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## Repeated early-life exposure to inter-parental conflict increases risk of preadolescent mental health problems — [Source link](#)

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1 Repeated early life exposure to inter-parental conflict increases risk of preadolescent mental health problems

2  
3 **Abstract**

4 This study investigated the association between inter-parental conflict at a single occasion, or repeated  
5 over early childhood, and children's internalizing and externalizing problems at 10-11 years; and examined  
6 potential mechanisms via social risk, maternal mental health and parenting. Data were five time-points from the  
7 Baby cohort of the Longitudinal Study of Australian Children (N=3696, recruited in 2004). Verbal or physical  
8 inter-parental conflict was measured at 0-1, 2-3, 4-5 and 6-7 years. Internalizing and externalizing problems  
9 (Strengths and Difficulties Questionnaire) were measured via mother-, father-, teacher- and child-report at 10-11  
10 years. A series of regression models accounted for social risk at 0-1 years, parenting, and maternal  
11 psychological distress at 8-9 years. Physical and verbal inter-parental conflict (reported by 16% and 33% of  
12 mothers respectively) consistently predicted mother-, father-, and child-reported externalizing and internalizing  
13 problems, and teacher-reported externalizing (but not internalizing) problems (adjusted regression coefficients  
14  $[\beta] = 0.4-1.1$ ). Repeated compared to single report of verbal conflict was associated with more behavior  
15 problems (adjusted mean = 0.8-1.1 compared to 0.4-0.6).

16  
17 *Conclusion:* Children are sensitive to inter-parental conflict, with long-term negative effects for child mental  
18 health even when reported at one time-point within the first six years of life.

19  
20 **Key words:** inter-parental conflict; mental health; child behavior problems; longitudinal

21 A large body of evidence has shown that inter-parental conflict is associated with child internalizing  
22 and externalizing behavior problems, however, the vast majority of the evidence describes associations for  
23 children born prior to 1990, using cross-sectional data [1-3]. A small number of studies have examined  
24 longitudinal associations, such as three papers using two waves of the 1988 US National Survey on Families and  
25 Households [4-6]; and one study with three waves from a small cohort of mothers and children recruited from  
26 domestic violence shelters [7]. The designs of these studies have generally precluded examination of persistent  
27 inter-parental conflict, and particularly over the early life period, which is known to be tremendously influential  
28 in shaping children's lifelong health and functioning. The current study contributes to the literature by  
29 examining these associations in a large, population-based and contemporary cohort of children born in 2000-4,  
30 followed six times (every two years) from birth to age 10-11 years.

31 The early parenting years can be extremely challenging for families, often associated with reductions in  
32 maternal physical and mental health, couple satisfaction, and increases in conflict between parents [8]. While  
33 conflict is a normal part of family relationships, the nature of parental conflict can vary considerably. It may  
34 involve occasional disagreements that are resolved, or less helpful forms of conflict ranging in severity from  
35 hostile arguments to severe forms of domestic violence. This paper focusses on the less severe but most  
36 common forms of harmful inter-parental conflict, including physical forms such as 'situational couple violence',  
37 which is characterized by frequent arguments on occasion escalating into physical violence, e.g., pushing,  
38 shoving [9]. These forms of physical and verbal inter-parental conflict represent a widespread risk for children,  
39 with more than 1 in 3 families affected in the population [10].

40 During early life, inter-parental conflict may arise in relation to family transitions or stressful life  
41 events, or it may be ongoing. The current study aims to investigate physical and verbal inter-parental conflict  
42 from birth to age 6-7, experienced never versus at one or repeated (two-to-four) times. We examine associations  
43 between early life exposure to inter-parental conflict and child internalizing and externalizing problems at 10-11  
44 years based on reports from four informants: mothers, fathers, teachers, and children [11], while controlling for  
45 the known influences of social risk, maternal parenting and mental health on inter-parental conflict and child  
46 outcomes. Families experiencing socio-economic stress are more vulnerable to inter-parental conflict. Previous  
47 studies have shown that social risk (i.e., young maternal age, socio-economic disadvantage, language other than  
48 English spoken at home, and remote geographical location) is associated with higher rates of inter-parental  
49 conflict [10], while mothers reporting inter-parental conflict experience higher rates of mental and physical

50 health problems [12-14], which in turn predict parenting (e.g., warmth, irritability and involvement) and child  
51 outcomes [15-18].

## 52 **Methods**

### 53 **Design**

54 Data were from the Baby cohort of the Longitudinal Study of Australian Children, a nationally-  
55 representative and government-funded study of children's growth and development [19, 20], approved by the  
56 Australian Institute of Family Studies Ethics Committee [20, 21]. Children were selected from Australia's  
57 universal health database in 2004 using a two-stage cluster sampling design [22]. Data were collected biennially  
58 via face-to-face interviews and questionnaires when children were aged 0-1 years (n=5,107), 2-3 years (90%  
59 retention from time 1), 4-5 years (86%), 6-7 years (82%), and 8-9 years (80%), and 10-11 years (74%).

### 61 **Participants**

62 Biological (>99%) or step/adoptive mothers were included if they were the responding parent of the  
63 index child across the first four time-points of data collection, to ensure consistent report of inter-parental  
64 conflict (excluded caregivers: N=209). Mothers were excluded if they were single parents at time 1 (N=478), or  
65 did not have complete data for two of four measures of inter-parental conflict (N=501) or parent-report data for  
66 child behavior problems present at time 4 or 5 (N=223). The final sample size was 3,696 children and mothers.

### 68 **Measures**

69 *Inter-parental conflict* was measured at the first four time-points (children 0-1, 2-3, 4-5, and 6-7 years)  
70 using the Argumentative Relationship Scale, a five-item adaptation of the Inter-Parental Conflict subscale of the  
71 Co-Parental Communication Scale [23]. Verbal inter-parental conflict was measured with four items, rated on a  
72 5-point Likert scale ranging from *never* to *always* ("How often do you and your partner disagree about basic  
73 child-rearing issues?"; "How often is the conversation awkward or stressful?"; "How often do you argue?";  
74 "How often is there anger or hostility between you and your partner?") At each time, items were recoded to a  
75 binary measure where 1 = "often" or "always" on at least one of the four items (otherwise coded as 0). Physical  
76 inter-parental conflict was measured using one item ("How often do you have arguments with your partner that  
77 end up with people pushing, hitting, kicking or shoving?") rated on a 5-point Likert scale ranging from *never* to  
78 *always*. This item was recoded to create a binary score where 1 = "sometimes", "often" or "always" (otherwise

79 coded as 0). Two new variables were derived to summarize verbal or physical inter-parental conflict at no, one,  
80 or two-to-four time-points.

81 *Child externalizing and internalizing problems* were measured using the Strengths and Difficulties  
82 Questionnaire via mother, father and teacher-report and child self-report at 10-11 years [24]. Twenty items rated  
83 on a 3-point scale (*Not true* to *Certainly true*) summed to form the internalizing problems scale (sum of  
84 emotional symptoms and peer problem subscales) and externalizing problems scale (sum of conduct problems,  
85 hyperactivity/inattention subscales). Both scales are treated as continuous to enable investigation across the full  
86 spectrum of child functioning. Each scale has a range of 0-20, with descriptive statistics as follows: child self-  
87 report externalizing problems, mean=5.29, sd=3.42; internalizing problems, mean=4.53, sd=3.25; mother-report  
88 externalizing, mean= 4.08 sd=3.32; internalizing, mean=3.15, sd=3.04), father-report externalizing, mean 2.88,  
89 sd=2.63; internalizing, mean=4.07, sd=3.06; and teacher-report externalizing, mean=3.06, sd=3.56; and  
90 internalizing problems, mean=2.41, sd=2.96.

91

## 92 **Covariates and Sample Characteristics**

93 *Social risk.* Socio-economic position was a continuous, composite variable, which ranked each family's  
94 relative position at time 1 (children 0-1 years) based on parental income (total household income equivalized for  
95 number of household members), and parents' education and occupational prestige [25]. Families with a  
96 standardized score at or below the 25<sup>th</sup> percentile were classified as 'low' socio-economic position. Maternal  
97 age, child Aboriginal and Torres Strait Islander status, and whether English was the primary language spoken at  
98 home were also collected by via-report at time 1. Geographic remoteness of the household was classified using  
99 the Accessibility/Remoteness Index of Australia [26].

100 *Maternal psychological distress* was assessed at time 5 (children 8-9 years) using the Kessler-6, a brief  
101 screening tool measuring the frequency of symptoms of psychological distress over the previous four weeks  
102 [27]. Responses to the six items (on a 5-point rating scale) were summed to form a total score 0-24 and then  
103 dichotomized, where 8 or above equated to symptomatic psychological distress.

104 *Parenting practices* were also assessed via maternal-report at time 5 (children 8-9 years). Irritable  
105 parenting was measured with five items (10-point scale) assessing the frequency of hostile behaviors and  
106 feelings toward the child [28]. Parenting warmth was assessed using six items (5-point scale) measuring the  
107 frequency of warm affectionate behaviors [28]. Parental self-efficacy was measured using four items (10-point

108 scale) assessing confidence in specific tasks associated with parenting [28]. Items in each domain were summed  
109 to form a total score. These measures have been shown to have acceptable or good construct reliability [28].

110

### 111 **Data Preparation**

112 Multiple imputation was performed using multivariate normal regression in Stata version 13.1, with an  
113 iterative Markov Chain Monte Carlo method. The imputation model included time 1 cross-sectional sample  
114 weights and cluster variables, and all model variables. Fifty imputations were requested and successfully  
115 produced. Imputed data for the father-report of child internalizing and externalizing variables were deleted  
116 (N=423) if there was no father in the home at time 6.

117

### 118 **Analyses**

119 Variables were analyzed in Stata using the survey methods procedure to weight the analyses for  
120 participants' unequal probability of selection into the sample, and the multi-stage, clustered sampling design  
121 [29, 30]. Logistic regression analysis with non-imputed data was used for missing data analyses comparing  
122 excluded and included participants with missing data to included participants with complete data.

123 A series of multiple linear regression analyses were performed to investigate the influence of repeated  
124 inter-parental conflict on mother, child, father and teacher-reported measures of child behavior problems at age  
125 10-11. Four series of models were tested. The first set of regression models examined the unadjusted influence  
126 of single or repeated compared to no exposure to physical and verbal inter-parental conflict on child  
127 internalizing and externalizing problems. The second set of models adjusted for the influence of social risk  
128 factors (time 1), including maternal age, remote geographical location, lowest quartile for socio-economic  
129 status, and language other than English spoken at home. The third set adjusted for maternal parenting irritability,  
130 parenting warmth, and parenting self-efficacy (time 5), and the fourth set of models adjusted for maternal  
131 psychological distress (time 5).

132

133

## 133 **Results**

### 134 **Participant Characteristics**

135 Table 1 presents sample characteristics for three groups: participants included in the final analysis with  
136 (1) complete data or (2) imputed data, and (3) participants excluded from analysis. A gradient was evident

137 indicating higher levels of social disadvantage for participants with imputed data, and the highest level of  
138 disadvantage for excluded participants compared to participants with complete data.

139 One-sixth of included mothers (16%) reported physical inter-parental conflict (13% one, 3% two or  
140 more occasions). One third of mothers (33%) reported verbal inter-parental conflict (24% one, 9% two or more  
141 occasions). Of mothers reporting physical inter-parental conflict on two or more occasions, 64% also reported  
142 verbal conflict at least once; whereas 49% of mothers reporting physical inter-parental conflict on one occasion  
143 also reported any verbal conflict. The overlap for verbal conflict was smaller; 36% and 15% of mothers  
144 reporting verbal conflict on two or more, or on one occasion, respectively, also reported physical inter-parental  
145 conflict.

146

### 147 **Child Externalizing Problems**

148 Table 2 presents findings from models examining the associations between single and repeated  
149 exposure (compared to no exposure) of verbal or physical inter-parental conflict over early childhood (0-1 to 6-7  
150 years) and child externalizing problems at 10-11 years.

151

#### 152 *Physical inter-parental conflict*

153 In unadjusted models, physical inter-parental conflict was consistently associated with increased child  
154 externalizing problems across all respondents, with stronger associations evident for repeated compared to a  
155 single exposure. These associations remained consistent in the first set of adjusted models when controlling for  
156 social risk (0-1 years) but reduced when maternal-rated parenting (irritability, warmth, and self-efficacy) and  
157 psychological distress at 8-9 years were included. In these models, associations remained between physical  
158 inter-parental conflict reported at one occasion, and father, child and teacher-report of child externalizing  
159 problems, but were no longer evident for any mother-reported outcomes or for repeated physical inter-parental  
160 conflict.

161

#### 162 *Verbal inter-parental conflict*

163 The associations between verbal inter-parental conflict and child externalizing problems were larger  
164 and more consistent compared to those for physical inter-parental conflict. There were large associations  
165 between verbal inter-parental conflict and increased child externalizing problems across all respondents in  
166 unadjusted models and in models adjusted for social risk, once again with a graded effect whereby repeated



167 exposure had the strongest associations with externalizing problems. The associations were slightly reduced but  
168 still remained evident in the models adjusted for maternal parenting and psychological distress for outcomes  
169 reported by the mother, father and child. For teacher-reported outcomes, the association between verbal inter-  
170 parental conflict and child externalizing problems remained when maternal psychological distress was  
171 accounted for, but dropped when maternal parenting at 8-9 years was included in models.

172

### 173 **Child Internalizing Problems**

174 Table 3 presents findings from models examining child internalizing problems.

175

#### 176 *Physical inter-parental conflict*

177 Findings in relation to child internalizing problems varied based on the respondent. For outcomes  
178 reported by mothers, fathers and children in unadjusted models and models adjusted for social risk, physical  
179 inter-parental conflict was consistently associated with increased internalizing problems. When maternal-rated  
180 parenting and psychological distress at 8-9 years were included respectively in the third and fourth set of  
181 models, associations between physical inter-parental conflict reported at one occasion and internalizing  
182 problems remained evident, but associations for repeated exposure to inter-parental conflict dropped out. There  
183 were no associations evident between physical inter-parental conflict and teacher-report of child internalizing  
184 problems.

185

#### 186 *Verbal inter-parental conflict*

187 There were large consistent associations between verbal inter-parental conflict and child internalizing  
188 problems. The magnitude of the associations reduced when maternal parenting and psychological distress were  
189 included, but with one exception the associations remained robust with graded differences, whereby associations  
190 for repeated exposure were consistently larger compared to exposure to inter-parental conflict on one occasion.  
191 The exception was that the association between repeated inter-parental conflict and teacher-report of  
192 internalizing problems was no longer evident when maternal parenting was included.

193

### 194 **Discussion**

195 In this representative sample of Australian families, we found consistent associations between mother-  
196 report of physical and verbal inter-parental conflict over early life (0-1 to 6-7 years) and increased child

197 internalizing and externalizing problems at 10-11 years. Of particular concern was that child mental health  
198 problems were consistently associated with mothers reporting conflict at one time-point only. Repeated  
199 compared to single exposure to inter-parental conflict was generally associated with more behavior problems,  
200 although the low prevalence of repeated exposure to physical inter-parental conflict (3%) reduced the precision  
201 of this assessment. In the most part, associations between inter-parental conflict and child mental health  
202 problems were not explained by family socio-economic differences, or by mothers' mental health or parenting  
203 practices when children were 8-9 years.

204 Our findings show enduring effects of early childhood exposure to physical and verbal inter-parental  
205 conflict that are still evident as children approach their adolescent years and the important transition to high  
206 school. A gradient was evident, where repeated report of verbal inter-parental conflict was generally associated  
207 with higher levels of problems; however, sustained negative effects for children were also evident in families  
208 where mothers reported verbal or physical inter-parental conflict only once in six years. These results are  
209 consistent with a considerable body of literature showing the harmful effects of inter-parental conflict for  
210 children [1-6]. Importantly, the associations between inter-parental conflict and child outcomes were generally  
211 not explained by socio-economic differences in the sample, nor were they explained by mothers' mental health  
212 or parenting in middle childhood following exposure to inter-parental conflict in the early childhood period.

213 The examination of multiple informants was unique and provided a fuller assessment of child  
214 functioning at 10-11 years relevant to a variety of contexts and perspectives [2]. The results generally  
215 demonstrated consistency across informants but also showed some differences. As is commonly found, teachers  
216 were less sensitive in identifying internalizing problems for children [31]. We also found fewer associations  
217 based on mother and teacher-report of externalizing problems when controlling for maternal parenting or  
218 psychological distress at 8-9 years. It may be that mothers reporting physical inter-parental conflict in the early  
219 childhood period were more likely to experience later parenting difficulties and psychological distress, both of  
220 which are associated with child externalizing problems. Indeed, previous studies have shown that women  
221 exposed to inter-parental conflict or family violence are at greatly increased risk of poor long-term mental and  
222 physical health [12-14]. Alternatively, it is possible that maternal parenting and psychological distress  
223 influenced perceptions and subsequent ratings of the child's functioning, either directly (mother-report) or  
224 indirectly (teacher-report).

225 Findings for verbal inter-parental conflict were more consistent compared to those for physical inter-  
226 parental conflict. However, it is likely that our data lacked the precision required (i.e., reduced power) to detect

227 associations for repeated physical inter-parental conflict due to the type of measure and low prevalence of this  
228 type of conflict. It's possible that the one-item measure of physical inter-parental conflict used in the current  
229 study was not a sensitive measure of 'situational couple violence' [9]. Alternatively, it may be that the frequency  
230 with which children were exposed to verbal versus physical inter-parental conflict were driving these effects.  
231 Verbal inter-parental conflict was classified as conflict occurring 'often' or 'always', whereas physical inter-  
232 parental conflict included conflict occurring 'sometimes'. Perhaps children exposed to verbal conflict were  
233 exposed to more enduring conflict, thus affecting the quality and nature of their home environment over a longer  
234 period.

235         The current study had notable strengths, including the use of a large, population-representative sample,  
236 with longitudinal data collection spanning from the first years of life to middle childhood, and with child  
237 outcome data available from four informants. However, our findings are limited by biased attrition that is  
238 common to longitudinal studies. Specifically, there was higher attrition in more disadvantaged groups in which  
239 rates of inter-parental conflict are higher [10]. Despite the use of imputation to minimize the impact of attrition,  
240 our findings may represent a conservative estimate of population effects. We only investigated mother-report of  
241 inter-parental conflict. However, previous studies have shown that mother-report of inter-parental conflict is  
242 more sensitive in predicting child outcomes compared to father-report [2], and child-report in early childhood is  
243 not possible. A further limitation was the brief nature of the inter-parental conflict measures; further population-  
244 level research using more robust tools is necessary.

245         It is well established that social risk, maternal mental health, and parenting influence children's mental  
246 health. We found that associations between inter-parental conflict and child problems were not explained by  
247 these factors. Thus, our findings suggest that that inter-parental conflict operates as an additional, independent  
248 risk factor for children. Our study results challenge the sole focus of government policies and population-level  
249 intervention programs on the most severe forms of family conflict, such as women presenting to refuge or  
250 domestic violence shelters. In addition to screening for abuse and violence in the home, services directed at  
251 children and young families need to better support parents to manage conflict in the family home. In this  
252 context, the service providers that families regularly come into contact with may play an important role.

253

## 254 **Conclusion**

255         The current study used population-level data to demonstrate the importance and enduring effects of  
256 single and repeated exposure to inter-parental in early life on children's internalizing and externalizing problems

257 as they enter pre-adolescence. We found that exposure to verbal forms of inter-parental conflict had similar  
258 effects on children compared to physical conflict, which were not explained by early social risk, or later  
259 maternal parenting or psychological health. Currently, family, health and pediatric services focus screening and  
260 support on the most overt and severe forms of family violence and abuse [32]. Our findings highlight the need  
261 for greater attention to the more prevalent forms of family conflict. Families experiencing physical and verbal  
262 conflict may benefit from access to information and support around parenting and managing conflict [33], with  
263 likely benefits for children's long-term mental health outcomes.

264

### 265 **Compliance with Ethical Standards**

266 Funding: Dr Westrupp was supported by the Centre of Research Excellence in Child Language  
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272 **Conflict of Interest:** The authors have no conflicts of interest to disclose.

273 **Ethical approval:** All procedures performed in studies involving human participants were in  
274 accordance with the ethical standards of the institutional research committee (Australian Institute of Family  
275 Studies Ethics Committee) and with the 1964 Helsinki declaration and its later amendments or comparable  
276 ethical standards.

277 **Informed consent:** Informed consent was obtained from all individual participants (parents and  
278 children) included in the study.

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353 *Table 1:* Sample characteristics for participants included in the final analysis with complete or imputed data, and participants excluded from analysis due to incomplete data.

	Included, complete data (N= 1,489)	Included, imputed data (N= 2,207)	Excluded missing data (N= 1,202)	P for the trend
Baseline characteristics (child 0-1 years)				
Lowest quartile for socio-economic position	125 (8.4%)	351 (16.0%)	573 (48.0%)	<0.001
Mother's age less than 25 years	71 (4.8%)	224 (10.2%)	337 (28.1%)	<0.001
Remote/very remote geographical location	57 (3.8%)	90 (4.2%)	61 (5.1%)	0.108
Primary language spoken at home not English	123 (8.3%)	339 (15.4%)	230 (19.1%)	<0.001
Child Aboriginal/Torres Strait Islander	21 (1.4%)	68 (3.1%)	129 (10.7%)	<0.001
Mother born overseas	225 (15.1%)	437 (19.8%)	236 (20.0%)	0.001
Mother symptomatic for psychological distress	128 (8.6%)	219 (11.8%)	152 (19.2%)	<0.001
Child special health care needs	81 (5.5%)	141 (6.5%)	76 (6.5%)	0.285
Mother did not complete high school (Year 12)	289 (20.0%)	686 (31.1%)	621 (51.8%)	<0.001
Father did not complete high school (Year 12)	506 (34.3%)	944 (43.4%)	356 (50.9%)	<0.001
Mother unemployed	831 (55.9%)	1,263 (57.3%)	840 (70.1%)	<0.001
Father unemployed	52 (3.5%)	129 (5.9%)	90 (12.3%)	<0.001
Father present who was not the biological parent of child (at any time over Time 1-4)	13 (0.9%)	62 (2.8%)	57 (4.7%)	<0.001



354 *Notes:* Socio-economic position was a composite based on household equivalized income, parents' education and occupational prestige. For participants in the included  
355 (imputed) and excluded categories, figures in tables reflect available data only. P for the trend values from logistic or linear regression testing the association between the  
356 three participants groups (treated as continuous) and the baseline characteristics.

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357 *Table 2: Mother report of inter-parental conflict (IPC) at 0-1, 2-3, 4-5 and 6-7 years, predicting child externalizing problems at 10-11 years.*

Child outcomes	Unadjusted models				Adjusted: Social risk <sup>1</sup> (0-1 years)				Adjusted: Parenting <sup>2</sup> (8-9 years)				Adjusted: Mother distress <sup>3</sup> (8-9 years)			
	95% CI				95% CI				95% CI				95% CI			
	Coef	LL	UL	p	Coef	LL	UL	p	Coef	LL	UL	p	Coef	LL	UL	p
<b>PHYSICAL IPC</b>																
Mother-report																
Physical IPC 1 time	0.65	0.14	1.16	<b>0.01</b>	0.58	0.07	1.08	<b>0.03</b>	0.41	-0.05	0.88	0.08	0.38	-0.13	0.89	0.14
Physical IPC 2-4 times	0.90	0.15	1.66	<b>0.02</b>	0.90	0.15	1.65	<b>0.02</b>	0.30	-0.43	1.03	0.42	0.49	-0.26	1.25	0.20
Father-report																
Physical IPC 1 time	0.85	0.26	1.45	<b>0.006</b>	0.75	0.16	1.34	<b>0.01</b>	0.69	0.10	1.28	<b>0.02</b>	0.70	0.11	1.29	<b>0.02</b>
Physical IPC 2-4 times	0.98	0.05	1.91	<b>0.04</b>	1.00	0.08	1.92	<b>0.03</b>	0.49	-0.39	1.37	0.27	0.71	-0.22	1.64	0.13
Child self-report																
Physical IPC 1 time	0.64	0.13	1.15	<b>0.02</b>	0.63	0.13	1.13	<b>0.01</b>	0.54	0.03	1.04	<b>0.04</b>	0.56	0.04	1.07	<b>0.03</b>
Physical IPC 2-4 times	0.89	0.12	1.67	<b>0.02</b>	0.97	0.21	1.72	<b>0.01</b>	0.62	-0.14	1.38	0.11	0.77	-0.01	1.55	0.05
Teacher-report																
Physical IPC 1 time	0.72	0.17	1.27	<b>0.01</b>	0.67	0.11	1.22	<b>0.02</b>	0.59	0.05	1.13	<b>0.03</b>	0.64	0.08	1.20	<b>0.03</b>
Physical IPC 2-4 times	0.90	0.01	1.79	<b>0.05</b>	0.98	0.12	1.83	<b>0.03</b>	0.57	-0.32	1.45	0.21	0.78	-0.13	1.68	0.09

VERBAL IPC																
Mother-report																
Verbal IPC 1 time	0.70	0.36	1.05	<0.001	0.65	0.30	0.99	<0.001	0.42	0.11	0.74	<b>0.009</b>	0.56	0.22	0.91	<b>0.002</b>
Verbal IPC 2-4 times	1.55	1.03	2.07	<0.001	1.45	0.94	1.97	<0.001	0.95	0.48	1.43	<0.001	1.13	0.61	1.66	<0.001
Father-report																
Verbal IPC 1 time	0.70	0.27	1.12	<b>0.002</b>	0.62	0.20	1.03	<b>0.004</b>	0.48	0.07	0.88	<b>0.02</b>	0.62	0.20	1.04	<b>0.004</b>
Verbal IPC 2-4 times	1.20	0.59	1.82	<0.001	1.05	0.45	1.66	<b>0.001</b>	0.82	0.21	1.42	<b>0.008</b>	0.93	0.31	1.55	<b>0.004</b>
Child self-report																
Verbal IPC 1 time	0.57	0.23	0.92	<b>0.001</b>	0.54	0.20	0.88	<b>0.002</b>	0.44	0.10	0.78	<b>0.01</b>	0.53	0.18	0.87	<b>0.003</b>
Verbal IPC 2-4 times	0.90	0.37	1.42	<b>0.001</b>	0.84	0.32	1.35	<b>0.002</b>	0.63	0.11	1.16	<b>0.02</b>	0.77	0.23	1.31	<b>0.005</b>
Teacher-report																
Verbal IPC 1 time	0.49	0.10	0.88	<b>0.02</b>	0.42	0.04	0.81	<b>0.03</b>	0.32	-0.06	0.69	0.10	0.44	0.05	0.83	<b>0.03</b>
Verbal IPC 2-4 times	0.90	0.31	1.49	<b>0.003</b>	0.78	0.21	1.36	<b>0.008</b>	0.57	-0.01	1.14	0.05	0.77	0.15	1.38	<b>0.02</b>

359 Note: Bold-face represents statistically significant results ( $p < 0.05$ ); Coef=regression coefficient; 95% CI = 95% confidence interval; LL=lower limit, UP=upper limit (for  
360 95% confidence interval). N=3696 mother, child and teacher-reported outcomes; N=3273 for father-reported outcomes. <sup>1</sup>Models adjust for baseline maternal age, remote  
361 geographical location, lowest quartile for socio-economic status (takes into account parent education, occupation and equalized household income) and language other than  
362 English spoken at home. <sup>2</sup>Models adjust for maternal-rated parenting irritability, parenting warmth, and parenting self-efficacy at child age 8-9 years. <sup>3</sup>Models adjust for  
363 maternal psychological distress at child age 8-9 years.

364 *Table 3: Mother report of inter-parental conflict (IPC) at 0-1, 2-3, 4-5 and 6-7 years, predicting child internalizing problems at 10-11 years.*

	Unadjusted models				Adjusted: Social risk <sup>1</sup> (0-1 years)				Adjusted: Parenting <sup>2</sup> (8-9 years)				Adjusted: Mother distress <sup>3</sup> (8-9 years)			
	95% CI				95% CI				95% CI				95% CI			
	Coef	LL	UL	p	Coef	LL	UL	p	Coef	LL	UL	p	Coef	LL	UL	p
<b>PHYSICAL IPC</b>																
Mother-report																
Physical IPC 1 time	0.79	0.36	1.21	<b>&lt;0.001</b>	0.64	0.23	1.06	<b>0.003</b>	0.66	0.25	1.06	<b>0.002</b>	0.45	0.04	0.87	<b>0.03</b>
Physical IPC 2-4 times	0.70	0.03	1.37	<b>0.04</b>	0.62	-0.03	1.27	0.06	0.39	-0.26	1.03	0.24	0.18	-0.46	0.82	0.57
Father-report																
Physical IPC 1 time	0.78	0.25	1.32	<b>0.005</b>	0.59	0.07	1.11	<b>0.03</b>	0.71	0.18	1.23	<b>0.009</b>	0.60	0.07	1.14	<b>0.03</b>
Physical IPC 2-4 times	0.82	0.01	1.62	<b>0.046</b>	0.77	-0.01	1.55	0.054	0.62	-0.17	1.42	0.13	0.50	-0.31	1.31	0.22
Child self-report																
Physical IPC 1 time	0.68	0.24	1.12	<b>0.003</b>	0.56	0.13	0.99	<b>0.01</b>	0.62	0.18	1.05	<b>0.006</b>	0.58	0.14	1.02	<b>0.01</b>
Physical IPC 2-4 times	0.19	-0.53	0.90	0.61	0.18	-0.50	0.85	0.60	0.06	-0.65	0.76	0.87	0.03	-0.68	0.74	0.94
Teacher-report																
Physical IPC 1 time	0.35	-0.06	0.77	0.09	0.34	-0.07	0.76	0.10	0.30	-0.11	0.71	0.15	0.23	-0.19	0.65	0.27
Physical IPC 2-4 times	-0.13	-0.84	0.58	0.72	-0.07	-0.78	0.64	0.85	-0.25	-0.94	0.44	0.48	-0.32	-1.03	0.40	0.39

VERBAL IPC																
Mother-report																
Verbal IPC 1 time	0.77	0.46	1.08	<0.001	0.67	0.37	0.97	<0.001	0.62	0.33	0.92	<0.001	0.59	0.29	0.89	<0.001
Verbal IPC 2-4 times	1.53	1.04	2.01	<0.001	1.37	0.89	1.84	<0.001	1.22	0.75	1.69	<0.001	1.00	0.53	1.47	<0.001
Father-report																
Verbal IPC 1 time	0.60	0.22	0.98	<b>0.002</b>	0.46	0.10	0.83	<b>0.01</b>	0.51	0.13	0.90	<b>0.009</b>	0.51	0.13	0.89	<b>0.008</b>
Verbal IPC 2-4 times	1.27	0.72	1.82	<0.001	1.04	0.52	1.57	<0.001	1.11	0.56	1.66	<0.001	0.96	0.41	1.50	<b>0.001</b>
Child self-report																
Verbal IPC 1 time	0.48	0.14	0.83	<b>0.006</b>	0.39	0.05	0.72	<b>0.02</b>	0.42	0.09	0.76	<b>0.01</b>	0.43	0.09	0.77	<b>0.01</b>
Verbal IPC 2-4 times	0.96	0.48	1.45	<0.001	0.79	0.31	1.27	<b>0.001</b>	0.83	0.35	1.32	<b>0.001</b>	0.81	0.32	1.30	<b>0.001</b>
Teacher-report																
Verbal IPC 1 time	0.53	0.19	0.87	<b>0.002</b>	0.51	0.18	0.85	<b>0.003</b>	0.47	0.14	0.80	<b>0.006</b>	0.47	0.13	0.81	<b>0.007</b>
Verbal IPC 2-4 times	0.60	0.11	1.09	<b>0.02</b>	0.56	0.07	1.05	<b>0.03</b>	0.49	0.00	0.97	0.05	0.42	-0.08	0.91	0.10

366 Note: Bold-face represents statistically significant results ( $p < 0.05$ ); Coef=regression coefficient; 95% CI = 95% confidence interval; LL=lower limit, UP=upper limit (for  
367 95% confidence interval). N=3696 mother, child and teacher-reported outcomes; N=3273 for father-reported outcomes. <sup>1</sup>Models adjust for baseline maternal age, remote  
368 geographical location, lowest quartile for socio-economic status (takes into account parent education, occupation and equalized household income) and language other than  
369 English spoken at home. <sup>2</sup>Models adjust for maternal-rated parenting irritability, parenting warmth, and parenting self-efficacy at child age 8-9 years. <sup>3</sup>Models adjust for  
370 maternal psychological distress at child age 8-9 years.