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Intimate partner violence and child maltreatment in Scotland – Insights from nationally representative longitudinal survey data

Valeria Skafida^{a,*}, Fiona Morrison^b, John Devaney^c^a Social Policy, School of Social and Political Science, University of Edinburgh, 15a George Square, EH8 9LN Edinburgh, UK^b Centre for Child Wellbeing and Protection, Faculty of Social Sciences, University of Stirling, Colin Bell Building, Stirling FK9 4LA, UK^c Social Work, School of Social and Political Science, University of Edinburgh, 15a George Square, EH8 9LN Edinburgh, UK

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ABSTRACT

Background: Research on child maltreatment in the context of intimate partner violence (IPV) rarely draws on nationally representative samples, and rarely accounts for maternal, paternal and child reports of parental aggression towards children separately.

Objective: We explore if living with IPV makes children more likely to be smacked or slapped by their parents.

Participants and setting: A prospective longitudinal and nationally representative child cohort study for Scotland (starting sample N:5217).

Methods: Questions for children at ages 2–7 include: maternal and paternal reports of aggression towards children; children's reports of being 'smacked' by parents; maternal reports of IPV. Multivariate logit models explore how maternal IPV is associated with child maltreatment, controlling for socio-economic confounders.

Results: In homes with a long-term abusive partner, children are more likely to have been smacked/slapped by the father (OR1.91, $p \leq 0.05$), mother (OR1.84 $p \leq 0.05$), and both parents (OR2.31, $p \leq 0.05$). Maternal IPV frequency and intensity was incrementally associated with children's odds of being smacked/slapped (OR range 1.47–1.70, $p \leq 0.05$). Ethnic minority boys were more likely (predicted probability of 42 % $p \leq 0.05$) to have been smacked/slapped by their mother frequently compared to other children (predicted probability range: 19–27 %).

Conclusions: When mothers report IPV, the extent and severity of the abuse is incrementally associated with children's experiences of parental aggression, and ethnic minority boys are far more at risk. Parental aggression should be understood within the context of the stresses associated with living with an abusive partner. We discuss the fragmented picture which surveys of children provide when interviewing mainly the mother.

1. Introduction

While there is a lack of official statistics in many countries on the prevalence of childhood experiences of intimate partner violence (IPV), there is a growing body of research exploring this issue (for example, [Chan et al., 2021](#); [Kieselbach et al., 2022](#); [Mojahed et al., 2021](#)). While the United Kingdom (UK) does not record official statistics on children living with IPV, research has estimated 1 in 5 of all

Abbreviations: IPV, Intimate Partner Violence; GUS, Growing Up in Scotland survey.

* Corresponding author.

E-mail addresses: Valeria.Skafida@ed.ac.uk (V. Skafida), F.Morrison@stir.ac.uk (F. Morrison), J.Devaney@ed.ac.uk (J. Devaney).

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children experience IPV between their parents or adult carers (Radford, 2011). We know that in Scotland, 14 % of mothers with children under 7 years of age have experienced IPV at some point since the birth of their child (Skafida et al., 2022; Chan et al., 2021). There is compelling evidence which suggests that children living in homes with IPV are significantly affected by this exposure through their own experiences and reaction. In particular, there is an association with higher rates of depression, anxiety, post-traumatic stress reactions, as well as behavioural difficulties, sleep disturbances, lower levels of cognitive functioning, and peer problems (Fogarty et al., 2019; Gartland et al., 2021; Sonogo et al., 2018) and the consequences of impaired parenting (Chiesa et al., 2018; Pu & Rodriguez, 2021). Chan et al. (2021) note that where there is IPV, there is often also concurrent child abuse.

The term 'poly-victimization' has been used to describe children's exposure to multiple forms of violence and abuse, and proponents of this conceptual lens argue against focusing just on single forms of victimization (Finkelhor et al., 2007). The evidence shows that poly-victimization is more highly related to trauma than experiencing victimisations of a single type of violence (Turner et al., 2010). In ascertaining how children are affected by living in homes where IPV takes place, it is important to understand the extent to which children themselves experience abuse directly, and to get a sense of the multiple forms of abuse and violence – both direct and indirect – which children are likely to experience (Chan et al., 2021; Edleson, 1999; Finkelhor et al., 2007; Holt et al., 2008; Turner et al., 2010). While polyvictims generally have worse outcomes than those with fewer types of traumatic experiences, not all polyvictims experience significant, or similar, impairment suggesting that polyvictims are a heterogeneous group. In part, it seems that the greater the number of developmental periods in which children are classified as polyvictims, the greater the severity of PTSD, externalizing problems, and internalizing problems. In addition, there is strong evidence of variation in the relation between developmental timing of polyvictimization and different types of adolescent psychopathology (Dierkhising et al., 2019).

Beyond the context of IPV, there is a growing call for children to be afforded the same protections in law as adults in relation to physical assaults in the context of smacking (also commonly referred to as parental chastisement or spanking in different jurisdictions) (Rogers & Thomas, 2022). A comprehensive review of the literature on child punishment in the UK highlights that the use of parental aggression towards children has been declining over the years (Heilmann et al., 2015). For example, Heilmann et al. report that the proportion of young adults who said they had been 'smacked' as children dropped from 61 % in 1998 to 43 % in 2009. As public debate and perception around the issue has evolved, so has legislation, and *The Children (Equal Protection from Assault) (Scotland) Act 2019* recently changed the law in Scotland so that from 2020 all forms of physical punishment of children are against the law, meaning children have the same legal protection from assault as adults.

Prior to the legislative change, data showed that more than half of mothers in Scotland used smacking with their 5-year olds (Heilmann et al., 2015). The review noted that there was consistent evidence that child maltreatment is among a range of important risk factors for child physical abuse, and that parental aggression can escalate and lead to increasingly more violent actions. This supports the idea that parental aggression in the context of disciplining children and child physical abuse are part of a 'continuum of violence' (Heilmann et al., 2015).

Both IPV and child maltreatment have been associated with a range of family factors including the socioeconomic position and demographics of the family (Skafida et al., 2022; Featherstone et al., 2019). Recognising such contextual factors is an important element in developing policy and practice responses aimed at reducing the occurrence of various forms of family violence, rather than focusing solely on individual pathology (Stith et al., 2009).

Finally, as noted by Sijtsema et al. (2020), while there is a growing body of research about the co-occurrence of IPV and child maltreatment, there is a lack of consistency about the prevalence of this co-occurrence, what unique risk factors and outcomes of co-occurrence are, and whether co-occurrence differs between national contexts given different legal frameworks, child welfare organisational structures and social policy and health orientations. The aim of this paper is to add to this knowledge base and discussion.

1.1. Research questions

In this paper we aim to use a nationally representative study of families with young children living in Scotland to assess the extent to which children who experience IPV also have direct experiences of parental aggression. We explore if children of mothers who have experienced IPV are more likely to be smacked or slapped by their parents. The existing literature would suggest that this would be the case, but the vast majority of existing research has not been undertaken using nationally representative samples (Holt et al., 2008).

We are also in the unique position in this study to be able to look at child maltreatment by the mother and the father (separately and together), and also at children's own self-reports of experiencing maltreatment (rather than using just parental reports). Additionally, we are using a longitudinal prospective cohort study, which means we are able to use information on child maltreatment from 2 to 7 years of age. We also investigate if there is a dose-response relationship between children's experiences of parental aggression and the severity of the IPV reported by the mother. A dose-response relationship would support the hypothesis that the association between IPV and child maltreatment is causal and not coincidental ('Dose-Response Relationship', 2008). Finally, we explore whether and how children's experiences of parental aggression are socially stratified by a range of different socio-economic and family factors; a research question which cannot be adequately answered without nationally representative study samples.

2. Methods

2.1. Dataset description

We are using data from the Growing Up in Scotland (GUS) survey. This is a longitudinal nationally representative prospective study of children and their families in Scotland. The cohort used in this analysis consisted, at the first survey, of 5217 babies born between

06/2004–05/2005. The survey used a stratified random sample which was drawn from a record of Child Benefit claimants, a universal social welfare payment virtually all families were eligible to, and which has an estimated 97 % coverage of the eligible population. The official user guide for the first sweep of data describes the survey design in further detail (Corbett et al., 2007). GUS received ethics approval by the Scotland 'A' MREC committee, and the research reported in this paper received ethical approval from the University of Edinburgh's School of Social and Political Science ethics committee.

The children were approximately 10 months old during the first survey sweep. The children's parents (usually the mother, and for sweep 2 also the father, if applicable) were interviewed in their homes and were asked several questions about themselves and their children's development. Questions regarding IPV; maternal aggression towards children at age 7; and children's own reports of being smacked by parents were all collected via self-complete modules in sweeps 6 and 7. The interviewer did not know what answers were being provided. Questions regarding maternal and paternal aggression at sweeps 2 and 4 (children aged 2 and 4 years old) were collected during the face-to-face interview component of the survey and may suffer from social desirability bias. A detailed description of original survey questions and variable derivations for the variables used in this analysis can be found in the Supplementary File 1.

2.2. Dependent variables

Our key outcome of interest was whether the children in the study had been slapped or smacked by their parents. The dataset had a range of questions looking at this issue across the sweeps, and data on this was collected from the mother, the father, and also from the child directly when children were 7 years old. From these questions we constructed four separate measures on smacking and slapping which we summarise below. In the UK, the term 'smack' is the most common term used in relation to parental aggression towards children and also the term used in UK legislation regarding child maltreatment. According to the Cambridge dictionary, 'smack' means to forcefully hit with the flat part of the hand, and it can be used in the context of hitting a face as well as other body parts (Cambridge University Press, n.d.). Thus, it subsumes the concepts of 'slap' and 'spank' more commonly used in North America.

2.2.1. Father used smacking

When children were 2 years old, fathers were interviewed separately and were asked, among other things, questions about parenting approaches they have ever used with the study child. We created a binary variable to differentiate between fathers who reported ever using 'smacking' with the study child, and those who did not. This was the only time fathers were asked this question.

2.2.2. Mother used smacking/slapping often

Mothers were asked a number of times about the use of smacking and slapping with children. We list a summary of the questions and the age of the child when these were asked:

- Which of the following parenting approaches have you ever used with the child - smacking? (age 2 years) [responses: yes; no]
- Which of the following parenting approaches have you ever used with the child - smacking? (age 4 years) [responses: yes; no]
- Which of the following parenting approaches have you used with the child in the last year – smacking? (age 4 years) [responses: yes; no]
- You slap _child's name_ when he/she has done something wrong (age 7 years) [responses: never; almost never; sometimes; often; always]
- You smack _child's name_ with your hand when he/she has done something wrong (age 7 years) [responses: never; almost never; sometimes; often; always]

The above questions were grouped into a scale ($\alpha = 0.75$). This scale was then dichotomised to differentiate between the top 25 % of those who used smacking more often, and the bottom 75 % who used smacking/slapping less often or never. None of the mothers in the top 25 % of the scale had been miscategorised as having slapped/smacked their child. Among those in the low/no smacking category, 61 % had used smacking at some point, so our binary variable aims to tease out those mothers who use smacking and slapping more often across the years.

Overall, by age seven, 35 % of mothers had never slapped or smacked their child across all sweeps (data not shown). At age 7, even when mothers reported using smacking or slapping, the most common frequency reported for this was 'almost never'. To summarise what the dichotomised scale reflects in terms of actual parental aggression practises we note that among mothers in the top quartile for smacking/slapping frequency, 42 % reported having 'sometimes' smacked their child with their hand when they had done something wrong, compared to 5 % in the lower smacking/slapping frequency group. Also, 49 % of mothers in the top quartile for smacking/slapping frequency had mentioned 'ever' using smacking at ages 2 and 4, and used smacking 'in the last year' at age 4, compared to 0 % among mothers not on the highest quartile for smacking/slapping frequency. Further details, including frequency tables for the original variables are provided in Supplementary File 1.

2.2.3. Both parents smacked/slapped

We also combined the aforementioned two variables to create a measure which captured cases where both the mother and the father (where one was present) used smacking with their child. We note that this composite variable is unbalanced as it combines the father having 'ever' smacked a child at age 2, with the more complex binary smacking/slapping frequency variable for the mother described above. As a result of including a father response, this variable is only of relevance to households where a father was present at age 2.

2.2.4. Child reports being smacked

When children turned seven years old, some questions were answered by them directly in self-complete modules. Parents were shown the child questionnaire (but were not allowed to keep a copy). Children completed the questionnaire on their own and interviewers explained that children's answers would not be shared with parents. One question stated: "My parents smack me when I have done something wrong" and children selected between: never; sometimes; often; always. In analysis not shown we see that 13 % reported 'always' being smacked and 8 % said 'often'. We created a binary variable differentiating between those who were never smacked and all other children. We tried other dichotomisation options, but they were inferior in terms of teasing out differences in the population (possibly due to small sub-sample sizes of those reporting smacking most often).

2.3. Independent variables

2.3.1. Mothers' experience of IPV

The key factor we were interested in was how maternal experiences of IPV correlate with children's experiences of being smacked and slapped. Questions on IPV were asked of the mother when children were 6 years old. Mothers were asked to report if they had experienced a range of different types of violence, which broadly speaking reflect coercive control, threats, and physical and sexual violence. Further details on these specific questions, including an analysis of non-response, can be found in our previous publications (Skafida et al., 2022; Skafida et al., n.d.). Using all original IPV questions, we created the following variables to capture IPV experiences.

2.3.1.1. Experiences of IPV by current or former partner. We identified mothers who reported experiencing any of the 12 types of abuse the survey asked about (which was c.14 % of the mothers, N:435). This variable is discussed in more detail in the online supplementary File 1 and in Skafida et al. (2022). Since we are particularly interested in the lives of children living with IPV, we believed it was important to differentiate between homes where an abusive partner has been in the children's lives continuously since birth, and homes where such a partner was no longer there, or had not been there continuously or permanently since the study-child's birth. This could be in cases where there had been a relationship breakdown since the birth of the study child, e.g. in cases where the mother had experienced IPV since the birth of the study-child, but this was not from her 'current partner' when the IPV questions were asked when children were 6 years old. Using detailed relationship data collected at every sweep, we created a categorical variable which identified mothers who had never experienced any IPV (86 %), those who had experienced IPV, but from a former partner or one who was not present in the child's lives continuously or not since birth (12 %); and finally those for whom the current partner who had been in the home since the birth of the child at every sweep was responsible for the IPV (N:75, 2 %). To aid in the legibility of this paper, we will define this later group as having a 'long-term abusive partner'.

2.3.1.2. IPV intensity. Using information on how many different types of IPV a mother had experienced, and on how often the abuse had occurred, a standardised scale was created (alpha: 0.65). Based on this scale, a categorical variable for IPV intensity was then created to differentiate between category 0 (no IPV); 1 (IPV-low intensity: the bottom 50 % of the distribution); 2 (IPV-high intensity: the top 50 % of the frequency distribution). In brief, mothers in category 1 would generally report having experienced fewer types of abuse and on fewer occasions, and vice versa for mothers in category 2. We have discussed potential limitations of measuring IPV intensity by relying on counting incidents of abuse elsewhere (Skafida et al., 2022).

2.3.2. Other independent variables

Maternal socio-economic variables as reported in the 6th sweep (children aged 6 years old) were controlled for. This included maternal social class status based on the commonly used National Statistics Socio-Economic Classification (NS-SEC) scheme (Office for National Statistics, n.d.). This is calculated on the basis of information regarding the individual's working conditions, job security, timing of payments, opportunities for promotion and incremental pay (Rose et al., 1998). A banded variable indicating the mother's highest educational qualifications was used for the analysis to represent the mother's educational level. Income data were obtained by asking the mother to select one of 17 income bands that reflected total household income before tax. Equivalised income was calculated using the Organisation for Economic Co-operation and Development (OECD) modified equivalence scales and procedure (Chanfreau & Burchardt, 2008). The mother's age at the time of birth of the sample child was also controlled for, as well as the sex of the study child.

Due to relatively low proportions of ethnic minorities in Scotland the GUS survey only provides a derived binary ethnicity question (white vs. other background). In preliminary analyses (not shown) this specific variable was not significant in any of the models. Instead, we used an ethnicity proxy which is able to identify, among others, also families who identify as 'white' but who speak a language other than English at home. For a population such as the Scottish one which has several European immigrants, who usually identify as 'white', this has previously proved to be a useful proxy for ethnic differences in children's outcomes (Skafida, 2014). This ethnicity proxy is a dichotomous variable differentiating between those who: a) speak only English at home, and b) those who speak either English and another language, or only another language. Connelly et al. (2016) note that there are analytical settings where standard ethnicity variables may not be the best option, and in the specialist literature the benefits of ethnicity variables which take into account language dimensions have been discussed (Connelly et al., 2016; Nandi & Platt, 2012). We note that alternative methods of capturing ethnicity, including those which ask about language, have been discussed by authors in relation to the UK survey landscape, and there are analytical settings where standard ethnicity variables may not be optimal (Connelly et al., 2016).

2.4. Statistical analysis

Binary logistic regression models were specified to explore whether children had been smacked/slapped. In Table 3 (and see Supplementary Table A for Predicted Probabilities), we show four models where each model uses a different outcome variable on smacking/slapping. Each one of these models controls for all the independent variables we have summarised above, though only coefficients for the key variables of interest on IPV are shown. More detailed models showing all coefficients are presented in Table 4 for the two outcome variables on smacking/slapping which were most insightful. Here we also tested for interaction effects and found significant interaction effects between our ethnicity proxy and children's sex for children being smacked by the mother more often.

Table 4 also shows the predicted probabilities for experiencing smacking/slapping. Comparisons based on predicted probabilities

Table 1
Univariate descriptive statistics.

Weighted data (using age 7 weights)	%	90 % CI	N
Mother's partner used smacking with child (child age 2 y)			
Not reported	83.6	[82.2–85.0]	2102
Reported	16.4	[15.0–17.8]	409
Mother used smacking/slapping with child (ages 2–7 y)			
Used it less often or not at all (bottom 75 % of the distribution)	74.7	[72.9–76.4]	2374
Used it more often (top 25 % of the distribution)	25.3	[23.6–27.1]	787
Smacking/slapping used by both parents (ages 2–7 y)			
Not reported	91.9	[90.7–92.9]	2101
Reported	8.1	[7.1–9.3]	184
Child mentions being smacked by parents (age 7 y)			
Never	44.6	[43.0–46.3]	1469
Sometimes, often, always	55.4	[53.7–57.0]	1755
Mother experiencing any IPV (child age 6 y)			
No IPV reported	86.3	[85.0–87.6]	3197
IPV: yes, previous partner (incl. partner not disclosed)	11.7	[10.6–12.9]	360
IPV: yes, current long-term partner ^a	2	[1.6–2.4]	75
Mother experiencing more types of IPV more often (child age 6 y)			
No IPV	85.8	[84.3–87.2]	2943
Fewer types less often (75 % of the distribution)	6.8	[6.0–7.8]	203
More types, more often (25 % of the distribution)	7.4	[6.4–8.5]	212
Maternal Education (at child's age 6 y)			
Degree or equivalent	28.7	[26.4–31.2]	1214
Vocational qualifications	39.6	[37.8–41.4]	1434
Higher grade or equivalent	7	[6.1–8.0]	265
Standard grade	15.9	[14.4–17.5]	488
No qualifications	8.8	[7.5–10.3]	226
Equivalised Income			
1st quintile	24	[22.0–26.2]	686
2nd	20.8	[19.2–22.4]	725
3rd	17	[15.8–18.3]	655
4th	16.2	[14.8–17.8]	682
5th	16.1	[14.3–17.9]	686
Missing income data	24	[22.0–26.2]	686
Maternal NS-SEC			
Managerial and professional	48.2	[45.5–50.9]	1980
Intermediate	14.3	[13.1–15.6]	511
Small employers and own account holders	7.6	[6.6–8.6]	270
Lower supervisory and technical	7.9	[7.0–8.9]	263
Semi-routine and routine	20	[18.1–22.1]	568
Never worked	2	[1.4–2.8]	40
Mother's age at birth of sample child			
Under 20	7.7	[6.4–9.1]	164
20–29	40.9	[38.8–43.0]	1315
30–39	48.3	[46.1–50.5]	2011
40 or older	3.2	[2.6–3.8]	135
If English is only language spoken at home (ethnicity proxy)			
English only language	94.9	[93.3–96.2]	3465
Other language also/only spoken at home	5.1	[3.8–6.7]	166
Child's sex			
Male	51.3	[49.7–53.0]	1852
Female	48.7	[47.0–50.3]	1780
Number of children in the household			
1	20	[18.5–21.6]	686
2	51.8	[50.2–53.4]	1969
3	21.4	[20.1–22.7]	772
4 or more	6.8	[5.9–7.8]	205

^a Identifies mothers who have reported experiencing IPV by current partner who has lived in the home since the birth of the study-child.

are preferred as comparisons on the basis of odds ratios are invalid albeit commonly seen in published research. Logistic regression coefficients depend both on effect sizes and the magnitude of unobserved heterogeneity (Mood, 2010), and coefficients may change with each 'rescaling' (Karlson et al., 2012) of a model using different confounders or different sub-samples. A better way of comparing models across different sub-samples of a dataset is to use predicted probabilities instead of odds ratios (Mood, 2010). Appropriate sample weights were used for the analysis to adjust for non-random non-response bias, and for unequal probability of selection for some children. Since our key variables of interest include cells where sample sizes are small, we show 90 % confidence intervals, though significance is stated at 4 different thresholds and most results which were significant were significant at $p \leq 0.05$. Stata version 16.1 was used for all analyses.

3. Results

In Table 1 we see some key proportions. When children were 2 years old and fathers were interviewed, 16 % of fathers had used smacking with the child. Our dichotomous variable on maternal use of smacking/slapping shows us simply that we are differentiating between the top 4th (25 %) of mothers who used this the most and the bottom 75 % who used smacking and slapping less often or not at all. When looking at children who were smacked or slapped by both parents, 8 % of children had been smacked/slapped by both father (age 2) and mother (ages 2–7). More than half (55 %) of 7 years olds mentioned being smacked at least once. For the children's self-reports this would potentially include also being smacked by a non-resident parent.

3.1. Descriptive statistics

The descriptive statistics, using chi-square tests, in Table 2 show that children who are living in homes where the mother has reported experiencing IPV, are more likely to have themselves been smacked or slapped. The result holds for all the different measures of smacking/slapping that we have explored. The starkest differences are for the variable on mother's slapping/smacking their child – possibly driven by the richness of data and the multiple sweeps which this variable draws on, and also the larger sample size for each cell of this dichotomous variable. For example, among mothers who did not report any IPV 24 % used smacking/slapping with the study child, compared to 36 % ($p \leq 0.001$) of those in homes where the current long-term partner had been abusive. Mothers who reported experiencing more types of abuse, more often were more likely to have used smacking/slapping with their child (36 %) than those who had experienced fewer types of IPV less often (31 %) ($p \leq 0.001$).

For the variable on father's smacking (at age 2) children, 17 % of fathers had used smacking where mothers reported no IPV, compared to 29 % ($p = 0.041$) who has used this, in homes where the abusive partner had been there since the birth of the child, and continued to live in the home. The results for whether children were smacked or slapped by both parents were not significant. The variable capturing children's own report of being smacked by parents (age 7) shows that children were more likely to report being smacked if their mothers had mentioned IPV occurring (61 % compared to 55 % among the no-IPV category, $p = 0.096$), and even more likely (64 %) for women with a long-term abusive partner (as defined in this study).

3.2. Multivariate regression

Tables 3 and 4 and Supplementary Table A lay out the results from our logistic regression analyses. In Table 3 we run two models, for each of our four outcome variables measuring children's exposure to smacking/slapping. Each model controls for all socio-economic characteristics laid out in the independent variables section.

After controlling for confounders the starkest differences in the probability of being smacked/slapped are observed when comparing children of mothers who are still living with an abusive long-term partner, to children in homes where no IPV has been reported. Compared to the latter, in homes where the long-term current partner had been abusive, children were more likely to be

Table 2

Associations between maternal experiences of IPV and the child being smacked/slapped (chi-square tests).

Weighted data Complete case analysis sub-sample	Mother's partner used smacking with child (child age 2y) (N:2325)		Mother used smacking/slapping more often with child (ages 2-7y) (N:3151)		Smacking/ slapping used by both parents (ages 2-7y) (N:2282)		Child mentions being smacked by parents (age 7y) (N:3213)	
	%	90 % CI	%	90 % CI	%	90 % CI	%	90 % CI
Mother experiencing any IPV (child age 6y)								
No IPV reported	16.9	[15.7–18.2]	24	[22.5–25.5]	7.8	[7.0–8.8]	54.9	[53.3–56.5]
IPV: yes, previous partner (incl. partner not disclosed)	13.8	[9.3–20.0]	33.1	[28.0–38.6]	8.6	[5.2–13.8]	60.5	[55.6–65.2]
IPV: yes, current long-term partner ^a	28.9	[20.4–39.3]	36.4	[27.8–46.0]	15.7	[9.3–25.3]	64.4	[53.2–74.2]
Mother experiencing more types of IPV more often (child age 6y)								
No IPV	16.9	[15.7–18.2]	24	[22.5–25.5]	7.8	[7.0–8.8]	54.9	[53.3–56.5]
Fewer types less often (75 % of the distribution)	19.8	[13.6–27.8]	30.7	[25.0–37.1]	9.8	[5.7–16.3]	66	[59.4–72.0]
More types, more often (25 % of the distribution)	16.4	[11.1–23.5]	36.3	[30.3–42.8]	11.5	[6.7–19.0]	56.7	[49.8–63.3]

^a Identifies mothers who have reported experiencing IPV by current partner who has lived in the home since the birth of the study-child.

smacked by the father by age 2 (OR 1.91, $p \leq 0.05$), to be smacked/slapped by the mother at ages 2 to 7 years old (OR 1.84, $p \leq 0.05$), and to be smacked/slapped by both parents (OR 2.31, $p \leq 0.05$). The coefficients for children's self-report of being smacked were not significant, though pointing to a trend in a similar direction.

For the measure of IPV intensity, we only see significant coefficients when looking at the mother's use of smacking/slapping, and the children's reports of being smacked. For the mother's use of smacking/slapping, Odds Ratios increased as IPV intensity increased, indicating an incremental relationship between the intensity of the IPV the mother had experienced and the likelihood of her having smacked/slapped her child more often. For the children's reports of being smacked, the incremental trend does not hold, though children of mothers who experienced some IPV had 60 % higher odds ($p \leq 0.01$) of reporting to have been smacked by parents compared to children of mothers who reported no IPV.

In Table 4 we see a more comprehensive overview of what other factors are associated with children being smacked/slapped. Here we focus only on the mothers' reports of using smacking/slapping, and of children's reports of being smacked, since the above analyses showed these to be the more interesting variables, possibly due to the larger sample size of the cells in each dichotomous outcome variable. What has been added at this stage are interaction effect between the language spoken at home and children's sex. These were significant for the model on mothers' use of smacking and/or slapping, but not significant for the model on children's reports of being smacked.

There is some evidence of a weak social gradient in children's exposure to smacking. This is best captured by looking at maternal educational qualifications in relation to children's self-reports of being smacked. Compared to mothers with degree-level education, mothers with below university degree education have children who were more likely to have said they had been smacked. The starkest difference was between children of mothers with standard grade qualifications to those with degree level education (OR 2.18, $p \leq 0.001$). The predicted probability of being smacked was 19 percentage points higher for this group compared to the reference category.

For household income, children in homes from the 3rd income quintile were more likely to report being smacked to those in the fifth and highest income quintile (OR 1.38, $p \leq 0.05$). Overall, this suggested that children in lower income households were slightly more likely to report being smacked, but the effect sizes are small, and the effect is not significant for all income categories. For maternal social class the only significant difference was that mothers in the small employers and own account workers category had 50 % higher odds ($p \leq 0.05$) of having used slapping and/or smacking more often than those in managerial or professional occupations.

There was a significant difference ($p \leq 0.05$ or lower) in children's reports of being smacked depending on how many children there were in the household, where more children were incrementally linked to a higher chance of the study child reporting they had been smacked – the same did not hold when looking at maternal reports of using smacking and/or slapping. The number of children in the home was not significant when looking at the mother's reported use of smacking/slapping. Finally, mothers were more likely to use more frequent smacking/slapping with boys, rather than girls (OR 1.33, $p \leq 0.01$) though the same did not hold when looking at

Table 3
Multivariate logit models looking at children's exposure to parental aggression and maternal experiences of IPV - odds ratios.

	Weighted data	Mother's partner used smacking with child (child age 2 y)		Mother used smacking/slapping more often with child (ages 2–7 y)		Smacking/slapping used by both parents (ages 2–7 y)		Child mentions being smacked by parents (age 7 y)	
		OR	90 % CI	OR	90 % CI	OR	90 % CI	OR	90 % CI
Model 1 ^a	Mother experiencing any IPV (child age 6y)								
	No IPV reported	1.00	[1.00, 1.00]	1.00	[1.00, 1.00]	1.00	[1.00, 1.00]	1.00	[1.00, 1.00]
	IPV: yes, previous partner	1.00	[0.64, 1.57]	1.52*	[1.16, 2.00]	1.21	[0.69, 2.14]	1.18	[0.95, 1.47]
	IPV: yes, current long-term partner ^b	1.91*	[1.21, 3.02]	1.84*	[1.24, 2.72]	2.31*	[1.30, 4.13]	1.45	[0.94, 2.24]
			N: 2507		N: 3151		N: 2282		N:3215
Model 2 ^a	Mother experiencing more types of IPV more often (child age 6y)								
	No IPV	1.00	[1.00, 1.00]	1.00	[1.00, 1.00]	1.00	[1.00, 1.00]	1.00	[1.00, 1.00]
	Fewer types less often	1.30	[0.82, 2.06]	1.47*	[1.11, 1.95]	1.39	[0.76, 2.53]	1.60**	[1.19, 2.14]
	More types, more often	1.24	[0.78, 1.96]	1.70**	[1.25, 2.32]	1.80 [†]	[1.01, 3.23]	0.97***	[0.72, 1.31]
			N: 2507		N: 3151		N: 2282		N:3215

Exponentiated coefficients; 90 % confidence intervals in brackets.

[†] $p < 0.1$.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

^a Each model is controlling for maternal education, household income, maternal social class, maternal age, ethnicity proxy, child's sex, number of children in home (coefficients not shown).

^b Identifies mothers who have reported experiencing IPV by current partner who has lived in the home since the birth of the study-child.

Table 4

Full multivariate Logit models on mother use of smacking/slapping and child reports of smacking (sub-sample of homes where current partner present since birth has been abusive).

Weighted data Reference category italicised	Mother used smacking/slapping with child (ages 2–7 y) (N:3151)		Mother used smacking/slapping more often with child (ages 2–7 y)		Child reports being smacked (age 7) (N:3215)		Child reports being smacked (age 7)	
	OR	90 % CI	PP	90 % CI	OR	90 % CI	PP	90 % CI
Mother experiencing any IPV (child age 6 y)								
<i>No IPV reported</i>	1.00	[1.00, 1.00]	0.23	[0.22, 0.25]	1.00	[1.00, 1.00]	0.55	[0.53, 0.56]
IPV: yes, previous partner	1.52*	[1.16, 2.00]	0.32*	[0.26, 0.37]	1.18	[0.95, 1.47]	0.59	[0.54, 0.64]
IPV: yes, current long-term partner ^b	1.86*	[1.26, 2.75]	0.36*	[0.27, 0.45]	1.44	[0.93, 2.23]	0.64	[0.54, 0.74]
Maternal education								
<i>Degree or equivalent</i>	1.00	[1.00, 1.00]	0.22	[0.20, 0.25]	1.00	[1.00, 1.00]	0.48	[0.45, 0.51]
Vocational qualifications	1.26 [†]	[1.03, 1.54]	0.27 [†]	[0.24, 0.29]	1.49***	[1.24, 1.78]	0.58***	[0.55, 0.60]
Higher grade or equivalent	0.81	[0.57, 1.15]	0.19	[0.14, 0.24]	1.18	[0.92, 1.50]	0.52	[0.47, 0.57]
Standard grade	1.30	[0.99, 1.70]	0.27	[0.23, 0.31]	2.18***	[1.70, 2.78]	0.67***	[0.62, 0.71]
No qualifications	1.02	[0.73, 1.44]	0.23	[0.18, 0.28]	1.39	[1.00, 1.93]	0.56 [†]	[0.49, 0.63]
Equivalised income								
1st quintile	1.17	[0.85, 1.61]	0.26	[0.22, 0.30]	1.22	[0.93, 1.60]	0.55	[0.52, 0.59]
2nd	1.09	[0.82, 1.46]	0.24	[0.21, 0.28]	1.23	[0.94, 1.59]	0.56	[0.52, 0.59]
3rd	1.06	[0.83, 1.36]	0.24	[0.21, 0.26]	1.38*	[1.12, 1.70]	0.58	[0.55, 0.62]
4th	1.10	[0.88, 1.36]	0.24	[0.21, 0.28]	1.21 [†]	[1.01, 1.45]	0.55	[0.51, 0.60]
5th	1.00	[1.00, 1.00]	0.23	[0.19, 0.26]	1.00	[1.00, 1.00]	0.51	[0.47, 0.55]
Missing income data	1.41 [†]	[1.00, 1.99]	0.29	[0.23, 0.36]	1.56*	[1.13, 2.16]	0.62	[0.55, 0.68]
Maternal NS-SEC								
<i>Managerial and professional</i>	1.00	[1.00, 1.00]	0.23	[0.21, 0.25]	1.00	[1.00, 1.00]	0.58	[0.55, 0.60]
Intermediate	1.26	[0.97, 1.64]	0.27	[0.23, 0.31]	0.80 [†]	[0.65, 0.98]	0.52 [†]	[0.48, 0.56]
Small employers and own account holders	1.49*	[1.10, 2.03]	0.31*	[0.25, 0.36]	0.94	[0.72, 1.22]	0.56	[0.50, 0.62]
Lower supervisory and technical	0.99	[0.72, 1.36]	0.23	[0.18, 0.27]	0.87	[0.65, 1.15]	0.54	[0.48, 0.60]
Semi-routine and routine	1.25	[0.92, 1.71]	0.27	[0.22, 0.32]	0.86	[0.68, 1.09]	0.54	[0.49, 0.58]
Never worked	0.62	[0.23, 1.73]	0.16	[0.02, 0.29]	0.61	[0.32, 1.17]	0.45	[0.29, 0.61]
Mother's age at birth of study child								
Under 20	1.40	[0.85, 2.31]	0.25	[0.18, 0.32]	1.48	[0.89, 2.48]	0.58	[0.50, 0.66]
20–29	1.24	[0.77, 2.00]	0.23	[0.20, 0.25]	1.51	[0.99, 2.30]	0.58	[0.56, 0.61]
30–39	1.50	[0.95, 2.35]	0.26	[0.24, 0.28]	1.25	[0.86, 1.83]	0.54	[0.51, 0.56]
40 or older	1.00	[1.00, 1.00]	0.19	[0.13, 0.26]	1.00	[1.00, 1.00]	0.48	[0.39, 0.57]
Child's sex								
Male	1.33**	[1.14, 1.55]	0.28***	[0.26, 0.29]	1.09	[0.96, 1.22]	0.56	[0.55, 0.58]
Female	1.00	[1.00, 1.00]	0.22	[0.19, 0.24]	1.00	[1.00, 1.00]	0.55	[0.52, 0.57]
Number of children in household								
1	1.00	[1.00, 1.00]	0.23	[0.19, 0.26]	1.00	[1.00, 1.00]	0.49	[0.45, 0.52]
2	1.15		0.25		1.33**		0.56**	

(continued on next page)

Table 4 (continued)

Weighted data Reference category italicised	Mother used smacking/slapping with child (ages 2–7 y) (N:3151)		Mother used smacking/slapping more often with child (ages 2–7 y)		Child reports being smacked (age 7) (N:3215)		Child reports being smacked (age 7)	
	OR	90 % CI	PP	90 % CI	OR	90 % CI	PP	90 % CI
3	1.18	[0.95, 1.39]	0.26	[0.23, 0.27]	1.55***	[1.13, 1.58]	0.60***	[0.54, 0.58]
4 or more	1.01	[0.94, 1.46]	0.23	[0.23, 0.28]	1.57*	[1.27, 1.90]	0.60*	[0.56, 0.63]
<i>If English is only language spoken at home (ethnicity proxy)</i>								
<i>English only language</i>	1.00	[1.00, 1.00]	0.24	[0.23, 0.26]	1.00	[1.00, 1.00]	0.56	[0.54, 0.57]
Other language also/only spoken at home	0.80	[0.44, 1.46]	0.29	[0.22, 0.36]	1.17	[0.67, 2.05]	0.56	[0.46, 0.66]
Interaction effects: English language & child's sex	^a		^a		<i>n.s.</i>		<i>n.s.</i>	

90 % confidence intervals in brackets.

[†] $p < 0.1$.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

^a Interaction effect significant for “mother used smacking/slapping” model. See Fig. 1 for predicted probabilities.

^b Long term partners are defined as those who have been living in the homes since the birth of the study child, and who had been abusive.

children's self-reports of being smacked, where child sex was not significant.

We found significant interaction effects for the language spoken at home and for children's sex, when looking at the mother's use of more frequent smacking and/or slapping. Fig. 1 shows the predicted probabilities calculated for these interaction effects. For consistency with other tables in this paper we display 90 % confidence intervals, but we also report in parenthesis the highest level of statistical significance for each result below which we noted in analysis not shown. Boys in homes where a language other than English is spoken are far more likely (predicted probability of 42 %) to have been smacked/slapped by their mother compared to other children, while girls in homes where a language other than English was spoken were the least likely (19 %) to have been smacked/slapped by their mother (difference between categories significant at $p \leq 0.05$). In homes where English was the only language spoken, the gender divide in mothers' use of smacking/slapping was significant (at $p \leq 0.05$) but not as stark for boys (27 %) and girls (22 %).

4. Discussion

Regardless of whether we are looking at maternal or paternal aggression towards children, or children's reports of being smacked, a consistent story emerges from the data: children in homes where there is IPV are more likely to themselves be smacked or slapped. This is particularly true in homes where the abusive partner has been living continuously in the family home (as opposed to families where a prior partner was abusive, or where there has been a relationship breakdown). In these homes, perhaps violent and abusive patterns of behavior between family members have become normalised and occur more frequently when dealing with friction in relationships. This is consistent with what we know from the existing literature, which confirms that where there is IPV, children are often themselves victims of abuse (Chan et al., 2021) and that this occurs within the context of a complex interplay between individual, family and

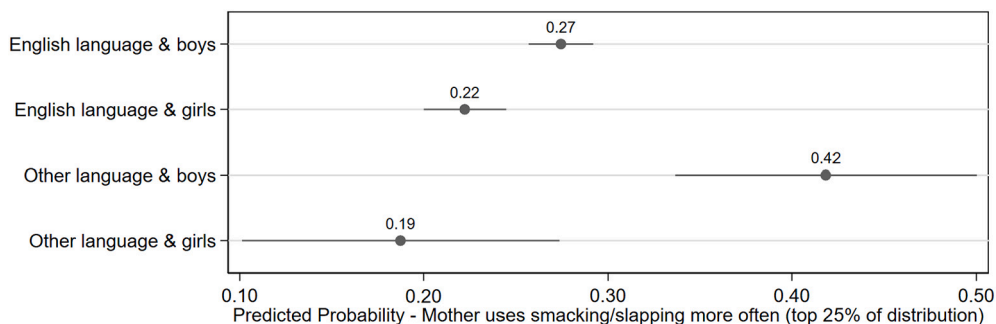


Fig. 1. Predicted probabilities and 90%CI of mother using smacking/slapping more often – interaction effects between language spoken at home and child's sex.

structural issues (Sijtsema et al., 2020).

The rate of co-occurrence of IPV and child abuse varies significantly between studies internationally, although this does seem related to the sample. In their meta-analysis Chan et al. (2021) reported the co-occurrence rate synthesized from the 21 studies with community samples was 9.7 % (95 % CI [7.4 %, 12.7 %], $p < 0.001$), while the percentage of the overlap of victimization in clinical samples was 36.0 % (95 % CI [28.8 %, 43.9 %], $p < 0.001$). Additionally, when a family reports interpersonal violence, the odds of there being simultaneous child abuse and neglect are >3-fold. Our work adds to this evidence base given the nationally representative sample used.

Recent evidence reviews of research on the intergenerational transmission of violence in the context of IPV draw our attention to the family stress model which is a useful framework for understanding our findings (IJzendoorn et al., 2020; Radford et al., 2019). This suggests that women who live with an abusive partner are more likely to engage in harsh discipline when juggling multiple demands. Professionals working with families should consider how providing parents with advice on alternate discipline techniques is not necessarily always about addressing a lack of knowledge and understanding on behalf of mothers, but about the practical and emotional difficulties of parenting under very challenging circumstances. This is about issues such as IPV, and also other significant stressors such as inadequate housing and poverty. We find that variables capturing the mother's use of aggression were more detailed, with several questions asked over several years, and it is perhaps not surprising that this measure of parental aggression yielded more in-depth findings than the variable based on the father's use of slapping asked only once when children were 2 years old. As others have cautioned before, studies are more likely to focus on the mother-child bond, rather than the father, and as such, research is more likely to draw attention to problems with the mothers' parenting as opposed to the fathers. This risks overlooking the overall abusive dynamics of relationships in families (Katerndahl et al., 2012). Additionally, Appel and Holden (1998) argued that if comparisons of the use of parental aggression by both parents were corrected for the amount of time each parent spent with their children, research on child maltreatment would likely tell a different story. This assertion has been supported by studies exploring the quality and quantity of father involvement and the association with levels of internalizing and externalizing behavior problems among children at risk of maltreatment (Yoon et al., 2018). US data on child homicides, which to a far greater extent corrects for the aforementioned data-collection biases, shows that where there is a history of intimate partner violence, children are more likely to be killed by a male rather than a female (Adhia et al., 2019).

In our study, boys are more likely to be smacked or slapped by the mother, though this does not hold when looking at children's own reports of being smacked by parents. When looking at gender disparities and ethnicity (using language spoken at home as a proxy), we found boys to be more likely to experience parental aggression among both the ethnic majority (only-English speaking homes) and ethnic minority groups (homes where a language other than English was spoken). There is evidence from cross-national research that when there are gender differences in experiences of parental aggression, boys are more at risk than girls, though the extent of the gender divide differs from country to country (Lansford et al., 2010). In reflecting on why boys may be more at risk, Mehlhausen-Hassoen (2022:NP8905) notes that parents might 'perceive boys as tougher and stronger, and, especially physically, as less vulnerable than girls', though this is not something we could explore with our data.

We were surprised to see how substantial the gender divide is for maternal use of aggression when looking at ethnic minority homes. In ethnic minority homes, more than two fifths of the boys were predicted to be smacked or slapped by the mother, compared to a fifth of girls. In homes where English is the main language the gender divide was significant but smaller. There is great cross-country variability in the extent to which parents use aggression with children (Lansford et al., 2014; Lansford & Deater-Deckard, 2012). The reason why the gender divide in child maltreatment is bigger among families who speak a language other than English (rather than in the English-only speaking group), could potentially have something to do with the nature of the ethnic minority groups, and the extent to which parental aggression may be perceived as an acceptable form of discipline, especially for boys, in these groups. It is worth noting that structural drivers such as poverty tend to disproportionately affect ethnic minority groups (Chan et al., 2021), and it is possible some of the effect is driven by such factors, despite our multiple controls for socio-economic variables in the model. To maintain participant anonymity the dataset we use does not disclose more information on ethnic minority groups.

From the most recent Scottish census (2011 Scottish Census, n.d.) we know that 7 % of people living in Scotland had not been born in the UK. Of these, the two most common countries of birth outside the UK were Poland (15 %), and India (6 %). In terms of ethnicity, the census tells us that, irrespective of the country of birth, the "Asian" population (which includes the Pakistani category, as the largest category) is the largest ethnic minority group (3 % of the population), followed by African, Caribbean or Black groups (1 % of total population). Thus, the composition of the ethnic minority category captured in our data is likely to include a variety of ethnic groups. It is difficult to extrapolate why in this group, as a whole, boys are far more likely to be smacked or slapped than girls, but cultural norms and attitudes which normalise to a greater degree parental maltreatment of boys compared to girls may offer an explanation (Lansford et al., 2014; Lansford & Deater-Deckard, 2012).

We found that children are also more likely to experience parental aggression where there are several other siblings in the home. This finding is in line with existing research which has found a higher number of siblings to be associated with a greater risk of parental smacking (Heilmann et al., 2015) and child maltreatment (Stith et al., 2009). This could be due to the increased pressures that parents face when parenting several children, and the increased difficulties of parenting with more constructive methods in these circumstances.

We found evidence of some social stratification of parental aggression, which was being captured by variables on maternal education, rather than variables on household income or occupation-based social class. The reviews by Heilmann et al. (2015) and Stith et al. (2009) found that lower socio-economic status was a risk factor for child maltreatment. Similarly, a report on child maltreatment in the UK found evidence of a social gradient for child maltreatment related to a range of measures of social inequality (Featherstone et al., 2019). The authors note that while some maltreatment is to be found in all social groups, children living in more economically

disadvantaged communities were more likely to be involved with child protection services.

4.1. Limitations

There are some study limitations worth noting. In our paper we discuss the relationship between IPV and children's experience of direct abuse in the form of smacking and slapping. However, our measures on children reflect parental use of smacking and/or slapping collected during a time when such practises were not illegal in Scotland. Aside from the legal aspect, some of these questions may, for the sake of argument, confound incidents such as a one-off slap on the wrist used once with, for example, slaps across the face used regularly. Some of the studies in the relevant literature use arguably more severe definitions of child maltreatment, such as sexual abuse or severe neglect (Kernic et al., 2003) and used samples recruited from domestic abuse shelters (Chan et al., 2021). It is clear that our measures are not able to differentiate between different severities of parental aggression towards children, which bears implications to what we can and cannot infer from our results, and occasionally affects how our findings relate to the existing literature in the field.

5. Conclusion

In conclusion, using longitudinal and nationally representative data for Scotland, we have explored the prevalence of parental aggression towards children and its association with maternal experiences of IPV. Though there is some variability in the reporting of parental aggression depending on the respondent and question used, across all survey instruments, young children of mothers who report IPV are more likely to experience parental aggression. We find boys are more likely to experience parental aggression among both ethnic majority and ethnic minority groups, but that the gender disparity is greater among ethnic minorities. As has been noted previously, there is evidence that parental aggression is socially stratified, as are experiences of IPV, and families living in disadvantaged circumstances are therefore most at risk. This study has added to the growing international evidence base about the prevalence of the co-occurrence of IPV and child maltreatment, while also providing a baseline to examine in the future, what impact, if any, changes in legislation to afford children equal protection may have for children living in more vulnerable and violent situations.

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.chiabu.2022.105784>.

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