

# BMJ Open Associations between 11 parental discipline behaviours and child outcomes across 60 countries

Kaitlin Paxton Ward <sup>1</sup>, Andrew Grogan-Kaylor <sup>1</sup>, Julie Ma,<sup>2</sup> Garrett T Pace <sup>3</sup>, Shawna Lee <sup>1</sup>

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<sup>1</sup>School of Social Work, University of Michigan, Ann Arbor, Michigan, USA

<sup>2</sup>Social Work, University of Michigan-Flint, Flint, Michigan, USA

<sup>3</sup>School of Social Work, University of Nevada Las Vegas, Las Vegas, Nevada, USA

## Correspondence to

Dr Andrew Grogan-Kaylor; [agrogan@umich.edu](mailto:agrogan@umich.edu)

## ABSTRACT

**Objectives** To test associations between 11 caregiver aggressive and non-aggressive discipline behaviours and outcomes (aggression, distraction and prosocial peer relations) of children under 5 years in low-income and middle-income countries (LMICs).

**Participants** Data came from the fourth (2009–2013) and fifth (2012–2017) rounds of the UNICEF Multiple Indicator Cluster Surveys. Analyses were restricted to households with children under 5 years, leaving a sample of 229 465 respondents across 60 LMICs. Data were analysed using Bayesian multilevel logistic regression.

**Results** Verbal reasoning (80%) and shouting (66%) were the most common parental discipline behaviours towards young children. Psychological and physical aggression were associated with higher child aggression and distraction. Compared with not using verbal reasoning, verbal reasoning was associated with lower odds of aggression (OR)=0.92, 95% credible interval (CI)=0.86 to 0.99) and higher odds of prosocial peer relations (OR=1.30, 95% CI=1.20 to 1.42). Taking away privileges was associated with higher odds of distraction (OR=1.09, 95% CI=1.03 to 1.15) and lower odds of prosocial peer relations (OR=0.92, 95% CI=0.87 to 0.98). Giving the child something else to do was associated with higher odds of distraction (OR=1.06, 95% CI=1.01 to 1.12). The results indicated country-level variation in the associations between parenting behaviours and child socioemotional outcomes.

**Conclusions** Psychological and physical aggression were disadvantageous for children's socioemotional development across countries. Only verbal reasoning was associated with positive child socioemotional development. No form of psychological aggression or physical aggression benefited child socioemotional development in any country. Greater emphasis should be dedicated to reducing parental use of psychological and physical aggression across cultural contexts.

## INTRODUCTION

Caregiver discipline behaviours used to correct perceived child misbehaviour generally fall into three broad categories: psychological aggression, physical aggression and non-aggressive discipline.<sup>1</sup> Aggressive discipline behaviours involve coercion and power assertion by the caregiver.<sup>2</sup> Psychological

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This is the largest study to examine caregiver aggressive and non-aggressive discipline and child outcomes in 60 low-income and middle-income countries.
- ⇒ Caregiver aggressive and non-aggressive discipline were modelled simultaneously.
- ⇒ Multilevel modelling estimated the associations between caregiver discipline and child outcomes while accounting for within country clustering.
- ⇒ Data were cross-sectional, and causal conclusions cannot be made.
- ⇒ Measures were self-reported by caregivers, which may be subject to bias.

aggression refers to an adult's attempts to gain control of a child's behaviour through verbal methods such as shouting and name calling.<sup>3</sup> Physical aggression involves the use of physical force with the intention of causing pain to control a child's behaviour, such as hitting the child on the body with the hand or an object.<sup>4</sup> Non-aggressive discipline includes responding to a child's misbehaviour by explaining why the behaviour was wrong (ie, verbal reasoning), taking privileges away and providing the child with something else to do (ie, distraction).<sup>1</sup> In an analysis of over 107 000 children aged 2–4 years in 49 low-income and middle-income countries (LMICs), 83% (approximately 88 810) were exposed to non-aggressive discipline in 1 year; physical (62%; approximately 67 410) and psychological (65%; approximately 69 550) aggression were also common.<sup>5 6</sup> Most parents use more than one parental discipline behaviour or even all three methods.<sup>6–8</sup>; yet few studies examine multiple parental discipline behaviours simultaneously.

Mounting evidence from US<sup>9–11</sup> and international<sup>12 13</sup> studies has linked parental physical aggression to increased risk of child behaviour problems,<sup>10 12 13</sup> child maltreatment,<sup>14 15</sup> and adult mental health

problems.<sup>11 16</sup> Indeed, the United Nations Convention on the Rights of the Child has called for eliminating all forms of physical punishment of children<sup>17</sup> and 65 countries have banned its use.<sup>18</sup> The American Academy of Pediatrics (AAP) recommends that paediatricians counsel parents to avoid the use of physical aggression.<sup>19</sup> The effects of psychological aggression are empirically similar to those of physical aggression.<sup>20–22</sup> Non-aggressive discipline is thought to encourage children's prosocial peer relationships, such as getting along well with other children, and to improve self-regulation<sup>8 23</sup>; however, power-assertive behaviours such as taking away privileges may be harmful to children.<sup>24</sup> A study of 215 885 children in 62 countries found that psychological and physical aggression were linked to poorer outcomes for children, and also found that the strength of the associations between both aggressive and non-aggressive discipline with child outcomes varied based on the country-level usage of the discipline behaviour.<sup>25</sup>

Over the past two decades, the UNICEF has administered Multiple Indicator Cluster Surveys (MICS) in LMICs to evaluate health and well-being. The current study used MICS data to examine the associations between 11 forms of parental discipline and child aggression, distraction and prosocial peer relations, across 60 LMICs. Early childhood aggression is well established in the aetiology of problematic later outcomes such as antisocial behaviour and poorer mental health.<sup>26</sup> High levels of distraction can be indicative of poorer child socioemotional development, as it may signal lower levels of executive function and undermine learning in the school setting.<sup>27</sup> In contrast, early prosocial peer relationships are associated with better outcomes for children, including lower emotional and behavioural problems.<sup>28</sup> Several theories suggest that parental aggression contributes to negative child socioemotional outcomes. Social learning theory argues that parental aggression leads to child aggression by modelling violence as an acceptable behaviour.<sup>29 30</sup> Attachment theory suggests that parental aggression erodes the emotional bond between the parent and the child by causing fear.<sup>30 31</sup> Moreover, growing research has identified parental physical punishment as a toxic stressor that may activate children's stress-response systems and damage neural mechanisms.<sup>32 33</sup>

In addition, prior research has demonstrated cultural and contextual influences of these linkages. For example, while studies have shown that physical punishment, one form of harsh parenting, is consistently linked to poor developmental outcomes for children, these associations may be less robust in country contexts where physical punishment is considered more 'normative,' that is, more widely used.<sup>34 35</sup> Using MICS data examining 62 LMICs, Grogan-Kaylor *et al.*<sup>25</sup> demonstrated similar results in that country-level normativeness of physical punishment moderated some of the associations between parental physical punishment and child outcomes, although the direction of effects (eg, punishment linked to poorer child outcomes) was consistent across countries. Thus, based

on prior research, there is reason to believe that country-level factors may moderately influence the strength of the associations between parenting behaviours and child socioemotional outcomes.

Thus, we hypothesised that: (1) physical and psychological aggression would be associated with a higher likelihood of child aggression and distraction; (2) non-aggressive parenting behaviours would be associated with a higher likelihood of child prosocial peer relations and decreased likelihood of child aggression and distraction; (3) the associations between all forms of parenting behaviours and child socioemotional outcomes would vary across countries.

## METHOD

### Patient and public involvement

MICS data collection occurred using multistage cluster sampling in which households were randomly selected for participation within clusters. The surveys were comparable across countries and used representative sampling procedures within each cluster. Within each sampling area, fieldwork teams conducted in-person interviews with the head of the household. If the head of the household was unavailable at the time of the interview, a spouse of the head-of-household or the focal child's caregiver was interviewed. A focal child—between the ages of 2 and 17 for MICS4, and 1 and 17 for MICS5—within the household was chosen via a random number table. In this study, we use MICS4 and MICS5, which occurred between 2009–2013 and 2012–2017, respectively.

The current study includes publicly released survey responses as of July 2020, thus best representing current international trends. For focal children who were under 5 years old, MICS4 and MICS5 included evaluation of socioemotional development: aggression, distraction and prosocial peer relations. Therefore, our analysis sample was restricted to households with focal children under 5 years old. The UNICEF MICS website, <https://mics.unicef.org/about> contains more details regarding the content and methodology of the data.

### Measures

#### Independent variables

Parental discipline behaviours were measured using a UNICEF-modified version of the Parent–Child Conflict Tactics Scales.<sup>36</sup> All discipline measures were dichotomous (0=no, 1=yes). Respondents were given the prompt: "Adults use certain ways to teach children the right behaviour or to address a behaviour problem. I will read various methods that are used. Please tell me if you, or any other adult in your household, has used this method with [child] in the past month." Psychological aggression measures included 'shouted, yelled at or screamed at (child)' and 'called (child) dumb, lazy or another name like that'. Physical aggression measures included 'shook (child)', 'spanked, hit or slapped (child) on the bottom with a bare hand', 'hit or slapped (child) on the hand,

arm or leg', 'hit (child) on the bottom or elsewhere on the body with something like a belt, hairbrush, stick or other hard object', 'hit or slapped (child) on the face, head or ears', and 'beat (child) up, that is, hit (child) over and over as hard as one could'. Non-aggressive measures included 'took away privileges, forbade something (child) liked or did not allow (child) to leave the house', 'explained why (child)'s behaviour was wrong', and 'gave (child) something else to do'.

### Dependent variables

Child outcomes were measured with 3 questions from the 10-item Early Childhood Development Index.<sup>37</sup> To measure child aggression, the respondent was asked, 'does (child) kick, bite or hit other children or adults?' (0=no, 1=yes). To measure child distraction, the respondent was asked, 'does (child) get distracted easily?' (0=no, 1=yes). To measure prosocial peer relations, the respondent was asked, 'does (child) get along well with other children?' (0=no, 1=yes).

### Sociodemographic controls

Child age was continuous and measured in months. The household wealth score was constructed by MICS staff who compared the number of assets (eg, sanitation infrastructure, has bank account) across households within each country and computed each household's deviation in SD units relative to the country's mean wealth score. The number of household members was a continuous variable capped at 50. Child and head-of-household sex were dichotomous (0=female, 1=male), as was whether the respondent was the child's biological parent (0=other caregiver, 1=biological parent). Mothers' and fathers' education were categorical (0=none (comparison), 1=primary, 2=secondaryplus). Attitudes towards physical punishment were measured by asking the respondent whether they believed that children need physical punishment in order to be raised properly (0=no, 1=yes). Community type (0=urban, 1=rural) and MICS round number were dichotomous (0=round 4, 1=round 5).

### Analytic strategy

We limited the sample to children who had non-missing data on the dependent variables, leaving a final sample size of 229465 respondents across 63 countries (see online supplemental table 1). Missing data were handled using listwise deletion, which is the default method for handling missing data in the 'brms' package in R. Listwise deletion resulted in three countries being dropped (Belarus, Central Africa Republic and Cuba), leaving an analytic sample of 163345 respondents across 60 countries.

Descriptive analyses were conducted in Stata V.15.1.<sup>38</sup> Outliers and evidence of collinearity between predictor variables were assessed by visual inspection, construction of a correlation matrix and calculation of variance inflation factors (VIFs). Bayesian multilevel logistic regression analyses were conducted in R using the 'brms'

package,<sup>39 40</sup> which yielded ORs and 95% credible intervals (CIs). Multilevel models accounted for the clustering within countries. A Bayesian approach was employed to allow for the estimation of multiple random slope terms.<sup>41 42</sup> Because this research was largely exploratory in nature, we used broadly 'uninformative' prior distributions. All models included the 11 parental discipline behaviours and sociodemographic covariates to predict child aggression, distraction and prosocial peer relations (hypotheses 1 and 2). In addition to the fixed effects estimates that showed the average effects of parenting behaviours on child socioemotional outcomes across countries, we requested a random intercept, as well as random slopes for all 11 discipline behaviours to examine whether the associations between parental discipline behaviours and child socioemotional outcomes varied by country (hypothesis 3). More details on the analytic approach are included in online supplemental material.

## RESULTS

Sample sizes by country may be found in online supplemental table 1. Descriptive statistics can be found in online supplemental table 2. Inspection of descriptive statistics (see online supplemental table 2), a correlation matrix (see online supplemental table 3) and VIFs did not reveal any evidence of outliers or multicollinearity, with no VIFs above 2.

The average child age was 47 months. Most (59%) families lived in a rural community. The average wealth score was -0.11, meaning that households had wealth scores 0.11 SD below the average wealth score in the sampling area of their countries. Verbal reasoning, used by 80% of caregivers, was the most common parenting behaviour. Shouting was the next most common, used by 66% of caregivers. Spanking (43%), shaking (33%) and name calling (31%) were also common. A correlation matrix of parent discipline behaviours can be found in online supplemental table 3. Each of the discipline behaviours had credible yet very weak to moderate correlation coefficients (rs 0.045–0.376).

### Multilevel models

The results from the fixed effects portion of the model can be found in online supplemental table 4; the random effects portion can be found in online supplemental table 5. The fixed effects estimate the average OR relating a particular discipline item to a child outcome while accounting for the clustering by country. The reference category for each of the ORs for the 11 parent discipline behaviours is that the discipline behaviour was not used. The random effects are an estimate of the SD of the natural logarithm of the intercept or slope parameters across countries, and thus are an estimate of the degree to which there are differences in the baseline odds of child outcomes across countries (ie, SD of random intercept), and whether there is variation in the size of associations

between parental discipline and child outcomes across countries (ie, SD of random slope).

### Child aggression

For psychological aggression, calling the child names was associated with 29% higher odds of child aggression (95% CI=1.21 to 1.39); shouting was associated with 20% higher odds of aggression (95% CI=1.13 to 1.27). For physical aggression, hitting on the face, head or ears was associated with 24% higher odds of aggression (95% CI=1.14 to 1.35); shaking was associated with 20% higher odds of aggression (95% CI=1.14 to 1.27); hitting with an object was associated with 17% higher odds of aggression (95% CI=1.09 to 1.26); both hitting on the arm/leg (95% CI=1.05 to 1.20) and spanking (95% CI=1.06 to 1.19) were associated with 12% higher odds of aggression. The only parenting behaviour that was associated with *reductions* in child aggression was verbal reasoning. Using verbal reasoning with the child was associated with 8% lower odds of aggression (95% CI=0.86 to 0.99). The random intercept for aggression (see online supplemental table 5), credibly varied across countries, indicating that there were differences across countries in baseline levels of aggression. Random slope results (see online supplemental table 5) demonstrated that the associations between all 11 parental discipline behaviours and child aggression credibly varied by country, suggesting some variation in the size of the relationship of various discipline types with the outcomes by country. The random effect for a particular regression coefficient is the SD of that OR expressed in the log odds metric. These random effects can then be compared with the natural log of a particular OR. For example, for the model predicting aggression, the random effect associated with 'spanked child' is .18, while the OR for 'spanked child' is 1.12. This random effect of .18 can be compared with  $\ln(1.12)=0.11$ , suggesting that in this case, the SD is substantively large compared with the logarithm of the OR. On inspection of each country-level slope and credible interval (available on request), no form of parental psychological or physical aggression was credibly associated with *decreased* child aggression, meaning that parental aggression was not credibly beneficial to children in any country.

### Child distraction

For psychological aggression, calling the child names was associated with 14% higher odds of child distraction (95% CI=1.09 to 1.21); shouting at the child was associated with 8% higher odds of distraction (95% CI=1.03 to 1.14). For physical aggression, shaking was associated with 8% higher odds of distraction (95% CI=1.01 to 1.16); hitting on the arm/leg was associated with 7% higher odds of distraction (95% CI=1.01 to 1.14); and hitting on the face/head/ears was associated with 6% higher odds of distraction (95% CI=1.01 to 1.11). For non-aggressive discipline, taking away privileges was associated with 9% higher odds of distraction (95% CI=1.03 to 1.15); and giving the child something else to do was associated with

6% higher odds of distraction (95% CI=1.01 to 1.12). The random intercept for distraction (see online supplemental table 5) credibly varied across countries, indicating baseline differences in child distraction across countries. Random slope results (see online supplemental table 5) demonstrated that the associations between all 11 discipline behaviours and child distraction credibly varied by country. On inspection of each country-level slope and credible interval (available on request), no form of parental psychological or physical aggression was credibly associated with *decreased* child distraction, meaning that parental aggression was not credibly beneficial to children in any country.

### Child prosocial peer relations

For psychological aggression, calling the child names was associated with 12% lower odds of prosocial peer relations (95% CI=0.81 to 0.95). For physical aggression, shaking was associated with 18% lower odds of prosocial peer relations (95% CI=0.75 to 0.90) and hitting on the face/head/ears was associated with 14% lower odds of prosocial peer relations (95% CI=0.77 to 0.96). For non-aggressive parenting behaviours, verbal reasoning was associated with 30% higher odds of child prosocial peer relations (95% CI=1.20 to 1.42), whereas taking privileges away was associated with 8% lower odds of prosocial peer relations (95% CI=0.87 to 0.98). Again, the random intercept for prosocial peer relations (see online supplemental table 5) credibly varied across countries, indicating differences in baseline prosocial peer relations across countries. Random slope results (see online supplemental table 5) demonstrated that the association between all discipline behaviours and prosocial peer relations credibly varied by country, except for hitting the child on the arm/leg. This means the association between hitting the child on the arm/leg and child prosocial peer relations was consistent across countries. On inspection of each country-level slope and credible interval (available on request), no form of parental psychological or physical aggression was credibly associated with *increased* child prosocial peer relations, meaning that parental aggression was not credibly beneficial to children in any country.

## DISCUSSION

The MICS survey asks respondents to report their methods used 'to teach children the right behaviour or to address a behaviour problem in the past month'. Across the 60 LMICs in this study, verbal reasoning was most commonly reported by respondents (80%). However, psychological aggression (eg, shouting, 66%) and physical aggression (eg, spanking, 43%) were also commonly used by caregivers against children under 5 years old. The frequency of parental aggression against children stands in contrast to the United Nations Convention on the Rights of the Child, which has called for eliminating all forms of violence against children.<sup>17</sup> Overall, the results of this study provide the strongest evidence to date to

support international efforts to protect children from all forms of caregiver aggression, including behaviours such as shouting, spanking and calling names.

Consistent with the first hypothesis that parental aggression would be associated with higher child aggression and distraction, and with prior studies showing that parent-to-child aggression is disadvantageous for children's development,<sup>10</sup> parental use of psychological aggression (ie, shouting; calling names) and physical aggression (ie, shaking; hitting on the face, head or ears; hitting on the arm or leg) towards the child were associated with greater child aggression and distraction across countries. Beating the child was not credibly associated with child outcomes, perhaps due to the low prevalence of this behaviour in this sample and resultant issues of statistical power. Spanking and hitting the child with an object were also associated with child aggression, but not distraction. Psychological aggression (ie, calling names) had the strongest association with child aggression and distraction. This result parallels research that suggests psychological aggression can be just as harmful to children as physical aggression<sup>43</sup> and points to the necessity for parenting programmes, researchers and advocates to advise caregivers against using forms of psychological aggression such as name calling.

The second hypothesis was partially supported: some non-aggressive discipline behaviours were associated with children's positive socioemotional development, whereas others were not. Verbal reasoning was consistently associated with more advantageous developmental outcomes (ie, lower aggression and higher prosocial peer relations); however, taking away privileges was associated with poorer developmental outcomes (ie, lower prosocial peer relations). Encouragingly, verbal reasoning—the only beneficial disciplinary procedure—was the most commonly employed disciplinary behaviour in this sample. Giving the child something else to do was associated with higher child distraction, but was not associated with child aggression or prosocial peer relations. These results suggest that verbal reasoning is the most effective parenting behaviour—that is measured within the MICS data—to promote child socioemotional development in LMICs. The Better Parenting Programme, which has been tested in LMICs, has been shown to increase the use of verbal reasoning among parents and caregivers.<sup>44</sup> Giving the child something else to do appears to be a neutral parenting behaviour that distracts children from their current behaviour, but neither promotes nor hinders child socioemotional development.

Although taking away privileges is an alternative to aggressive parenting behaviours, it was associated with higher child distraction and poorer prosocial peer relations.<sup>24</sup> Possibly, the use of taking away privileges towards children under the age of 5 may involve power assertion strategies that are similar to those used during incidents of parent-to-child aggression.<sup>2</sup> This means that paediatricians and healthcare workers in LMICs may need to take caution when recommending taking away privileges

as a discipline strategy; instead, practitioners may need to encourage caregivers to use non-coercive discipline methods. Positive Discipline in Everyday Parenting (PDEP) is a child rights-based parent programme designed to decrease power-assertive strategies that undermine child well-being.<sup>45</sup> PDEP seeks to promote a collaborative relationship between caregivers and children and has shown promising outcomes when implemented internationally.

Supporting the third hypothesis, the relationship between nearly all 11 parenting behaviours and child socioemotional development credibly varied by country. These results are consistent with prior research that shows country-level and cultural-level variation in the associations of aggressive and non-aggressive parenting behaviours with child outcomes.<sup>68 13 25</sup> A key finding of the current study is that, although there was variation in the strength of associations between parental aggression with child outcomes across the 60 LMICs, no form of psychological aggression or physical aggression benefited child socioemotional development at a statistically credible level in any country. From an intervention standpoint, cross-cultural efforts to reduce caregiver use of aggressive behaviours is merited. Programmes such as the Parenting for Lifelong Health, which is supported by the WHO, may help reduce aggressive parenting against children in low-resource settings such as those examined in our study.<sup>46</sup> Paralleling the recommendations of the AAP,<sup>19</sup> paediatricians and other healthcare workers in LMICs should strongly discourage parental use of aggression to correct child misbehaviour.

Lastly, we note that across the models, some of the largest ORs were associated with the child being of the male gender. Future research would do well to explore some of the possible explanatory mechanisms for these large gender effects, as well as to explore whether outcomes of parental discipline differ across genders. Future research would also benefit from exploring the factors that explain the differential effects of parenting across countries that are modelled in the random slopes.

### Limitations

Our results should be interpreted in light of the study's limitations. Because our data were cross-sectional, interpretations are limited to associations. MICS measured child outcomes without specifying a time frame, whereas questions assessing parenting behaviours specified the past month. Furthermore, parenting behaviours and child outcomes may have been reported by the same respondent and may be correlated. The directionality of our associations may be reversed, wherein poor child socioemotional behaviours precede disciplinary action. We do note that research on physical punishment has explored the question of directionality, particularly by using cross-lagged regression models, and has found strong evidence that the use of physical punishment precedes the development of behaviour problems.<sup>47</sup> Additionally, our study only examined households that

included children under 5 years old, and cannot provide insight into associations between parenting behaviours and child outcomes among households with only older children. Nearly all variables used in this study are based on self-report data, which may have been susceptible to social desirability bias, self-presentation bias or other forms of inaccurate reporting such as difficulty recalling parenting behaviours that occurred in the past month.<sup>48</sup> Also, our results may be subject to possible confounding by variables that we could not include in this analysis. Further, the parental discipline variables were dichotomous, which precludes the ability to capture frequency or severity. Relatedly, the child outcome variables were also dichotomous, which means we cannot speak to the level or severity of the child outcomes examined.

## CONCLUSION

Caregiver aggression towards young children is common across countries and cultures. Verbal reasoning was the only parenting behaviour that had credible associations with positive child socioemotional development. Psychological aggression was as harmful to young children's socioemotional development as was physical aggression. These findings point to the need for greater emphasis on promoting the use of verbal reasoning and reducing psychological and physical aggression towards young children internationally.

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## ORCID iDs

Kaitlin Paxton Ward <http://orcid.org/0000-0003-0780-2359>

Andrew Grogan-Kaylor <http://orcid.org/0000-0003-0065-9991>

Garrett T Pace <http://orcid.org/0000-0002-0895-1949>

Shawna Lee <http://orcid.org/0000-0003-0562-2856>

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