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## Peer-group mediation in the relationship between family and juvenile antisocial behavior



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### ABSTRACT

The aim of this study was to assess the effects of the variables related to family functioning (parental monitoring, family support, and family conflict) on juvenile antisocial behavior either directly or indirectly through the choice of deviant friends. Thus, the sample consisted of 764 adolescents from the Autonomous Community of Galicia (Spain), from juvenile offender centres (mean age = 17.12, 87.4% males) and students from local schools (mean age = 16.06, 45.5% males). The scales of Valoración del Riesgo en Adolescentes Infractores [Juvenile Offenders Risk Assessment] on parental monitoring, family conflict, family support, antisocial peer group, and antisocial behavior, were applied. The results of structural equation modelling showed a better fit of the mediation model. The results are discussed in terms of their implications for the prevention, risk assessment, and management of juvenile offenders.

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### Mediación del grupo de amigos en la relación entre familia y comportamiento antisocial juvenil

#### RESUMEN

El objetivo de este estudio ha sido medir los efectos de las variables relativas al funcionamiento familiar (supervisión, apoyo y conflicto familiares) en el comportamiento antisocial juvenil, ya sea directamente o indirectamente a través de la elección de amigos desviados. La muestra constaba de 764 adolescentes de la Comunidad Autónoma de Galicia, de centros de menores en conflicto (media de edad de 17.12 años, el 87.4% varones) y de alumnos de centros escolares (media de edad de 16.06, el 45.5% varones). Se les aplicó las escalas de Valoración del Riesgo en Adolescentes Infractores (VRAI) que miden supervisión parental, conflicto familiar, apoyo familiar, grupo de amigos antisociales y comportamiento antisocial. La comparación de los modelos de ecuaciones estructurales muestran un mejor ajuste para el modelo de mediación. Se comentan los resultados en cuanto a sus implicaciones para la prevención, evaluación y gestión del riesgo en jóvenes infractores.

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Research on risk factors associated to juvenile antisocial and delinquent behavior has tended to focus on variables related to the family or peer-group. The importance ascribed to these psychosocial variables lies in their relevance to the process of child development and socialization, and their crucial role in internalizing attitudes and acquiring behaviors, the family being the context of reference in childhood and the group of friends in adolescence

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(Andrews & Bonta, 2010; Granic & Patterson, 2006). Hence, functional aspects of the family and peer-group have been two of the risk factors empirically correlating most strongly to the development of problem behavior (Dahlberg & Simon, 2006). Moreover, the dynamic nature of these variables enables them to be easily modified through interventions (Andrews & Bonta, 2010), aimed at preventing and protecting individuals from the development of problem behavior. Thus, this study assessed these variables in a Spanish juvenile population.

Since the decade of the 1950s, numerous studies have examined the family context as a risk factor for juvenile antisocial and delinquent behavior. Hoeve et al.'s (2009) meta-analysis, which integrated the results of hundreds of studies published from 1950 to 2007, confirmed the direct influence of family variables on juvenile deviant behavior. Moreover, this review of the literature revealed that the most relevant variables were related to family support and parental monitoring. In relation to support, parental affection and understanding was negatively associated to the expression of delinquent behavior, whereas parental neglect and parental rejection or hostility towards children were positively related to this type of behavior. As for parental monitoring, controlling behavior and knowing the activities and whereabouts of children were negatively associated to involvement in antisocial activities, whereas psychological control and inconsistent parental discipline were positively related to antisocial behavior. In short, parenting styles and skills were a powerful factor for predicting the development of antisocial and delinquent behavior.

Simultaneously, parallel to the research on family variables, an alternative line of research has sought to examine the influence of the group of peers, with results on the risk factors of juvenile antisocial behavior being somewhat more consistent: adolescents involved in deviant behavior have friends who commit deviant acts. Thus, several studies have corroborated an intense positive correlation between juvenile delinquent friends and juvenile delinquent activity (Lonardo, Giordano, Longmore, & Manning, 2009; Moreira & Mirón, 2013).

Several hypotheses have been proposed to elucidate the effect of the peer-group on antisocial behavior. The traditional hypothesis, or socialization hypothesis, based on the conventional sociological theory, psychosocial models of differential association theory (Sutherland, 1939), and social learning (Akers, 1977) contends that the association with deviant peers, and in turn group influence, foster the development of juvenile antisocial attitudes and behavior. An alternative complementary hypothesis, commonly referred to as the selection hypothesis, is underpinned by assumptions such as the coercion model of Patterson, Reid, and Dishion (1992), which claims individuals with certain previous problematic behavior and attitudes select friends and individuals with similar characteristics (Luengo, Gómez-Fraguela, Garra, Romero, & Lence, 1999).

The results obtained in empirical studies testing either or both hypothesis are inconsistent. A number of studies have found data supporting the socialization process (Rodríguez, 2011), others have found support for the selection process (Kemp, Scholte, Overbeek, & Engels, 2006), whereas still other authors propose the existence of both the selection and socialization process (Burk, van der Vorst, Kerr, & Stattin, 2012). The assumption that both processes play a complementary role in the development of antisocial behavior is consistent with the findings of longitudinal studies (Dishion, Veronneau, & Myers, 2010).

Either of the above hypotheses could be understood in terms of the direct and indirect effects of specific variables on the behavior of adolescents. In the former, the socialization hypothesis reflected the direct effects of the juvenile's relationship with antisocial peers in the development of problematic behavior. In comparison, the

selection hypothesis may be understood as a mediation<sup>1</sup> process, in which certain characteristics of adolescence (personality, family, social, etc.) indirectly influence the development of antisocial behavior, which is facilitated through the link to a deviant peer group. This hypothesis coincides with the notion of risk assessment involving the interrelationship of risk factors, i.e., the different factors associated to a specific behavior do not act independently, but mutually influence each other (Barraca & Artola, 2006; Luengo, Gómez-Fraguela et al., 1999).

This may explain the spike in the last two decades of research on the indirect effects of certain variables, particularly family and group, on juvenile antisocial behavior. Recent studies have corroborated the existence of these indirect effects, with some studies reporting the effects of mediation, whereas others have found moderating effects. In terms of studies on mediation effects, Haggerty, Skinner, McGlynn-Wright, Catalano, and Crutchfield (2013) found parental skills (monitoring, support, and discipline) were not significantly directly related to juvenile violent behavior, but rather parental skills were negatively related to the link with antisocial peers, and in turn this predicted the expression of violent behavior. Thus, parental skills indirectly influenced deviant behavior by mediating the peer group. Similarly, Criss, Shaw, Moilanen, Hitchings, and Ingoldsby (2009) found the inhibitory influence of parental support on antisocial behavior was partially mediated by peer-group acceptance of the juvenile.

As for studies on the moderating effects, Snyder, Schrepferman, Bullard, McEachern, and Patterson (2012) found children of parents with poor educational skills had higher levels of problematic behavior if they had ties with a deviant peer-group, whereas for parents with good parental skills, having deviant friends did not raise the risk of problematic behavior. Other authors have found that juveniles with strong links to a group of antisocial friends had higher levels of problematic behavior when parents had deficient educational skills; conversely, juveniles not linked to a deviant peer group exhibited no problematic behavior regardless of parental skills (Trudeau, Mason, Randall, Spoth, & Ralston, 2012).

Notwithstanding the foregoing, these results of the indirect effects do not agree with the findings of other studies. For instance, De Kemp, Scholte, Overbeek, & Engels (2006) failed to find the expected moderating effects of family variables on the relationship between links to deviant peers and the expression of antisocial behavior. In this study, the levels of parental monitoring, parental support, and psychological control did not significantly mediate peer-group influence on deviant behavior.

This inconsistency in the results may be due to the variability in the risk factors under evaluation and the differences in methodological paradigms. According to the procedure proposed in the MacArthur's method (Kraemer, Kiernan, Essex, & Kupfer, 2008; Kraemer, Stice, Kazdin, Offord, & Kupfer, 2001), which is a reformulation of Baron and Kenny's (1986) standard method for analyzing the influence of third variables, certain methodological criteria<sup>2</sup> are required that moderation and mediation studies do not always fulfil. The criterion most affecting these studies concerns the independence of the variables in the analysis of moderation. In other words, according to this method, the independent variable and the

<sup>1</sup> In this study the term mediation is used in the statistical and methodological sense employed by Baron and Kenny in 1986 (see References).

<sup>2</sup> Briefly, for the correct analysis of the moderating effects, the variable considered to be the moderator should precede in time the independent variable, these variables should be independent (not correlated), and there should be a significant interaction between them on the lineal regression. As for the mediation effects, the independent variable should precede in time the variable considered to be the mediator, these variables should be correlated, and under these circumstances an interaction between the variables in the lineal regression would be considered indicative of mediation.

moderated variable should bear no relationship with each other. Given that empirical studies have shown a significant relationship between family context and peer-group risk factors, the analysis of moderating effects between these variables was unwarranted. For this reason, this study focused on the analysis of the mediating effects.

Thus, the main aim of this study was to test the following hypothesis: family variables have an indirect effect on juvenile antisocial behavior through relationships with deviant peers. Structural equation modelling was used to analyze the relationships between parental monitoring, family support, and family conflict to antisocial behavior through peer-group influence.

Testing this hypothesis would provide valuable data for risk prevention and management, given that a better understanding of the relationships between two of the most relevant risk factors for the development of antisocial behavior may serve to enhance the efficacy of interventions. By establishing what part of family influence is exercised through the group of friends and/or the degree to which the influence of a group of friends is determined by family variables, the risk management process can be personalized for precise and specific interventions.

## Method

### Sample

The total sample, consisting of 764 adolescents from the Autonomous Community of Galicia (Spain), was subdivided into two subsamples. The first subsample included juveniles in offender centres ( $n = 182$ ) in Galicia, age range 14 to 21 years ( $M = 17.12$ ,  $SD = 1.52$ ), 87.4% males. The second subsample consisted of students ( $n = 582$ ) enrolled either in compulsory secondary education, baccalaureate, or vocational training in six centres across Galicia; age range 14 to 20 years ( $M = 16.06$ ,  $SD = 1.22$ ), 45.5% males.

### Measurements

In this study the following variables were assessed: antisocial behavior, delinquency in the peer group of friends, parental monitoring, family support, and family conflict. These were assessed using the integrated scales of the Valoración del Riesgo en Adolescentes Infractores protocol [Juvenile Offenders Risk Assessment] that had been previously validated (VRAI; Gómez-Fraguela, Villar, & Luengo, 2011).

**Antisocial behavior.** Juvenile antisocial behavior was evaluated using the shortened version of the Cuestionario de Conducta Antisocial [Antisocial Behavior Questionnaire] (CCA; Luengo, Otero-López, Romero, Gómez-Fraguela, & Tavares-Filho, 1999), consisting of a total of four scales and 24 items, 6 items per scale. All scales had a Likert type format where participants indicated the frequency with which they had been involved in certain types of behavior, with responses ranging from 0 (*never*) to 3 (*quite a few times*). Thus, juvenile antisocial behavior was evaluated using the aggression scale (e.g., "Fighting and hitting someone") and Against the Norms Behavior Scale (e.g., "Spend the night out without permission"), a Theft Scale (e.g., "To take something from class without permission with the intention of stealing it"), and a Vandalism Scale (e.g., "Setting fire to something: a dustbin, table, car, etc."); all of the scales had high internal consistency in the sample total (Cronbach's alphas from .83 to .90).

**Delinquency in the peer-group.** A scale consisting of 4 items (Gómez-Fraguela et al., 2011) was used to measure the presence of antisocial behavior in the peer group (e.g., "My best friends get into trouble and problems"). Each item was scored on a 4-point Likert type scale (0 being *strongly disagree* and 3 *strongly agree*; the item

"My friends are doing well at school" scored inversely). This scale had adequate reliability (Cronbach's  $\alpha = .804$ , for the sample from juvenile offender centres and  $.691$  for the school sample).

**Parental monitoring.** The variable parental monitoring was measured on a 6-item scale developed in previous studies (Luengo, Villar, Sobral, Romero, & Gómez-Fraguela, 2009; Sobral, Gómez-Fraguela, Romero, Luengo, & Villar, 2012), using a 3-point Likert type scale (0-3, where 0 being *never* and 3 *always*). Juveniles evaluated the degree of control their parents or guardians had on their behavior (e.g., "...they know what you are doing in your spare time?"). This scale had adequate internal consistency (Cronbach's  $\alpha = .71$ , for the sample from juvenile offender centres and  $.79$  for the school sample).

**Family support.** Family support was measured on a 12-item scale based on the Parental Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979), adapted and used in previous studies in Spain (Pepe, Sobral, Gómez-Fraguela, & Villar, 2008). The adolescents evaluated the quality of the relationship with their own parents by scoring family support on a Likert type scale (0-3, 0 being *never* and 3 *always*; e.g., "They help me when I need it"), as well as its absence (0-3, 0 being *always*, and 3 *never*; e.g., "They are emotionally cold with me"). Reliability for this scale was high (Cronbach's  $\alpha = .918$ , for the sample of juveniles from offender centres; and a Cronbach's  $\alpha = .906$ , for the school sample).

**Family conflict.** Family conflict was measured using the shortened version of the Conflict Behavior Questionnaire (CBQ-20; Robin & Foster, 1989). This scale consists of 15 items evaluating family conflict using a Likert type scale (ranging from 0 to 3, 0 being *never*, and 3 *always*; e.g., "In general, I don't think we get on well"), and absence of conflict in family relationships (ranging from 0 to 3, 0 being *always*, and 3 *never*; e.g., "They try to understand me"). This scale had high reliability (Cronbach's  $\alpha = .892$ , for the sample of juvenile offender centres and  $.858$  for the school sample).

### Procedure

The scales in this study are integrated in the VRAI protocol (Gómez-Fraguela et al., 2011), which was used to gather information from professionals at each centre and from the juveniles themselves using a self-report scale consisting of 26 risk factors related to behavioral problems, either individual (e.g., impulsiveness, collaborating in the intervention, attitudes condoning violence) or social (e.g., inadequate parental practices, rejection by peer group, failure to adjust to school/work) and 5 protection factors (e.g., resilience, healthy use of spare time, and leisure habits). This protocol prioritizes dynamic risk factors concerning the influence of interpersonal relationships (e.g., peer group and family) and those individual characteristics susceptible to change.

This study complied with the prevailing ethical standards. First, the study was presented to the management teams of the juvenile offender centres and the school governing body of each school to explain the aims of the study, and to request their collaboration. Moreover, informed consent was obtained from all parents or legal guardians in all of the schools that participated in the study. Thereafter, the juveniles were presented the study and informed that participation was voluntary and that their data would remain anonymous and confidential.

The next step was data gathering from juveniles using a procedure to differentiate the two samples of subjects. For the juveniles in offender centres, an electronic version of the VRAI was used. Technical staff at the offender centres accessed the electronic protocol to personalize each key in order to guarantee the confidentiality of the data. Juveniles used the same key to respond to the self-reports.

For the school sample, students were collectively applied the VRAI in paper format during their school timetable. To further

safeguard anonymity and confidentiality, students were instructed to make their own personal key and write it in each paper of the self-report.

### Data analysis

The data was analyzed using the SPSS statistical software package. First, the descriptive statistics and group variance (juvenile offender centres and schools) were analyzed. Then, a correlation analysis was carried out between the variables antisocial behavior, parental monitoring, family support, family conflict, and deviant friends. Thereafter, the AMOS software programme was used to estimate two structural equation models. In the first structural equation model the direct relationships of family variables and group of friends to antisocial behavior (direct model) were introduced and in the second model both the direct and the indirect relationships of family variables to antisocial behavior mediated by the group of antisocial friends (mediation model) were introduced.

The ADF method (Asymptotically Distribution-Free criterion) was used to estimate these models owing to the lack of multivariate normality (Brown, 2006). In line with the recommendations of Hu and Bentler (1999), the following goodness-of-fit indexes of the models were used: the traditional  $\chi^2/DF$ , the RMSEA, and the SRMR. The following were considered criteria for an optimum fit  $\chi^2/DF < 2-3$ , RMSEA and SRMR  $< .05$ ; and for an acceptable or reasonable fit  $\chi^2/DF < 4$ , and RMSEA and SRMR between .08 and .10 (Arce, Velasco, Novo, & Fariña, 2014; Hu & Bentler, 1999). Finally, to avoid exceeding 30 indicators in the estimated structural equation models (Bentler & Chou, 1987; West, Finch, & Curran, 1995), the items from the family support scale and family conflict scale were clustered. As these scales are unifactorial, grouped items were randomly distributed, resulting in four clusters with three items each for support and five clusters with three items each for conflict. To ensure clustering had been adequate, the internal consistency of the items on the scale were contrasted with clustered items to confirm both were similar.

### Results

In descriptive terms (see Table 1), juveniles in offender centres reported more antisocial behavior, more ties to deviant friends, and perceived more an atmosphere of family conflict than students at school, with significant differences being observed between both groups. Moreover, youngsters at schools reported higher levels of

**Table 1**

Descriptive results of the variables in the sample total, and for each subsample

	Sample Total M (SD)	Offender Centres M (SD)	Schools M (SD)	F	p
Antisocial behavior	11.33 (14.29)	25.26 (16.94)	6.52 (9.27)	300.51	***
Delinquent friends	4.39 (2.77)	6.50 (2.81)	3.66 (2.36)	154.97	***
Family conflict	16.28 (7.90)	18.20 (8.51)	15.61 (7.58)	12.88	***
Parental monitoring	13.40 (3.80)	11.30 (4.10)	14.12 (3.41)	72.48	***
Family support	25.87 (6.84)	26.06 (2.81)	25.80 (6.70)	0.17	

\*\*\*  $p < .001$ .

**Table 2**

Results of the correlation analysis between the variables for juveniles in offender centres, and students at schools

	1	2	3	4	5
1. Antisocial behavior	1				
2. Delinquent friends	.560*** (.521***)	1			
3. Family conflict	.255** (.188**)	.230** (.198**)	1		
4. Parental monitoring	-.355*** (-.363***)	-.318*** (-.368***)	-.371*** (-.276***)	1	
5. Family support	-.190* (-.109*)	-.152 (-.183**)	-.836*** (-.776***)	.380*** (.361***)	1

Note. School sample values appear in brackets.

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

**Table 3**

Goodness-of-fit indexes of the structural equation models

Model	$\chi^2$	DF	p	$\chi^2/DF$	RMSEA	SRMR
Direct model	877.38	223	.000	3.93	.069 [.064-.074]	.122
Mediation model	697.69	220	.000	3.17	.059 [.054-.064]	.092

parental monitoring in comparison to juveniles in offender centres, with significant differences between both groups. No significant differences were observed between both groups in perceived family support.

A correlation analysis undertaken separately for the sample of juveniles in offender centres and another for the sample of juveniles from schools revealed that the correlations were in the same direction and of a similar strength in both samples (see Table 2). In both samples, having delinquent friends, i.e., links to a deviant peer-group, was strongly significantly related to self-reports of antisocial behavior. Family conflict was significantly associated in both samples to antisocial behavior. Moreover, both family monitoring and family support were significantly negatively associated to antisocial behavior.

As for the patterns of relationships between delinquent friends and family variables, all of the juveniles with a deviant peer-group of friends were significantly negatively related to the presence of parental monitoring and positively with family conflict. In the case of family support, the negative relationship to links with a delinquent peer-group was only significant in youngsters from schools.

Furthermore, the family variables in both samples were found to be significantly related to each other. Monitoring and support were positively associated and both variables were negatively associated to family conflict, with a particularly strong negative relationship between family conflict and family support.

To assess significant differences between the correlations of both samples a Fisher's Z transformation was performed (Guilford & Fruchter, 1984), with no significant differences found between the correlation coefficients of juveniles from offender centres and students from schools.

To gauge the effects of mediation of the relationship with antisocial friends on the relationship of family variables and antisocial behavior for the total sample, two structural equation models (a model of direct relationships, and a model of mediated relationships) with an acceptable fit were analyzed (see Table 3). Moreover, the model of mediated relationships had a more

**Table 4**  
Total effects and the standardized direct and indirect effects of family variables on antisocial behavior

	Total Effects	Direct Effects	Indirect Effects
Monitoring	-.62***	-.327***	-.297***
Conflict	.14	.032	.112
Support	.10	.035	.074

\*\*\*  $p < .001$ .

adequate fit index, with significant differences between both models,  $\chi^2(3, N=616) = 179.68, p < .001$ .

The relationships between the variables in the mediation model (see Figure 1) explained 32% of the variance associated to ties to antisocial peers and 62% of the variance of juvenile antisocial behavior. Moreover, the following significant results were found: the three family variables were significantly associated to each other; parental monitoring was significantly, negatively related to antisocial friends and antisocial behavior; and ties to an antisocial group was significantly related to the expression of antisocial behavior. For family conflict and family support there were neither significant associations with a group of antisocial friends nor with antisocial behavior. Thus, parental monitoring was the only family variable to be significantly related to ties to a group of antisocial friends and the expression of juvenile antisocial behavior.

The direct and indirect effects of family variables on juvenile antisocial behavior are shown in Table 4, the total effects being the sum of both of these variables. Though indirect effects of family variables were observed on antisocial behavior through ties with antisocial peers, only the effects of parental monitoring were

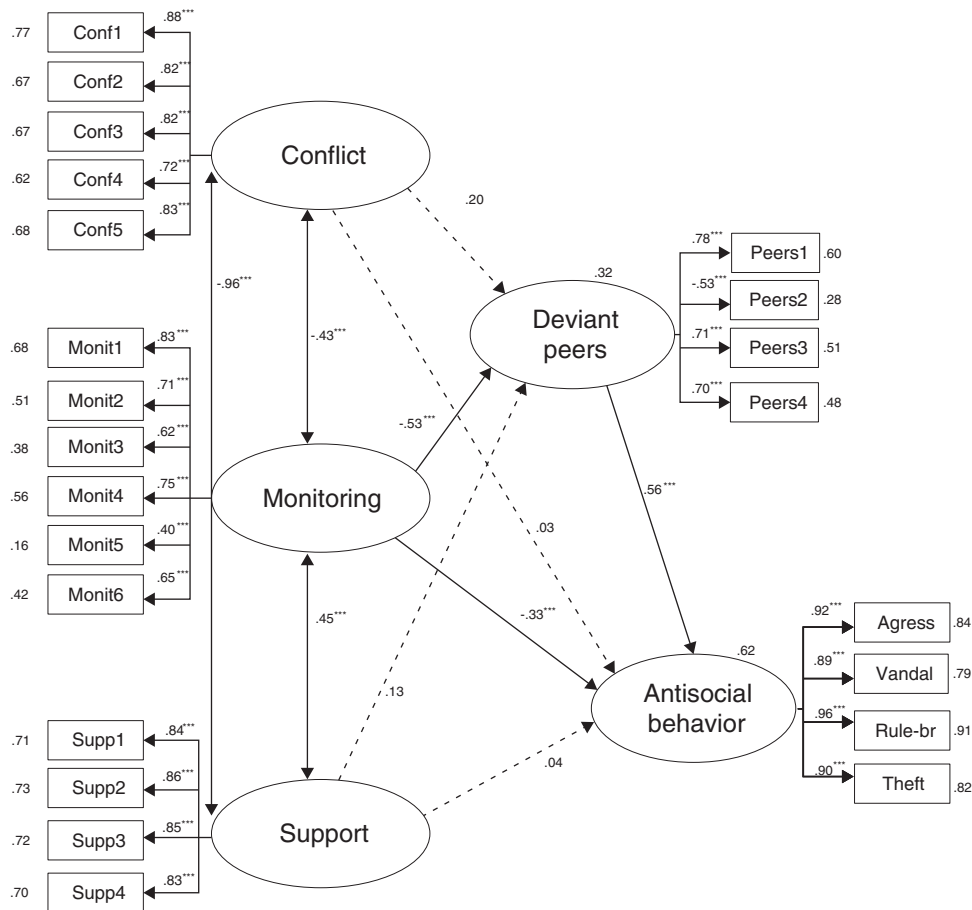
significant. It is worth noting that of the total effects of parental monitoring on juvenile antisocial behavior ( $\beta = -.62$ ), almost half were through the influence of the peer group ( $\beta = -.30$ ).

**Discussion**

The aim of this study was to assess the indirect effects of family variables and ties with deviant peers in juvenile antisocial behavior. In line with the methodological guidelines of MacArthur’s method (Kraemer et al., 2008; Kraemer et al., 2001), this study assessed the mediated effects. From the results obtained in this study the following conclusions may be drawn, which are consistent with the literature and previous empirical findings.

First, correlation analysis found that the presence of family conflict and the absence of family support and parental monitoring were significant risk factors for the expression of juvenile antisocial behavior, which was in agreement with previous studies (Derzon, 2010; Johnson, Giordano, Manning, & Longmore, 2011), with monitoring being the family variable most strongly associated to juvenile antisocial behavior. However, structural equation modelling revealed only the absence of parental monitoring was a significant risk factor of juvenile antisocial behavior.

Second, ties to a delinquent peer group were significantly related to antisocial behavior, both bivariate and multivariate level: the more the deviant behavior in the peer group, the higher the probability of juvenile antisocial behavior. Similar to previous studies (Dishion et al., 2010), the group of friends in this study was a powerful risk factor for this type of problematic behavior.



**Figure 1.** Model of family effects on antisocial behavior mediated by the influence of antisocial peers.  
Note. The model shows the determination coefficients, the structural coefficients, and the standardized regression coefficients for each variable.  
\*\*\*  $p < .001$ .

Third, the mediation effects of parental monitoring on antisocial behavior through ties with antisocial peers were significant, which agreed with the findings of other studies (Haggerty et al., 2013). As the three family variables analyzed were strongly related and as other authors suggested (Kerr, Stattin, & Özdemir, 2012), it could be possible that the effects of family conflict and family support on antisocial behavior will exert through their association with parental monitoring. In other words, family conflict and support could influence antisocial behavior mediated by the level of parental monitoring, a variable which in turn had effects on antisocial behavior mediated through ties with antisocial peers. These results highlighted the importance of taking into account in further studies these types of indirect effects in the analysis of relationships between variables involved in the development of problem behavior in juveniles.

Furthermore, the mediation effects found in this study lend support to the selection hypothesis. In this study, certain family characteristics (absence of parental monitoring) facilitated ties with antisocial juvenile friends and these, in turn, facilitated the development of problem behavior.

The practical implications of these results are of particular significance for the prevention and risk management of juvenile offenders. First, bearing in mind that the natural tendency for the development of antisocial behavior in juveniles from high risk social contexts is for their behavior to become chronic if not arrested by intervention (Arce, Seijo, Fariña, & Mohamed-Mohand, 2010) and that family variables have a significant influence on the expression of problem behavior from the earliest stages of development (Romero, Villar, Luengo, Gómez-Fraguela, & Robles, 2013), there is a need for early intervention in specific family contexts to prevent the development of antisocial and delinquent behavior from becoming embedded. In particular, since this study has found an implication of family variables on the development of other risk factors strongly related to antisocial behavior such as ties to deviant peers. Second, this underscored the need for early intervention in family contexts in order to buffer the influence of antisocial friends and, in turn, to ensure preventive measures are both directly and indirectly effective. Directly, by influencing this primary context of socialization, i.e., through empowering parents with effective child-rearing skills to be exercised from the earliest age of vital development to thwart the expression of problem behavior that may eventually lead to juvenile antisocial and delinquent behavior. Indirectly, through early intervention in the family context to reduce the risk of relationships with deviant peers and problematic behavior at a later age, and thus buffer this powerful predictor of the development of juvenile antisocial and delinquent behavior.

Finally, this study has several limitations that may be overcome by further research. First, the most important limitation concerns the experimental design itself. The analysis of variables using a transversal design does not permit the extraction of casual conclusions, which underscores the need for analyzing these variables using a longitudinal design to provide conclusive data on mediation effects and on the influence and selection hypothesis. A further limitation refers to the validity of the shortened scales used in this study. As Smith, McCarthy, and Anderson (2000) have pointed out, the abridged versions of the original instruments extensively used in research normally adopt the validity indexes of the full scales, which is inadequate, and thus underscores the need for specific analyses to adapt and improve the levels of validity and reliability of these shortened versions.

## Conflict of Interest

The authors of this article declare no conflict of interest.

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