

Maternal Distress and Hostile Parenting: Impact on Physical and Indirect Aggression in 6 to 9 Years Old Boys and Girls

P. Verlaan, M. Déry, and J. Toupin

Abstract—Objectives: Examine possible differences in patterns of maternal functioning related to physical and indirect types of aggression one year later and to determine whether patterns were gender-related in children. The hypothesized coercion model assumes that maternal emotional distress indirectly influences children's aggressive behavior through the independent effect of hostile parenting.

Method: Longitudinal analyses were conducted on 110 girls and 115 boys in Grades 1 to 3 (mean age = 7.59, *sd* = 0.91) attending sociodemographically disadvantaged elementary schools. Mothers provided self-reports of emotional well-being and parenting at T1, and teachers reported on child's aggression at T1 and T2.

Results: Greater maternal emotional distress predicted teacher-rated sons' and daughters' physically aggressive behavior, as well as daughters' (but not sons') indirect aggression 12 months later, via hostile parenting.

Conclusion: Findings contribute toward a better understanding of gender role aspects of physical and indirect aggression and their links with dysfunctional parenting behaviors.

Index Terms—Aggression, childhood, gender, hostile parenting.

I. INTRODUCTION

Child development mentalists have long been interested in understanding the links between children's family life and their engagement in aggressive behavior. Although aggression has largely been conceptualized as a unitary phenomenon, it has been repeatedly suggested that studies of children's aggression should distinguish between different types of aggressive behavior [1], [2]. More often than not this suggestion has been overlooked. Careful conceptual refining of distinctive aggressive behaviors is critical when investigating family processes associated with childhood aggression, especially when examining gender differences.

Researchers taking the differentiated view of aggression have identified several different subtypes of aggressive behavior, including physical and non-physical forms of aggression. There is a large consensus that acts of aggression

which cause bodily harm are socially undesirable and place children "at risk" for future adjustment problems. The consensus is less clear with regard to aggressive behaviour that is not physical in nature. Research focusing on girls' aggression in particular, has suggested that because female physical aggression is viewed as gender-inappropriate behavior, it may often be expressed in a non-physical form [3]. For example, exclusionary and slanderous means of aggression (e.g., indirect, relational, social) have been identified as expressions of anger meant to exert asymmetric power in relationships [4], [5] and inflict emotional harm to others [6], [7]. More specifically, indirect aggressive acts are conducted when the victim is not present, and the noxious stimuli are delivered via the negative reactions of others. Thus, the victim is harmed at the end of a chain of mediating events. In this perspective, indirect strategies of aggression may prove more effective than physical or verbal aggression in that the perpetrator succeeds in inducing psychological harm on the target person without being identified. Thus, the perpetrator avoids retaliation and minimizes the risk of direct confrontation.

A. Gender Differences in Aggression Subtype and Adjustment

It has been argued that indirect aggression is more typical of girls [8], [9]. However, a recent meta-analysis of 148 studies shows that, while boys are consistently more physically aggressive than girls, gender differences with regard to indirect aggression are small regardless of children's age and ethnicity [10]. It thus seems that both girls and boys employ manipulative circuitous strategies as a mean to attack others. Indeed, many aggressive children use both forms of aggression [10]. Nevertheless, studies have provided support for the distinctiveness of indirect and physical aggression [11] and the increased risk of emotional and behavioral adjustment problems related to indirect aggression above and beyond physical aggression, particularly for girls [12], [13].

Given what we know about the significant and complex role of family processes in the development of childhood physical aggression, it is imperative to examine whether family risk factors are similarly or differently associated with indirect aggression as well. In doing so, it is also important to investigate the role of gender because of the information to be gained regarding gender-differentiating family risk.

B. Emotional Distress and Hostile Parenting to Children's Aggression

The framework for the proposed family model in this study was guided by Patterson's coercion theoretical model linking dysfunctional parenting to the development of children's

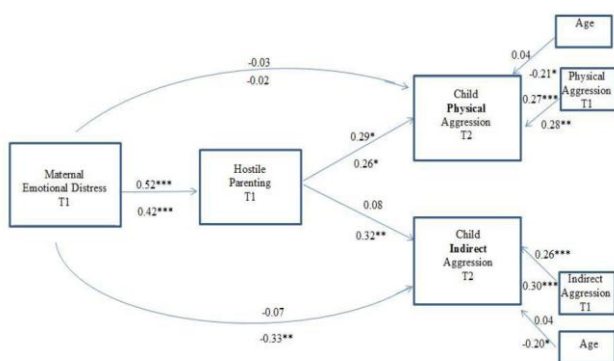
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aggression [14]-[16]. According to coercion theory, extra familial stressors (i.e. disadvantaged socioeconomic status, marital conflict) confront parents with a situation that requires coping skills. Whether these stressors will seriously disrupt parents' functioning and their interactions with their children depends on parents' emotional well-being. The underlying premise here is that emotional distress prompts aversive parenting practices which have a negative influence on children and thereby indirectly affect children's adjustment, setting in motion a cycle of hostile parent-child interactions and further stress [14]-[16]. Although coercion within the family appears to influence all rather than one specific type of aggressive behavior [17], it is not yet clear whether the indicators of physical and indirect aggression in children relate to similar or distinctive family processes and if they are gender-related. A particular concern is that the reported links between parenting practices and indirect aggression rest mostly on cross-sectional data. It is thus unclear whether dysfunctional parenting is a precursor or a reaction to the child's indirect aggression. Moreover, a recent meta-analysis shows that associations of dysfunctional parenting behaviors with indirect aggression are rather small [18]. It is possible that parents' emotional distress affects children's indirect aggression more directly than parenting behaviors *per se*. Alternatively, parents' behavior may foster the use of indirect aggression only in some children but not in others. Indeed, reference [19] recently found gender-related differences in the emotional and cognitive profiles of indirectly aggressive children and hypothesized that the causes of indirect aggression in girls may be the same as the causes of physical aggression in both boys and girls whereas the causes of boys' indirect aggression may differ. Further research is needed to understand how parents may facilitate the early development of indirect aggression in both sons and daughters.

C. Current Study



$\chi^2(15,225) = 29.14$, $P < 0.02$, comparative fit index ($CFI = 0.94$), root mean square of approximation ($RMSEA = 0.09$), 90% confidence interval $RMSEA = 0.04; 0.14$.

Note: Age and scores for all child outcomes at T1 are statistically controlled. Standard values for boys are above the arrows; girls are below the arrows.

Fig. 1. Indirect model of emotional distress and hostile parenting (T1) on childhood aggressive behaviors 12 months later (T2).

The main goal of the present study was to examine possible differences in the family mechanisms related to physical and indirect types of aggression and to determine whether patterns were gender-related in children. The

hypothesized coercion model (see Fig. 1) assumes that maternal emotional distress indirectly influence children's aggressive behaviour through the independent effect of the mediator: hostile child-rearing practices. In line with the hypotheses of reference [19], we assumed that the family processes of indirectly aggressive girls would be similar to those of physically aggressive boys and girls whereas they would differ for indirectly aggressive boys. Clearly, any similarity of parental influences across gender would suggest that the heightened use of specific types of aggression – despite prevalence differences between genders across childhood development is prompted by a common pattern of parental behaviors. Any dissimilarity in this respect between boys and girls would point to gender-differentiated parental risk patterns for aggression and the need for gender-specific preventive interventions.

II. METHOD

A. Participants

The study sample was drawn from elementary school-aged children attending schools located in disadvantaged neighbourhoods in two districts of the province of Quebec (Canada). All eligible children were attending Grades 1 to Grade 3 at year 1 (T1).

A subsample was selected for additional assessment and participation in an ongoing prospective study. This subsample was enriched through the overinclusion of children reported by parents and/or teachers to have conduct problems, including frequent involvement in indirect aggression in school.

Of the 300 selected children, 75% ($n = 225$) participated at T1 and the retention rate was 96.4% ($n = 217$) 12 months later (T2). Eighty-five percent of teachers completed questionnaires at T1 and 80.2% at T2. All participation was voluntary. At T1, the mean age of the analyzed sample was 7.61 ($sd: 9.1$ months). Of the participants, 27.1% were first graders, 40.9% second graders, and 32% were third graders. Girls made up close to one half (48.9%) of the sample. The average number of children per family was 2.3. Ninety-two percent of participating mothers were born in Canada. The sample was diverse with respect to respondent education (57.4% with high school education or less), marital status (22.8% single), and poverty status (11.1% receiving some form of social assistance).

There was no statistical mean age and gender differences between desisting and participating children.

B. Procedure

The subsample of participating parents and children were contacted between the months of January and May of each year in order to assure that the teacher was sufficiently exposed to the child behaviors. Upon acceptance, a home interview was scheduled at the parent's convenience. Parents were presented with a full description of the study and only then signed a consent form including agreement to obtain information about the child's behaviours from classroom teachers. The mean duration of parental interviews was 90 minutes. The teacher assessment was obtained over the telephone, with research assistants using a structured

interview protocol of approximately 30 minutes. Interviews and testing were performed by graduate level research assistants, all of whom underwent a formal three day training session.

Parents and teachers received \$20 each for completing the questionnaires and children received two toys (\$10 value). All methods were approved by the Institutional Ethics Board.

C. Measures

1) Measures of teachers rated child aggression

The Direct and Indirect Aggression Scales (DIAS) measure indirect, verbal and physical aggression in children 8–15 years old in the past six months [20]. The physical aggression construct is based on 7 physical aggression indicators (i.e. physically attacks, kicks, bites, hits other children). The indirect aggression scale is composed of 11 items (i.e. tries to get others to dislike that person; becomes friends with another as revenge; says bad, untrue things behind the other's back; ignores, excludes others). For each of the aggression scales and assessment time (T1 & T2), the teacher rated the child using a six-point scale ranging from 0 (never) to 5 (very often). The scales showed a good reliability for physical ($\alpha = 0.95$ at T1 and $\alpha = 0.94$ at T2) and for indirect aggression ($\alpha = 0.95$ at T1 and $\alpha = 0.94$ at T2).

2) Measures of maternal predictors of child indirect aggression

D. Emotional Distress

Parents completed the Emotional Distress Index-Short Form that measures their emotional distress in the past week [21]. It consists of 14 items rated on a five-point scale ranging from 1 (never) to 4 (very often). The Cronbach's alpha of the French version of the instrument was calculated at 0.89 [21] and was also 0.89 in the present study.

E. Hostile Parenting Practices

The Parental Acceptance-Rejection Questionnaire (PARQ) serves to assess the child-rearing practices of parents. The Perceived Parental Acceptance-Rejection Questionnaire [22] was completed by mothers. The instrument consists of 60 items rated on a five-point Likert-type scale ranging from 1 (almost always true) to 4 (almost never true). It measures the relationship between parent and child on four subscales: rejection, neglect, aggression/hostility and warmth. In line with coercion theory, only the scale measuring parental aggression/hostility was used here. The overall questionnaire (total score) and the four subscales have been shown to possess an internal consistency in excess of 0.70 [23]. In our study, the alpha coefficient for this scale was calculated at 0.87. The questionnaire was shown to possess a test-retest reliability of 0.62 at a median interval of 15 months [24]

III. RESULTS

A correlation matrix of each variable in the theoretical model is displayed in Table I. It includes intercorrelations for the following variables: age, maternal emotional distress, maternal hostile parenting, and teacher reports of child aggression (physical, indirect) at year 1(T1) and 12 months later (T2) for boys and girls separately. Maternal emotional distress was significantly linked to hostile parenting, to boys'

physical aggression and to girls' indirect aggression at T1 only.

Mother-son hostile parenting was positively related to teachers' rating of physical aggression at baseline and 12 months later. For girls, maternal hostile parenting was related to physical aggression at T2 only and to indirect aggression at both time points. Teachers' ratings of indirect and physical aggression were strongly correlated for boys as well as for girls at T1 ($r = 0.76$; $r = 0.67$) and T2 ($r = 0.69$; $r = 0.68$) respectively. Finally, age was significantly and negatively linked to physical and indirect aggression at T1 and T2 for girls, but not for boys. Age was not related to the other variables in the model. The results of *T* tests for gender differences can be found in Table II. There were no gender differences on the predictor variables. However, boys were more physically aggressive than girls at T1 and T2, and girls were marginally more indirectly aggressive than boys at T1 only.

TABLE I: INTERCORRELATIONS AMONG THE STUDY VARIABLES*

Measures	V1	V2	V3	V4	V5	V6	V7
V1. Age	---	-.17	-.13	-.20	-.27	-.19	-.22
V2. Distress	.03	---	.40	.11	.09	.23	-.14
V3. Hostile	.05	.53	---	.16	.30	.31	.30
V4. Physical T1	.02	.29	.18	---	.29	.67	.24
V5. Physical T2	-.02	.14	.25	.35	---	.51	.68
V6. Indirect T1	-.16	.16	.14	.76	.31	---	.50
V7. Indirect T2	-.04	-.01	.03	.27	.69	.29	---

Bold = significant correlations above $p < 0.05$.

*Boys are below the diagonal; girls are above the diagonal.

TABLE II: MEANS, STANDARD DEVIATIONS, AND RESULTS OF T TESTS FOR DIFFERENCES BETWEEN BOYS AND GIRLS

Variable	Boys			Girls			Diff
	N	M	SD	N	M	SD	
Age	115	7.62	0.9	110	7.59	0.9	0.48
Distress	114	22.5	6.1	110	22.5	6.0	-0.01
Hostile	114	37.8	7.4	110	38.6	9.0	-0.77
Physical T1	115	0.69	0.6	110	0.33	0.8	3.35*
Physical T2	87	0.72	0.5	85	0.24	0.6	4.58*
Indirect T1	115	0.37	0.6	110	0.52	0.7	-1.65 ^t
Indirect T2	89	0.56	0.6	85	0.65	0.7	-0.81

^t $t = p < .10$, *** $p < .001$.

The results with regard to the hypothesized model in which hostile parenting mediates the relationship between maternal distress and child aggressive outcomes are reported in Fig. 1. Teacher-rated physical and indirect aggression measured 12 months later (T2) were entered simultaneously as the dependent variables. Both variables were controlled for age, initial level of aggression (T1), and covariance. The multigroup structural equation model (SEM) was estimated with Mplus [25]. Advantages of SEM include the desirability of testing models overall rather than coefficients individually; the ability to test models with multiple dependents; the ability to model mediating; and the ability to handle incomplete data.

The model showed adequate fit to the data: $\chi^2(15,225)=29.14, p<0.02$; CFI=0.94, RMSEA=0.09 (IC:0.04; 0.14). The results indicated that for boys, maternal distress was related to maternal hostile parenting ($B=0.52, p<0.001$) and that maternal hostile parenting was in turn related to higher levels of childhood physical aggression 12 months later ($B=0.29, p<0.05$) with a significant indirect effect ($B=0.15, p<0.05$). For girls, the results also showed that maternal distress was related to maternal hostile parenting ($B=0.42, p<0.05$), and that maternal hostile parenting was in turn related to both physical aggression ($B=0.26, p<0.05$) and indirect aggression ($B=0.32, p<0.01$) with significant indirect effects, respectively for physical aggression ($B=0.11, p<0.05$) and indirect aggression ($B=0.14, p<0.01$). After controlling for indirect effects, maternal distress maintained a direct negative association with girls' indirect aggression ($B=-0.33, p<0.05$), which suggests that emotional distress in itself may eventually buffer girls from the use of indirect aggression. The model explained respectively 16.5% and 7.7% of the physical aggression variance for boys and girls and respectively 21.7% and 23.6% of the indirect aggression variance for boys and girls.

IV. DISCUSSION

The findings of the SEM analyses were mostly consistent with the coercion theoretical model proposed [14]-[16]. In line with findings on patterns of aggressive behavior displayed in children, we expected that maternal distress and hostile parenting would be associated with physical aggression and indirect aggression, but that some gender-differentiated parental risk patterns could emerge, particularly for indirectly aggressive boys [19]. These predictions were confirmed. More emotional distress was associated with hostile maternal child-rearing practices that predicted 12 months later physical aggression in both boys and girls and elevated indirect aggression in girls only. Our results suggest that theoretical family processes, largely documented in the literature for physically aggressive boys, are important for both physically and indirectly aggressive girls as well. These findings provide further evidence in support of the proposition that maternal functioning, in particular hostile parenting, is directly related to children's expression of aggression [26]-[28], at least as perceived by teachers in school. However, whereas the two types of aggression appear related to similar family mechanisms for girls, our results suggest that the sources of these behaviors might be different for indirectly aggressive boys. The finding of stronger associations between maternal dysfunction and indirect aggression in girls supports prior observations that mother-child conflict, harsh control, and insensitivity (measures of relationship quality) are particularly important determinants of girls' aggression development [26]. Researchers have repeatedly speculated that females' stronger interpersonal relationship orientation and greater receptivity to emotions in the family might result in more indirect and relational aggression among girls reared in negative environments [26], [29]. Studies that have examined the etiology of physical aggression have suggested that the relation between hostile-aggressive parenting and children's use of physical aggression may be mediated by their poor

emotion regulation [30]. The same logic can be applied here to indirect aggression. In other words, frequent hostile parenting may be the environmental context in which children fail to develop an optimal level of emotion regulation and social competence, which is crucial to cooperative and harmonious interactions with peers. Children who lack sufficient emotion regulation and social skills may find it difficult to inhibit feelings of anger or hostility when they get mad at peers, and as a result, display aggressive behaviors directly and/or indirectly toward peers.

The possibility that in the absence of hostile parenting, maternal emotional distress may buffer the use of indirect aggression in girls warrants replication before conclusive statements can be made. Indeed, because these complex family processes have rarely been studied, comparisons of the respective gender influences are needed. More in-depth exploration of such dimensions will depend on the development of adequate theoretical models that take into account the specificity of family influences on boys' and girls' aggressive expression over time. Nonetheless, our finding supports the claim that indirect aggression may be particularly important for understanding aggressive behavior in girls and suggests that adequate assessments of aggression in girls should include both indirect and physical types of aggression [2], [31], [32]. Thorough evaluation of different types of aggression is essential. Specifically, because girls' aggressive behavior, whether physical or indirect, appear closely connected to the family context [26], family problems require the careful attention of clinicians and professionals who deal with physically and indirectly aggressive girls. As such, the results of this study provide some guidelines for the prevention of indirect aggression by promoting positive behavior management strategies and reducing harsh and hostile behaviors in mother-child relationships.

Several limitations should be considered when interpreting the findings of this study. First, only a small portion of variance was accounted for by specific forms of aggression. Other contributing variables may explain variance as well. Factors such as family type and maternal uninvolved parenting have been found to be important predictors of children's indirect aggression [10], [26]. Second, indirectly aggressive children were overrepresented in this disadvantaged school-based sample and as a result, may have influenced findings. Finally, the present study is limited by its sample characteristics such as ethnicity and age. Nonetheless, the present findings contribute important new information on the strong relations obtained between both mothers' child-rearing practices and teachers' ratings of children's display of physical and indirect aggression in the school setting over time, particularly for girls.

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