



## The Generalization Effect of Interparental Conflict in Sibling Relationships and Child Adaptation

Laura Merino, Ana Martínez-Pampliega and David Herrero-Fernández

### *Abstract*

The main goal of this study is to analyze the generalization effect of interparental conflict in sibling relationships and child adaptation. A Spanish sample made up of 100 children, aged between 7 and 18 years, was used. Interparental conflict was the independent variable, and child maladaptation the dependent variable, whereas sibling relationship and parenting style were the mediating variables. Extraversion was controlled as a covariate. Variables were measured through self-report questionnaires. The mediation model was supported. Results showed that more restrictive parental styles and a decrease of positive sibling exchanges were both associated with child maladaptation, which revealed this generalization process. The relation of these results with previous literature and future implications are discussed.

Keywords: siblings; interparental conflict; child adaptation; parenting

**Laura Merino**, PhD Psychology. Lecturer of Psychology. Health Sciences Faculty, University of Deusto, Bilbao, Spain. Her research interests include: family conflict, siblings, and youth wellbeing. Recent publications: Merino, L., & Martínez-Pampliega, A. (2022). Development and psychometric properties of a new observational coding system for sibling interactions. *International Journal of Social Research Methodology*, 25(3), 293-314; Merino, L., Herrero, M., & Martínez-Pampliega, A. (2022). Interparental conflict appraisals and adolescents' maladaptation in siblings: an actor-partner interdependence model. *Journal of Child and Family Studies*, 31(7), 1968-1981; and Martínez-Pampliega, A., Aguado, V., Corral, S., Cormenzana, S., Merino, L., & Iriarte, L. (2015). Protecting children after a divorce: Efficacy of Egokitzen—An intervention program for parents on children's adjustment. *Journal of Child and Family Studies*, 24, 3782-3792.

**Ana Martínez-Pampliega**, PhD Psychology. Professor of Psychology. Health Sciences Faculty, University of Deusto, Bilbao, Spain. Her research interests include: divorce, family functioning, and children. Recent publications: Herrero, M., Roca, P., Cormenzana, S., & Martínez-Pampliega, A. (2022). The efficacy of postdivorce intervention programs for children: A meta-analytical review. *Family Process* <https://doi.org/10.1111/famp.12807>; Martínez-Pampliega, A., Herrero, M., Sanz, M.,

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**David Herrero-Fernández.** PhD Psychology. Lecturer of Psychology. Psychology Faculty, Universidad Europea del Atlántico, Santander, Spain. His research interests include methodology, interpersonal relationships, and aggression. Recent publications: Herrero-Fernández, D. (2021). Do people drive as they live, or they are transformed when they drive? A comparison of *driving styles and living styles*. *Accident Analysis & Prevention*, 161, 106342. doi: 10.1016/j.aap.2021.106342; Herrero-Fernández, D. (2016). Psychophysiological, subjective and behavioral differences between high and low anger drivers in a simulation task. *Transportation Research Part F: Traffic Psychology and Behavior*, 42, 365-375. doi: 10.1016/j.trf.2015.12.015; and Herrero-Fernández, D.; Parada-Fernández, P.; Oliva-Macías, M., & Jorge, R. (2020). The influence of emotional state on risk perception in pedestrians: a psychophysiological approach. *Safety Science*, 130, 104857. doi: 10.1016/j.ssci.2020.104857

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## ***Introduction***

### *Direct Impact of Interparental Conflict on Child Maladaptation*

Numerous studies suggest that children and adolescents exposed to any kind of conflict within the family (Esfandyari et al., 2009) especially interparental conflict (Marcus et al., 2001) are more likely to present either internalizing (Hornor; 2005) or externalizing symptoms (Formoso et al., 2000) and problems with social interactions such as sibling and peer relationships (Buchanan & Heiges; 2001; Davies, Martin & Cicchetti; 2012; Martínez-Pampliega et al., 2015; Morgado & González; 2001; Taylor et al., 2011) Therefore, children's perception of their parents' interparental conflict is related both to their individual adaptation and to the sibling relationships they establish (Davies & Cummings, 1994; Grych & Fincham, 1990). Literature has consistently demonstrated that interparental conflict has a direct effect on children's psychological and behavioral wellbeing, manifesting as aggressive behavior, poorer academic achievement, worse quality of life (Amato 2010; Harold et al., 2007; Pedro-Carroll, 2010), higher levels of depression, anxiety, and social withdrawal (Martínez-Pampliega et al., 2015), and changes in relationships with parents, siblings, or friends (Grych, 2005a).

### *Indirect Impact of Interparental Conflict on Child Maladaptation Mediated by Parent-child Relationships*

On the one hand; there is much evidence of the association of interparental conflict with children's individual adaptation as an indirect effect mediated by parent-child relationships (Snyder, Bank, & Burraston, 2005). This association has been supported by the cognitive-contextual model (Grych & Fincham, 1990) and the model of emotional insecurity (Davies & Cummings, 1994). Thus; it has been shown that children of conflictive parents tend to have more problems in their relationships with their parents, siblings, and peers (Amato & Keith, 1991).

Specifically; the spillover or transfer hypothesis states that in interparental conflicts characterized by patterns of hostile and aggressive communication and/or by emotional withdrawal; these patterns can be transferred from the couple subsystem to the parent-child subsystem; which; in turn; will adversely affect the children's adaptation (Fincham et al., 1994; Grych, 2005). That is, parents may have a stronger attitude of hostility, aggressiveness, and emotional withdrawal towards their children when they are immersed in a relationship with high interparental conflict, thereby worsening the quality of parent-child relationships (Erel & Burman, 1995). Therefore, the spillover or transfer hypothesis based on the cognitive-contextual model and the emotional insecurity theory explains the main specific process of the current study, the association between interparental conflict, parenting relationships and children's adaptation.

This has led to considering the hypothesis of the generalization of conflict to different family subsystems. The generalization hypothesis is a social process that has been traditionally studied from social learning theorists who demonstrated that the behavior patterns children enact with their parents are generalized to the child's other relationships such as sibling relationships (Patterson; 1984) and peer relationships (Parke et al., 1988). This theoretical orientation has demonstrated that positive parent-child relationship are associated with positive

affectivity in family and social relationships, and similarly, negative parent-child relationships are associated to aggressive and family and social relationships (Brody et al., 1994). For that reason; the broad literature about generalization hypothesis supports another specific process of the current study: the association between parenting and children's social relationships such as sibling relationships.

In this sense, it has been shown in numerous investigations that low levels of interparental happiness and high levels of interparental conflict are associated with fewer positive characteristics (such as less mutual support) and more negative characteristics (such as increased level of hostility and more emotional distance) in children's sibling relationships (Brody et al., 1994; Brody et al., 1992; Hetherington, 1988; MacKinnon, 1989). This study analyzes sibling relationships in situations of interparental conflict; drawing on the consideration that such sibling relationships develop differently depending on the family contexts in which they occur. From the emotional security theory (Davies et al., 2012), literature has shown that the levels of anger and aggression expressed during arguments between parents, the frequency of conflict, its content, and the way it is resolved are variables that affect the level of stress in the family, and the degree of blame and threat perceived by children (Martínez-Pampliega et al., 2015). In addition, both parent-child processes and sibling processes concurrently explain children's adaptation, so both types of relationships should be taken into account to understand it.

The ways in which interparental conflict influences children's sibling relationships are complex. Generalization hypothesis processes have been confirmed in many more studies (Amato & Keith, 1991; Brody et al., 1994; Brody et al., 1992; Cantón & Justicia, 2000; Crick & Dodge, 1994; Esfandyari et al., 2009; Modry-Mandell et al., 2007; Riggio, 2004); whereas few investigations have explored other models; such as the alternative buffering hypothesis (Cummings et al., 1989; Gass et al., 2007; Iturralde et al., 2013; Long & Forehand, 2002; Waite et al., 2011). Therefore; the literature presents more solid evidence of the generalization effect in contrast to other models (e.g. buffering hypothesis ); so this is the hypothesis that guides this study.

#### *Indirect Effect of Interparental Conflict to Sibling Relationships Mediated by Parent-child Relationships*

According to the generalization hypothesis, interparental conflict can have a direct influence on the level of conflict in sibling interactions, which in turn, increases children's adaptation problems (Modry-Mandell et al., 2007). That is, children observe the behaviors their parents use to cope with conflict and then they perform these same behaviors with their siblings (Esfandyari et al., 2009). Therefore, some studies that support this generalization hypothesis have found that high levels of family stress, such as the interparental conflict of divorced families is associated with more hostile parenting practices, and this situation is related to low levels of warmth among siblings (Conger & Conger, 1996).

Due to all of the above in this generalization process, variables such as parental negative affect, intrusion, and extreme control may mediate the generalization of the conflict from the interparental subsystem to the sibling subsystem (Brody et al., 1994; Brody et al., 1992; McHale & Crouter, 1996). Moreover; previous research suggests that the impact of interparental processes, such as interparental conflict, on sibling relationships is mediated by a restrictive parenting style (Brody et al., 1994; Hetherington, 1988; MacKinnon, 1989). A meta-analytic

review demonstrated that interparental conflict is associated with harsh parenting (Krishnakumar & Buehler, 2000). In this sense, it has also been found that harsh parental discipline helped to explain the relationship between interparental conflict and child adaptation (Buehler & Gerard, 2002). Therefore, it has been shown that when parenting style is restrictive, children are more likely to develop behavioral styles that facilitate sibling conflict (Crick & Dodge, 1994). Integrating these results, it would be very clarifying to analyze a complete model of the association of interparental conflict with children's adaptation, including restrictive parent-child relationships and sibling relationships as mediators.

#### *Covariates: Age, Sex and Temperament*

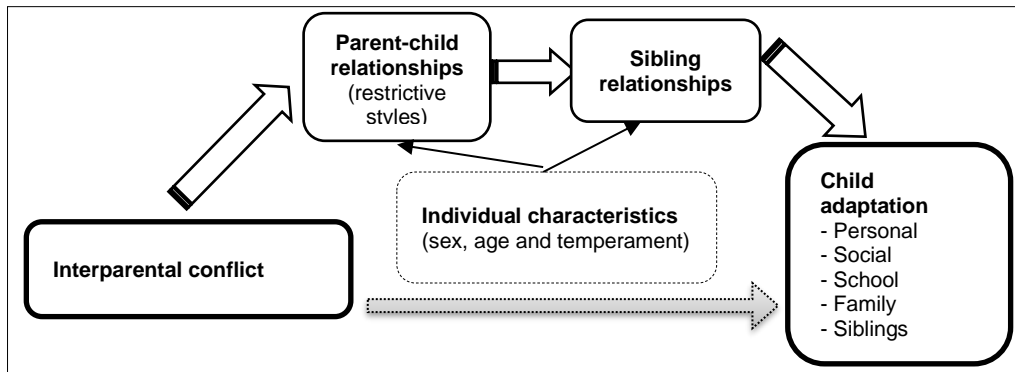
Different authors have proposed that sibling relationships are not predicted by a single factor, but instead are configured by each individual's contributions (personality) and the specific characteristics of other family relationships (Lerner et al., 1978; Sameroff & Chandler, 1975; Thomas & Chess, 1977; Werner & Smith, 1992). With respect to the personality trait that has been included in this study, extraversion, it has been strongly associated with the positive aspects of parenting by mothers and fathers (Davey et al., 2009). Regarding personality, the literature has shown that siblings' personality affects sibling relationship quality (Brody, 1998; Stocker et al., 1989; Stoneman & Brody, 1993). This association between personality and social relationships has already been highlighted in previous research (Back et al., 2011; Mund & Neyer, 2014). It has also been shown that siblings' personality determines the type of parent-child relationship, such that parents whose children have a more problematic personality may establish a more controlling parent-child relationship (Lengua, 2006). The transactional models are relevant in understanding the reciprocal nature of the links between personality traits and social relationships (Wrzus, et al., 2015). Concerning family relationships, activity (a facet of extraversion), predicted changes in closeness with and the importance of kin, indicating that active people are inclined to have more contact with all other relationship partners. This is more obvious in kindred situations (Mund & Neyer, 2014); such as sibling relationships.

On the other hand, it is known that sibling relationships also undergo normative changes depending on the age and stage of the life cycle of each sibling. Hence, there may be natural events that alter the qualities of sibling relationships, such as when one of the siblings reaches a vital phase that offers more opportunities to develop social relations outside the family (Kramer & Kowal, 2005; Ripoll, Carrillo & Castro, 2009). Both classical research and the latest scientific evidence point to the composition according to sex of sibling dyads as a variable associated with the quality of the sibling relationships that are established during childhood and adolescence (Bouchey et al., 2010).

#### *Current Study: Generalization Hypothesis through a Chained Mediation Model*

On the one hand; the cognitive-contextual theoretical model (Grych & Fincham, 1990) and the emotional insecurity theory (Davies & Cummings, 1994) supports the spillover hypothesis that guides the current study: a mediation model of the impact of interparental conflict on children's adaptation mediated by parenting relationships. On the other hand, the generalization hypothesis stated by the social learning theoretical perspective (Patterson, 1984) supports another specific process of the current study: the association between parenting and

children's social relationships such as sibling relationships. However, there is not yet any study that analyzes the mediational model proposed in the current study: the combination of the mediation model of the impact of interparental conflict on children's adaptation mediated by parenting relationships but including also sibling relationships as a mediator variable (see Figure 1). This final mediational model is supported by the generalization hypothesis about the interdependence of different family subsystems.



**Figure 1: Generalization Hypothesis**

Because the literature supports associations between interparental conflict, restrictive parenting, and children's poor adaptation, this study will test a model based on family interactions that includes all; proposing that parenting and poor sibling relationships; themselves affected by interparental conflict. This may account for the association between parents' conflicts and children's adjustment, in part. Therefore, the main goal of this study is to analyze the generalization effect of interparental conflict to child maladaptation. This generalization hypothesis attempts to explain the association of interparental conflict with child adaptation (at the personal; school; social; family; and sibling levels) through a chained mediation made up of the restrictive parent-child relationships and sibling relationships (Figure 1). Therefore, according to the main hypothesis of the study; it is expected that interparental conflict will be associated with restrictive parent-child relationships and, in turn, these parent-child relationships will be associated with less positive sibling relationships, which will be linked to greater child maladaptation.

Literature indicates that many personality traits such as age and gender predict the individual's social competences. For instance, more extroverted and agreeable children are socially more competent over time, whereas children with high levels of negative emotionality and low levels of frustration have more social problems such as aggressive behaviors including anger, anxiety, and avoidance (Asendorpf & Van Aken; 2003). Therefore, in this hypothesis, children's extraversion of age and gender are controlled as covariates of the model.

We expected to find that the association between interparental conflict and child adaptation would be explained by the association of interparental conflict with restrictive parent-child relationships and at the same time, by the impact of restrictive parent-child relationships on sibling relationships.

**Method***Participants*

The sample was made up of 50 pairs of siblings, with age ranging between 7 and 18 years; mean age 11.9 years ( $SD = 2.81$ ). The families of these pairs of siblings had an average of 2.3 children ( $SD = 0.58$ ). The sample had the same number of boys and girls, 50, respectively. Moreover, despite the data were collected from sibling pairs, the independence of the data sample was assumed as it was tested following the procedure outlined by Kenny, Mannetti, Pierro, Livi & Kashy (2002) and Grawitz & Munz (2004). It consists of calculating the intraclass correlation coefficient for each variable in the dyad. The nonindependence of the data could be rejected with alpha levels above .10 in order to avoid erroneously rejecting the existence of nonindependence due to the Type II error. The results are shown in Table 1 along with the descriptive statistics of all the variables involved in the study. As it can be observed, it was 11 variables out of the 14 of the study which did not show nonindependence. Otherwise, “SRQ Conflict”, “SRQ Power/ Relative Status”, and “Threat” (interparental conflict) suggested nonindependence. Despite this last limitation, considering the results as a whole, the cases of the sample were considered independent for the subsequent analyses. Missing data were treated as such because their rate was very low, as can be seen in Table 1.

**Table 1: Descriptive Results of the Variables of the Study**

<b>Variables</b>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>As</i>	<i>F (sig.)</i>
<b>SIBLING RELATIONSHIPS</b>					
SRQ Warmth	91	75.68	13.73	-0.65	1.37 (.248)
SRQ Conflict	97	27.39	6.72	0.01	3.96 (.053)
SRQ Power/ Relative Status	88	-1.27	7.27	-0.12	66.85 (< .001)
<b>INTERPARENTAL CONFLICT</b>					
Conflict Properties	97	3.76	2.31	0.39	0.47 (.496)
Threat	98	2.70	2.17	0.05	19.78 (< .001)
Self-blame	100	0.38	0.78	2.40	1.66 (.207)
<b>INDIVIDUAL VARIABLES</b>					
Extraversion	98	45.17	6.08	-0.08	0.43 (.514)
<b>PARENT-CHILD RELATIONSHIPS</b>					
Restrictive father	95	2.53	2.21	1.47	0.00 (.958)
Restrictive mother	99	2.71	2.25	1.46	0.90 (.349)
<b>CHILD MALADAPTATION</b>					
Personal maladaptation	90	12.72	6.47	0.12	0.80 (.374)
School maladaptation	96	11.22	5.14	-0.20	0.69 (.409)
Social maladaptation	97	10.86	5.19	-0.12	0.51 (.479)
Family dissatisfaction	98	0.66	1.06	1.66	1.73 (.195)
Sibling dissatisfaction	99	0.83	1.23	1.82	0.00 (1.00)

Note. *F (sig.)*: ANOVA test from the intraclass correlation coefficients and its significance in the dyad (older sibling – younger sibling)

We used a sample that was restricted to the population of students of the historical territory of Bizkaia (Basque Country, Spain). The sample of participants was made up of pairs of siblings from different public and private schools. The inclusion criteria for participation in this study were: being a student between 3<sup>rd</sup> grade of Primary School and 2<sup>nd</sup> grade of High School; the participants should be biological or adoptive siblings<sup>1</sup>.

Regarding the parents' marital status, most were married in first nuptials (67%); followed by divorced couples (27%). The remaining couples were either married in second nuptials (4%) or living with a partner (2%).

About 60% of the parents were middle or highly qualified professionals (fathers = 59.6%; mothers = 58%), whereas the greatest differences between fathers and mothers were found in the number of unskilled workers (fathers = 14.9%; mothers = 36%), executives (fathers = 8.5%; mothers = 0%), workers in small businesses (fathers = 12.8%; mothers = 6%), and unemployed workers (fathers = 4.3%; mothers = 2%).

### *Instruments*

Sibling Relationships Questionnaire (SRQ) (Furman & Buhrmester; 1985).

We used the Spanish version (Merino & Martínez-Pampliega; 2021) which replicates the original structure. This child self-report assesses the quality of sibling relationships through 48 items (e.g.; "How often do you and your sibling go places or do things together?") of which the first 42 items are rated on a 5-point Likert type scale ranging from 1 (*Hardly at all*) to 5 (*Extremely much*). The exceptions are 6 items about maternal and paternal partiality, which assess the mother's and father's favoritism, attention, and differential treatment of siblings on a 5-point Likert scale ranging from -2 (*almost always favors/pays attention to/treats my sib better than me*) to 2 (*almost always favors/pays attention to/treats me better*). The SRQ has 16 scales (*Prosocial, Similarity, Intimacy, Companionship, Admiration by Sibling, Admiration of Sibling, Affection, Nurturance by Sibling, Nurturance of Sibling, Dominance by Sibling, Dominance of Sibling, Antagonism, Competition, Quarreling, Maternal and Paternal Partiality*) whose score is calculated by summing the mean score of the 3 items of each scale. In turn, the scales are grouped into four main dimensions of sibling relationships (*Warmth/Closeness, Sibling Power/Status, Conflict and Maternal/Paternal Rivalry*). Each main dimension is calculated by adding its scales, except for the dimension of *Sibling Power/Status* which, by recommendation of the original authors of the SRQ (Furman & Buhrmester; 1985) is calculated by subtracting passive from active scores: (*Nurturance by Sibling + Dominance by Sibling*) - (*Nurturance of Sibling + Dominance of Sibling*). In this study, the reliabilities of the subscale scores were as follows: Prosocial  $\alpha = .74$ , Nurturance given  $\alpha = .86$ , Nurturance received  $\alpha = .86$ , Dominance exerted  $\alpha = .80$ , Dominance received  $\alpha = .72$ , Affection  $\alpha = .80$ , Companionship  $\alpha = .75$ , Similarity  $\alpha = .80$ , Intimacy  $\alpha = .81$ , Competition  $\alpha = .84$ , Admiration given  $\alpha = .81$ , Admiration received  $\alpha = .81$ , Maternal Partiality  $\alpha = .45$ , and Paternal Partiality  $\alpha = .65$ . The reliabilities of the four main factors were: Warmth/Closeness  $\alpha = .92$ , Sibling Power/Status  $\alpha = .73$ , Conflict  $\alpha = .85$ , and Rivalry  $\alpha = .60$ .

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<sup>1</sup> There were no adoptive siblings.

Children's Perception of Interparental Conflict Scale (CPIC-Y) (McDonald & Grych, 2006)

We used the Spanish version adapted from the original scale; which replicates the structure of the three main scales but the items are grouped into different subscales (Merino & Martínez-Pampliega, 2021). This self-report for children and adolescents contains 22 dichotomous items (1 = *Yes*; 0 = *No*) grouped into three scales; (1) *Conflict Properties*: the first scale includes 11 items distributed in three subscales with 6 items referring to children's perception of Negative Interparental Conflict, 3 items of their perception of Constructive Interparental Conflict, and 2 items of their perception of Aggression in interparental conflict (e.g.; "I've seen or heard my father and my mother arguing"); (2) *Threat Scale*: the second scale has 6 items referring to the children's feelings of threat and fear in the face of interparental conflict (e.g.; "I get scared when my father and my mother argue"); and (3) *Self-Blame*: the last scale includes 4 items related to children's feelings of self-blame in the face of interparental conflict (e.g. "When my father and my mother argue; it is usually my fault"). The reliability indexes (standardized Cronbach's alpha based on polychoric correlation matrix due to the dichotomic response style of the items) in this study were: Conflict Properties  $\alpha = .76$ , Negative Conflict  $\alpha = .76$ , Constructive Conflict  $\alpha = .84$ , Aggression  $\alpha = .69$ , Threat  $\alpha = .91$ , Self-Blame  $\alpha = .61$ .

Big Five Questionnaire-Children and Adolescents (dimension of Extraversion) (Barbaranelli et al., 2003).

For this study, we only evaluated one dimension that is more closely linked to interpersonal relationships: Extraversion which refers to people who are outgoing, interactive with other people, and who present aspects such as activity, enthusiasm, assertiveness, and self-confidence. This dimension contains 13 items that describe the frequency of occurrence of certain extraversion traits and it is rated on a 5-point Likert scale ranging from 1 (*hardly ever*) to 5 (*almost always*). This instrument has solid international psychometric support (Barbaranelli et al., 2006), but in this study we used the Spanish version (Ortiz et al., 2005) where Extraversion reached a Cronbach alpha of .71. In this study, Cronbach's alpha was .69 for Extraversion.

Test Autoevaluativo Multifactorial de Adaptación Infantil (TAMAI [Multifactorial Child Adaptation Self-Assessment Test]) (Hernández; 1983)

This questionnaire evaluates children's general; personal; school; and social maladaptation and dissatisfaction with family and siblings (1 = *Yes*; 0 = *No*) answered directly by the children. Regarding restrictive parent-child relationships, this questionnaire describes the restrictive parental style as a punitive and/or unconcerned and/or perfectionist style through 15 items (e.g.; "My father/mother is always yelling at me") (Hernández; 1983). This questionnaire also evaluates other parental styles that were not considered in this study. In this study, the internal reliability (standardized Cronbach's alpha) was adequate for both parents' restrictive styles: Mother's restrictive style  $\alpha = .73$ , Father's restrictive style  $\alpha = .75$ . Child adaptation was assessed through five scales: (1) The Personal Maladaptation Scale has 39 items

and encompasses both self-maladaptation and maladaptation to manage daily issues or personal difficulty to accept reality. (2) The School Maladaptation Scale includes 31 items assessing poor learning performance and disruptive behavior in the classroom. (3) The Social Maladaptation Scale describes the degree of difficulty in social relationships through 35 items. These three scales are grouped into a single dimension called General Maladaptation. (4) The Family Dissatisfaction Scale includes 5 items that indicate the degree of dissatisfaction with the climate at home and the interparental relationship. (5) The Sibling Dissatisfaction Scale groups 5 items measuring jealousy, quarreling, sibling annoyances or conflicts. In this study, the internal reliability of the dimensions were adequate (General Maladaptation  $\alpha = .92$ , Personal Maladaptation  $\alpha = .84$ , School Maladaptation  $\alpha = .80$ , Social Maladaptation  $\alpha = .79$ , Family Dissatisfaction  $\alpha = .62$ , and Sibling Dissatisfaction  $\alpha = .69$ ).

### *Procedure*

This study received the approval of the Ethics Committee of the University of Deusto (ETK-15/17-18) before collecting any data. The data that support the findings of this study are available from the corresponding author upon reasonable request. To implement the assessment protocol, we contacted the school principals and counselors of various schools of Bizkaia (Spain), according to the researchers' convenience, but attempting to achieve representativeness in terms of source of financing (public and concerted schools) and location (different neighborhoods and cities). We attended to all the families of all these schools that were interested in participating in the study and that met the inclusion criteria.

When contacting the schools, we explained the general goal of the study, emphasizing that the school's collaboration only consisted of passing on the information about the study to the families. The parents who were interested in taking part subsequently contacted the researcher via email or phone. In this first contact with the families, we explained the main purpose of the study; ensuring the confidentiality and anonymity of the data. Each family chose the most convenient date and time for them to participate in the study. They could participate in a classroom of their children's school or on the premises of DeustoPsych (Psychological Laboratory of the University of Deusto).

Initially, the participants were informed about the goal of the study; indicating that it was a study of family and sibling relationships. In the informed consent signed by parents, we informed them about the approximate duration (20-30 minutes depending on the children's age). There was one researcher in the same room all the time while the siblings were completing the questionnaires in order to help them, especially the younger ones, answer all the questions, clarifying difficult concepts or doubts the participants might have and helping with the reading of some items. In this way, there were no missing data.

### *Analysis Strategy*

First, descriptive statistics (mean, standard deviation, skewness, and standard error of skewness) of all the factors and scales were calculated. Then we calculated the bivariate correlation matrix (Pearson's  $r$ ) between the main scales of the variables of the study to analyze their association as the first step of the multivariate analysis of mediation. We excluded the variable of Rivalry between siblings due to their different format of response and coding.

Based on the correlational results conducted previously, we conducted a chained mediation model to seek significant evidence in support of the children’s adaptation to interparental conflict based on the generalization hypothesis. Latent factors were created based on the significant correlations of the main scales to integrate all the relevant variables in the model; taking into account the sample size of the study. This whole model is presented in Figure 2 below. The independent variables of Conflict Properties, Threat, and Self-Blame are included in a latent factor that is called Interparental Conflict. Restrictive Father and Restrictive Mother parenting styles are included in a latent factor that is called Restrictive Parental Style which is the first mediator in the model. Self-reported Power, Self-reported Warmth, and Self-reported Conflict variables are included in a latent factor that is called Positive Sibling Relationships which is the second mediator in the model, and finally Personal Maladaptation, School Maladaptation, Social Maladaptation, Family Dissatisfaction, and Sibling Dissatisfaction are included in a latent factor that is called Child Maladaptation, which is the dependent variable of the model.

In the mediation model, the variable extraversion was introduced as covariate of the mediating variables whereas sex and age were covariates of child maladaptation. Both Construct Reliability (CR) and Average Variance Extracted (AVE) were calculated for all the latent variables. We conducted the mediation model through Structural Equation Modeling (SEM) with the Robust Maximum Likelihood method for parameter estimation and the results were interpreted through the global fit of the model considering three fit indexes: the ratio of  $\chi^2$  and the degrees of freedom of the model which should be lower than 2 to consider a good fit of the model (Carmines & McIver; 1981); the root mean squared error of approximation (RMSEA) which should be close to .06 (Hu & Bentler; 1999; Steiger; 2007); and the comparative fit index (CFI) whose value should be above .95 (Hu & Bentler; 1999). According to Kline, a minimum sample size of 200 cases should be provided to conduct a SEM analysis (Kline, 2011), although other studies have proposed the need of fewer cases according to the complexity of the model, normality, and so on (Wolf et al., 2013) which is the case of the present study. The mediation analyses was carried out with the EQS 6.1 software (Bentler, 2006).

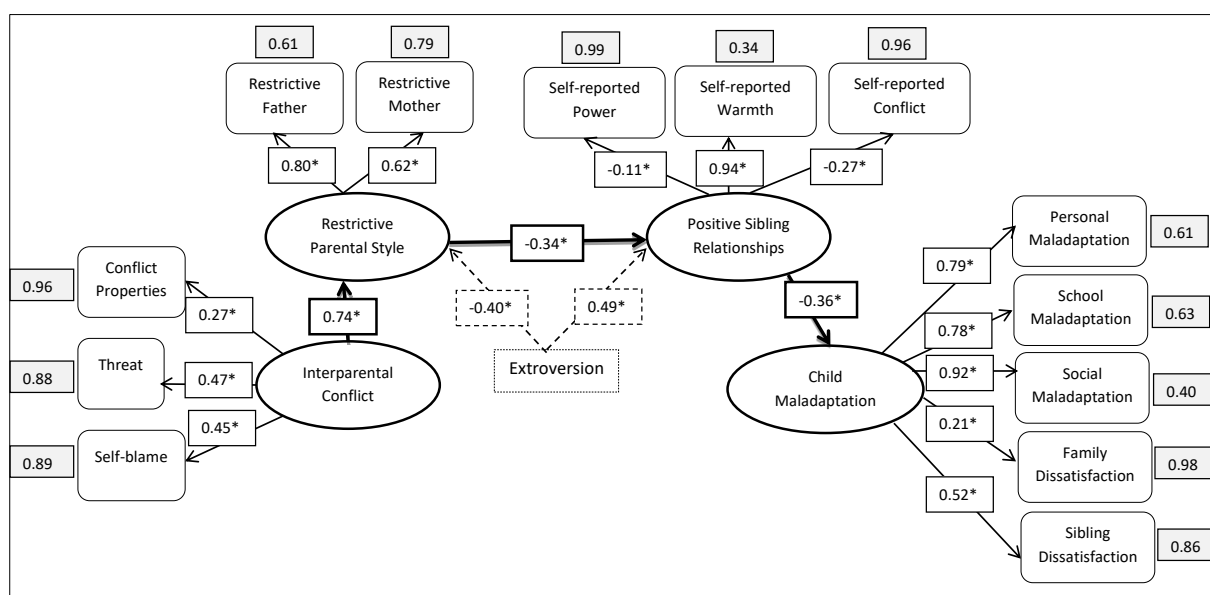


Figure 2: Chained Multiple Mediation Model

## Results

Descriptive statistics are shown in Table 1. Regarding skewness values, only the scale of Aggression of the CPIC (Skewness [Sk] = 3.81) was asymmetric, whereas the scores of the rest of the variables reached adequate skewness values ( $-1.5 > Sk < 1.5$ ). Mean scores of interparental conflict were low, taking into account that the scores could range between 0 and 11 for Conflict Properties, between 0 and 6 for Threat and between 0 and 4 for Self-Blame.

### *Impact of Interparental Conflict and Sibling Relationships on Child Maladaptation*

Regarding correlations between variables; a positive aspect of sibling relationships such as Warmth; was significantly and negatively associated with the variables of Child Maladaptation and with the father's and mother's Restrictive parental style. Conflict between siblings was also significantly and positively associated with Child Maladaptation. Perceived Interparental Conflict was significantly and negatively associated with Warmth and Power between siblings.

### *Impact of Interparental Conflict and Parent-child Relationships on Child Maladaptation*

Perceived Interparental Conflict was and significantly and positively associated with father's and mother's Restrictive parental styles. The father's and mother's Restrictive parental styles were both significantly and positively associated with Child Maladaptation (Table 2).

**Table 2: Correlations between all Variables**

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	
Threat	Self-blame	Conflict Properties	Personal Maladaptation	School maladaptation	Social Maladaptation	Family maladaptation	Siblings maladaptation	Restrictive Mother	Restrictive Father	SRQ Power	SRQ Warmth	
1												
2	.141											
3	.169	1										
4	.088	.257*	.173									
5	.052	.091	.424**	1								
6	.012	.142	.209*	.730**	1							
7	.201*	.047	.546**	.047	.229*	.050						
8	.278**	.229*	.215*	.414**	.257*	.280**	.233*					
9	.158	.228*	.171	.215*	.264**	.160	.333**	.265**	1			
10	.207*	.125	.228*	.220*	.318**	.213*	.514**	.236*	.470**	1		
11	-.343**	-.057	.076	.078	.077	.088	-.002	.136	.011	-.084	1	
12	-.160	.028	-.328**	-.170	-.340**	-.274**	-.421**	-.413**	-.290**	-.411**	-.170	1
13	.071	.162	.216*	.195	.258*	.185	.229*	.356**	.132	.126	.232*	-.246*

Note: 13 = SRQ Conflict; \*  $p < .05$ ; \*\*  $p < .01$

### *Current Study: Generalization Hypothesis through a Chained Mediation Model*

Regarding the previously described mediation model presented in Figure 2, the observed

variables of Conflict Properties, Threat, and Self-blame were integrated in the latent factor of Interparental Conflict which was the independent variable. The observed variables of mother's and father's Restrictive style were integrated in the latent factor of Restrictive Parental Style which was the first mediating variable. The observed variables of self-reported Power, Warmth, and Conflict were integrated in the latent factor of Positive Sibling Relationships which was the second mediating variable. Lastly; the observed variables of Personal, School, and Social Maladaptation, and Family and Sibling Dissatisfaction were integrated in the latent factor of Child Maladaptation which was the dependent variable. Regarding the structural equation model hypothesis, age and sex were finally not introduced as covariates of child maladaptation as neither of them was significantly associated with it (Age:  $\beta = -0.57$ ,  $SE = 0.44$ ,  $p = .097$ , Sex:  $\beta = 3.09$ ,  $SE = 2.58$ ,  $p = .116$ ). It was expected that both restrictive parental style and positive sibling relationships would explain the relationship between interparental conflict and child maladaptation. Statistically, this means that the magnitude of the relationship between the independent variable and the dependent variable would be significantly reduced through the introduction of the mediators in the model. In other words, the indirect effect of the relationship between interparental conflict and child maladaptation attains significance (Hayes, 2013).

The results of the SEM of the mediation effect of Restrictive Parental Style ( $CR = .56$ ,  $AVE = 39\%$ ) and Positive Sibling Relationship ( $CR = .56$ ,  $AVE = 37\%$ ) in the relationship between Interparental Conflict ( $CR = .30$ ,  $AVE = 13\%$ ) and Child Maladaptation ( $CR = .71$ ,  $AVE = 38\%$ ) showed a good fit of the model to the data (Satorra-Bentler  $\chi^2 = 84.32$ ,  $p = .087$ ,  $df = 68$ ,  $\chi^2/df = 1.24$ ,  $RMSEA = .059$ , 90% CI [.000; .098],  $CFI = .94$ ).

The path diagram is shown in Figure 2. As can be observed, the relationships among latent variables were significant. Interparental conflict was positively related to Restrictive Parental Style, which, in turn; was negatively related to Positive Sibling Relationships; and this last was negatively related to Child Maladaptation. Then, indirect effects were tested so both the total (unmediated) and the indirect (mediated) effects were calculated. More specifically, three indirect effects were calculated: the indirect effect introducing only the first mediator; the indirect effect introducing only the second mediator; and the indirect effect introducing both mediators. The effect size of the mediation was tested with the  $f^2$  statistic; which is an effect size based on  $R^2$  (MacKinnon, 2008). It was interpreted following Cohen's criterion: values around .02 are considered small, around .15 medium; and .35 or above are large (Cohen; 1988).

The results showed a significant mediation effect for the global (chained mediation) model: Total effect:  $B = 2.02$  (Error of estimation = 0.61);  $t = 3.32$ ;  $p = .001$ . Indirect effect with both mediators:  $B = 0.20$  (Error of estimation = 0.02);  $t = 10.86$ ;  $p < .001$ ; with a large effect size;  $f^2 = 0.44$ . Otherwise; when both mediators were tested separately; the model showed a poor fit; and the indirect effects were nonsignificant; so indirect effect with the first mediator:  $B = 0.20$  (Error of estimation = 0.23);  $t = -0.80$ ; *ns* (Satorra-Bentler  $\chi^2/df = 1.94$ ;  $RMSEA = .121$ ; 90% CI [.090; .149];  $CFI = .71$ ). Indirect effect with second mediator:  $B = 1.09$  (Error of estimation = 0.97);  $t = 1.42$ ; *ns* (Satorra-Bentler  $\chi^2/df = 1.60$ ;  $RMSEA = .097$ ; 90% CI [.062; .128];  $CFI = .82$ ). This implies that both mediators were relevant had a relevant impact in terms of explained variance of child maladaptation; compared with the variance explained by interparental conflict alone.

The associations between latent variables were significant; medium, and in the expected direction. The association of Interparental Conflict with Restrictive Parental Style was even large. All the observed variables were also significantly associated and in the expected direction with the latent variables in which they were integrated. Regarding the association sizes of the

beta coefficients, most of them were medium; but there were some exceptions. Self-reported Power was lowly associated whereas self-reported Warmth was highly associated with Positive Sibling Relationships. Personal, School and Social Maladaptation were highly associated with Child Maladaptation. The father's Restrictive style was also highly associated with the Restrictive Parental Style (Figure 2).

Regarding the significant increase in explained variance, this proposed chained mediation model increased the explained variance of children's Personal Maladaptation to 63%, the explained variance of School Maladaptation to 61%, the explained variance of Social Maladaptation to 84%, the explained variance of Family Dissatisfaction to 5%, and the explained variance of Sibling Dissatisfaction to 27%.

#### *Covariates: Temperament*

Lastly, the covariate Extraversion was significantly associated with both mediating variables, negatively with Restrictive Parental Style and positively with Positive Sibling Relationships.

### ***Discussion***

The main goal of this study was to analyze the association of interparental conflict on children's adaptation through the generalization of sibling relationships and parent-child relationships. According to the generalization hypothesis (Patterson, 1984) and the cognitive-contextual theoretical model (Grych & Fincham, 1990) and the emotional insecurity theory (Davies & Cummings, 1994) described in the Introduction, we expected to find that the association between interparental conflict and child adaptation was explained by the chained impact of interparental conflict on the restrictive parenting, and at the same time, by the influence of restrictive parenting on sibling relationships. This generalization hypothesis was almost fully supported by the data of this study except for the existent association of siblings' personality. This means that the confirmed chained mediation effect shows that: 1) when there is higher interparental conflict, parents have a more restrictive parental style; 2) the more restrictive parental style is associated with less positive sibling relationships; and 3) due to less positive sibling relationships, children present a higher level of maladaptation. So, the association of interparental conflict on child maladaptation in different domains (related to personal, school, social, family and siblings) can be explained through the restrictive parental styles that parents use and the less positive sibling relationships. However, this association is influenced by siblings' extraversion level because extraversion facilitates positive sibling relationships and hinders the restrictive parental style due to negative association with it.

Children's observations and imitations of parental behavior during conflict may generalize to the sibling relationship and this result has received considerable scientific support (Brody et al., 1994; Brody et al., 1992; Hetherington, 1988; MacKinnon, 1989). This occurs either through a direct or an indirect effect (Amato & Booth, 1995; Dunn et al., 1994; Hakvoort et al., 2010); and parent-child relationships may be mediating that indirect effect (Brody, 1998). In addition, other investigations have confirmed lower child psychological well-being due to this generalization (Cummings et al., 1989; Hetherington, 1988; MacKinnon, 1989). This mediating effect of parenting variables has been confirmed in this study regarding restrictive

parental styles because interparental conflict did generalize to restrictive parent-child relationships mainly in the presence of a restrictive paternal style. This idea is included in the generalization premise as hostile and conflicting patterns between parents extend to parent-child relationships with similar characteristics (Brody, 1998; Conger & Conger, 1996). However, this study offers new evidence about the mentioned generalization effect because it goes one step further. The data of this study show that this restrictive parent-child style decreased positive sibling exchanges but not by favoring the emergence of more negative or conflicting exchanges but rather with the siblings showing less warmth to each other, less companionship, fewer helping behaviors, and less admiration. As a result, more restrictive parental styles and a decrease of positive sibling exchanges was associated with child maladaptation; which revealed this more complex and new generalization process. This model of generalization could possibly be explained by the fact that restrictive parental styles produce a family climate based on the spread of negative emotions to all members of the family (Darling & Steinberg, 1993), as well as an emotional contagion (Saarni et al., 1998) of these negative emotions generated in the parental subsystem; which infect the sibling subsystem. In the evidence favoring the generalization hypothesis, the personality characteristic of extraversion covaried positively with positive sibling relationships and negatively with restrictive parental style. That is, being more outgoing offsets the generalization of interparental conflict to other family relationships such as parent-child and sibling relationships. Thus, the evidence supports the transactional hypothesis and highlights the important role of personality, particularly extraversion, in social relationships (Wrzus et al., 2015). Specifically, extraversion has been associated with positive aspects of parenting in previous studies (Davey et al., 2009) so this could explain the buffering effect of extraversion in the association of interparental conflict with child maladaptation.

Regarding the limitations of the study, a larger sample size would allow higher statistical power in the structural equation models. Moreover, a larger sample size would allow analyzing the effect of sex and age composition of the sibling dyads (not only to include them as covariate variables) and the impact of parents' socioeconomic status or educational levels as key variables to understand differences in children's adaptation to interparental conflict. In addition, it should be noted that when considering pairs of siblings as participants, there could be autocorrelation between the variables and this would imply a bias in the results. Future studies in this field could take into account the mentioned variables, as well as parents' personality and parental differential treatment of siblings. The single time-point nature and single-informant design also restrict the validity of the results and preclude analyzing causal effects. Also, including self-reports and reports from other siblings would allow an actor-partner analysis to study the dyadic effect of siblings. Hence, longitudinal and multi-informant studies in this field would allow analyzing causal effects and the reliability of this model (O'Laughlin et al., 2018).

Lastly, it must be mentioned that there are alternative explanatory models that analyze the impact of interparental conflict on children's adaptation. In this sense, it would be interesting to compare other theoretical models such as the buffering role of sibling relationships, to know when each model would better explain children's adaptation in interparental conflict situations.

In short, these results suggest that the interparental conflict situation generalizes, causing siblings to express less warmth, companionship, and admiration. Hence, according to these results we can suggest some practical implications. The generalization hypothesis is supported as a predominant process in situations of interparental conflict. Therefore, for ade-

quate children's adaptation, it is important to take into account both parent-child relational styles—especially by replacing the restrictive style with a more appropriate style—and sibling relationships—fostering positive sibling interactions— as these two aspects represent the main mediators in this process of negative generalization within the family context.

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