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# Intimate Partner Abuse and Child Health\*

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## Abstract

Despite the harmful effects of intimate partner abuse (IPA) on child health, survivors with children often continue in abusive relationships. It is often, they claim, to ensure a better future for their children. We explore the puzzle and this potential explanation using rich, longitudinal data from Australia. We show that IPA has large, long-lasting negative effects on children's health. These findings stay robust across several identification techniques, including instrumental variables, sequential difference-in-differences, and event studies. The effects seem to be driven by worsening physical and mental health of the parents, which also adversely impacts their risk-taking behavior, decrease in parents' confidence in their parenting, decrease in warm parenting, and increase in angry parenting. Finally, comparing event study graphs reveal that children of parents who separate after IPA events are no better off than children of parents who do not separate after IPA events, weakly supporting the popular explanation.

*JEL Classification:* J12; J13.

*Keywords:* domestic abuse; child health; divorce.

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# 1 Introduction

According to the World Health Organization, 26% of women have experienced physical and/or sexual abuse by their intimate partner at least once in their lifetime since the age of 15 (WHO, 2018). Intimate partner abuse (IPA) has extremely harmful effects on the physical and mental health and well-being of survivors (Campbell, 2002; Ellsberg et al., 2008; Ford-Gilboe et al., 2009; Devries et al., 2013; Beleche, 2019). Despite the high costs, many women continue in abusive relationships (Anderson and Saunders, 2003; Heron et al., 2022). One of the most cited self-reported reason behind the decision to stay in an abusive relationship is to ensure a better future for the children (Humphreys, 1995; Rusbult and Martz, 1995; Anderson and Saunders, 2003; Stephens and Melton, 2017; Heron et al., 2022). But parental IPA is associated with worse psychological health of children (Sternberg et al., 2006; Evans et al., 2008; Yount et al., 2011). How do we reconcile this discrepancy between what IPA survivors report and the research findings?

An apparent weakness of the research findings around the effect of parental IPA on child health is that much of the evidence is correlational. Omitted variables, like stressful financial situations, could drive both IPA and child health. Alternatively, worse health of children could put extreme strain on the relationship between parents and may manifest as IPA. If so, survivors might rightly expect IPA to cease once the child recovers. It is, therefore, important to distill the causal estimates from these correlations. Another aspect to consider is that separation or divorce, which is often the default prescription to IPA survivors, might also negatively affect children (Kearney, 2023). If we are to understand the decision of IPA survivors, it is important to compare the health of children of IPA survivors who do not separate from their partners with health of children of IPA survivors who separate. Despite its importance, this question has received surprisingly little attention within and outside economics.

In this paper, we attempt to fill these gaps in the literature on the effects of parental IPA on child health with evidence from Australia. Using a rich, nationally-representative

longitudinal data set on children that spans the 2004-2018 period and a variety of identification techniques, we first document large negative effects of parental IPA experience on child health. Our IPA measure adds the frequency of violence by the partner, hostility from the partner, stressful conversations with the partner, and arguments with the partner regarding parenting.<sup>1</sup> Our main empirical strategy is a two-way fixed effects (TWFE) model that controls for child and postcode-survey wave fixed effects, identifying the association between parental IPA and child health using within child variation in parental IPA while controlling for time variant and invariant postcode level confounders.<sup>2</sup>

Next, we show that results are consistent when we use instrumental variable (IV) and difference-in-differences (DiD) techniques for identification. Building on [Kabátek and Ribar \(2021\)](#) who show that having teenage daughters in the household can increase disagreements between couples and on previous studies in this space that point to dependence on the partner as a strong correlate to IPA ([Anderson and Saunders, 2003](#); [Vyas and Watts, 2009](#); [Heise, 2012](#); [Heron et al., 2022](#)), we use the interaction of presence of teenage daughters in the household and the frequency of contact between an enumerated child's mother and grandmother to instrument different forms of IPA. The second-stage IV estimates are around twenty times larger than the TWFE estimates but are in line with or smaller than estimates from previous IPA studies in other settings ([Jofre-Bonet et al., 2016](#); [Currie et al., 2022](#)). To understand how much of the discrepancy in estimates are driven by the unsatisfactory comparison of TWFE's average treatment effects with the IV's local average treatment effects, we estimate a DiD specification of the type used in [Bhuller et al. \(2023\)](#). For each of our household conflict measures recorded on five-point scales, we compare mothers reporting a one-point increase with control group mothers who would report such an increase in the future.

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<sup>1</sup>In a robustness check, we also include disagreements regarding parenting to this measure.

<sup>2</sup>Child fixed effects allow us to control for important child- and parent-specific characteristics, like genetic endowment, birth cohort, gender, birth weight, ethnicity, and parental human capital, that can determine child health ([Currie, 2009](#)). Including postcode-year fixed effects lets us control for time-varying environmental factors, like pollution, disease environment, and local economic conditions, that can impact child health.

For each of these comparisons, we limit our sample to include only one post-exposure period for the exposed mothers and unexposed periods for the control group mothers. This implies reported coefficients are estimates of immediate effects and do not consider the dynamics in the effect of conflict (De Chaisemartin and d'Haultfoeuille, 2023). This formulation makes the parallel trends assumption much more plausible with the only difference between the exposed and unexposed units being the timing of exposure. By making separate comparisons for each possible one-point increase in conflict measures, we avoid confounding the level dose effect with the dose-response gradient (see Callaway et al. (2021)). The DiD effects we estimate are about double the size of the TWFE estimates but much smaller than the IV estimates.

We also present event study graphs that make it quite evident that child health starts deteriorating after major IPA events. The event graphs help document important dynamics with respect to time elapsed since the IPA event. Health of children who witness IPA deteriorates after the event and does not recover to its initial level even four survey waves (eight years) after the event. Heterogeneity analyses reveal that teenage children appear to be hit worse than younger children and estimates are driven by the sample of households where both the biological parents are present.

We follow this up with an exploration of potential mechanisms. It appears that IPA incidents affect physical and mental health of the parents, which also adversely impacts their risk-taking behavior. IPA also impacts parents' self-assessment of parenting. They become less likely to engage in warm parenting and more likely to engage in angry parenting.

Next, we show that all forms of IPA are strong predictors of divorce. Unsurprisingly, violence and hostility from the partner are the strongest predictor of divorce followed by stressful conversations and arguments. Then, we compare the health trajectory of children exposed to parental IPA in households where the parents separate after the incident with children from households where the parents do not separate after such incidents. The comparison reveals that children are no better off in families where the

survivors divorce their partner. This is an important finding that emphasizes the need to prevent IPA instead of punishing it, and raises concerns regarding whether divorce or separation should be the default prescription in its aftermath. Our instrumental variable analysis shows that the probability of IPA increases significantly when daughters reach their teenage years. Teenage sons do not have this effect. Based on this observation, a policy suggestion is increased counseling support for families with daughters in their teen years.

Our findings are related and contribute to the existing research on the topic in several ways. Studies from medicine, public health, psychology, sociology and related disciplines that document strong associations between IPA and child health typically use small, often non-representative samples and do not account for omitted variable bias, reverse causation, or selection. Our first contribution is that we add to the limited number of studies that document a causal link between IPA and child health (Aizer, 2011; Jofre-Bonet et al., 2016; Currie et al., 2022; Bhuller et al., 2023). Aizer (2011) documents that assault-related hospitalization during pregnancy has large negative effects on birth weight of children born in California. Jofre-Bonet et al. (2016) find that use of force against mothers by fathers in the UK deteriorates parent-reported health of the child. Bhuller et al. (2023) use administrative data from Norway to show that domestic violence incidents that are reported to the police have negative effects on multiple dimensions of well-being of the survivors and their children and that these effects do not fade away with time. Currie et al. (2022) show that assaults during pregnancy reported to the police negatively affect the birth outcome of children born in New York.<sup>3</sup> In this space, ours is the first study to examine the relationship using event graphs. We are also the first to employ multiple identification strategies in an attempt to rule out the possibility that the findings are an artifact of the methods used.

Second, our measure of IPA improves on the existing causal studies. For example,

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<sup>3</sup>Related, Rawlings and Siddique (2020) document association between experiences of physical and sexual violence and child mortality. Anderberg and Moroni (2020) find verbal and physical abuse experience by a parent decreases cognitive and socio-emotional outcomes of young children (7 or younger).

Aizer (2011), Bhuller et al. (2023), and Currie et al. (2022) use extreme events, like hospitalisation due to or police reports of assaults, as their measure of IPA. This measure has several weaknesses. IPA survivors who do not seek hospital care or file police complaints are not captured in these measures. These measures also fail to capture unverifiable and less severe forms of IPA, like emotional or verbal abuse. Moreover, Aizer (2011) and Currie et al. (2022) cannot determine if the assault was perpetrated by an intimate partner. Bhuller et al. (2023), in comparison, codes events as domestic violence if at least one suspect was in a relationship with the survivor at some point and the crime type is violence, harassment, threat, sexual abuse, nonsexual abuse or specifically family-related crime. Our measure of IPA, while self-reported, does not rely on occurrence of extreme events and contains no uncertainty around who the perpetrator was.<sup>4</sup> Jofre-Bonet et al. (2016) definition of IPA, respondent reported use of force by their partners, is closer to ours. But unlike them, we are also able to examine the effect of milder forms of distress, like stressful conversations with partners.

Third, we also push the boundaries in terms of the outcome variables examined. Aizer (2011) and Currie et al. (2022) document the effect of violence during pregnancy on child birth outcomes. Jofre-Bonet et al. (2016) examine the effect on a parent-reported summary ranking of the child's health. Rawlings and Siddique (2020) investigate the relationship between IPA and child mortality while Anderberg and Moroni (2020) use cognitive and socio-emotional outcomes until age 7. Besides their limited scope, these measures capture short-term effects of exposure to domestic violence. Our data allows us to employ a range of markers of children's health including self-assessed health measures, a range of ongoing conditions, prescribed medications and anthropometric outcomes. The data we use has followed children up to 17 years of age, which let us examine long-term effects of parental IPA and understand the relationship dynamics. In this, we are closest to Bhuller et al. (2023) who also examine long-run outcomes.

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<sup>4</sup>We also find a strong association between IPA measures based on mother's and father's reports, suggesting less severe misreporting.

Fourth, the detailed child- and parent-level data we use allows us to investigate a wide range of potential transmission mechanisms including parental mental health, subjective well-being, behaviours, and parenting inputs. While [Anderberg and Moroni \(2020\)](#) discusses some of these mechanisms, they are unable to empirically explore them. [Currie et al. \(2022\)](#) explores channel related to direct physical harm and health care utilization by the mother. [Bhuller et al. \(2023\)](#) shows that domestic violence effects might operate via worsening financial and mental health of survivors and their children. To the best of our knowledge, no previous study has looked into how IPA affects parenting styles and self-esteem as parents. Similarly, no other study has attempted to come up with early-warning systems that can be leveraged to prevent IPA. The results of our analysis of mechanisms carry valuable insights for policy-makers aiming to mitigate the fallout of IPA.

Finally, some of the studies in the literature draw on distinct contexts such as California ([Aizer, 2011](#)) and New York City ([Currie et al., 2022](#)). Australian studies have also discussed the links between exposure to domestic abuse and children's health outcomes but none has rigorously tested the relationship in a nationally-representative sample ([Kaspiew et al., 2012](#); [Gartland et al., 2014](#)). Our study adds to the work by [Jofre-Bonet et al. \(2016\)](#) and [Bhuller et al. \(2023\)](#) by offering insights on the relationship between parental IPA and child health outcomes in a nationally representative sample drawn from a developed country. We do so by exploiting the novel context of Australia where one in nine men and one in six women are estimated to have witnessed parental violence before the age of 15 ([ABS, 2023](#)).

The rest of the paper is structured as follows. The next section describes the data we use. Section 3 discusses our empirical specification and identification strategies. We present our main results in Section 4 and important heterogeneity analysis in Section 5. Section 6 explores some potential mechanisms and Section 7 presents the comparison of health trajectories of children whose parents divorce with those of children whose parents don't divorce following an IPA incident. Section 8 concludes.



## 2 Data

### 2.1 Source and Variables

We use data from *Growing up in Australia: The Longitudinal Study of Australian Children (LSAC)* for our analysis. LSAC is a longitudinal survey that follows the development of around 10,000 Australian children and their families. LSAC data are collected every two years from two cohorts aged 0–1 (Baby cohort: B-Cohort, 5,107 children) and 4–5 years (Kids cohort: K-cohort, 4,983 children) when the study began in 2004. The information collected from two cohorts is nearly identical, hence our analysis is based on the pooled sample of two cohorts. We use the first eight waves of the LSAC survey over the period from 2004-2018. The latest ninth wave of the survey conducted in 2020 didn't collect information on IPA. The pooled data set offers the opportunity to observe children from birth to 16/17 years old.

To measure IPA, we draw on the responses to the following LSAC questions asked to both parents.<sup>5</sup>

1. Do you and your partner argue?
2. Is your conversation with your partner awkward or stressful?
3. Is there anger or hostility between you and your partner?
4. Do you have arguments with your partner that end up with people pushing, hitting, kicking or shoving?
5. Do you and your partner disagree about basic child-rearing/parenting issues?  
(optional)

Possible responses to each question are: Never, Rarely, Sometimes, Often, and Always. We score them on a scale of 1 to 5, with one denoting 'Never'. The question doesn't explicitly specify a period of reference for IPA incidents. But the question is

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<sup>5</sup>Households where the study child lives with only one parent are excluded from the sample.

asked in every wave from waves 1 to 8 and the year of event can be assumed to be the year preceding the survey.

It is not easy to construct an IPA measure from these variables. Some level of stressful conversations and arguments are natural in a relationship. Keeping this in mind, we define our IPA measure in the following way. For our regression analysis we add the mother's responses (scale 1-5) to the first four questions.<sup>6</sup> Therefore, IPA is measured on a scale of four to twenty. For our event studies, we define an 'argument event' as the wave in which the response to the argument question goes from 'Rarely' to 'Sometimes'. We use similar definitions for stressful conversation events (and disagreement events). For 'violence' and 'anger or hostility', we use the information on when the response to the question goes from 'Never' to 'Rarely'. To define an overall IPA event, we use a threshold of ten points, summing up the individual thresholds of three points for the first two questions and of two points for the latter two. In robustness checks, we utilise father's responses to these questions to alleviate chances of misreporting.

Our outcome of interest is children's health status. Drawing on the richness of LSAC data, we are able to capture children's health across four dimensions. First, following a body of work that utilizes parental assessment of child health to measure child health status (Coneus and Spiess, 2012; Kuehnle, 2014; Le and Nguyen, 2018), we consider the study child's general health by drawing on parental responses to question: 'In general, how would you say the child's current health is?'. Possible response scale goes from '1' denoting poor health to '5' denoting excellent health. As a first measure, we use their direct response to the question. As a second measure, we construct a binary variable that distinguishes excellent/very good health condition from good/fair/poor health conditions. While this measure is based on subjective assessments, it has been shown to be correlated with objective markers of health (Case et al., 2002; Singh-Manoux et al., 2007; Jylhä, 2009; Christian et al., 2011). Another reason we prefer parental assessments to biomarkers and medical diagnoses is because biomarkers and

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<sup>6</sup>For robustness checks, we also include the response to the fifth question.

medical diagnoses can often overlook mental health issues or fail to detect medical conditions in their early stages. Parents, who observed their children much more closely and frequently, are less likely to miss such hints (Glascoe et al., 1991). This is particularly important when studying the effect of parental IPA where the consequences for the mental health of children can be sizable (Bhuller et al., 2023). As reported in Table 1, 88% of children in our sample have excellent/very good health status per parent’s assessment.

Table 1: Summary Statistics

	Full sample			No IPA event sample			IPA event sample			Difference (5)-(8)
	N (1)	Mean (2)	SD (3)	N (4)	Mean (5)	SD (6)	N (7)	Mean (8)	SD (9)	
Share of male study child (SC)	47552	0.51	0.50	36766	0.51	0.50	10786	0.51	0.50	0.00
Share of SC with divorced parent	47389	0.06	0.24	36665	0.05	0.21	10724	0.11	0.32	-0.06***
Mothers with Bachelors’s degrees	47517	0.38	0.49	36753	0.38	0.49	10764	0.38	0.48	0.00
Share of mothers with employment	47500	0.73	0.44	36735	0.72	0.45	10765	0.78	0.41	-0.06***
Avg. # of teen siblings of SC	47552	0.29	0.46	36766	0.26	0.44	10786	0.41	0.49	-0.15***
Avg. # of female teens in HH	47552	0.31	0.58	36766	0.26	0.55	10786	0.47	0.66	-0.21***
Avg. # of male teens in HH	47552	0.32	0.59	36766	0.27	0.55	10786	0.51	0.68	-0.24***
Share of SC living in urban areas	47552	0.85	0.36	36766	0.85	0.36	10786	0.84	0.37	0.01**
Avg. health rating of SCs (1-5)	47552	4.37	0.76	36766	4.40	0.75	10786	4.27	0.79	0.13***
Share of SC w excel. to good health	47552	0.88	0.33	36766	0.88	0.32	10786	0.85	0.36	0.03***
Avg. # of medical conditions per SC	47552	0.66	1.05	36766	0.59	0.96	10786	0.90	1.28	-0.30***
Share of SC using prescription meds	47539	0.15	0.35	36755	0.14	0.35	10784	0.17	0.38	-0.03***
Avg. SC weight (in kgs)	45845	34.42	19.03	35411	31.30	18.08	10434	45.02	18.35	-13.72***
Avg. SC height (in cms)	43153	134.96	25.23	32662	130.71	25.08	10491	148.19	20.74	-17.47***
Avg. SC BMI	42867	18.38	3.70	32477	18.01	3.47	10390	19.53	4.14	-1.52***
Disagreement w partner	47510	2.30	0.85	36729	2.22	0.81	10781	2.55	0.93	-0.33***
Stressful conversations w partner	47552	1.90	0.86	36766	1.79	0.78	10786	2.28	1.01	-0.49***
Arguments with partner	47552	2.37	0.71	36766	2.28	0.66	10786	2.65	0.77	-0.36***
Hostility from partner	47552	1.82	0.75	36766	1.73	0.69	10786	2.15	0.85	-0.42***
Violence from partner	47552	1.06	0.29	36766	1.04	0.24	10786	1.11	0.41	-0.07***
IPA2M	47552	7.15	2.06	36766	6.84	1.84	10786	8.18	2.40	-1.34***

Source: LSAC waves 1-8

Notes: Column (2), (5), and (8) report the mean of the relevant variable in the full sample, sample of children from households with at least one IPA event, and the sample of children from households with no IPA events, respectively. Column (10) reports the difference in means between the IPA unexposed and exposed samples, with the stars denoting statistical significance of the difference. \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$ .

LSAC also contains information on a wide range of ongoing health conditions that have existed for some period of time (at least some weeks) or re-occur regularly. These do not have to be diagnosed by a doctor. The list of ongoing conditions identified in the survey includes hearing problems, vision problems, developmental delay, eczema, diarrhea or colitis, anemia, ear infections, food or digestive allergies, constipation, frequent headaches, and tonsillitis, among others. Existing studies have discussed the

range of biological mechanisms through which family stress can influence markers of poor health in children (Robinson et al., 2008; Kendall et al., 2009). We use the number of ongoing conditions as a measure of child health. Over 66% of children in the sample have at least one ongoing condition (Table 1). The number of ongoing conditions ranges from 0 to 18, with the sample average of just over 0.7. In addition, the survey asks whether the study child uses medicines other than vitamins prescribed by a doctor – a complementary marker of health status we utilise in the analysis. Around 15% of the children in the sample do so. Finally, trained professionals also collect children’s height and weight information during the survey. We use this information to construct three types of anthropometric outcomes. These are natural log of weight, height, and BMI. The means of these variables are reported in Table 1.

The longitudinal nature of the data lets us control for a wide set of background child and parental characteristics as well as the characteristics of their localities. These include child fixed effects that account for birth year, gender, low birth weight status (< 2500g), Indigenous origin, country of birth (Australia vs overseas), number of siblings, and other time-invariant child-specific variables. Additionally, we control for postcode-level time-varying confounders, like local disease environment, using postcode-wave fixed effect. We also include the following controls for locality characteristics: share of individuals who have completed year 12, speak English, were born in Australia, or have an Aboriginal/Torres Strait Islander origin, share of households with household income less than AU\$ 1,000/week and an urban dummy.<sup>7</sup>

When investigating potential pathways, we use information on parents health and well-being as well as parenting input measures. We use three main measures of parenting inputs - time spent on child-rearing activities, confidence in oneself as a parent, and parenting styles. Within the parenting styles category, we have information on five different types of parenting styles. These are warm parenting, angry parenting, inductive parenting, overprotective parenting, and control or authoritarian parenting. LSAC

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<sup>7</sup>These locality characteristics measures are constructed by LSAC, and not the authors.

constructs each of these parenting measures by averaging the responses to three to six questions responses to which are recorded on a 5-point scale. These questions are listed in [Table A1](#).

## 2.2 Descriptive Statistics

In addition to full sample means of all variables included in the analysis, [Table 1](#) also reports the means in sub-samples of children without and with IPA exposure (Columns 5 and 8) and their difference (Column 10). The results show significant differences in health outcomes of children in the two groups. There is a 3-percentage point gap in children reporting excellent/very good health in the two groups. The difference in number of conditions reported is much higher with the average child in the IPA exposed group reporting almost double the number of conditions compared to unexposed group. There are differences in the anthropometric measures across the two groups. IPA-exposed children have lower height and weight relative to unexposed children. The empirical analysis that comes next investigates these relationships in detail.

## 3 Empirical Specification

### 3.1 Baseline TWFE Specification

We begin by investigating the association between a child’s exposure to parental IPA and their health outcomes using a two-way fixed-effects model:

$$\text{Health}_{ipt} = \alpha + \beta \times \text{IPA}_{ipt} + \gamma \mathbf{X}_{pt} + \mu_i + \delta_p t + \varepsilon_{it} \quad (1)$$

where  $\text{IPA}_{ipt}$  indicates the exposure to parental IPA for child  $i$  living in postcode  $p$  interviewed in wave  $t$ .  $\mathbf{X}_{pt}$  is a set of controls for postcode level measures of socio-economic characteristics (specified in [Section 2](#)). Child fixed effect,  $\mu_i$ , controls for time-invariant child-specific observed and unobserved heterogeneity, like genetic en-

dowments, birth cohort, gender, birth weight, ethnicity, and parental human capital, that can determine child health.  $\delta_{pt}$  accounts for postcode trends and events, like pollution, disease environment, and local economic conditions, that may have affected occurrences of IPA as well as child health but are not captured in the postcode-level socio-economic controls. All regressions additionally include survey quarter fixed effects. Standard errors are clustered at the postcode level.

If IPA was random, the estimates of  $\beta$  would have measured the effect of parental IPA on child outcome. But it is not. Families that witness IPA may also fail to make other important investment in their children's health. The above specification mitigates a significant amount of potential bias by controlling for a wide range of time-varying child, family, and locality characteristics, as well as for time-invariant unobservable factors through inclusion of fixed effects. However, the specification will fail to control for child-level time-varying sources of bias.

### 3.2 Instrumental Variable Technique

The TWFE specifications with child and postcode-wave fixed effect while quite stringent cannot account for child-level confounders that vary within postcodes across survey years. To overcome this limitation, we use an instrumental variable technique. Instrumenting IPA is not easy. They are rarely random and often the culmination of multiple stresses in different aspects of life. We use two insights from related recent studies to construct an instrument that is unlikely to affect child health directly.

[Kabátek and Ribar \(2021\)](#) use administrative data from the Netherlands and survey information from the US to show that having 13-18 year old daughters in the household is associated with higher divorce risks. [Figure A1](#) would suggest that the divorces were likely preceded by spousal conflict. It is, therefore, possible that the age and gender of children in the household affects general levels of stress and disagreement within the household. But disagreement and stress do not always culminate in IPA. Studies in this space routinely find that the victim's degree of dependency on the aggressor increases

the chances of IPA (Anderson and Saunders, 2003; Vyas and Watts, 2009; Heise, 2012; Heron et al., 2022). To capture dependency (or bargaining power) of the enumerated child’s mother on her partner, we use information on how frequently the child and the mother contact the child’s maternal grandparents. The rationale is that women who are in regular contact with their parents may be less dependent, emotionally and financially, on their partners. They may also have higher bargaining power within the relationship due to their parent’s support. We use the interaction of these two variables - presence of teenage daughters and contact frequency with the study child’s maternal grandmother - to instrument for IPA. The first-stage specification is as follows:

$$\text{IPA}_{ipt} = a^{\text{IV1}} + b^{\text{IV1}} \times (\# \text{ Teen daughters})_{ipt} \times (\text{Contact freq})_{ip} + c^{\text{IV1}} \times (\# \text{ Teen daughters})_{ipt} + \gamma^{\text{IV1}} \mathbf{X}_{pt} + \mu_i^{\text{IV1}} + \delta_p t^{\text{IV1}} + \nu_{it}, \quad (2)$$

where  $(\# \text{ Teen daughters})_{ipt}$  denotes the number of teenage daughters in study child  $i$ ’s household during wave  $t$ .  $(\text{Contact freq})_{ip}$  is the frequency of contact that the study child and their mother keep with their maternal grandparents. It is constructed by adding the grandparents’ contact frequency with their daughter and their grandchild both measured on a 1 to 6 scale, where ‘1’ denotes no contact and ‘6’ denotes contact everyday. The contact frequencies we use were measured in the second wave when the study children are two or six years of age. Having this time-invariant variable in the interaction is useful because it ensures that the instrument is orthogonal to the direct changes that occur as a result of daughters growing in and out of their teenage years. Other terms have their usual interpretation. We additionally control for the total number of teen children in all stages of the IV analysis. Table A2 reports the results for this first stage. Consistent with Kabátek and Ribar (2021), presence of teenage daughters in the household is associated with higher rates of spousal conflict. But if the study child (SC) and the SC’s mother are in more regular contact with the SC’s maternal grandparents, the effect of having teenage daughters on spousal conflict

is significantly smaller.

Note that our formulation allows for direct effects of having teenage daughters in the household and of contact frequency with maternal grandparents on the health of the study child. It is the interaction of the two variables that we assume satisfies the exclusion criteria. We then use the predicted value of IPA in the following second stage specification:

$$\text{Health}_{ipt} = \alpha^{IV2} + \beta^{IV2} \times \widehat{\text{IPA}}_{ipt} + \omega^{IV2} \times (\# \text{ Teen daughters})_{ipt} + \gamma^{IV2} \mathbf{X}_{pt} + \mu_i^{IV2} + \delta_{pt}^{IV2} + \eta_{it}. \quad (3)$$

### 3.3 Difference-in-Differences Technique

The IV method is useful in that it helps uncover whether causal effects exist. But there are two downsides of using the method. First, the validity of the estimated effects relies crucially on the untestable exclusion restriction assumption. It is almost always possible to come up with scenarios where the exclusion restriction could be violated. Second, the method estimates local average treatment effects (LATE) that are identified from changes in IPA levels due to the instrument. It is unable to capture the effect of changes in IPA that are not predicted by the interaction instrument we use. Having this ‘local’ measure raises questions about its external validity; what if the compliers are a selected group that look different from the average population in the relationship between IPA and child health? To alleviate these concerns, we next use a modified difference-in-differences design that builds on the method used in [Bhuller et al. \(2023\)](#).

The comparison strategy is as follows. For each of our household conflict measures recorded on five-point scales, we first draw the sample of mothers reporting a one-point increase in conflict. They comprise the ‘exposed’ group. Next we draw the sample of mothers who would see the exact same one-point increase in conflict but in the future. They serve as our ‘control’ group. We do this for each wave of the sur-



vey. The sub-samples constructed from exposure in a specific wave, therefore, consist of all interviews of exposed and control mothers until that wave. All waves prior to the exposure wave form the pre-exposure period. The wave in which the increase in IPA is first recorded for the exposed mothers forms the post-exposure period. We omit interviews in waves after the exposure wave to allow us to sidestep the issues related to dynamic exposure effects (De Chaisemartin and d’Haultfoeuille, 2023). In this formulation, the parallel trends assumption is more likely to hold since the only difference between the exposed and unexposed units is the timing of exposure. By making separate comparisons for each possible one-point increase in conflict measures, we avoid confounding the level dose effect with the dose-response gradient and can investigate which one-point increases in conflict matter more than others Callaway et al. (2021).

The specification we estimate takes the following form

$$\text{Health}_{ipt} = \alpha^{\text{DiD}} + \beta^{\text{DiD}} \times \text{Exposed}_{ip} \times \text{Post}_t + \gamma^{\text{DiD}} \mathbf{X}_{pt} + \mu_i^{\text{DiD}} + \delta_{pt}^{\text{DiD}} + \eta_{it}, \quad t \leq \tau. \quad (4)$$

Here,  $\tau$  denotes the survey wave used to define exposure. As explained above,  $\text{Exposed}_{ip}$  equals ‘1’ if enumerated child  $i$ ’s mother reports a specific one-point increase in a specific conflict measure in wave  $\tau$ . For example, it could be a change in response from ‘never’ in wave  $\tau - 1$  to ‘rarely’ in wave  $\tau$  to the stressful conversations questions.  $\text{Exposed}_{ip}$  equals ‘0’ for mothers who report a similar change in response to the same question but in wave after wave  $\tau$ . We do this analysis separately for each one-point increase in each conflict measure.

### 3.4 Event Study Approach

Experiencing IPA or witnessing it between one’s parents is a traumatic, watershed event. The victim’s world changes overnight. Event study graphs are particularly useful when examining the effect of such watershed events. The longitudinal information that we have on both health outcomes of the children and parental IPA lends itself to an event

study design. If the significant changes in health outcome of children coincide with or follow significant changes in parental IPA, the evidence in favor of a causal relationship of IPA on health outcome would be stronger. We investigate this possibility through event study graphs where the events are defined as follows. As described in Section 2, we define ‘argument events’, ‘stressful conversation events’, ‘anger or hostility events’, and ‘disagreement events’ as the wave in which the response to the relevant question goes from ‘Rarely’ to ‘Sometimes’. For ‘violence events’, we use the information on when the response to the question goes from ‘Never’ to ‘Rarely’. To define the overall IPA event, we use a threshold of ten. We choose the threshold of ten by adding the individual question thresholds of three (rarely to sometimes) for the first three questions and of two (never to rarely) for the violence question.

## 4 Results

### 4.1 TWFE Results

Table 2 present the main results on the relationship between IPA and parent-reported child health outcomes.<sup>8</sup> In all our main results, we use the summary IPA measure, based on the study child’s mother’s responses, as our main independent variable.<sup>9</sup> Columns (1) and (2) show that IPA is negatively associated with parent-reported health of the child. All specifications control for child and postcode-survey year fixed effects. The associations, therefore, are identified from variations within children across survey waves while controlling for postcode-level unobservable and observable changes across waves. A one-unit increase in IPA, measured on the 4-20 scale, is associated with a 0.1 unit decrease in general health rating measured on a 1-5 scale. For ease of interpretation,

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<sup>8</sup>We do not use anthropometric measures, like height and BMI, because their trajectories are often determined early in life and are unlikely to respond to parental IPA, at least in the short run.

<sup>9</sup>As a robustness check, we also examine the association between the summary IPA measure based on the father’s responses. Reported in Table A3, the estimated associations are consistent with Table 2, albeit smaller in magnitude and statistical significance. Higher misreporting of IPA by males could be a possible reason for the smaller coefficients.

Column (2) shows that a one-point increase in IPA is associated with a 0.6% decline in the chances of parents reporting that the child is in excellent or very good health.

Table 2: Association between IPA and child health

	(1) General health rating (1-5)	(2) Excellent or v. good health	(3) # of ongoing conditions	(4) Uses prescription medication
IPA	-0.013*** (0.002)	-0.006*** (0.001)	0.013*** (0.003)	0.002** (0.001)
Child FE	✓	✓	✓	✓
Postcode-wave FE	✓	✓	✓	✓
Survey quarter FE	✓	✓	✓	✓
Local socio-eco controls	✓	✓	✓	✓
Mean of DV	4.369	0.874	0.663	0.147
# of postcodes	300	300	300	300
Observations	47,607	47,653	47,611	47,596

Source: LSAC waves 1-8

Notes: \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$ . In all specifications, we control for child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week.

While child health is an important outcome in its own right, a large body of work relates it with later-life earnings and general well-being (Currie, 2009). For example, Smith (2009) analyzes the information from the 1999 Panel Study of Income Dynamics (PSID) from the US using a sibling-fixed effects model to find that the adult children of the PSID respondents who reported enjoying excellent or very good health (on a 5-point scale going from ‘Poor’ to ‘Excellent’) when younger than seventeen years of age worked 4.3 extra weeks annually, earned 2,400 USD more in household income, had 10,000 USD more in wealth, and around 25% higher annual growth in income. Combining these estimates with our findings, a one-point increase in IPA in our setting could mean 2.58 fewer weeks worked annually, over 1,400 USD in forgone earning, 6,000 USD in forgone wealth, and 15% lower annual income growth for children in the IPA affected households. These figures do not account for impacts on later-life mental and physical health as well as their inter-generation transfer, which are known to be sizable (Delaney and Smith, 2012; Bhuller et al., 2023). Consistent with these findings,

Columns (3) and (4) report a significant increase in the number of ongoing conditions and use of prescription medicines among children in IPA affected households.

The composite IPA measure hides the heterogeneous roles of the different types of parental disagreement measures. In [Table 3](#), we unpack the association of parent-reported child health measures with the different forms of parental disagreement measures. First, note from [Table 1](#) that violence from partners is extremely rare.<sup>10</sup> The average mother in our sample never experiences any violence. Hostility and stressful conversations with partners are also rare (average score of 1.82). As expected, disagreements and arguments are more common. Somewhat consistent with the prevalence, we find little to no association of child health with violence. The associations with disagreement are small but statistically significant. This too is not surprising. Disagreements need not always be unhealthy. Stressful conversations, arguments, and hostility from the partner drive the overall associations between IPA and child health.

In the next three sub-sections, we use different identification techniques to show that these findings are quite robust and represent a causal pathway from IPA to child health. Each of these identification techniques, especially the IV method and the DiD method, come with their set of assumptions and identify slightly different effect margins. For this reason, for the sections that follow these sub-sections, we use TWFE or event studies as our preferred methodologies.

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<sup>10</sup>The average ranges from 1.04 to 1.11 on a scale where 1 denotes 'never' and 2 denotes rarely.

Table 3: Robustness to using different definitions of household conflict

	General health rating (1-5)				
	(1)	(2)	(3)	(4)	(5)
Disagree with partner	-0.022*** (0.005)				
Stressful conversations with partner		-0.029*** (0.005)			
Argue with partner			-0.022*** (0.007)		
Hostility from partner				-0.019*** (0.006)	
Violence from partner					-0.001 (0.015)
Mean of DV	4.369	4.369	4.369	4.369	4.369
Observations	47,786	47,734	47,743	47,747	47,781
	Excellent or v. good health				
	(6)	(7)	(8)	(9)	(10)
Disagree with partner	-0.007*** (0.002)				
Stressful conversations with partner		-0.013*** (0.003)			
Argue with partner			-0.008** (0.003)		
Hostility from partner				-0.010*** (0.003)	
Violence from partner					-0.003 (0.007)
Mean of DV	0.874	0.874	0.874	0.874	0.874
Observations	47,832	47,780	47,789	47,793	47,827
	# of ongoing conditions				
	(11)	(12)	(13)	(14)	(15)
Disagree with partner	0.011* (0.007)				
Stressful conversations with partner		0.025*** (0.007)			
Argue with partner			0.026*** (0.008)		
Hostility from partner				0.021*** (0.008)	
Violence from partner					0.009 (0.019)
Mean of DV	0.662	0.662	0.663	0.662	0.662
Observations	47,790	47,738	47,747	47,751	47,785
	Uses prescription medication				
	(16)	(17)	(18)	(19)	(20)
Disagree with partner	0.003 (0.002)				
Stressful conversations with partner		0.005** (0.002)			
Argue with partner			0.004 (0.003)		
Hostility from partner				0.003 (0.003)	
Violence from partner					0.004 (0.006)
Mean of DV	0.147	0.147	0.147	0.147	0.147
Observations	47,775	47,723	47,732	47,736	47,770

Source: LSAC waves 1-8

Notes: \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$ . In all specifications, we control for child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week.

## 4.2 IV Results

### 4.2.1 Predicting IPA

Following [Kabátek and Ribar \(2021\)](#), we first examine the effect of 13-18 years old daughters in the household on spousal conflict in [Table 4](#).<sup>11</sup> The findings, consistent with [Kabátek and Ribar \(2021\)](#), suggest that having teenage daughters is associated with increase in conflict among the parents. Interestingly, teenage sons do not have this effect. These findings can be leveraged to design policy solutions that could avoid both IPA and divorces. Providing free or subsidized family counseling for families with daughters might be an easy answer. [Kabátek and Ribar \(2021\)](#) point out that father's gender attitudes are a critical link in this relationship with the association disappearing for fathers who grew up in households with sisters. Helping fathers better understand the developmental challenges teenage girls face and empowering them with tools to support their daughters might help reduce the relationship strain and prevent IPA.

Table 4: Teenage daughters and IPA

	(1)	(2)	(3)	(4)	(5)	(6)
	IPA	Disagreement with	Stressful conversations w	Argue with	Hostility from	Violence from
		partner				
Female children of ages 13 to 18	0.071*** (0.022)	0.015 (0.011)	0.031*** (0.010)	0.021*** (0.008)	0.018** (0.008)	0.004 (0.004)
Male children of ages 13 to 18	-0.010 (0.017)	-0.010 (0.009)	-0.006 (0.008)	-0.002 (0.006)	-0.002 (0.006)	0.000 (0.003)
Mean of DV	7.146	2.300	1.900	2.367	1.822	1.059
# of postcodes	300	300	300	300	300	300
Observations	47,598	47,777	47,725	47,734	47,738	47,772

Source: LSAC waves 1-8

Notes: \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$ . In all specifications, we control for child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week.

But teenage daughters in the household can directly affect health of the children in the household. For example, it is possible that the LSAC study child is the teenage daughter herself and teenage years are associated with worse health. For this reason, we cannot use the presence of teenage daughters in the household as an instrument

<sup>11</sup>[Figure A1](#) shows increase in spousal conflict increases the chances of divorce or separation.

for IPA. As discussed before, a survivor’s level of dependency on the perpetrator is often found to be associated with IPA. To capture both the level of stress in a spousal relationship and the level of dependency of the survivor, we interact the presence of teenage daughters in the household with the frequency of contact that the study child and the child’s mother keep with the child’s maternal grandparents. Regular contact between the mother and the grandparents is likely to make the mother less dependent, emotionally and financially, on their partners and, as a result, reduce IPA. Table 5 verifies this. While presence of female children is still strongly associated with increase in spousal conflict measures, its interaction with frequency of contact with the grandparents works towards mitigating this conflict.<sup>12</sup> The information on the frequency of contact with the grandparents we use comes from the second survey wave. Therefore, it is unlikely to be associated with the wave-to-wave change in the health of the child. As a result, the instrument is likely to satisfy the exclusion restriction.

Table 5: Instrumenting IPA: First Stage

	(1)	(2)	(3)	(4)	(5)	(6)
	IPA	Disagreement with	Stressful conversations w	Argue with	Hostility from	Violence from
		partner				
Female children of ages 13 to 18	0.499*** (0.131)	0.084 (0.060)	0.176*** (0.058)	0.148*** (0.046)	0.106** (0.045)	0.073*** (0.022)
Female teen children × Contact w grandmother	-0.046*** (0.014)	-0.005 (0.006)	-0.016*** (0.006)	-0.014*** (0.005)	-0.009* (0.005)	-0.007*** (0.002)
Mean of DV	7.096	2.279	1.883	2.352	1.812	1.050
# of postcodes	299	299	299	299	299	299
Observations	37,592	37,693	37,665	37,672	37,679	37,695

Source: LSAC waves 1-8

Notes: \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$ . In all specifications, we control for child FE, postcode-year FE, survey quarter FE, number of teenage children in the household, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week.

#### 4.2.2 The Impact of IPA on Child Health

Table 6 presents the findings from the instrumental variable analysis. Two observations stand out. First, the estimated coefficients are consistent with those in Table 2 in their

<sup>12</sup>There is a strong degree of association (corr. coef.  $\geq 0.9$ ) between frequency of contact with grandparents and whether the mother feels that the maternal grandparents support her in raising her children.

direction. This strengthens the evidence in favor of a causal pathway from parental IPA to child health. Second, the IV coefficients are smaller in their statistical significance but much larger in their magnitudes when compared with the TWFE estimates. The decline in statistical significance is not surprising. The IV method estimates a local average treatment effect using the variation within compliers - the sub-sample where IPA covaries with variations in the instrument. The instrument does not vary for a large fraction of our sample. This consists of households without daughters or households with daughters in waves where their daughters do not move in an out of teenage years. The noise, therefore, is expected.

Table 6: Impact of IPA on child health (IV method)

	(1) General health rating (1-5)	(2) Excellent or v. good health	(3) # of ongoing conditions	(4) Uses prescription medication
IPA	-0.279* (0.142)	-0.114* (0.066)	0.201 (0.192)	0.002 (0.062)
First-stage F-stat	10.439	11.086	10.432	10.108
Mean of DV	4.387	0.881	0.654	0.146
# of postcodes	299	299	299	299
Observations	37,552	37,592	37,556	37,545

Source: LSAC waves 1-8

Notes: \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$ . In all specifications, we control for child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week.

With regards to the size of the estimates, this too is most likely because the local average treatment from the IV method tends to be larger than the average treatment effect for the entire population (Imbens and Angrist, 1994; Card, 2001). It is, after all, conceivable that children in households where there is a sudden increase in IPA find it more disruptive and traumatic than children in households where IPA is always low or always high. Our estimates are still smaller than those reported in Jofre-Bonet et al. (2016) and Currie et al. (2022). Jofre-Bonet et al. (2016) find that children living in households with domestic violence are 55% and 61% less likely to be rated in excellent health by their mothers. Our estimate for the impact on reporting the child in very



good or excellent health is a 12.93% decrease  $[(-0.114 \times 100)/0.881]$ . [Currie et al. \(2022\)](#) document a 61% increase in children born with very low birth weight and a 46% increase in low one-minute Apgar score births to pregnant mother victims of IPA reported to the New York city police. However, it is important to bear in mind that these previous studies study the impact of more intense forms of IPA - use of force in a relationship in the case of [Jofre-Bonet et al. \(2016\)](#) and physical assaults reported to the police in [Currie et al. \(2022\)](#).

To investigate the issue further, we next use a difference-in-differences strategy where the estimates are likely to be closer to the average treatment effects.

### 4.3 DiD Results

As explained before, here we compare the sample of mothers reporting a one-point increase in a measure of household conflict in a wave  $\tau$  with mothers who would report the same increase in the same household conflict measure but in a survey wave after wave  $\tau$ , limiting the sample to wave 1 to  $\tau$ . All waves prior to the exposure wave  $\tau$  form the pre-exposure period. The wave in which the increase in IPA is first recorded for the exposed mothers forms the post-exposure period.

In addition to helping us sidestep issues related to dynamic exposure effects and avoid confounding the level dose effect with the dose-response gradient, the method could also help us ensure that we do not have respondents moving from the control group in one wave to the exposed group in another wave or vice-versa ([Callaway et al., 2021](#); [De Chaisemartin and d'Haultfoeuille, 2023](#)). But to do so, we would need to estimate the DiD effect separately for each wave in which a specific one-point increase in a specific conflict measure is reported. With four outcome variables, five conflict measures, four possible one-point increase in each measure, and seven waves in which an increase can be reported, this amounts to reporting estimates from 560 regressions. Of these 560 outcome-conflict-wave-scale sub-samples, some do not have enough obser-

vations to calculate the DiD estimate.<sup>13</sup> Even where we could estimate the DiD effect, small samples would lead to large standard errors. For these reasons, we pool the samples from different waves in which a specific one-point increase in a specific conflict measure is recorded. But by doing this, we allow for movement from the control to the exposed group. To alleviate concerns that the pooling raises, we show that our results remain broadly consistent when we perform the analyses separately by survey waves.

First, [Table 7](#) reports the coefficients from the pooled sample analysis. Each panel presents the effect of an increase in one of four conflict measures. We do not perform this analysis for the violence measure because we do not observe enough one-point increase in violence across waves. Within each panel, the first four columns report the effect of the four possible one-point increases in the conflict measure on general health rating of the child. The next three sets of four columns report the effects for the dummy variable indicating excellent or very good health, number of ongoing conditions, and use of prescription medication, respectively. A few observations stand out. First, note that all but one of the 16 statistically significant effects out of the 64 estimates are consistent with the findings from the TWFE and IV estimations. This is strong evidence that IPA has a negative effect on child health. Second, more than two-thirds of the reported estimates are in the right direction even if we disregard their statistical significance. The ones in the wrong directions are usually from regressions with small sample sizes.

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<sup>13</sup>For example, there are very few mothers who ever report an increase in violence, let alone in a single wave. Similarly, we do not have many women reporting an increase from 4 (Often) to 5 (Always) in any of the conflict measures in any of the waves.

Table 7: IPA and child health: DiD estimates

	General health rating (1-5)					Excellent or v. good health					# of ongoing conditions					Uses prescription medication				
	1 to 2	2 to 3	3 to 4	4 to 5		1 to 2	2 to 3	3 to 4	4 to 5		1 to 2	2 to 3	3 to 4	4 to 5		1 to 2	2 to 3	3 to 4	4 to 5	
$Exposed_{ip} \times Post_t$	-0.048** (0.024)	-0.037 (0.023)	-0.015 (0.048)	-0.077 (0.088)		0.016 (0.010)	-0.019* (0.010)	-0.007 (0.026)	0.009 (0.060)		0.063** (0.031)	0.061** (0.028)	0.080 (0.063)	-0.197 (0.184)		0.027** (0.011)	0.011 (0.011)	0.008 (0.022)	0.040 (0.060)	
Mean of DV	4.474	4.364	4.277	4.267		0.905	0.875	0.836	0.840		0.526	0.595	0.661	0.669		0.122	0.141	0.146	0.178	
# of postcodes	300	302	271	71		300	302	271	71		300	302	271	71		300	302	271	71	
Observations	17,253	24,423	6,426	686		17,263	24,445	6,428	686		17,255	24,423	6,426	686		17,241	24,421	6,424	686	
	Increase in stressful conversations with partner from [...]																			
$Exposed_{ip} \times Post_t$	-0.063*** (0.022)	-0.035 (0.027)	-0.099 (0.069)	0.108 (0.086)		-0.019** (0.009)	-0.005 (0.013)	-0.010 (0.035)	-0.024 (0.054)		0.030 (0.025)	0.023 (0.037)	-0.064 (0.080)	0.163* (0.097)		0.017* (0.010)	-0.013 (0.012)	0.031 (0.034)	0.034 (0.106)	
Mean of DV	4.416	4.332	4.257	4.241		0.891	0.861	0.830	0.804		0.563	0.637	0.671	0.818		0.140	0.146	0.156	0.174	
# of postcodes	303	294	214	50		303	294	214	50		303	294	214	50		303	294	214	50	
Observations	27,046	16,932	3,315	489		27,060	16,940	3,319	489		27,048	16,932	3,315	489		27,034	16,932	3,315	489	
	Increase in arguments with partner from [...]																			
$Exposed_{ip} \times Post_t$	-0.062* (0.037)	-0.054*** (0.020)	0.004 (0.046)	0.000 (0.000)		-0.033* (0.017)	-0.017* (0.010)	-0.004 (0.023)	0.000 (0.000)		0.053 (0.043)	0.039 (0.025)	0.096* (0.058)	-0.000 (0.000)		-0.007 (0.016)	0.002 (0.010)	-0.003 (0.022)	-0.000 (0.000)	
Mean of DV	4.421	4.372	4.341	4.322		0.889	0.877	0.859	0.869		0.559	0.591	0.632	0.819		0.142	0.142	0.144	0.171	
# of postcodes	282	302	260	45		282	302	260	45		282	302	260	45		282	302	260	45	
Observations	9,380	25,498	5,794	398		9,384	25,510	5,794	398		9,380	25,500	5,794	398		9,376	25,496	5,794	398	
	Increase in hostility from partner from [...]																			
$Exposed_{ip} \times Post_t$	-0.012 (0.022)	-0.032 (0.029)	0.122 (0.079)	0.081 (0.081)		-0.005 (0.010)	0.003 (0.015)	0.090** (0.035)	0.063 (0.063)		-0.012 (0.027)	0.035 (0.037)	-0.019 (0.098)	0.063 (0.063)		-0.000 (0.010)	0.000 (0.014)	-0.014 (0.030)	0.000 (0.000)	
Mean of DV	4.406	4.324	4.314	4.452		0.888	0.859	0.859	0.873		0.573	0.617	0.632	0.413		0.140	0.138	0.147	0.103	
# of postcodes	302	297	153	19		302	297	153	19		302	297	153	19		302	297	153	19	
Observations	28,868	15,589	1,743	126		28,888	15,601	1,743	126		28,872	15,589	1,743	126		28,864	15,589	1,743	126	

Source: LSAC waves 1-8

Notes: \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ . In all specifications, we control for child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week.

Next, across all measures of conflict, a movement from 1 to 2 on the response scale (Never to Rarely) has the biggest impact, both in terms of magnitude and statistical significance, on child health. This is followed by the movement from 2 to 3 (Rarely to Sometimes). One possibility is that increase in household conflict happens gradually and has the biggest shock effect in its initial stages. When comparing across conflict measures, disagreements, stressful conversations, and arguments have the consistent negative effects on health. We do not find a similar effect of hostility from partner, probably because it is quite rare.

To verify that these findings are not driven by the movement of respondents from control to exposed groups across waves, we next estimate the DiD effect separately for each wave. For this part of the analysis, we use general health rating as the outcome variable. The DiD estimates are reported in [Figure A2](#) to [Figure A5](#). The four figures correspond to the four measures of conflict where enough observations were available in each wave to estimate the DiD effect. Within each figure, the sub-figures correspond to the scale change for which the estimation was possible. For all but ‘hostility from partners’, we were able to perform the estimation by wave for three one-point changes in the level of conflict. For ‘hostility from partners’, we did not have many women reporting an increase from 3 to 4 (sometimes to often). For each sub-figure, we could estimate the effects for six out of the seven waves in which a change could be recorded.<sup>14</sup> Of these, the reports of rise in conflict between waves seven and eight were never enough to estimate the DiD coefficient.

Consistent with the findings reported in [Table 7](#), all twelve statistically significant effects of the 64 coefficients reported have directions consistent with the TWFE and IV estimates. Even if we disregard their statistical significance, around two-thirds of the estimates are in the right direction. Overall, main takeaways do not change when we move from the pooled sample regressions to the wave-specific estimations - IPA seems to cause a deterioration in child health.

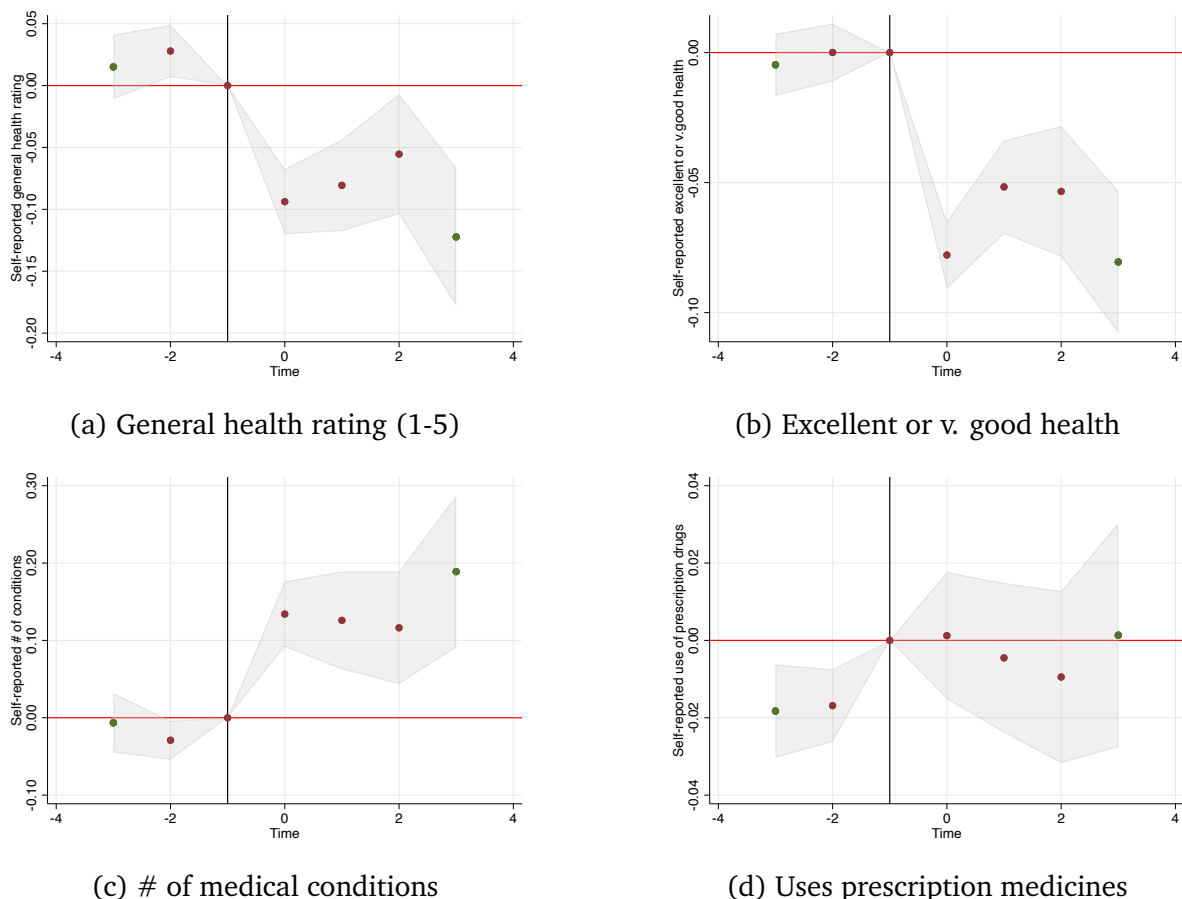
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<sup>14</sup>We can start measuring changes only from the second wave.

## 4.4 Event Study Figures

We present event study figures for the four main outcomes of interest in Figure 1 below. In all but the last sub-figure, we observe no significant trends in the outcomes until the wave before the increase in IPA. This is important. If IPA was indeed a result of the continued pressure of worse health of children or any other stresses that also caused a deterioration in child health, we should have observed a trend in these outcomes before the event. However, the outcomes are visibly (and statistically) worse in the periods following the increase in IPA. The figures suggest the increase in IPA may be driving the change in these outcomes.

Figure 1: IPA and reported health



Source: LSAC waves 1-8

Notes: In all specifications, we control for child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week. Grey bands denote 95% confidence intervals. The vertical line denotes the survey wave after which the outcome measures increased beyond their modal value.

The event study figures are also quite insightful with regards to the dynamics of the IPA effect. With regards to general health indicators, the impact is highest right after the increase in IPA. However, child health does not recover to its before-event levels even four waves (or eight years) later. In fact, the number of medical conditions that the child is diagnosed with increases with time. This is perhaps because it takes time for the different conditions to be diagnosed. In summary, the IPA effect on child health appears to be negative and sustained.

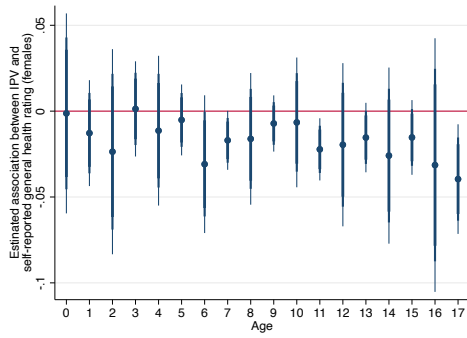
## **5 Heterogeneous Effects**

In this section, we dig deeper into the association between IPA and child health to understand the potential pathways through which IPA may affect child health. We begin by examining the heterogeneity in the associations by age and gender of the study child. Then, we move on to examine whether mother's educational attainment and employment status influence the extent of association between the IPA and child health.

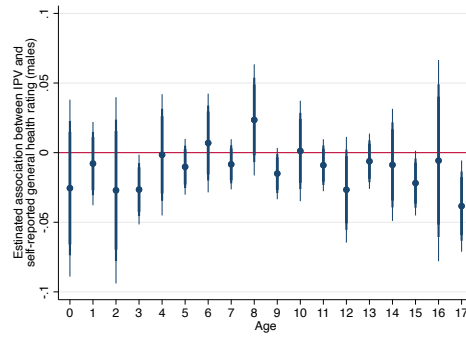
### **5.1 Age and Gender**

The effect of IPA on child health could operate through multiple channels. For example, if children are witness to IPA, it can have direct impact on their mental and physical well-being. This is more likely to be the case if children are old enough to be able to comprehend the interactions as IPA and hiding household conflict from them is difficult. Here, the gender of the child could also play a role. For instances, if mothers confide in their daughters more than sons, daughters might be more affected by parental conflict. Alternatively, IPA could affect child well-being indirectly through its effect on parental well-being and behaviour. This indirect channel is likely to matter more for young children who are still quite dependent on their parents.

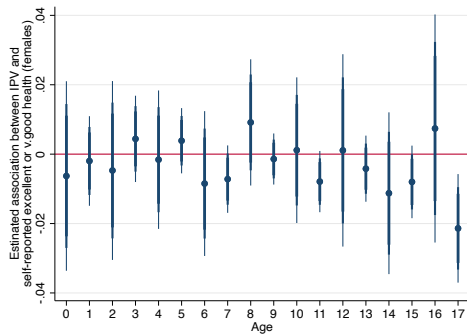
Figure 2: Heterogeneity by child gender and age



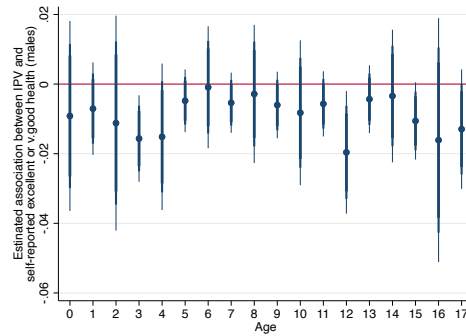
(a) General health rating (1-5), females



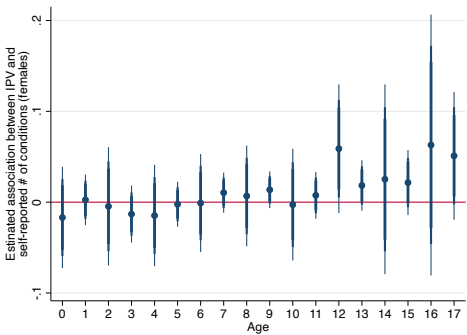
(b) General health rating (1-5), males



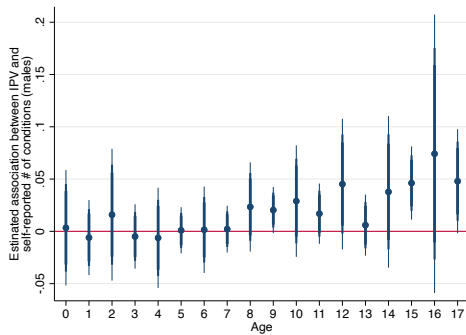
(c) Excellent or v. good health, females



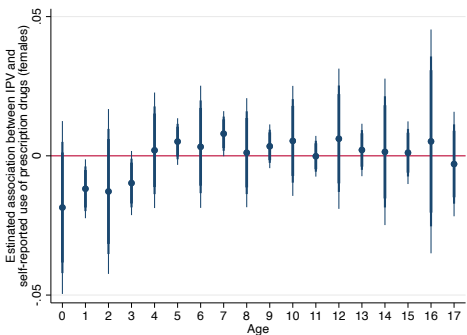
(d) Excellent or v. good health, males



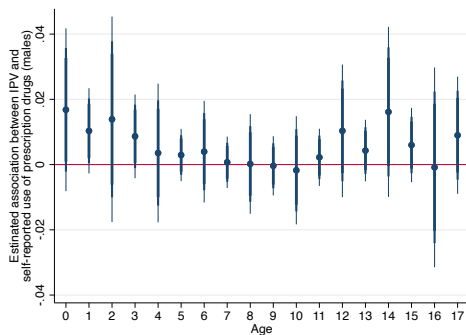
(e) # of conditions, females



(f) # of conditions, males



(g) uses prescription medicines, females



(h) uses prescription medicines, males

Source: LSAC waves 1-8

Notes: In all specifications, we control for child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week. Grey bands denote 95% confidence intervals. The vertical line denotes the survey wave after which the outcome measures increased beyond their modal value.

We explore the role of age and gender in [Figure 2](#). The association between IPA and child health appears to be stronger for children who witness IPA in their teen years, suggesting a strong role of the direct pathway discussed above. There are no standout differences between genders. We confirm this further in [Table A4](#), where we estimate the association by gender alone to ensure that wider confidence intervals in the figures do not obscure important gender differences.

## 5.2 Mother’s Education and Employment Status

The ‘entrapment hypothesis’ about why survivors continue in abusive relationship suggests that the lack of education or employment often makes the survivors dependent on the perpetrator and unable to leave or fight back against the abuse. The survivor’s education and employment could also have implications for the association between IPA and child health. We explore these possibilities in [Table 8](#).

Table 8: Heterogeneity by mother’s education and employment status

	General health rating (1-5)		Excellent or v. good health		# of ongoing conditions		Uses prescription medication	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Mother’s education								
IPA	-0.011*** (0.003)	-0.016*** (0.005)	-0.006*** (0.002)	-0.005** (0.002)	0.015*** (0.004)	0.006 (0.007)	0.003* (0.001)	0.001 (0.002)
Mother’s edu ≥ Bachelor’s	N	Y	N	Y	N	Y	N	Y
Mean of DV	4.329	4.435	0.860	0.897	0.667	0.651	0.147	0.146
# of postcodes	297	280	297	280	297	280	297	280
Observations	29,264	17,682	29,296	17,698	29,266	17,684	29,256	17,679
	General health rating (1-5)		Excellent or v. good health		# of ongoing conditions		Uses prescription medication	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel B: Mother’s employment								
IPA	-0.011* (0.006)	-0.014*** (0.003)	-0.004 (0.003)	-0.006*** (0.002)	-0.008 (0.008)	0.017*** (0.004)	-0.000 (0.003)	0.003** (0.002)
Mother employed	N	Y	N	Y	N	Y	N	Y
Mean of DV	4.297	4.392	0.843	0.885	0.628	0.679	0.150	0.147
# of postcodes	290	300	290	300	290	300	289	300
Observations	10,824	34,004	10,841	34,020	10,826	34,006	10,817	33,996

Source: LSAC waves 1-8

Notes: \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$ . In all specifications, we control for number of teenage siblings, child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week.



Focusing on Panel A, while the differences do not appear statistically different, the estimated coefficient magnitudes are marginally larger for the sub-sample of mothers without a bachelor's degree. This is consistent with 'entrapment hypothesis'. Women without a higher education degree may have limited employment prospects, which might reduce their ability to fight abuse. Continued abuse in such cases might have larger negative effects on child health. At first glance, Panel B, which shows that associations are higher for working mothers, might seem to contradict the entrapment hypothesis. But there are several other possibilities. For example, it is clear from the sample size that a large number of women without Bachelor's degree also work. But these could be low-wage jobs that might still make them feel economically dependent on the perpetrator. Another possibility is that women without a job might be more successful in deescalating by not fighting back, thus preventing spillovers to child health.

### **5.3 Parents Type**

Another way to shed light on whether the effect of IPA on child health is through direct exposure to conflict or indirectly through the survivor is to examine the heterogeneity in the estimated association by whether both biological parents are present in the household. If witnessing IPA has direct effects, these effects should be present regardless of whether the mother and the children live with the biological father or a step-father. In [Table 9](#), we show that the associations are driven almost entirely by the sample of mothers and children living with the biological father. The relationship of the perpetrator with the child matters, suggesting a bigger role of indirect pathways. In the next section, we explore some potential mechanisms in more detail.

Table 9: Heterogeneity by whether both biological parents are present in the household

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	General health rating (1-5)		Excellent or v. good health		# of ongoing conditions		Uses prescription medication	
IPA	-0.014*** (0.003)	-0.002 (0.017)	-0.006*** (0.001)	-0.002 (0.008)	0.013*** (0.004)	-0.003 (0.027)	0.003** (0.001)	-0.005 (0.008)
Biological parents in HH	Y	N	Y	N	Y	N	Y	N
Mean of DV	4.375	4.248	0.876	0.831	0.649	0.962	0.146	0.175
# of postcodes	300	152	300	153	300	152	300	152
Observations	44,213	1,631	44,253	1,638	44,217	1,631	44,204	1,631

Source: LSAC waves 1-8

Notes: \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$ . In all specifications, we control for number of teenage siblings, child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week.

## 6 Potential Mechanisms

There are multiple pathways through which parental IPA can lead to worse health outcomes for children. Witnessing abuse can have a direct detrimental impact on child health. It could also affect child health indirectly through its impact on parental well-being. Below, we explore this second possibility by evaluating the relationship of IPA with parental mental health, subjective well-being, and behaviours.

We employ three measures of parental health and well-being: (i) parent's general health rating, (ii) whether the parent was depressed for 2 weeks or more in past year (Y/N), and (iii) whether the parent is unhappy in their relationship (Y/N). Following [Aizer \(2011\)](#), we also examine parent's engagement in risky health behaviours. For this, we look at the frequency of drinking alcohol (scale 1 to 7), average daily alcohol intake when drinking (scale 1 to 5), and whether the parent frequently binge drinks (Y/N).

Table 10: Association b/w IPA and parent’s health, well-being, and harmful behaviour

	(1)	(2)	(3)	(4)	(5)	(6)
	Mother’s health rating (1-5)	K-6 Depression scale (6-30)	Happiness in relationship (1-7)	Frequency of drinking alcohol ((1-7))	Av. daily alcohol when drinking (1-5)	Frequent binge drinking (Y/N)
Panel A: Mother’s health, well-being, and harmful behaviour						
IPA	-0.032*** (0.003)	0.379*** (0.013)	-0.251*** (0.008)	0.005 (0.005)	0.010*** (0.003)	0.002** (0.001)
Mean of DV	3.746	9.033	5.024	3.175	1.340	0.098
# of postcodes	300	300	295	300	300	300
Observations	45,880	46,618	21,443	43,464	36,732	42,147
	(7)	(8)	(9)	(10)	(11)	(12)
	Father’s health rating (1-5)	K-6 Depression scale (6-30)	Happiness in relationship (1-7)	Frequency of drinking alcohol ((1-7))	Av. daily alcohol when drinking (1-5)	Frequent binge drinking (Y/N)
Panel B: Father’s health, well-being, and harmful behaviour						
IPA	-0.020*** (0.003)	0.174*** (0.013)	-0.153*** (0.005)	0.007 (0.005)	0.004 (0.003)	0.004*** (0.001)
Mean of DV	3.681	8.811	5.369	4.132	1.673	0.208
# of postcodes	300	300	300	300	299	299
Observations	36,267	35,496	35,583	34,391	31,206	33,250

Source: LSAC waves 1-8

Notes: \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$ . In all specifications, we control child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week.

Table 10 reports the result. In Panel A, we show that IPA exposure is negatively associated with self-reported general health rating of the mother and her happiness in her relationship with her partner. It is also positively associated with her likelihood of feeling depressed for two weeks or more in the twelve months before the survey, average daily intake of alcohol, and her tendency to binge drink. In Panel B, we find similar associations between IPA and father’s health, well-being, and harmful behaviour.<sup>15</sup>

<sup>15</sup>Here, the IPA variable is still constructed using the mother’s responses. Using a similar IPA measures based on the father’s responses hardly changes anything.

Table 11: Association b/w IPA and parenting

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Mother spends [...] mins on child rearing	Mother's self- assessment of	Mother engages in				
			warm	angry	inductive	overprotective	control
			parenting (scale: 1 - 5)				
IPA	-7.348 (5.313)	-0.036*** (0.003)	-0.014*** (0.002)	0.017** (0.008)	-0.010*** (0.003)	0.003 (0.004)	-0.002 (0.002)
Mean of DV	1481.827	3.956	4.373	1.259	4.104	3.500	3.214
# of postcodes	300	300	300	287	300	298	300
Observations	28,420	47,563	45,179	5,744	40,026	18,151	42,287
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Father spends [...] mins on child rearing	Father's self- assessment of	Father engages in				
			warm	angry	inductive	overprotective	control
			parenting (scale: 1 - 5)				
IPA	0.214 (3.261)	-0.028*** (0.003)	-0.008*** (0.002)	0.021*** (0.003)	-0.013 (0.012)	-0.003 (0.021)	-0.008*** (0.002)
Mean of DV	727.712	3.948	4.023	1.984	3.299	2.875	3.193
# of postcodes	298	300	300	300	300	296	299
Observations	22,038	36,115	34,326	34,544	31,330	15,194	32,843

Source: LSAC waves 1-8

Notes: \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$ . In all specifications, we control child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week. Time spend on child-rearing is recorded in minutes per week. Refer to Section 2 on how LSAC constructs these parenting measures.

Worse parental well-being may also be transmitted to children through changes in parenting style. In Table 11, we examine the effect of IPA reported by the mother of the child on the time the parents spend on child rearing and changes in their parenting style. IPA is associated with a decrease in the time parents spend with their children, but this association is not statistically significant. IPA decreases parent's self-assessment of their parenting. Mothers who report IPA are less likely to engage in warm or inductive parenting and more likely to display angry parenting. Fathers of the child in households where the mothers report IPA are less likely to engage in warm or control parenting and more likely to exhibit angry parenting.

Existing studies suggest that parenting styles have important consequences for children's health. Studies in psychology show that parenting styles matter for children's psychological development (Reitzle et al., 2001; Dooley and Stewart, 2007), men-

tal health (Bolghan-Abadi et al., 2011; Azman et al., 2021), and overall well-being (Delvecchio et al., 2020). In particular, authoritative parenting, characterized by high responsiveness and warmth, correlates with positive outcomes such as cooperation and emotional stability (Garcia and Gracia, 2009; Baumrind et al., 2010; Braza et al., 2015; Delvecchio et al., 2020). In contrast, authoritarian parenting, marked by high control and low warmth is associated with more distress and lower self-esteem (Reitzle et al., 2001; Baumrind et al., 2010; Baumrind, 2013; Delvecchio et al., 2020).<sup>16</sup>

## 7 Should divorce be the default prescription?

Divorces or separation are often thought of as the only feasible solution for families reporting IPA incidents. [Figure A1](#) confirms this for our sample. All forms of conflict between partners are strong predictors of divorce. Unsurprisingly, violence is most predictive of a divorce, followed by hostility. While separation might improve parental well-being in some cases, what does it imply for the health of the children? To answer this question, we compare how the health of children exposed to parental IPA evolves in unions that do not break up after an increase in an IPA event as against in unions that break up after the event.

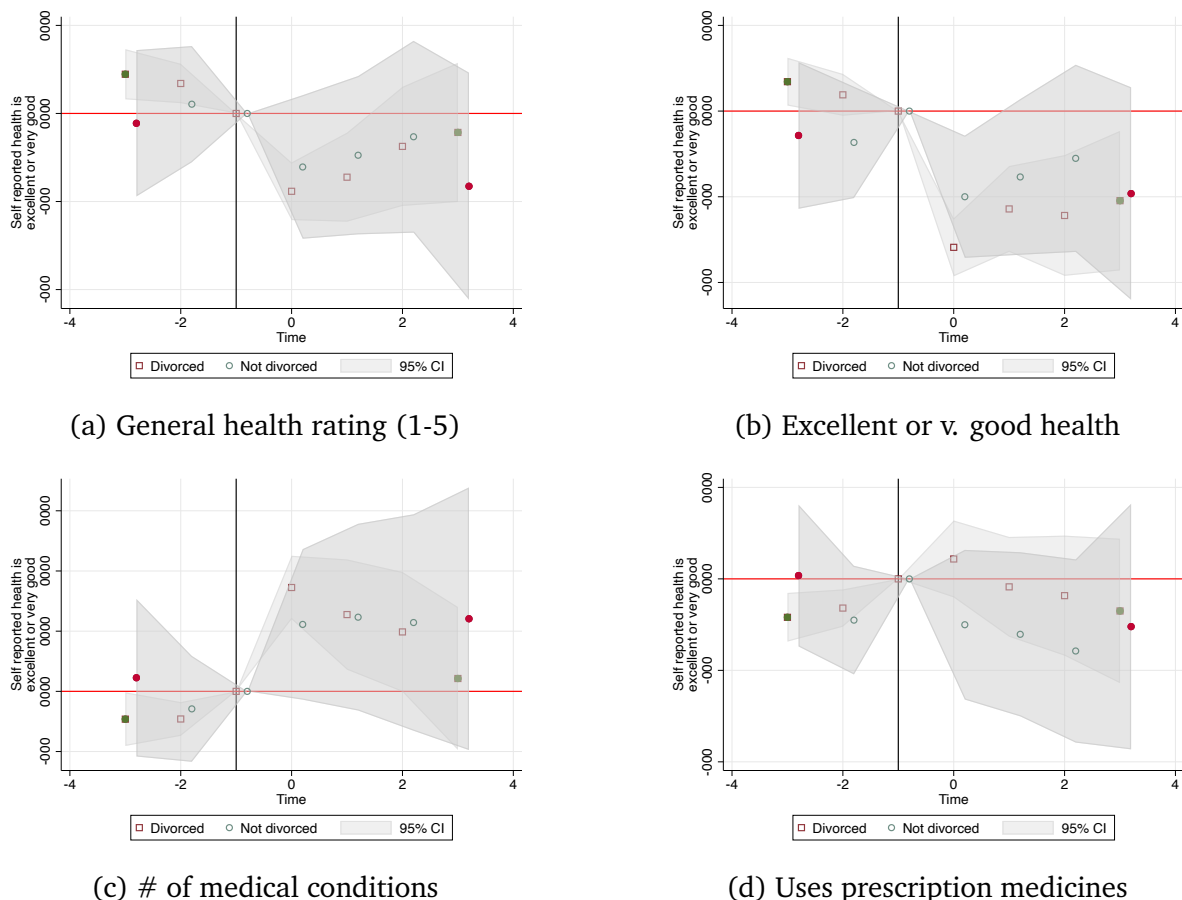
[Figure 3](#) reports our findings. First, note that the 95% confidence intervals around the divorced sub-sample trend is wider than the 95% confidence intervals around the not-divorced sub-sample trend. Next, while the confidence intervals overlap for all outcomes of interest almost throughout, the trends themselves tend to suggest that children in families where IPA leads to a divorce have worse health than children in families where IPA does not lead to a divorce. We must acknowledge some caveats.

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<sup>16</sup>Parenting styles are also linked to children's food consumption and health-related behaviors. Authoritative parenting correlates with vigilant monitoring of children's dietary habits, whereas authoritarian parenting aligns with coercive feeding practices which in turn can affect children's nutritional outcomes differently (Collins et al., 2014). Other studies investigate the association between parenting styles and positive health-related behaviors of children such as physical activity, and nutritional and hygiene habits, contrasting with negative behaviors like substance consumption and sedentary leisure activities. Authoritative parenting tends to foster positive health behaviors and mitigate negative health-related conduct during the transition from childhood to adolescence (Lohaus et al., 2009; Park and Walton-Moss, 2012; Philips et al., 2014).

Selection into divorce could be associated with the intensity and nature of IPA. For example, suppose only those who experience high intensity or repeated IPA get divorced. Others who experience a one-off increase do not. It is also plausible that high intensity or repeated IPA incidents will have larger negative effects on child health than a one-off event that the child might not have even witnessed. In this case, the health outcome of children in divorced families could have been worse if their parents did not separate.

Figure 3: IPA and reported health by divorce status



Source: LSAC waves 1-8

Notes: The square markers denote the trajectories of the outcomes for IPA victims who divorced their partners after the event. The circular markers denote the trajectories for victims who continued with their partners after the incident. In all specifications, we control for child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week. Grey bands denote 95% confidence intervals. The vertical line denotes the survey wave after which the outcome measures increased beyond their modal value.

However, one cannot dismiss the possibility that divorces do as much or even more damage than milder forms of spousal conflict. A large volume of research documents the undeniable link between family stability and child health (Kearney, 2023). Bhuller

et al. (2023), who find larger immediate mental health effects of IPA for the survivors but delayed effects for the children, conjecture that it may be the result of dramatically changed home environment due to divorces and separations. More importantly, the negative effect that divorce would have on children is the most-cited self-reported explanation for why victims continue to live with the perpetrator. It might be easy to hide milder forms of spousal conflict, like arguments, disagreements, and stressful conversations, from children. But there is no hiding a divorce or a separation. The natural but difficult-to-answer question that follows is whether divorces are the best prescription in cases with milder forms of spousal conflict, especially when the welfare of children is taken into account. Clearly, some survivors disagree. But that does not mean they are correct. One would need exogenous variation in divorces within the IPA sample to answer this question, which, unfortunately, we do not have in our context. We leave this to future studies.

It is important to clarify that we are not suggesting that parents stay in stressful or violent unions just for the sake of the health of the child. Instead, we want to underline that once parental IPA occurs, the effects cannot be undone even if the parents separate. This applies to both the direct survivors and their children. Policy interventions, therefore, should aim to prevent IPA from ever occurring.

## 8 Conclusion

Despite the devastating health effects of IPA, many survivors often continue to live with their perpetrator. It is often, they claim, to ensure a better future for their children. We explore the puzzle and this potential explanation using rich, longitudinal data from Australia. We focus exclusively on parent-reported child health ratings and use a much more detailed measure of intimate partner abuse as our main independent variable.

Our findings both contradict and support this explanation. First, we show that there are large negative effects of living in a household with IPA on children's health, which

are long-lasting. This contradicts the claim that continuing in abusive relationships ensures a better future for the children. However, we show that children of parents that divorce after IPA events are no better off than children of parents who do not divorce after IPA events. In that, we find some support for the sentiment that many survivors express - divorce is unlikely to be conducting for the children's development. It is a catch-22 situation, with no easy answers. The best solution, we believe and most will agree, is to prevent IPA in the first place. But how?

Following recent research on the matter, we show that having teenage daughters is associated with a rise in household conflict. With this easy to observe 'early-warning system', we could prevent IPA with policy action. Extending counselling support to families, especially fathers, with teenage daughters might be an easy way to achieve this.

Our study leaves a great deal to be desired. While we use reasonably strict econometric specifications and methods, more rigorous evidence on the causal link between IPA and child health is required. We also acknowledge that selection into divorce can potentially invalidate our findings related to child health after divorce. Future studies should use contextual details in other settings to identify the causal effect of divorces for IPA-affected household.



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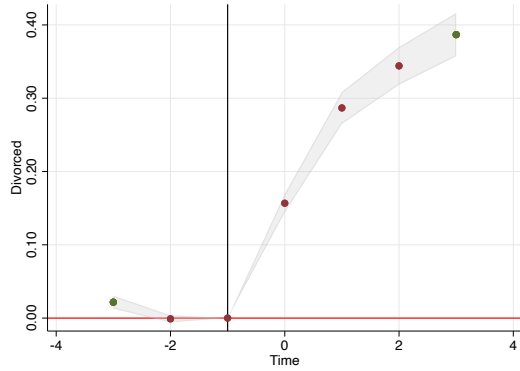
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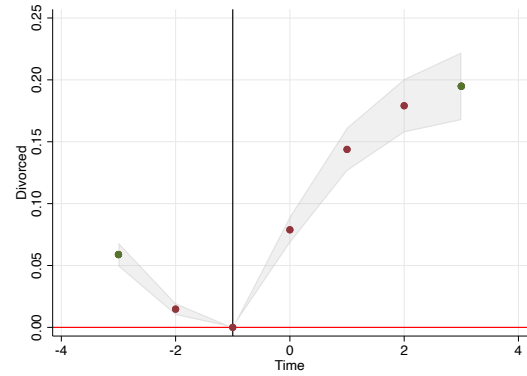
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# Appendix

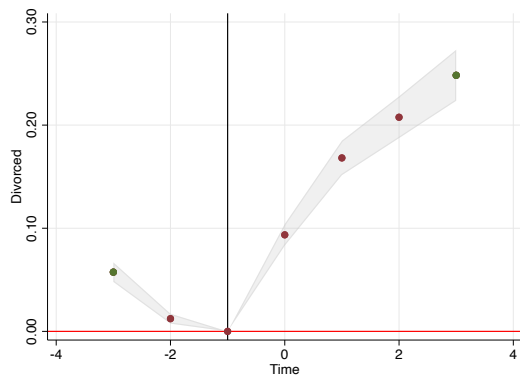
Figure A1: IPA and divorce



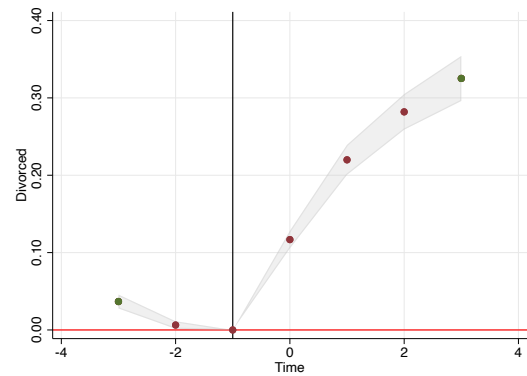
(a) IPA and Divorce



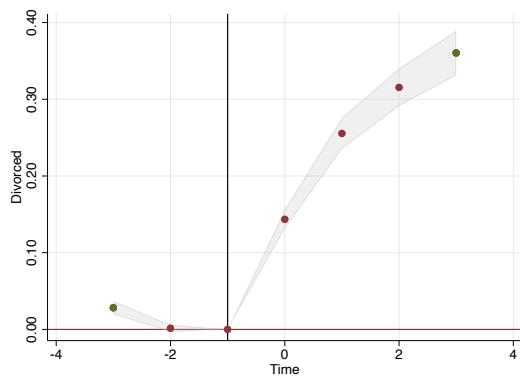
(b) Arguments with partner and divorce



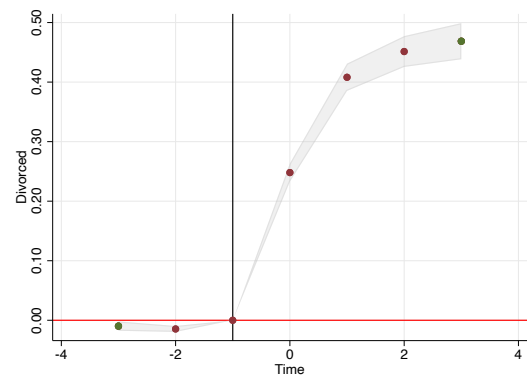
(c) Disagreements regarding child rearing and divorce



(d) Stressful conversations and divorce



(e) Hostility from partner and divorce

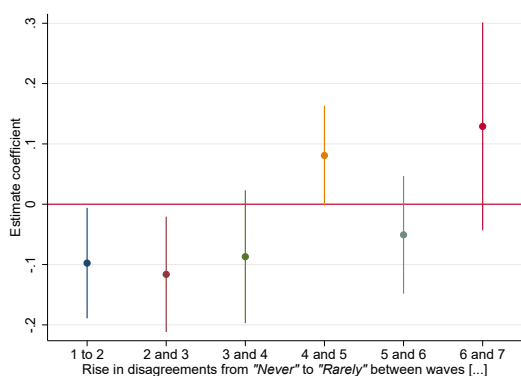


(f) Violence from partner and divorce

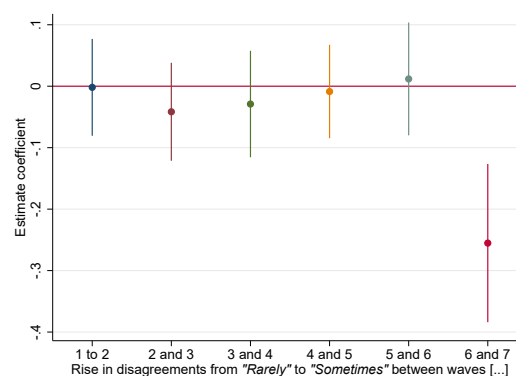
Source: LSAC waves 1-8

Notes: In all specifications, we control for child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week. Grey bands denote 95% confidence intervals. The vertical line denotes the survey wave after which the outcome measures increased beyond their modal value.

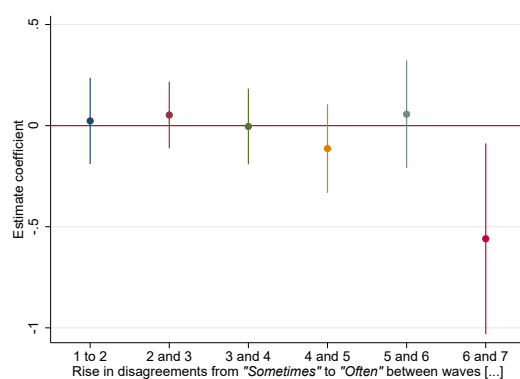
Figure A2: Disagreements and parent-reported child health: DiD estimates by wave



(a) Increase from '1' to '2'



(b) Increase from '2' to '3'

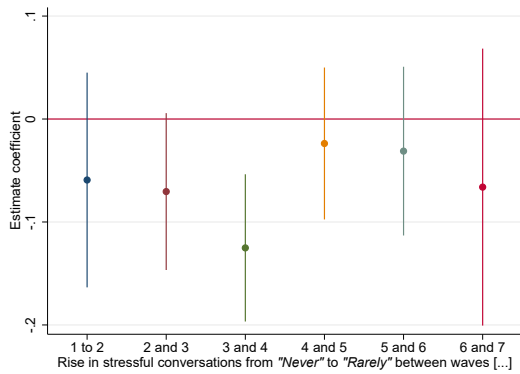


(c) Increase from '3' to '4'

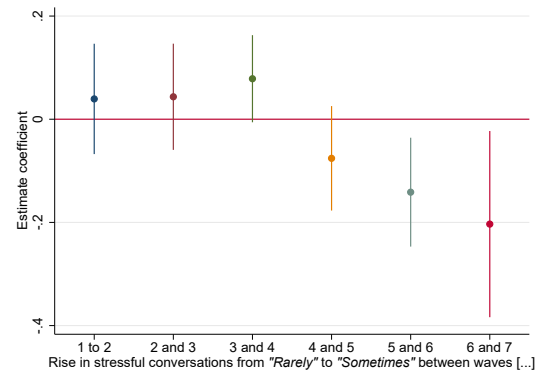
Source: LSAC waves 1-8

Notes: In all specifications, we control for child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week. Colored bands denote 90% confidence intervals.

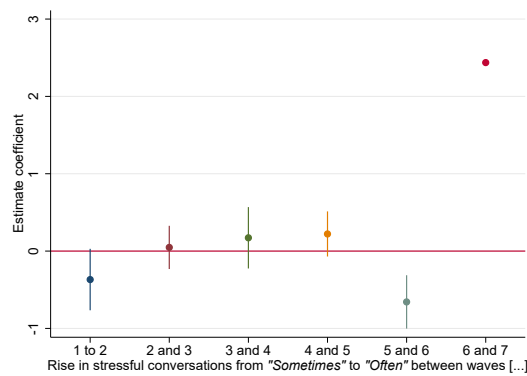
Figure A3: Stressful conversations and parent-reported child health: DiD estimates by wave



(a) Increase from '1' to '2'



(b) Increase from '2' to '3'



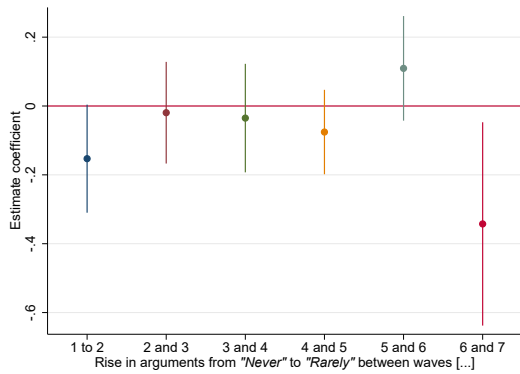
(c) Increase from '3' to '4'

Source: LSAC waves 1-8

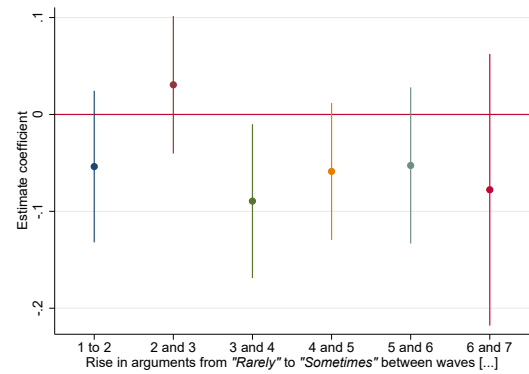
Notes: In all specifications, we control for child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week. Colored bands denote 90% confidence intervals. For the last coefficient reported in sub-figure (c), standard errors could not be calculated.



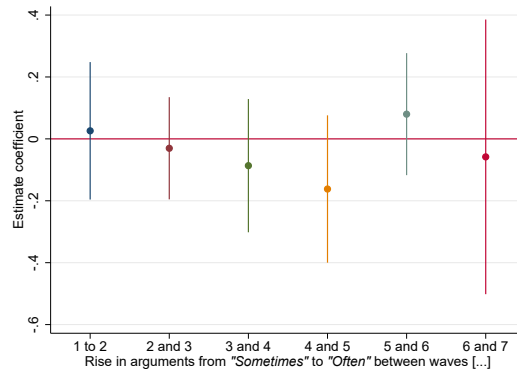
Figure A4: Arguments regarding child-rearing and parent-reported child health: DiD estimates by wave



(a) Increase from '1' to '2'



(b) Increase from '2' to '3'

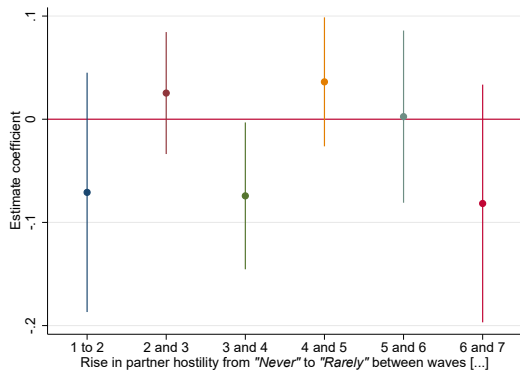


(c) Increase from '3' to '4'

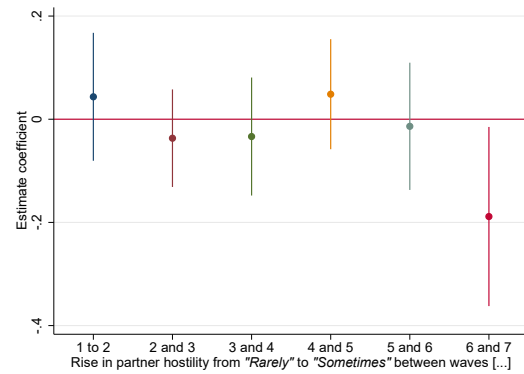
Source: LSAC waves 1-8

Notes: In all specifications, we control for child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week. Colored bands denote 90% confidence intervals. For the last coefficient reported in sub-figure (c), standard errors could not be calculated.

Figure A5: Hostility from partner and parent-reported child health: DiD estimates by wave



(a) Increase from '1' to '2'



(b) Increase from '2' to '3'

Source: LSAC waves 1-8

Notes: In all specifications, we control for child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week. Colored bands denote 90% confidence intervals. For the last coefficient reported in sub-figure (c), standard errors could not be calculated.

Table A1: Parenting Measures

Parenting measure components	Potential responses	# of waves with info collected
Self-assessment of parenting: Overall, as a parent, do you feel that you are...?	<ol style="list-style-type: none"> <li>1 - not very good at being a parent</li> <li>2 - having some trouble being a parent</li> <li>3 - an average parent</li> <li>4 - a better than average parent</li> <li>5 - a very good parent</li> </ol>	8 waves for each cohort
Warm parenting: Thinking about the study child over the last six months, how often did you [...]? express affection by hugging, kissing and holding this child hug or hold this child for no particular reason tell this child how happy he/she makes you have warm, close times together with this child enjoy listening to this child and doing things with him/her feel close to this child both when he/she was happy and when he/she was upset	<ol style="list-style-type: none"> <li>1 - Never/Almost never</li> <li>2 - Rarely</li> <li>3 - Sometimes</li> <li>4 - Often</li> <li>5 - Always/ almost always</li> </ol>	8 waves for cohort B, 6 waves for cohort K
Angry parenting: In the past six months, how often would you say [...]? I have been angry with this child? I have raised my voice with or shouted at this child? When the child cries, he/she gets on my nerves I have lost my temper with this child I have left this child alone in his/her bedroom when he/she was particularly irritable or upset	<ol style="list-style-type: none"> <li>1 - Never/Almost never</li> <li>2 - Rarely</li> <li>3 - Sometimes</li> <li>4 - Often</li> <li>5 - Always/ almost always</li> </ol>	8 waves for cohort B, 6 waves for cohort K
Inductive parenting: Thinking about the study child over the last six months, how often did you [...]? explain to this child why he/she was being corrected talk it over and reason with this child when he/she misbehaved give this child reasons why rules should be obeyed	<ol style="list-style-type: none"> <li>1 - Never/Almost never</li> <li>2 - Rarely</li> <li>3 - Sometimes</li> <li>4 - Often</li> <li>5 - Always/ almost always</li> </ol>	8 waves for cohort B, 6 waves for cohort K
Overprotective parenting: How often [...]? do you try to protect this child from life's difficulties? do you put this child's wants and needs before your own? does leaving this child with other people upset you no matter how well you know them	<ol style="list-style-type: none"> <li>1 - Never/Almost never</li> <li>2 - Rarely</li> <li>3 - Sometimes</li> <li>4 - Often</li> <li>5 - Always/ almost always</li> </ol>	4 waves for cohort B, 2 waves for cohort K
Control parenting: How often do you [...]? think that this child's behaviour is more than you can handle feel that you are good at getting this child to do what you want him/her to do feel that you are in control and on top of things when you are caring for this child	<ol style="list-style-type: none"> <li>1 - Never/Almost never</li> <li>2 - Rarely</li> <li>3 - Sometimes</li> <li>4 - Often</li> <li>5 - Always/ almost always</li> </ol>	7 waves for cohort B, 7 waves for cohort K

Source: LSAC waves 1-8

Table A2: Predicting IPA using the number of teenage daughters and contact frequency with study child's maternal grandmother

	(1)	(2)	(3)	(4)	(5)	(6)
	IPA	Disagreement with	Stressful conversations w	Argue with	Hostility from	Violence from
		partner				
Daughters aged 13 to 18	0.499*** (0.131)	0.084 (0.060)	0.176*** (0.058)	0.148*** (0.046)	0.106** (0.045)	0.073*** (0.022)
Teen daughters × Contact w SC's grandmother	-0.046*** (0.014)	-0.005 (0.006)	-0.016*** (0.006)	-0.014*** (0.005)	-0.009* (0.005)	-0.007*** (0.002)
Mean of DV	7.096	2.279	1.883	2.352	1.812	1.050
# of postcodes	299	299	299	299	299	299
Observations	37,592	37,693	37,665	37,672	37,679	37,695

Source: LSAC waves 1-8

Notes: In all specifications, we control for total number of teen children in the household, child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week.

Table A3: Robustness to using IPA reported by the father

	(1)	(2)	(3)	(4)
	General health rating (1-5)	Excellent or v. good health	# of ongoing conditions	Uses prescription medication
IPA reported by the father	-0.005 (0.003)	-0.003** (0.001)	0.000 (0.004)	0.002* (0.001)
Child FE	✓	✓	✓	✓
Postcode-wave FE	✓	✓	✓	✓
Survey quarter FE	✓	✓	✓	✓
Local area SES controls	✓	✓	✓	✓
Mean of DV	4.394	0.883	0.640	0.145
# of postcodes	300	300	300	300
Observations	37,067	37,099	37,070	37,061

Source: LSAC waves 1-8

Notes: In all specifications, we control for child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week.

Table A4: Heterogeneity by gender

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	General health rating (1-5)		Excellent or v. good health		# of ongoing conditions		Uses prescription medication	
Intimate partner abuse	-0.014*** (0.004)	-0.012*** (0.004)	-0.004** (0.002)	-0.007*** (0.002)	0.011** (0.005)	0.015*** (0.005)	0.000 (0.002)	0.004*** (0.002)
Child gender	Female	Male	Female	Male	Female	Male	Female	Male
Child FE	✓	✓	✓	✓	✓	✓	✓	✓
Postcode-wave FE	✓	✓	✓	✓	✓	✓	✓	✓
Survey quarter FE	✓	✓	✓	✓	✓	✓	✓	✓
Local area SES controls	✓	✓	✓	✓	✓	✓	✓	✓
Mean of DV	4.386	4.354	0.878	0.871	0.668	0.657	0.136	0.157
# of postcodes	293	298	293	298	293	298	293	298
Observations	23,141	24,284	23,166	24,303	23,142	24,287	23,138	24,276

Source: LSAC waves 1-8

Notes: In all specifications, we control for number of teenage siblings, child FE, postcode-year FE, survey quarter FE, and local socioeconomic controls. Local socioeconomic controls are the share of residents in the area who have completed year 12, speak English, were born in Australia, and have an Aboriginal/Torres Strait Islander origin, and share of households with household income less than AU\$ 1,000/week.