.357	0.377	0.563	0.417

Note. Correlation values obtained for boys are shown below the diagonal and for girls above. Mean and standard deviation values for boys are shown above and for girls below and in italics.

Means with superscripts indicate statistically significant differences in the ANOVA results, $a > b$.

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

Table 2. Pearson Correlations Among Observed Variables, Means, Standard Deviations, and ANOVA Results by Gender in the Mexican Sample.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Family Environment–Cohesion	—	.51***	-.53***	.19***	.18***	.18***	.06	.28***	-.23***	.03	-.09**	-.22***	-.19***	-.20***	-.23***	-.17***	-.19***
2. Family Environment–Expressiveness	.40***	—	-.22***	.14*	.18***	.12**	.15**	.11**	-.14**	.06	.01	-.26**	-.27***	-.22*	.12**	-.10**	-.07*
3. Family Environment–Conflict	-.49***	-.21***	—	-.11***	-.14***	-.09*	-.08*	-.20***	.17***	-.06	-.16**	.25***	.27***	.22***	.20***	.13**	.18***
4. Classroom Environment–Involvement	.14**	.11**	-.11**	—	.43***	.41***	.10**	.25***	-.15**	-.09*	-.02	-.12**	-.17**	-.09*	-.09*	-.10**	-.07
5. Classroom Environment–Affiliation	.20***	.12**	-.15**	.48***	—	.36***	.13**	.15**	-.11*	-.08*	.04	-.17**	-.16**	-.13**	-.16**	-.16**	-.12**
6. Classroom Environment–Teacher Support	.20***	.16**	-.17***	.47***	.39***	—	.14**	.36***	-.20***	-.02	-.04	-.11**	-.18***	-.12**	-.11**	-.10**	-.08*
7. Empathy	.13**	.09*	-.15***	.09*	.15**	.19***	—	.14**	-.17**	-.15**	-.09**	-.19**	-.20***	-.30***	-.26***	-.13**	-.26***
8. Attitude to Authority–Positive Attitude	.25***	.17**	-.30***	.20***	.20***	.27***	.24***	—	-.14**	.01	.007	-.15**	-.19***	-.18**	-.13**	-.12**	-.10**

(continued)

Table 2. (continued)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
9. Attitude to Authority-Perception Injustice	-.19***	-.15***	.19***	-.13**	-.13**	-.17***	-.25***	-.17**	—	.12**	.14**	.36***	.38***	.37***	.27***	.22***	.30***
10. Perceived Social Reputation	.07	.15**	-.009	-.004	-.06	-.03	.03	.02	.19***	—	.59***	.18**	.15**	.14**	-.03	-.12**	-.07
11. Ideal Social Reputation	.05	.08*	.03	-.13**	-.01	-.01	.01	.02	.11***	.53***	—	.18**	.20***	.15**	-.04	-.13**	-.10**
12. Overt Pure Reputation	-.20***	-.12**	.20***	-.18***	-.14**	-.18***	-.22***	-.19***	.37***	.20***	.15**	—	.58***	.69***	.56***	.36***	.53***
13. Overt Reactive	-.10**	-.07	.10***	-.22***	-.12**	-.20***	-.26***	-.15**	.35***	.26***	.20***	.62***	—	.57***	.39***	.36***	.45***
14. Overt Instrumental	-.24***	-.14**	.22***	-.14***	-.16**	-.17***	-.29***	-.19***	.36***	.19***	.13**	.72***	.59***	—	.59***	.39***	.65***
15. Relational Pure	-.49***	-.12**	.15**	-.05	-.12**	-.06	-.20***	-.09*	.24***	-.16***	.12**	.48***	.40***	.62***	—	.50***	.68***
16. Relational Reactive	-.07	-.003	.07	-.13**	-.09*	-.08*	-.11**	-.04	.19***	-.20**	.16**	.34***	.41***	.40***	.46***	—	.49***
17. Relational Instrumental	-.19***	-.19***	.19***	-.06	-.10**	-.08*	-.25***	-.12**	.31***	-.13**	.12**	.57***	.44***	.70***	.68***	.47***	—
M	1.69 ^b	1.55 ^b	1.64	1.38	1.57	1.48 ^b	2.60 ^b	2.48 ^b	2.04 ^a	2.34	2.49	1.60 ^a	1.96 ^a	1.46 ^a	1.52 ^a	1.90	1.52 ^a
SD	1.73 ^b	1.58 ^a	1.65	1.36	1.58	1.51 ^a	2.84 ^a	2.66 ^a	1.77 ^b	2.33	2.49	1.40 ^b	1.57 ^b	1.25 ^b	1.39 ^b	1.89	1.36 ^b
	0.235	0.175	0.202	0.207	0.196	0.233	0.296	0.618	0.717	0.386	0.373	0.548	0.761	0.580	0.567	0.586	0.580
	0.249	0.203	0.206	0.204	0.193	0.238	0.347	0.568	0.682	0.326	0.304	0.456	0.592	0.427	0.452	0.543	0.474

Note. Correlation values obtained for boys are shown below the diagonal and for girls above. Mean and standard deviation values for boys are shown above and for girls below and in italics.

Means with superscripts indicate statistically significant differences in the ANOVA results, a > b.

*p < .05. **p < .01. ***p < .001.

empathy in comparison with the Mexican sample ($F = 47.079, p < .001$) and also obtained higher scores in two dimensions of the aggressive behavior scale ($F_{\text{Overt pure}} = 12.159, p < .001$; $F_{\text{Relational reactive}} = 4.116, p < .05$).

Structural Model for Mediation Analysis

Next, we constructed the latent factors from the observed variables. Table 3 reports factor loadings of the observed variables on their latent factor for both samples.

Then, we calculated the model of mediational effects shown in Figure 1. In the Spanish sample, this model accounted for 40% of the variance in School Aggression for boys and 35% for girls, and showed a good fit with the data: $\chi^2(43, N = 620) = 47.733$ ($p < .28$), CFI = .99, IFI = .99, NNFI = .99, and RMSEA = .02 for boys, and $\chi^2(43, N = 699) = 77.184$ ($p < .01$), CFI = .97, IFI = .97, NNFI = .96, and RMSEA = .04 for girls. The $A \rightarrow C$ path from Positive Family Environment was only significant for girls, and the $A \rightarrow C$ path from Positive Classroom Environment was only significant for boys. Thus, the $A \rightarrow C$ paths added significant information in the model, indicating that mediation was not complete for any gender.

In the Mexican sample, this model accounted for 33% of the variance in School Aggression for boys and 32% for girls, and showed an acceptable fit with the data: $\chi^2(100, N = 678) = 286.398$ ($p < .01$), CFI = .94, IFI = .95, NNFI = .94, and RMSEA = .05 for boys, and $\chi^2(100, N = 816) = 363.986$ ($p < .01$), CFI = .92, IFI = .92, NNFI = .91, and RMSEA = .06 for girls. No significant $A \rightarrow C$ paths were found in the case of boys, indicating a complete mediational effect for Mexican boys. The $A \rightarrow C$ path from Positive Family Environment was significant for girls; this path added significant information in the model, and complete mediation was not found, then, for girls.

The results of indirect test effects are shown in Table 4. For Spanish girls, we found evidence for two significant indirect effects between Positive Family Environment and School Aggression through the level of Empathy and Social Reputation. An indirect effect of Classroom Environment on School Aggression was also found: The perception of a Positive Classroom Environment was related to a more Positive Attitude Toward Authority, which in turn showed an association with lower levels of School Aggression. In short, the results suggested the existence of partial mediation with one direct and three significant indirect effects in the sample of Spanish girls.

With regard to Spanish boys, the results of indirect test effects indicated three significant negative indirect effects of family and classroom environments on School Aggression. On one hand, Positive Family Environment showed an association with Empathy, which was in turn related to lower

Table 3. Unstandardized Parameter Estimates, Standard Errors, and Significance Levels.

Variables	Spanish data		Mexican data	
	Factor loadings	SE	Factor loadings	SE
Positive Family Environment				
Conflict	-.815***	.075	-.661***	.055
Expressiveness	.603***	.070	.638***	.069
Cohesion	1 ^a	0	1 ^a	0
Positive Classroom Environment				
Affiliation	.758***	.101	1.06***	.094
Teacher Support	.490***	.047	1.58***	.139
Involvement	1 ^a	0	1 ^a	0
Empathy	1 ^a	0	1 ^a	0
Positive Attitude to Authority				
Perception of Injustice	-.843***	.072	-1.23***	.113
Positive Attitude to School and Teachers	1 ^a	0	1 ^a	0
Social Reputation				
Perceived	.694***	.049	.756***	.098
Ideal	1 ^a	0	1 ^a	0
School Aggression				
Overt Pure	1 ^a	0	1 ^a	0
Overt Reactive	.986***	0.43	1.19***	.048
Overt Instrumental	.892***	0.39	.991***	.035
Relational Pure	.754***	0.37	.706***	.039
Relational Reactive	.710***	0.41	.625***	.042
Relational Instrumental	.826***	0.40	.800***	.042

Note. Robust statistics.

^aFixed to 1.00 during estimation.

*** $p < .001$, two-tailed test.

levels of School Aggression. On the other hand, Positive Classroom Environment and School Aggression were indirectly associated through Social Reputation among classmates and Positive Attitude Toward Authority. In short, these results also suggested the existence of partial mediation, with one direct and three significant indirect effects in the sample of Spanish boys.

For Mexican girls, the results of indirect test effects indicated two significant negative indirect effects of family and classroom environments on School Aggression: Positive Family Environment was related to Empathy, which in turn showed an association with less School Aggression; and

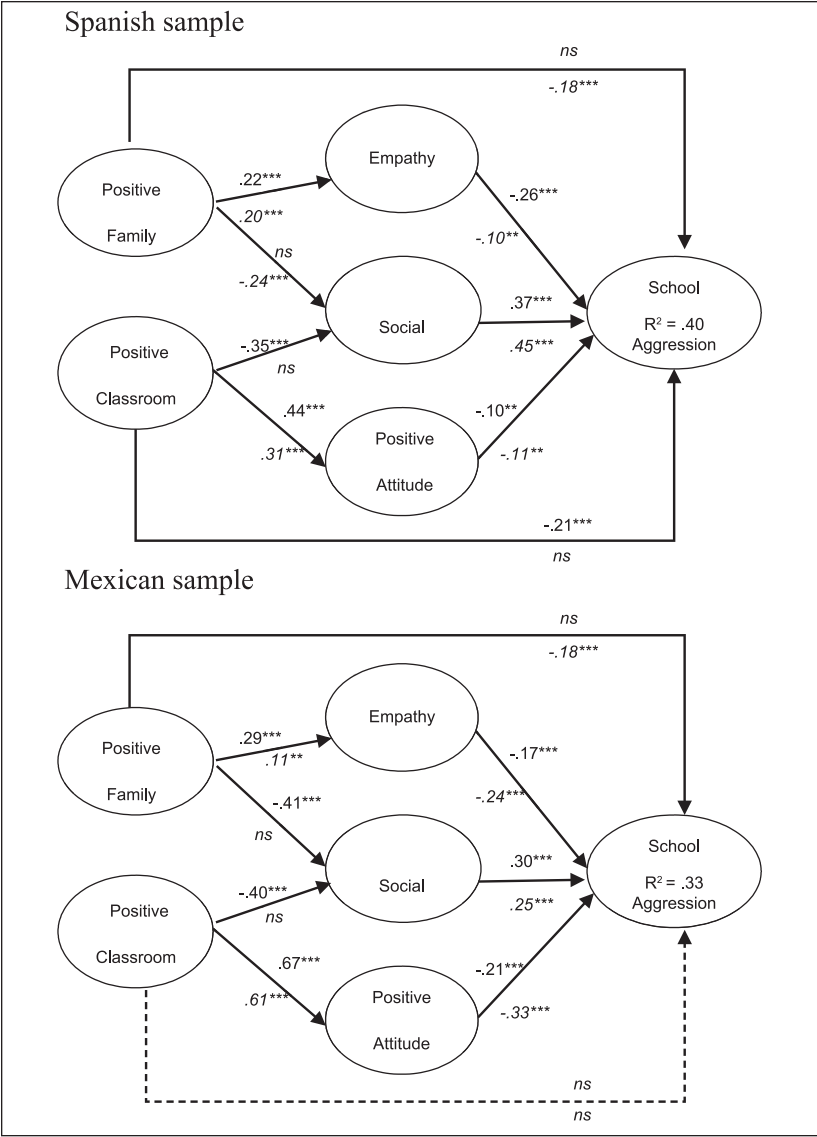


Figure 1. Model of mediating effects, A → C paths not constrained.
Note. Continuous lines represent significant paths among latent variables. Coefficients obtained for boys are shown above the line and for girls below the line and in italics. Robust standard errors were used to determine the significance of the standardized paths.
** $p < .01$. *** $p < .001$.

Table 4. Indirect Effect Test.

Indirect path	Sample	β	SE	<i>p</i>	95% CI	
					LL	UL
1. Positive Family Environment—Empathy—School Aggression	Spanish boys	-.06	.02	<.05	-0.11	-0.01
	Spanish girls	-.01	.01	<.05	-0.06	-0.01
	Mexican boys	-.10	.04	<.01	-0.17	-0.04
	Mexican girls	-.05	.02	<.05	-0.08	-0.01
2. Positive Family Environment—Social Reputation—School Aggression	Spanish boys	.04	.02	<i>ns</i>	-0.01	0.09
	Spanish girls	-.14	.03	<.001	-0.20	-0.07
	Mexican boys	-.08	.03	<.05	0.01	0.15
	Mexican girls	-.01	.01	<i>ns</i>	-0.04	0.02
3. Positive Classroom Environment—Social Reputation—School Aggression	Spanish boys	-.20	.06	<.01	-0.33	-0.08
	Spanish girls	-.02	.06	<i>ns</i>	-0.14	0.09
	Mexican boys	-.68	.28	<.05	-1.57	-0.04
	Mexican girls	.03	.02	<i>ns</i>	-0.02	0.08
4. Positive Classroom Environment—Positive Attitude to Authority—School Aggression	Spanish boys	-.06	.02	<.05	-0.11	-0.01
	Spanish girls	-.08	.03	<.001	-0.14	-0.02
	Mexican boys	-.77	.14	<.001	-1.04	-0.49
	Mexican girls	-.75	.20	<.001	-1.14	-0.37

Note. β = standardized beta weight; CI = confidence interval; LL = lower limit; UL = upper limit.

Positive Classroom Environment was related to a more Positive Attitude Toward Authority, which in turn showed an association with less School Aggression. The results again showed a partial mediation with one direct and two significant indirect effects in the sample of Mexican girls.

Finally, with respect to Mexican boys, the results of indirect test effects indicated significant indirect effects in all paths: from Positive Family Environment to School Aggression through Empathy and Social Reputation, and from Positive Classroom Environment to School Aggression through Social Reputation and Positive Attitude Toward Authority. In short, the results indicated a complete mediational effect of the intermediate variables with four significant indirect effects in the sample of Mexican boys.

In short, the main similarities and differences found between the Spanish and Mexican data were the following: In general terms, the level of Empathy, Social Reputation, and Attitude Toward Authority seemed to mediate the relationship between the environment perceived by boys and girls at home and school, and their aggressive behavior toward peers at school in both samples. These mediational effects were, however, partial, as noted: For girls in

both samples, the direct relationship between the quality of the family environment and school aggression remained significant despite the mediators; for Spanish boys, the direct link between the perceived classroom environment and school aggression remained significant despite the mediators; for Mexican boys, however, there was evidence for a model in which empathy, social reputation, and attitude toward institutional authority completely mediated the relationship between the perception of family and school environments and school aggression.

Multigroup Analyses by Country and Gender

Finally, we checked the robustness of the final model further by testing structural invariance across countries for boys and girls separately, and across genders within the same country. Two models were tested for each multigroup comparison: In the unrestricted model, parameter estimates (factor loadings and structural paths) were freely estimated across groups; in the restricted model, we constrained each of the factor loadings as well as the structural paths to be invariant across groups. If the χ^2 of the restricted model was significantly larger than the χ^2 of the unrestricted model, the assumption of invariance would not be tenable.

In the first multigroup comparison, the results indicated a non-significant difference between these models for boys in the Spanish and Mexican samples, $\Delta\chi^2(20, N = 1,292) = 28.5933$, *ns*; and for girls in the Spanish and Mexican samples, $\Delta\chi^2(20, N = 1,521) = 22.1768$, *ns*. These results supported invariance of the model across countries for both genders. In the second multigroup comparison, a significant effect of gender was found in both the Mexican, $\Delta\chi^2(20, N = 1,490) = 51.1139$, $p < .001$, and Spanish samples, $\Delta\chi^2(17, N = 1,276) = 268.36$, $p < .001$. Closer inspection of cross-group constraints revealed that three constraints in the Mexican sample and five constraints in the Spanish sample would significantly decrease χ^2 if released. In the Mexican sample, the association between the family environment and social reputation, and between the classroom environment and social reputation, were both statistically significant for boys ($\beta = .125$, $p < .05$; $\beta = -.341$, $p < .001$) but not for girls ($\beta = -.016$, *ns*; $\beta = -.004$, *ns*) and the association between the classroom environment and attitude toward authority was significantly stronger for boys than for girls ($\beta = .764$, $p < .001$; $\beta = .603$, $p < .001$). In the Spanish sample, the relationship between the family environment and social reputation was significant for girls ($\beta = -.425$, $p < .001$) but not for boys ($\beta = -.070$, *ns*), the relationship between the school environment and social reputation was significant for boys ($\beta = -.113$, $p < .001$) but not for girls ($\beta = -.022$, *ns*), the relationship between the family environment and

school aggression was significant for girls ($\beta = -.209, p < .001$) but not for boys ($\beta = -.052, ns$), the relationship between the school environment and school aggression was significant for boys ($\beta = -.358, p < .001$) but not for girls ($\beta = -.068, ns$), and the relationship between empathy and school aggression was significantly stronger for boys than for girls ($\beta = -.206, p < .001$; $\beta = -.080, p < .01$).

These differences are coherent with the gender differences observed in the previously presented structural models. On one hand, the results indicate the equivalence of the theoretical model by country, despite a few differences found in particular paths of the mediational analyses, and on the other hand, they indicate the non-equivalence of the model by gender.

Discussion

In the present study, our aim was to analyze the relationship between perceived family and classroom environments, the development of particular individual characteristics in adolescence, namely, the level of empathy, perceived social reputation, and the attitude toward institutional authority and to examine the relationships among these characteristics and student involvement in school aggression. These relationships were examined separately by gender and in two independent samples of Spanish and Mexican adolescents to analyze cultural and gender similarities and differences. The results obtained partially confirmed our hypothesis with regard to the mediational role of the individual factors between perceived environments and aggressive behavior. The results also pointed out different paths for boys and girls depending on the Spanish or Mexican origin of the participants.

Overall, our findings suggested that a positive family environment is a stronger protective factor for Spanish and Mexican girls in the development of school aggression, whereas for boys—particularly in the Spanish sample—a positive classroom environment is stronger. Nevertheless, both social contexts seem to play an important role in both genders and samples, although with different strength. In the first place, we hypothesized that the relationship between the family environment and involvement in aggressive behaviors at school would be mediated, at least in part, by the adolescent level of empathy. Indeed, what our results suggested is that a positive interpersonal climate in the family based on affective cohesion and expressiveness of feelings and opinions may exert an important influence on the acquisition of skills for social interaction and thus for empathic learning. This association was observed in boys and girls in both samples. Moreover, a direct link between the level of empathy and aggressive behavior was also found in all cases. This result implies that the development of empathy in the

adolescent period seems to be a relevant protective factor for aggressive and antisocial behavior, as other authors have pointed out (Evans et al., 2002; Hoffman, 2000).

As the mediational effect specifies *how* a given effect occurs (Baron & Kenny, 1986), this finding points out that the quality of relationships with parents has a positive influence on the development of an empathic response, which in turn inhibits participation in aggressive acts against others. In Spanish girls and in Mexican boys, the indirect effect of the family environment on school aggression is also significant with social reputation as mediator. That is, girls and boys who perceived their family as a positive context report a minor antisocial reputation and, in turn, show less aggressive behavior. At the same time, in the case of Spanish and Mexican girls, it is important to note that the perceived family context continues to be a direct and significant protective factor for school aggression. These findings are in line with those observed in other European and North American contexts, reporting that girls are more vulnerable to developing aggressive behaviors because of the direct impact resulting from poor parenting practices (Blum et al., 2003; Farrington & Painter, 2003; Hong & Espelage, 2012). As other studies have noted differences in parental socialization in Spain and Latin American countries (García & Gracia, 2010; Lila et al., 2000), and there is some evidence of differences in family correlates of aggressive behavior between boys and girls from diverse cultures, new studies are needed to explain these findings fully.

With regard to the influence of the perceived school environment on aggressive behavior, we hypothesized that this relationship would be mediated, at least in part, by the adolescent attitude toward authority and social reputation goals. Our findings confirmed this hypothesis for boys in both samples, whereas for girls this relationship was only found with attitude toward authority. For Spanish boys, in the association between the classroom environment and aggression, both direct and mediating associations were observed between them. In previous studies, this greater influence of the school environment on aggressive behavior in boys has also been pointed out both in Spanish samples (Cava et al., 2010) and in other European, Asian, and North American countries (Ali et al., 2015).

On one hand, the negative direct link between these variables is indicative of a direct beneficial and protective effect of a positive classroom environment understood as a social relational space in which students and teachers respect and support one another. These results are consistent with those reporting the positive influence of the quality of interactions with teachers and the desirability of having a set of friendships for adolescent behavioral adjustment (Hartup, 1996; Khoury-Kassabri, 2012; Murray & Murray, 2004).

In contrast, negative interactions with teachers and peers may lead to behavioral problems in students. One possible explanation for this finding may be that boys are more likely to show negative interactions with teachers (Bearman et al., 2006; Younger, Warrington, & Williams, 1999) and social integration problems with peers when compared with girls. For instance, they have more problematic relationships with peers in the adolescent period, fewer intimate relationships, and a higher probability of being rejected by classmates (Cillessen, 1996; Coie, Dodge, & Coppotelli, 1982). Furthermore, some authors have documented that problems of social acceptance and integration among peers have a stronger impact on boys' antisocial and aggressive behavior than on that of girls (McDougall, Hymel, Vaillancourt, & Mercer, 2001).

However, our results for boys in both samples also showed that the relation between the quality of the social environment in the classroom and aggressive behavior was explained in part by the influence this environment exerts on the strength of their preference for a particular social reputation among classmates. In other words, positive interactions with peers and teachers in the classroom might act as a preventive factor for the need to be socially recognized as having a bad reputation, an aspect that in turn is closely related to its implication in behavioral problems. Conversely, and in line with conclusions suggested by authors such as Carroll, Green, Houghton, and Wood (2003), and Emler (2009), negative interactions with peers and teachers in the classroom might lead to the search for a social image based on rebelliousness and rule-breaking behavior, particularly in boys, which in turn has been directly related to antisocial and aggressive acts in the school context, as the means for obtaining the desired reputation. As suggested by Emler, this desired bad reputation acts as a self-defense mechanism against new future negative interactions and attacks from others.

The social environment perceived by students was also closely related to the configuration of particular attitudes toward authority figures and institutions. The results of the present study suggested that for both genders and samples, a positive climate among peers and teachers contributes to the development of positive attitudes toward the school context as an institution and the teachers as figures of authority. On the contrary, negative interactions with peers and teachers in the classroom might lead to the development of attitudes of rejection regarding the educational context. Our findings suggested that associations among these variables were even stronger in Mexican adolescents. Possible differences in the school and social context between both countries (Castillo & Pacheco, 2008; OECD, 2014) could explain the greater influence of the school environment on attitudes toward authority and aggressive behavior in Mexican adolescents. A school environment in which

students perceive more tolerance toward violent behavior on the part of teachers (Gómez, 2005) may lead Mexican adolescents to develop more negative attitudes toward teachers as authority figures and sources of support and protection. On the contrary, when Mexican adolescents, despite living in a violent social context, perceive their school as a context of positive relationships, the benefits on their attitudes toward authority and behavior can be even more important.

Along this line, it has been well documented that adolescents who show negative attitudes toward formal figures and institutions, such as teachers and the school context (Emler & Reicher, 1995; Hoge, Andrews, & Leschied, 1996; Loeber, 1996), and who look for social recognition as powerful and rebellious individuals (Carroll et al., 2001; Emler & Reicher, 2005), are more likely to participate in aggressive and antisocial activities. Conversely, the perception of a positive classroom environment acts as a protective factor that favors positive attitudes toward school, preventing aggressive behaviors at educational centers (Estévez, Murgui, Musitu, & Moreno, 2008). Our results reinforce conclusions from other studies that show the impact of the school environment on student behavior (Barth, Dunlap, Dane, Lochman, & Wells, 2004) and, in particular, the protective effect of a positive perception of the teacher against peer aggression in European and non-European countries (Donat, Umlauf, Dalbert, & Kamble, 2012).

In conclusion, the current research contributes to our understanding of the role of particular individual and social—family and school—variables with respect to adolescent involvement in aggressive behaviors in the Spanish and Mexican contexts, and how these variables behave as a function of gender and the cultural context. In this sense, this study is one of the few in which multiple variables were jointly analyzed, for boys and girls separately and in two independent samples, in the search for an explanation of aggressive behavior in adolescence. From a cross-cultural perspective, it can be concluded that, despite the aforementioned differences, the relationships between the variables found in the present study went in the expected direction, indicating that all the variables analyzed are relevant in both Spain and Mexico. It will be necessary in future research, however, to delve into the particularities of the different cultures to provide more accurate explanations for the differences found.

In addition, the following limitations are acknowledged. The use of self-reported data creates vulnerability to response bias that could have an impact upon the validity and generalizability of the study findings as findings are more likely to be contaminated by shared method variance. However, comparisons with data from independent sources, such as parents (Flisher, Evans, Muller, & Lombard, 2004; Ritakallio, Kaltiala-Heino, Kivivuori, & Rimpelä,

2005), do support the validity of self-reported measures of aggressive behaviors in adolescence. Another limitation is that some of the scales used in the present study showed Cronbach's alphas below .70, particularly in the case of the Mexican sample. Also, some potential measurement deficits could have affected results of the study. For example, issues related to attitude to authority or importance of reputation among peers could have different interpretations in both samples and therefore reliability problems. Further research using different measurement approaches might overcome this problem. In addition, it is important to remark that other variables not included in the present study (biological, psychological, and community factors) may also contribute to the explanation of aggressive behavior and influence the observed differences among Spanish and Mexican adolescents. In a more complex model, the inclusion of other relevant variables could allow the analysis of some possible suppression and spurious effects (Ato & Vallejo, 2011; Murgui & Jiménez, 2013).

Finally, it should be noted that the present study used a cross-sectional design, which means we must be cautious about making causal inference on the basis of the data available. Moreover, as Holmbeck (1997) remarked, the relationships among the independent variable, mediator, and outcome may not necessarily be causal, and the same could be said for indirect effects. In fact, previous studies indicate that some of the relationships among variables considered in this research could have bidirectional influences. A negative climate in the family and school contexts may lead to aggression, but an adolescent's aggressive behavior itself may also worsen the environment in these contexts (Estévez, Musitu, & Herrero, 2005). Likewise, though a negative attitude toward authority seems to be an important risk factor for deviant behavior, adolescents who frequently participate in aggressive acts may as a result adopt values consistent with an antisocial schema and express negative opinions and attitudes about authority figures and institutions (Nihart, Lersch, Sellers, & Mieczkowski, 2005). To shed clearer light on these associations and have greater confidence about the causal direction of influences, a longitudinal study would be required.

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