

Chapter 35

DYSFUNCTIONAL FAMILY ENVIRONMENT ON DIRECT AND INDIRECT AGGRESSION IN ADOLESCENTS

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ABSTRACT

The effect of a dysfunctional family environment on direct and indirect aggression was examined, testing the mediating role of hopelessness in this relationship. Secondary students (N = 642; aged 12-18) completed the Family Assessment Device (FAD), a self-report measure that assess different dimensions of family functioning (general functioning, problem solving, communication, roles, affective responsiveness, affective involvement, and behaviour control), the Children's Social Behavior Scale Self-report (CSBS-S), which includes measures of direct and indirect aggression, and the Beck Hopelessness Scale (BHS). Hierarchical regression analyses were performed controlling for gender, revealing that unhealthy family patterns predict both direct and indirect aggression, and this prediction may in part be explained through the effect of hopelessness. Knowledge of the risk factors leading to aggressive behaviors may be useful for improving specific intervention programmes to prevent the onset and to diminish adolescent adjustment problems over the course of development.

Keywords: family environment, hopelessness, direct aggression, indirect aggression, adolescence.

1. INTRODUCTION

Conduct problems in childhood and adolescence are increasing. Aggressive behaviours are especially prevalent among young people and are frequently observed in the school environment (Stevens, De Bourdeaudhuij, & Van Oost, 2002). Although the family is the first context in which children learn social and emotional skills, the school setting provides an important opportunity to interact with peers and has a huge impact on how those skills are developed (Merrell, Buchanan, & Trand, 2006).

Involvement in aggressive incidents has highly negative psychological and social effects in adulthood (Varhama & Björkqvist, 2005), with a strong relationship between early aggressive behaviour and later aggression and delinquency (Farrington, 1991; Olweus, 1979). The general construct of aggression has been defined as intent to hurt or harm others (Berkowitz, 1993). Nevertheless, aggression is a complex phenomenon, and various authors make a distinction between an easily observed and confrontative form, called direct or overt aggression, and a more covert and indirect form, named indirect or relational aggression (Björkqvist, 2001; Crick & Grotpeter, 1995). Direct aggression is defined as behaviours that are intended to harm others through physical or verbal means (e.g., hitting, pushing, named-calling or yelling at others). Indirect aggression is characterised by harming another person through manipulation of their peer relationships, friendships or social status (e.g., excluding a classmate from the social group or spreading rumours about someone). These harmful actions against peers emerge as one of the most troublesome problems at school, with prevalence ranging from 10% to 25% in Australia (Rigby & Slee, 1993), Austria (Klicpera & Gasteiger-Klicpera, 1996), England (Whitney & Smith, 1993), Finland (Björkqvist & Jansson, 2003), Germany (Wolke, Woods, Bloomfield, & Karstadt, 2000), Japan (Morita, 1985), Norway (Olweus, 1978), Spain (Avilés & Monjas, 2005), or United States (Nansel et al., 2001).

A large body of child development literature focuses on risk factors for engaging in aggression. Individual and contextual factors contribute to the development of aggressive conduct during childhood and adolescence (Smith, Bowers, Binney, & Cowie, 1993). With regard to contextual factors, there is an increasing interest in examining features of the family

environment. Theoretical models support the notion that family interaction patterns play a central role in the onset of behavioural problems (George, Herman, & Ostrander, 2006). Child neglect, abuse and maltreatment have severe emotional and behavioural consequences and have been widely studied (Brown, Cohen, Johnson, & Smailes, 1999; Luster & Small, 1997). According to Merrell et al. (2006), it is important to take into account the role of the family regarding the onset and continuance of aggressive behaviours. Attachment, parenting styles and practices, and socioeconomic status have been shown to relate to aggressive outcomes (see Coie & Dodge, 1998, for a review). Rigby (1994) found that being an aggressor at school was significantly linked to the poor psychological functioning of the family. Overall, family functioning is considered to have a relevant influence on adolescent aggression; however, little is known about which specific features of the family could lead to direct versus indirect aggression. Studies rarely make a distinction between these constructs (Bowers, Smith, & Binney, 1992; Rigby, 1994) and focus, for the most part, on direct aggression, which has been linked concurrently and prospectively to familial and parent-child factors (Tremblay, 2001). The majority of studies only paid attention to physical or verbal aggression until nineties, since overt aggression was easily observed in school yards with more evident damage to the victims (Björkqvist & Niemelä, 1992; Lagerspetz, Björkqvist, & Peltonen, 1988). This might be a consequence of a lack of awareness about more covert forms of aggression, which cannot be observed directly, but has been shown to be at least as harmful as direct aggression, many times having worse psychological consequences (Sharp, 1995). Indirect aggression has been investigated in recent years by experimental psychologists, but there is little evidence in applying the concept of indirect aggression to family functioning research. Longitudinal data (Vaillancourt, Miller, Fagbemi, Côté, & Tremblay, 2007) indicated that low socio-economic status, hostile-ineffective parenting, and inconsistent parenting at Time 1 were related to indirect aggression at Time 2, in alignment with results found for direct aggression. McNeilly-Choque, Hart, Robinson, Olsen, and Nelson (1996) showed that children who were members of families with higher socio-economic status displayed more indirect aggression, whereas children in families with lower socio-economic status displayed more direct aggression.

Studies investigating the relationship between hopelessness and aggression show contradictory findings, although most of them suggest that hopelessness tends to contribute to aggressive behaviours. Abramson, Metalsky, and Alloy (1989) define hopelessness as the expectation that highly desired outcomes will not occur accompanied by the expectation that one is unable to change the probabilities of these outcomes. It has been shown that certain characteristics of the family, such as parental control, parental education, and marital status contribute significantly to the appearance of hopelessness (Levy, Jurkovic, & Spirito, 1995). However, the link between hopelessness and aggression has been less studied (Ferdico, 1999).

The first objective of the current study is to examine the influence of specific dimensions of family functioning on the appearance of direct and indirect aggression. This is one of the first studies investigating specific characteristics of family functioning in relation to each type of aggression separately. The second objective is to explore whether hopelessness is related to aggressive behaviour in adolescents. If so, in light of the data linking dysfunctional family environment to hopelessness, it could be hypothesized that hopelessness might mediate the influence of family dysfunction on aggression against peers. Thus, the third objective of this study is to test the mediating role that hopelessness may play between family dysfunction and direct and indirect aggressive behaviour separately. Additionally, gender differences were examined and controlled along the different objectives.

2. DESIGN

2.1. Participants

Adolescents aged 12 to 18 ($M = 14.79$ years; $SD = 1.74$) were recruited from six Secondary Schools in the area of Málaga, Spain, resulting in a sample of 642 pupils (331 girls and 311 boys; participation rate of 97%). The researchers asked the school principals for permission to request student participation. The adolescents were free to take part in the study or to decline to do it.

2.2. Measures

Self-reported aggression. Aggression was assessed with a self-report instrument developed by Crick and Grotpeter (1995), called the Children's Social Behavior Scale Self-report (CSBS-S). This instrument has different subscales to measure: aggression, prosocial behaviour, victimization, inclusion in the class group, and isolation. In this study, only the subscales concerning direct (physical and verbal) and indirect aggression were used. The direct aggression subscale consists of three items (two for physical aggression and one for verbal aggression), and the indirect subscale contains five items. Adolescents reported how often they engaged in aggressive behaviours, according to a 5-point scale from never (1) to all the time (5), (e.g., some kids tell lies about a classmate so that the other kids won't like the classmate anymore. How often do you do this?). Higher scores indicate a higher degree of self-reported aggression. This instrument has been shown to be internally consistent in this sample (direct aggression, $\alpha = .84$; indirect aggression, $\alpha = .79$), and also previous studies (see Leadbeater, Boone, Sangster, & Mathieson, 2006).

Family environment. The Family Assessment Device (FAD) was selected to measure which dimensions of the family environment might be risk factors for the development of aggressive behaviour (Epstein, Baldwin, & Bishop, 1983). The FAD is a self-report instrument designed to assess the individual family member's perception of his/her family functioning on each dimension of the McMaster Model of Family Functioning (MMFF; Ryan, Epstein, Keitner, Miller, & Bishop, 2005). It consists of 60 items grouped in six subscales: Problem solving, communication, roles, affective responsiveness, affective involvement, and behaviour control. In addition, a seventh general functioning subscale measures the overall level of the family functioning. It contains items that represent the other dimensions included in the model, with a correlation of .85 in non-clinical samples. Each item can be responded to on a 4-point scale, ranging from never (1) to always (4), (e.g., we make sure members meet their family responsibilities). The response form was reworded from the original English questionnaire to be more understandable in Spanish (strongly disagree to strongly agree was changed to never to always). Internal consistencies were in the range of the originally reported consistencies (see Ryan et al., 2005): $\alpha = .91$ for general functioning, $\alpha = .65$ for problem solving, $\alpha = .78$ for communication, $\alpha = .73$ for roles, $\alpha = .79$ for affective responsiveness, $\alpha = .77$ for affective involvement, and $\alpha = .74$ for behaviour control. Families were considered healthy if an average overall family functioning score was less than 2 on the 4-point scale, whereas a higher score indicated unhealthy functioning.

Hopelessness. The Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, & Trexler, 1974) was used to assess hopelessness, that is, the degree to which an individual's cognitive schema is characterised by pessimistic expectations about the future. Adolescents were asked to respond to 20 items, on a 4-point scale ranging from 1 (strongly disagree) to 4 (strongly agree), their thoughts over the last two weeks. The response form was reworded from the original questionnaire, which was a dichotomous scale, in order to gain better sensitivity. The possible score range was from 20 to 80, with higher scores indicating higher levels of hopelessness. The internal consistency for this format of the scale ($\alpha = .84$) is in accordance with the original format (Young, Halper, Clark, Scheftner, & Fawcett, 1992). Hopelessness scores based on this scale are known to correlate significantly with clinical ratings of hopelessness (Beck et al., 1974).

2.3. Method

In a cross-sectional design, two trained research assistants administered the questionnaires to the students as a part of a larger study on social development. Two sessions of 50 minutes each were conducted on two different days to avoid tiring the students. They wrote a code instead of their names on the questionnaires to preserve their anonymity. When explaining the instructions, the assistants encouraged the pupils to ask if they had any questions and answer honestly.

2.4. Data analysis

Prior to main analyses, descriptive statistics and gender differences for each variable included in the study were examined. A hierarchical regression methodology was used to study the effect of FAD dimensions on direct and indirect aggression. Additionally, the role of hopelessness as mediator of these relationships was tested following the procedure suggested by Baron and Kenny (1986).

3. RESULTS

Statistical significance was found for direct and indirect aggression, with male adolescents more prone to be aggressive in both cases. Males have also an unhealthier functioning in the affective involvement dimension than female adolescents. Table 1 presents means, standard deviations, and correlations among all variables. The results are presented in two subsections. The first examines the influence of family functioning on direct and indirect aggression. The second explores the influence of hopelessness on aggressive behaviour and tests its mediating role between family functioning and the two forms of aggression.

Table 1. Descriptives and bivariate correlations, n = 642.

											Females (n=331)		Males (n=311)	
	1	2	3	4	5	6	7	8	9	10	M	SD	M	SD
1. Direct Aggression	-	.50	.20	.14	.15	.16	.18	.12	.09	.08	3.95	1.27	4.87	1.90
2. Indirect Aggression		-	.23	.15	.16	.12	.16	.15	.10	.07	6.14	1.53	6.63	2.26
3. Hopelessness			-	.23	.25	.25	.23	.21	.14	.20	38.70	8.09	39.46	8.54
4. General Functioning				-	.74	.76	.75	.80	.73	.69	1.87	.72	1.95	.73
5. Problem Solving					-	.71	.67	.68	.44	.71	2.20	.59	2.24	.58
6. Communication						-	.62	.68	.47	.57	2.21	.60	2.25	.56
7. Roles							-	.65	.58	.65	2.14	.50	2.16	.52
8. Affective Responsiveness								-	.58	.57	2.03	.70	2.10	.71
9. Affective Involvement									-	.56	1.81	.59	1.94	.67
10. Behaviour Control										-	2.13	.58	2.08	.62

Note: Absolute correlations greater than .14 are significant at $p \leq .001$ (overall significance level $p \leq .05$ adjusted at $p \leq .001$ following Bonferroni correction for multiple comparisons).

3.1. Influence of family dimensions on direct and indirect aggression

Table 2 and Table 3 show the results of the regression analyses in which direct and indirect aggression were regressed independently on each family dimension, controlling for gender. Additionally, the interactions of gender and each dimension were also tested.

Table 2. Regression analyses of FAD predicting Direct Aggression.

Equation	Predictor	B	SE	β	t	R ² change
1	Gender	-.91	.13	-.27	-7.18	R ² = .07, F (1, 640) = 51.61***
	General Functioning	.29	.09	.13	3.34	$\Delta R^2 = .02$, F (1, 639) = 11.17***
2	Gender	-.91	.13	-.27	-7.18	R ² = .07, F (1, 640) = 51.61***
	Problem Solving	.41	.11	.14	3.83	$\Delta R^2 = .02$, F (1, 639) = 14.65***
3	Gender	-.91	.13	-.27	-7.18	R ² = .07, F (1, 640) = 51.61***
	Communication	.44	.11	.15	4.07	$\Delta R^2 = .02$, F (1, 639) = 16.60***
4	Gender	-.91	.13	-.27	-7.18	R ² = .07, F (1, 640) = 51.61***
	Roles	.56	.12	.17	4.55	$\Delta R^2 = .03$, F (1, 639) = 20.79***
5	Gender	-.91	.13	-.27	-7.18	R ² = .07, F (1, 640) = 51.61***
	Affective Responsiveness	3.78	.41	.33	9.06	$\Delta R^2 = .01$, F (1, 639) = 8.69*

Table 2. Regression analyses of FAD predicting Direct Aggression (cont.).

6	Gender	-.91	.13	-.27	-7.18	$R^2 = .07, F(1, 640) = 51.61^{***}$
	Affective Involvement	.16	.10	.06	1.63	$\Delta R^2 = .004, F(1, 639) = 2.66, ns$
7	Gender	-.91	.13	-.27	-7.18	$R^2 = .07, F(1, 640) = 51.61^{***}$
	Behaviour Control	.24	.11	.09	2.29	$\Delta R^2 = .008, F(1, 639) = 5.24^*$

Note: Gender coded as 1 for boys and 2 for girls.

* $p < .05$, *** $p < .001$, *ns* = nonsignificant

Table 3. Regression analyses of FAD predicting Indirect Aggression.

Equation	Predictor	B	SE	β	t	R^2 change
1	Gender	-.49	.15	-.13	-3.22	$R^2 = .02, F(1, 640) = 10.40^{***}$
	General Functioning	.38	.10	.14	3.69	$\Delta R^2 = .02, F(1, 639) = 13.64^{***}$
2	Gender	-.49	.15	-.13	-3.22	$R^2 = .02, F(1, 640) = 10.40^{***}$
	Problem Solving	.53	.13	.16	4.17	$\Delta R^2 = .02, F(1, 639) = 17.40^{***}$
3	Gender	-.49	.15	-.13	-3.22	$R^2 = .02, F(1, 640) = 10.40^{***}$
	Communication	.37	.13	.11	2.90	$\Delta R^2 = .01, F(1, 639) = 8.35^*$
4	Gender	-.49	.15	-.13	-3.22	$R^2 = .02, F(1, 640) = 10.40^{***}$
	Roles	.58	.15	.15	3.96	$\Delta R^2 = .02, F(1, 639) = 15.67^{***}$
5	Gender	-.49	.15	-.13	-3.22	$R^2 = .02, F(1, 640) = 10.40^{***}$
	Affective Responsiveness	.40	.11	.15	3.81	$\Delta R^2 = .02, F(1, 639) = 14.63^{***}$
6	Gender	-.49	.15	-.13	-3.22	$R^2 = .02, F(1, 640) = 10.40^{***}$
	Affective Involvement	.26	.12	.08	2.19	$\Delta R^2 = .007, F(1, 639) = 4.80, *$
7	Gender	-.49	.15	-.13	-3.22	$R^2 = .02, F(1, 640) = 10.40^{***}$
	Behaviour Control	.24	.13	.07	1.90	$\Delta R^2 = .006, F(1, 639) = 3.60, ns$

Note: Gender coded as 1 for boys and 2 for girls.

$p < .05$, *** $p < .001$, *ns* = nonsignificant

The results indicate that all family functioning dimensions significantly predicted both direct and indirect aggression, with two exceptions: Affective involvement was not a statistically significant predictor of direct aggression ($p = .10$), and behaviour control showed only a tendency towards being a statistically significant predictor of indirect aggression ($p = .058$). With regard to direct aggression, the variance explained by each dimension measured with the FAD ranged between 3% for roles and 0.4% for affective involvement. Regarding indirect aggression, the variance explained by each dimension ranged between 2% for general functioning and 0.6% for behaviour control. Gender by itself was significantly predictive of both types of aggression, explaining 7% of the variance for direct aggression and 2% of the variance for indirect aggression. That is, male adolescents were more aggressive than female adolescents in both cases, although differences were considerably smaller with respect to indirect aggressive behaviour. The interactions of gender with the family functioning dimensions did not turn out to be statistically significant, either in regard to direct or indirect aggression.

3.2. Influence of hopelessness on aggressive behaviour and its mediating role in the prediction of family functioning on direct and indirect aggression

To investigate whether hopelessness might predict aggressive behaviour, two hierarchical regression analyses were performed, one for each type of aggression. Effects of gender were controlled in the first step. Results from the two analyses showed that hopelessness influenced both direct aggression ($\beta = .190, t(640) = 5.09, p < .001$) and indirect aggression ($\beta = .223, t(640) = 5.83, p < .001$). Next, the possible mediating role of hopelessness in the relationship between family functioning and direct and indirect aggression was tested. To establish mediation, three criteria must be met (Baron and Kenny, 1986). First, family dimensions must significantly predict the two types of aggression. Second, family dimensions

must significantly predict hopelessness. Third, hopelessness must significantly predict both direct and indirect aggression, when introduced together with each dimension of family functioning in the same regression equation. Furthermore, the relationship between family functioning and aggressive behaviour must be reduced or even disappear when hopelessness is controlled.

Findings reported in previous subsection supported the first criterion: With only two exceptions, each dimension of family functioning predicted both direct and indirect aggression. The second criterion was tested with seven regression equations, one for each family dimension of the FAD. Indeed, family dimensions were all predictors of hopelessness: General functioning, $\beta = .22$, $t(640) = 5.83$, $p \leq .001$; problem solving, $\beta = .25$, $t(640) = 6.62$, $p \leq .001$; communication, $\beta = .25$, $t(640) = 6.47$, $p \leq .001$; roles, $\beta = .23$, $t(640) = 5.86$, $p \leq .001$; affective responsiveness, $\beta = .21$, $t(640) = 5.49$, $p \leq .001$; affective involvement, $\beta = .14$, $t(640) = 3.45$, $p \leq .001$; and behaviour control, $\beta = .20$, $t(640) = 5.21$, $p \leq .001$. Gender did not predict the appearance of hopelessness, and none of the interactions involving gender were significant. With respect to the third criterion, hopelessness was found to be a good predictor of direct and indirect aggression, as pointed out previously. Table 4 presents the results of testing the third criterion for direct aggression. When hopelessness was introduced into each equation, the effect of the different dimensions on direct aggression decreased, and the effect of behaviour control disappeared. We did not include affective involvement in this group of analyses since it did not predict direct aggression in the first step. Focusing on indirect aggression, Table 5 shows that the predictions of the different dimensions decreased when the effect of hopelessness was controlled. Furthermore, the effects disappeared for communication and affective involvement. Behaviour control was not introduced due its lack of predictive power for indirect aggression.

Table 4. Hierarchical regression analyses testing the mediation of hopelessness in the relationship between family dimensions and direct aggression, controlling for the effects of gender.

Equation	Entry Order	Predictor Variable	B	SE	β	t	R ² change
1	1	Gender	-.91	.13	-.27	28.50	R ² = .07, F (1, 640) = 51.61***
		General Functioning	.20	.09	.09	2.30	$\Delta R^2 = .04$, F (2,638) = 15.68 *
		Hopelessness	.03	.01	.17	4.46	
2	1	Gender	-.91	.13	-.27	28.50	R ² = .07, F (1, 640) = 51.61***
		Problem Solving	.29	.11	.10	2.67	$\Delta R^2 = .05$, F (2,638) = 16.63*
		Hopelessness	.03	.01	.16	4.27	
3	1	Gender	-.91	.13	-.27	28.50	R ² = .07, F (1, 640) = 51.61***
		Communication	.32	.11	.11	2.95	$\Delta R^2 = .05$, F (2,638) = 17.45*
		Hopelessness	.03	.01	.16	4.23	
4	1	Gender	-.91	.13	-.27	28.50	R ² = .07, F (1, 640) = 51.61***
		Roles	.44	.12	.13	3.55	$\Delta R^2 = .05$, F (2,638) = 19.47***
		Hopelessness	.03	.01	.16	4.19	
5	1	Gender	-.91	.13	-.27	28.50	R ² = .07, F (1, 640) = 51.61***
		Affective Responsiveness	.18	.09	.07	1.95	$\Delta R^2 = .04$, F (2,638) = 14.90*
		Hopelessness	.03	.01	.17	4.57	
6	1	Gender	-.91	.13	-.27	28.50	R ² = .07, F (1, 640) = 51.61***
		Behaviour Control	.14	.11	.05	1.33	$\Delta R^2 = .04$, F (2,638) = 13.84, ns
		Hopelessness	.04	.01	.18	4.72	

Note: Gender coded as 1 for boys and 2 for girls.

* $p \leq .05$; *** $p < .001$; ns = nonsignificant

Table 5. Hierarchical regression analyses testing the mediation of hopelessness in the relationship between family dimensions and indirect aggression, controlling for the effects of gender.

Equation	Entry Order	Predictor Variable	B	SE	β	t	R ² change
1	1	Gender	-.49	.15	.13	3.22	R ² = .02, F (1, 640) = 10.40***
	2	General Functioning Hopelessness	.26 .05	.10 .01	.10 .20	2.51 5.14	$\Delta R^2 = .06$, F (2,638) = 20.31*
2	1	Gender	-.49	.15	.13	3.22	R ² = .02, F (1, 640) = 10.40***
	2	Problem Solving Hopelessness	.37 .04	.13 .01	.11 .19	2.85 4.95	$\Delta R^2 = .06$, F (2,638) = 21.27*
3	1	Gender	-.49	.15	.13	3.22	R ² = .02, F (1, 640) = 10.40***
	2	Communication Hopelessness	.20 .05	.13 .01	.06 .21	1.55 5.27	$\Delta R^2 = .05$, F (2,638) = 18.25, ns
4	1	Gender	-.49	.15	.13	3.22	R ² = .02, F (1, 640) = 10.40***
	2	Roles Hopelessness	.41 .05	.15 .01	.11 .20	2.78 5.08	$\Delta R^2 = .06$, F (2,638) = 21.06***
5	1	Gender	-.49	.15	.13	3.22	R ² = .02, F (1, 640) = 10.40***
	2	Affective Responsiveness Hopelessness	.29 .05	.11 .01	.11 .20	2.72 5.15	$\Delta R^2 = .06$, F (2,638) = 20.87***
6	1	Gender	-.49	.15	.13	3.22	R ² = .02, F (1, 640) = 10.40***
	2	Affective Involvement Hopelessness	.17 .05	.12 .01	.06 .22	1.47 5.59	$\Delta R^2 = .05$, F (2,638) = 18.12, ns

Note: Gender coded as 1 for boys and 2 for girls.

* $p \leq .05$; *** $p \leq .001$; ns = nonsignificant

Therefore, the three criteria of Baron and Kenny (1986) were fulfilled for each dimension, except for the effect of affective involvement on direct aggression and behaviour control on indirect aggression. Interestingly, the relation between family functioning measured with the FAD and both types of aggression can be partially or totally explained through the influence of hopelessness. Figure 1 summarizes the mediating role of hopelessness on each dimension of family functioning and direct and indirect aggression. An examination of the β indices in Tables 2, 3, 4, and 5 reveals that the effect of each dimension on aggression changes when hopelessness is introduced. To test the statistical significance of these changes, the Sobel Test (Sobel, 1982) was conducted, following the procedure of Preacher and Hayes (2004). All the partial and total mediations were found to be statistically significant at $p \leq .005$ related to both direct aggression ($z_s = 3.69$ for general functioning; $z_s = 3.87$ for problem solving; $z_s = 3.81$ for communication; $z_s = 3.68$ for roles; $z_s = 3.60$ for affective responsiveness; and $z_s = 3.50$ for behaviour control), and indirect aggression ($z_s = 4.11$ for general functioning; $z_s = 4.37$ for problem solving; $z_s = 4.29$ for communication; $z_s = 4.11$ for roles; $z_s = 3.99$ for affective responsiveness; and $z_s = 2.96$ for affective involvement).

Figure 1. Summary of the Mediating Effect of Hopelessness on Direct and Indirect Aggression.

DIRECT AGGRESSION		INDIRECT AGGRESSION
<i>Mediation by Hopelessness</i>		<i>Mediation by Hopelessness</i>
Partial	General Functioning	Partial
Partial	Problem Solving	Partial
Partial	Communication	TOTAL
Partial	Roles	Partial
Partial	Affective Responsiveness	Partial
No	Affective Involvement	TOTAL
TOTAL	Behaviour Control	No

4. DISCUSSION

The present study investigated the extent to which a dysfunctional family environment is a risk factor for the development of direct and indirect forms of aggressive behaviour in adolescents. These six dimensions of family functioning were considered as possible predictors of both direct and indirect aggression. The composite variable for overall family functioning turned out to be a risk factor for both types of aggression. Our findings confirm the influence of a dysfunctional family environment on direct aggression, and expand on prior work by finding a predictive influence on indirect aggression also. Consequently, the more dysfunctional the family, as reported by adolescents, the more direct and indirect aggression they are prone to engage in. That is to say, dysfunctions in: a) the ability to solve problems in relation to the family; b) the clarity and simplicity of the verbal exchange within the family; c) the repetitive patterns of behaviour by which each member of the family has to deal with different tasks; d) the quality, quantity and adaptability of the affection; e) the expression of interest in activities of the others family members, and the degree and manner in which this interest is shown; and f) the pattern used by the family to set the rules and boundaries for appropriate functioning; may lead to the appearance of aggressive behaviours in adolescents.

Therefore, as a general conclusion, family dysfunction is a relevant factor in the appearance of aggression. When there are dysfunctional family patterns, aggression do not depend on a single dimension, but on all of them acting together. In reality, it is unusual for only one pattern to go wrong within a family; when unhealthy functioning occurs, generally it reflects an overall dysfunctional pattern. Furthermore, a dysfunctional family environment increases the risk of both direct and indirect aggression but does not necessarily contribute to one type of aggression over the other, which also is in accordance with previous research (Vaillancourt et al., 2007). This finding suggests that the manifestation of direct or indirect aggressive behaviour may depend on other individual and contextual factors.

In regard to gender differences, male adolescents were found to express more aggressiveness than female adolescents in both direct and indirect ways. Nevertheless, these differences were smaller with respect to indirect aggression. The results are in partial alignment with well-known research on children and adolescents' gender differences in aggressive behaviour, which find boys to use more direct strategies and girls to use more indirect strategies (Björkqvist, Österman, & Kaukianen, 1992; Crick & Grotpeter, 1995; French, Jansen, & Pidada, 2002). However, some studies found no differences regarding indirect aggression between male and female adults and adolescents (Schober, Björkqvist, & Somppi 2009; Toldos, 2005). The higher engagement of males in the two types of aggression in our sample might be explained due to cultural factors related to the Spanish society. Cultural stereotypes in Spain imply positive attitudes towards violence when expressed by males and negative attitudes when expressed by females, which may lead to lower levels of aggression delivered by females (Toldos, 2005).

The other main purpose of this study, that is, testing the role of hopelessness in the relationship between family dysfunction and the two types of aggression, stems from research in which the family environment on the one hand, and aggression, on the other, have been related to this adjustment problem in adolescence. Certainly, the link between a dysfunctional family environment and hopelessness has been well established (Levy et al., 1995). However, as pointed out in the introduction, there are contradictory findings about hopelessness and aggression (Ferdico, 1999). Results of this study first confirm the effect of a dysfunctional family environment on hopelessness, then confirm the effect of hopelessness on both direct and indirect aggression, and, finally, find that part of the effect of a dysfunctional family environment on aggression are explained through hopelessness. Therefore, the hypothesis that unhealthy family patterns play a significant role in explaining both types of aggression through hopelessness is supported.

Concerning the limitations of this study, the cross-sectional design should be noted. The collection of data at only one point in time makes it difficult to establish causal relationships. Nonetheless, the use of regression analysis, according to Wagner (1997), provides a statistical way to isolate the effect of the hypothesized risk factors and to control the overlapping effects among them. In any case, after this first approximation, longitudinal studies are needed to establish temporal sequences, measuring family patterns at one point and aggression at another point in the future. Additionally, it is important to take into account that the family functioning as measured here only provides information from the adolescents' perspective. For a more complete knowledge of the family dynamics, future studies should consider also the perspective of parents.

In summary, a dysfunctional family environment appears to be a risk factor for the onset of direct and indirect aggression, with male adolescents being more prone to develop both types of aggression than female adolescents and hopelessness explains a significant part of this relationship. A sound knowledge of risk factors for aggression may be useful when designing specific intervention programmes directed at preventing and mitigating negative consequences of adolescent aggressive behaviour.

REFERENCES

- Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (1989). Hopelessness depression: A theory-based subtype of depression. *Psychological Review*, *96*(2), 358-372. doi:10.1037/0033-295X.96.2.358
- Avilés, J. M., & Monjas, I. (2005). Estudio de incidencia de la intimidación y el maltrato entre iguales en la educación secundaria obligatoria mediante el Cuestionario CIMEI (Avilés, 1999) – Cuestionario sobre Intimidación y Maltrato Entre Iguales [Incidence study on intimidation and bullying in compulsory secondary education by CIMEI Questionnaire (Avilés, 1999) - Questionnaire on intimidation and bullying]. *Anales de Psicología*, *21*(1), 27-41.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173-1182. doi:10.1037/0022-3514.51.6.1173
- Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: The Hopelessness Scale. *Journal of Consulting and Clinical Psychology*, *42*(6), 861-865. doi:10.1037/h0037562
- Berkowitz, L. (1993). *Aggression: Its causes, consequences, and control*. New York, NY: Academic Press.
- Björkqvist, K. (2001). Different names, same issue. *Social Development*, *10*(2), 272-274. doi:10.1111/1467-9507.00164
- Björkqvist, K., & Jansson, V. (2003). Tackling violence in schools: A report from Finland. In P. K. Smith (Ed.), *Violence in schools: The response in Europe* (pp. 187-199). London, UK: Routledge Palmer.
- Björkqvist, K., & Niemelä, P. (1992). New trends in the study of female aggression. In K. Björkqvist, & P. Niemelä (Eds.), *Of mice and women: Aspects of female aggression* (pp. 3-16). San Diego, CA: Academic Press.
- Björkqvist, K., Österman, K., & Kaukianen, A. (1992). The development of direct and indirect aggressive strategies in males and females. In K. Björkqvist, & P. Niemelä (Eds.), *Of mice and women: Aspects of female aggression* (pp. 51-64). San Diego, CA: Academic Press.

- Bowers, L., Smith, P. K., & Binney, V. A. (1992). Cohesion and power in the families of children involved in bully/victim problems at school. *Journal of Family Therapy, 14*(4), 371-387. doi:10.1046/j.1992.00467.x
- Brown, J., Cohen, P., Johnson, J. G., & Smailes, E. M. (1999). Childhood abuse and neglect: Specificity of effects on adolescent and young adult depression and suicidality. *Journal of the American Academy of Child and Adolescent Psychiatry, 38*(12), 1490-1496. doi:10.1097/00004583-199912000-00009
- Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behavior. In W. Damon, & N. Eisenberg (Eds.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (5th ed.) (pp. 779-862). Hoboken, NJ: John Wiley.
- Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development, 66*(3), 710-722. doi:10.1111/j.1467-8624.1995.tb00900.x
- Epstein, N. B., Baldwin, L. M., & Bishop, D. S. (1983). The McMaster Family Assessment Device. *Journal of Marital and Family Therapy, 9*(2), 171-180. doi:10.1111/j.1752-0606.1983.tb01497.x
- Farrington, D. P. (1991). Childhood aggression and adult violence: Early precursors and later-life outcomes. In D. J. Pepler, & K. H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 5-29). Hillsdale, NJ: Lawrence Erlbaum.
- Ferdico, D. I. (1999). Hopelessness and violence in adolescents. *Dissertation Abstracts International: Section B. The Sciences and Engineering, 60*(5-B), 2336.
- French, D., Jansen, E., & Pidada, S. (2002). United States and Indonesian children's and adolescents' reports of relational aggression by disliked peers. *Child Development, 73*(4), 1143-1150. doi:10.1111/1467-8624.00463
- George, C., Herman, K. C., & Ostrander, R. (2006). The family environment and developmental psychopathology: The unique and interactive effects of depression, attention, and conduct problems. *Child Psychiatry and Human Development, 37*(2), 163-177. doi:10.1007/s10578-006-0026-5
- Klicpera, C., & Gasteiger-Klicpera, B. (1996). Die Situation von "Tätern" und "Opfern" aggressiver Handlungen in der Schule [The situation of bullies and victims of aggressive acts in school]. *Praxis der Kinderpsychologie und Kinderpsychiatrie, 45*, 2-9.
- Lagerspetz, K. M. J., Björkqvist, K., & Peltonen, T. (1988). Is indirect aggression typical of females? Gender differences in aggressiveness in 11- to 12-year-old children. *Aggressive Behavior, 14*(6), 403-414.
- Leadbeater, B., Boone, E., Sangster, N., & Mathieson, L. (2006). Sex differences in the personal cost and benefits of relational and physical aggression in high school. *Aggressive Behavior, 32*(4), 409-419. doi:10.1002/ab.20139
- Levy, S. R., Jurkovic, G. L., & Spirito, A. (1995). A multisystem analysis of adolescent suicide attempters. *Journal of Abnormal Child Psychology, 23*(2), 221-234.
- Luster, T., & Small, S.A. (1997). Sexual abuse history and number of sex partners among female adolescents. *Family Planning Perspectives, 29*, 204-211.
- McNeilly-Choque, M. K., Hart, C. H., Robinson, C. C., Olsen, S. F., & Nelson, L. J. (1996). Overt and relational aggression on the playground: Correspondence among different informants. *Journal of Research in Childhood Education, 11*(1), 47-67. doi:10.1080/02568549609594695
- Merrel, K. W., Buchanan, R., & Trand, O. K. (2006). Relational aggression in children and adolescents: A review with implications for school settings. *Psychology in the Schools, 43*(3), 345-360. doi:10.1002/pits.20145
- Morita, Y. (Ed.). (1985). "Ijime shūdan no kōzō ni kansuru shakai-gaku-teki kenkyū" Ōsakaichiritsudaigaku shakai-gaku kenkyūshitsu [Sociological Study on the structure of Ijime Group]. Osaka, Japan: Osaka City College Sociology Study.
- Nansel, T. R., Overpeck, M., Pilla, R. S., Ruan, W. J., Simons-Morton, B., & Scheidt, P. (2001). Bullying behaviors among US youth: Prevalence and association with psychosocial adjustment. *Journal of American Medicine Association, 285*(16), 2094-2100.
- Olweus, D. (1978). *Aggression in the schools: Bullies and whipping boys*. Washington, DC: Hemisphere.
- Olweus, D. (1979). Stability of aggressive reaction patterns in males: A review. *Psychological Bulletin, 86*(4), 852-875.
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers, 36*(4), 717-731.
- Rigby, K. (1994). Psychosocial functioning in families of Australian adolescent schoolchildren involved in bully/victim problems. *Journal of Family Therapy, 16*(2), 173-187. doi:10.1111/j.1467-6427.1994.00787.x

- Rigby, K., & Slee, P. (1993). Dimensions of interpersonal relation among Australian children and implications for psychological well-being. *Journal of Social Psychology, 133*(1), 33-42.
- Ryan, C. E., Epstein, N. B., Keitner, G. I., Miller, I. W., & Bishop, D. S. (2005). *Evaluating and treating families: The McMaster approach*. New York & Hove: Routledge, Taylor & Francis.
- Schober, G., Björkqvist, K., & Somppi, S. (2009). Identifying a new subcategory of aggression: Sex differences in direct non-verbal aggression. *Journal of Aggression, Conflict and Peace Research, 1*(3), 58-70.
- Sharp, S. (1995). How much bullying hurt? The effect of bullying on the personal wellbeing and educational progress of secondary aged students. *Educational and Child Psychology, 12*(2), 81-88.
- Smith, P. K., Bowers, L., Binney, V., & Cowie, H. (1993) Relationships of children involved in bully/victim problems at school. In S. Duck (Ed.), *Learning about relationships. Understanding relationship processes series* (pp. 184–215). London, UK: Sage Publications.
- Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhardt (Ed.), *Sociological methodology* (pp. 290-312). San Francisco, CA: Jossey-Bass.
- Stevens, V., De Bourdeaudhuij, I., & Van Oost, P. (2002). Relationship of the family environment to children's involvement in bully/victim problems at school. *Journal of Youth and Adolescence, 31*(6), 419-428.
- Toldos, M. P. (2005). Sex and age differences in self-estimated physical, verbal and indirect aggression in Spanish adolescents. *Aggressive behaviour, 31*(1), 13-23. doi:10.1002/ab.20034
- Tremblay, R. E. (2001). The development of physical aggression during childhood and the prediction of later dangerousness. In G. Pinard, & L. Pagani (Eds.), *Clinical assessment of dangerousness: Empirical contributions* (pp. 47–65). New York, NY: Cambridge University Press.
- Vaillancourt, T., Miller, J. L., Fagbemi, J., Côté, S., & Tremblay, R. (2007). Trajectories and predictors of indirect aggression: results from a nationally representative longitudinal study of Canadian children aged 2-10. *Aggressive Behavior, 33*(4), 314-326. doi:10.1002/ab.20202
- Varhama, L., & Björkqvist, K. (2005). Relation between school bullying during adolescence and subsequent long-term unemployment in adulthood in a Finnish sample. *Psychological Reports, 96*(2), 269-272.
- Wagner, B. M. (1997). Family risk factors for child and adolescent suicidal behavior. *Psychological Bulletin, 121*(2), 246-298.
- Whitney, I., & Smith, P. K. (1993). A survey of the nature and extent of bullying in junior/middle and secondary schools. *Educational Research, 35*(1), 3-25.
- Wolke, D., Woods, S., Bloomfield, L., & Karstadt, L. (2000). The association between physical and relational bullying and behaviour problems among primary school children. *Journal of Child Psychology and Psychiatry, 41*(8), 989-1002. doi:10.1111/1469-7610.00687
- Young, M. A., Halper, I. S., Clark, D. C., Scheftner, W., & Fawcett, J. (1992). An item-response theory evaluation of the Beck Hopelessness Scale. *Cognitive Therapy and Research, 16*(5), 579-586.

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