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Physical punishment and child outcomes: a narrative review of prospective studies

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Abstract

Physical punishment is increasingly viewed as a form of violence that harms children. This narrative review summarises the findings of 69 prospective longitudinal studies to inform practitioners and policy makers about physical punishment's outcomes. Our review identified seven key themes. First, physical punishment consistently predicts increases in child behaviour problems over time. Second, physical punishment is not associated with positive outcomes over time. Third, physical punishment increases the risk of involvement with child protective services. Fourth, the only evidence of children eliciting physical punishment is for externalising behaviour. Fifth, physical punishment predicts worsening behaviour over time in quasi-experimental studies. Sixth, associations between physical punishment and detrimental child outcomes are robust across child and parent characteristics. Finally, there is some evidence of a dose–response relationship.

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Contributors

AH, RGW, and YK conceived of the study; all authors contributed to its design. AH and AM searched the literature, selected papers for inclusion in the review, and extracted the data. AH, AM, RGW, and ETG interpreted the results and drafted the report. All authors commented on and revised the report and approved the final version.

Declaration of interests

We declare no competing interests.

See Online for appendix

The consistency of these findings indicates that physical punishment is harmful to children and that policy remedies are warranted.

Introduction

The WHO–UNICEF–*Lancet* Commission¹ on children has highlighted social, economic, commercial, and environmental threats to child health and has called for urgent government action to ensure that children grow up in safe and healthy environments. Yet the home environments of most children worldwide are not safe because they include physical punishment. The UN Committee on the Rights of the Child has definitively stated that physical punishment is a form of violence that violates children’s rights to protection, dignity, and physical security.² The UN General Assembly has included the protection of children from all forms of violence as Sustainable Development Goal 16.2.³ Such human rights arguments, along with an aligned body of research indicating that physical punishment is harmful to children,^{4–6} have led to a growing consensus among health professionals that physical punishment of children is detrimental and ineffective,^{7–9} and have led 62 countries to prohibit physical punishment of children in all settings and a further 27 countries to commit to doing so.¹⁰

Most of the world’s children live in countries where physical punishment is allowed by law; as a result, 63% of children aged 2–4 years—250 million children—are regularly subjected to physical punishment by their caregivers.¹¹ The continued prevalence of physical punishment suggests that parents are not receiving, or not believing, the message that it is both ineffective and potentially harmful to their children’s health and development. This lack of knowledge could be because the research to date is summarised in hundreds of specialist research studies or in detailed meta-analyses^{5,12–14} that are not easily accessible to health professionals whom parents consult for advice about discipline.¹⁵ Furthermore, most countries have not prohibited physical punishment in homes or schools, or both. Policy makers might not be aware of the strength of the research evidence against physical punishment or of the likelihood that legislating against physical punishment would prevent harm to children.

The purpose of this narrative review is thus to summarise the past two decades of research on physical punishment in a format that is accessible to policy makers, community leaders, and practitioners. Although psychological punishments such as yelling, humiliating, or shaming children are also prevalent around the world¹¹ and are harmful to children,¹⁶ we focused our review on physical punishment in response to growing interest around the world in legislating against its use.

Three strategic decisions guided our review. First, we began our review with studies published in 2002, the year that the first comprehensive meta-analysis of research into physical punishment was published.¹² Second, we included only studies that examined physical punishment specifically and excluded studies of severe assaults against children. Third, we restricted our review to longitudinal studies that followed up children prospectively and took initial levels of the outcome into account, thereby meeting the

minimum criterion for causality that physical punishment must precede the measured outcome in time and addressing concerns regarding the possibility of reverse causality.¹⁷

Findings

The database searches identified 3855 unduplicated records, of which 2198 were excluded after initial title screening. An additional five studies were identified through Web of Science search alerts and expert communication. After two independent reviewers assessed 1303 abstracts and 359 full texts, they identified 68 articles describing 69 studies (one article reported on two samples) that met the inclusion criteria. These were retained for review (figure).

The field is heavily dominated by research from the USA (60 articles), including a large number of studies that used the same datasets—eg, 23 studies used the Fragile Families and Child Wellbeing Study (FFCWS), and eight used the National Longitudinal Survey of Youth (NLSY). The remaining eight studies came from Canada, China, Colombia, Greece, Japan, Switzerland, Turkey, and the UK. No non-English studies met the inclusion criteria. Characteristics of included studies are provided in the appendix pp 2–11.

We describe outcome measures using the terminology adopted by authors of the original research. We grouped studies into nine broad categories: externalising behaviours (behavioural difficulties that manifest outwardly and refer to acts towards the external environment that violate social norms or are harmful to others, or both),^{18,19} internalising behaviours (behaviours that are directed inwards, including symptoms of anxiety and depression, withdrawal, fearfulness, and somatic complaints),^{18,19} total behaviour difficulties (composite measures of both externalising and internalising), prosocial behaviours, inattention or symptoms of attention-deficit hyperactivity disorder (ADHD), cognitive abilities, interpersonal relationships, stress reactivity, and involvement with child protective services (CPS).

The table presents an overview of the included studies. Many studies examined more than one outcome, such that 98 effect sizes were presented across the studies. Additionally, some outcomes were examined multiple times with the same dataset; to ensure the independence of the findings within each outcome category, each dataset was counted only once per outcome. When multiple studies from the same dataset had discrepant findings, the majority finding was coded. For example, of the three studies that used data from the FFCWS to examine cognitive abilities, one found a detrimental effect and two found no significant association; the FFCWS was counted only once in the table in the row for cognitive abilities as having no association. With each independent dataset counted once only per outcome, the total number of effect sizes was 64.

Physical punishment was significantly ($p < 0.05$) associated with worse outcomes over time in 38 independent samples (59%). No significant associations were found in 15 independent samples (23%). None of the studies reported main effects of beneficial child outcomes associated with physical punishment. Mixed findings across studies using the same dataset were found for 11 independent samples (17%); however, it is important to note that

associations between physical punishment and beneficial outcomes were not found as main effects for any study and were only found in four subgroups across all of the studies examined (appendix p 2).

Externalising behaviours

Externalising behaviours were by far the most studied outcomes. 38 of 55 (69%) studies used advanced statistical methods, including structural equation models, fixed effects models, growth curve models, and propensity score matching. Almost all adjusted for a wide range of covariates. Some studies examined the broad category of externalising behaviours whereas others examined subcategories, such as aggression.

Externalising behaviour, typically measured with standardised questionnaires such as the Achenbach Child Behavior Checklist,³⁴ was the outcome in 27 studies from 19 independent samples with follow-up periods of up to 12 years. These included five studies using FFCWS data,^{35–39} two using the US Early Childhood Longitudinal Study–Kindergarten Class of 1998–1999 (ECLS-K),^{40,41} and three using data from the US Child Development Project.^{42–44} Apart from one Chinese,²⁰ one Greek,²² and one Turkish⁴⁵ study, all research into externalising behaviour was from the USA.

In 13 of the 19 independent samples, physical punishment was associated with increases in externalising behaviour over time.^{27,35–43,45–53} In three independent samples, no associations were identified.^{44,54–56} Mixed findings were reported in another three independent samples.^{20–22}

Children's aggressive behaviour was assessed in 20 studies and six independent samples. Most were undertaken in early childhood. In five of the six samples, physical punishment predicted increases in aggressive behaviour over time. 15 studies used FFCWS data with consistent findings of detrimental effects of physical punishment across different analytical methods and age groups.^{57–71} Associations with increases in aggressive behaviours were observed in four of the remaining five independent samples, including in Canada,⁷² Switzerland,⁷³ and the USA.^{30,74} Only one study found no association between physical punishment and aggressive behaviour.⁷⁵

Antisocial behaviour and conduct problems were assessed in eight studies from five independent samples. Follow-up periods ranged from 2 to 12 years. Four studies analysed NLSY data, with conflicting results: physical punishment predicted increases in antisocial behaviour in two studies,^{23,24} whereas the other two studies found no associations.^{25,26} The remaining four studies on independent samples found associations between physical punishment and increases in antisocial behaviour,⁷⁶ conduct problems,^{72,77} and oppositional defiant disorder symptoms.⁷⁸

Internalising behaviours

Internalising behaviour was the outcome in 15 studies from ten independent samples. Apart from one study that measured depressive symptoms,⁷⁷ all studies reported on an overall measure of internalising behaviour symptoms. Six studies analysed data from the FFCWS.^{38,39,59,64,66,67} Most studies were undertaken in early childhood, although some

followed up children into early adolescence. Overall, the findings were mixed. Physical punishment predicted increases in internalising behaviour over time in five of the ten independent samples, including all six studies using FFCWS data.^{38,39,52,53,59,64,66,67,76,77} Three independent studies found no associations.^{47,54,55} One study reported mixed findings from subgroup analyses,²² and another reported beneficial associations from age 3 years to 5 years but detrimental associations for physical punishment at age 5 years predicting internalising outcomes in middle childhood (age 9 years).²⁷

Total behaviour problems

Six studies from five independent samples examined total behaviour problems, a combination of internalising and externalising behaviours.^{28,29,31,79–81} All were undertaken with young children, with a baseline age of 2–4 years and follow-up periods of 2–6 years. Physical punishment was related to increased behaviour problems over time in four independent samples.^{31,79,80,81} The fifth sample was the NLSY; of the two studies using this dataset, one found that physical punishment predicted increased behaviour problems over time²⁸ and the other reported mixed findings.²⁹

Prosocial behaviour or social competence

None of the five included studies on prosocial behaviour or social competence found any evidence that physical punishment affected these outcomes.^{30,53,55,57,72}

Inattention and ADHD

Physical punishment was unrelated to later inattention in a sample from the US Head Start Impact study.³⁰ However, data from the ECLS-K suggested that physical punishment at 5 years of age increased the risk of both moderate and severe symptoms of ADHD and the risk of severe symptoms of ADHD-conduct disorder 8 years later.⁸²

Cognitive abilities

Cognitive abilities were assessed in eight studies using data from six independent samples.^{30–32,36,37,67,83,84} Outcomes included children's vocabulary, literacy, reading and mathematics skills, school readiness, school engagement, and approaches to learning. Findings were highly heterogeneous. Two independent studies showed that physical punishment was associated with poorer cognitive abilities in early childhood.^{83,84} Of three analyses of FFCWS data that used the same vocabulary test but at different ages and with different follow-up periods, only one found an association between physical punishment and lower vocabulary scores,³⁶ whereas the other two studies did not.^{37,67} Three studies reported mixed results with detrimental effects for some but not all cognitive outcomes.^{30–32} One study reported associations with better cognitive performance but weaker school engagement in middle childhood and adolescence.³²

Interpersonal relationships

Cross-lagged path models showed reciprocal associations between physical punishment and the parent–child relationship: physical punishment at 36 months was associated with lower

quality of observed parent–child interaction 1.5 years later, and better interaction quality at 36 months was associated with less physical punishment over time.⁵¹

Peer isolation among young children (such as having nobody to talk to at school) was assessed in a study using the National Survey of Child and Adolescent Well-Being and was unrelated to physical punishment.³²

Data from an evaluation of a US dating violence prevention programme found mixed results, with no overall associations between child-reported physical punishment at age 14 years and self-reported initiation of dating violence assessed 7 and 19 months later for the subsample of single mothers. However, the study found a detrimental association for physical punishment by married mothers and a non-significant association between physical punishment by married fathers and dating violence.³³

Stress reactivity

One small US study measured physical punishment at 1 year of age and children’s cortisol production during a laboratory visit between ages 1 and 2 years, after exposure to a stressful situation (introducing a stranger and separating the child from the mother).⁸⁵ A higher frequency of physical punishment at 1 year of age predicted increased cortisol levels post separation after controlling for baseline cortisol, indicating a heightened stress response.⁸⁵

Involvement with CPS

When a family reports that they are involved with CPS, such involvement is typically an indication of suspected child maltreatment. Three US studies assessed associations between physical punishment in early childhood and subsequent involvement with CPS for suspected child abuse or neglect. We did not require that a study controlled for previous maltreatment or involvement with CPS because we would not expect reciprocal associations between physical punishment and CPS involvement. Additionally, we felt that any future maltreatment was of concern, regardless of whether it had happened in the past. In fact, one of the studies did control for previous CPS involvement,⁸⁶ whereas two studies using data from the FFCWS did not.^{87,88} In both samples, physical punishment increased the risk of subsequent CPS involvement^{87,88} and of CPS-reported neglect after controlling for previous CPS involvement.⁸⁶

Thematic overview

We identified seven themes from our review of the longitudinal research into physical punishment and change in children’s outcomes over time.

Theme 1: physical punishment consistently predicts child behaviour problems over time

Physical punishment is commonly believed to be an effective method to improve child behaviour. However, the overwhelming conclusion from the studies that we examined is that physical punishment predicts an increase in behaviour problems over time. This finding is consistent with three meta-analyses that have found parents’ use of physical punishment to be associated with increased child behaviour problems, including aggression.^{5,12,14}

Therefore, physical punishment is ineffective in achieving parents' goal of improving child behaviour and instead appears to have the opposite effect of increasing unwanted behaviours.

Theme 2: physical punishment is not associated with positive outcomes over time

Few studies of outcomes other than behaviour problems met our strict criteria in that they examined potential outcomes of physical punishment prospectively while accounting for initial levels of the child outcome. The results were largely mixed between findings of detriments and findings of no association; across these studies, there was no evidence of associations with positive outcomes related to children's attention,^{30,82} cognitive abilities,^{30–32,36,37,67,83,84} relationships with others,^{32,33,51} or stress reactivity.⁸⁵ Physical punishment also does not predict improvements in children's prosocial behavior or social competence over time.^{30,53,55,57,72}

Theme 3: physical punishment increases the risk of child maltreatment

Three studies from two independent datasets, one of which took into account previous involvement with CPS,^{86–88} found that parents who used physical punishment were at heightened risk of perpetrating maltreatment that would trigger CPS involvement. This finding is consistent with previous meta-analyses that have found physical punishment to be significantly associated with higher risk of maltreatment,^{5,12} and with the finding from a study of Canadian CPS records, not included in our narrative review, that 75% of cases of substantiated incidents of physical abuse occur in the context of punishment.⁸⁹ Taken together, these findings indicate that physical punishment is linked with an increased risk of maltreatment. They also call into question the arbitrary distinction between acceptable and non-acceptable violence towards children.

Theme 4: the only evidence of children's behaviour eliciting physical punishment is for externalising behaviour

A criticism of past research into physical punishment is that cross-sectional studies cannot determine whether physical punishment causes behaviour problems, in part because observed correlations could reflect reverse causality—namely, children's behaviour problems eliciting physical punishment. We addressed this concern by including in our review only prospective longitudinal studies that included initial levels of a child's behaviour; doing so allows us to be certain that we are examining whether physical punishment predicts a change in children's behaviour over and above their initial behaviour.

In addition, 15 studies in our review used a cross-lagged panel design, which simultaneously models both the longitudinal association between physical punishment and child behaviour as well as the association between initial child behaviour and parents' use of physical punishment at a subsequent wave. In the six studies with independent samples,^{27,40,45,46,51,77} and the nine studies using data from the FFCWS,^{35,57,59,60,62,63,67,70,71} physical punishment consistently predicted worsening externalising behaviour problems over time, even after accounting for the tendency of externalising behaviour to elicit physical punishment.

In contrast, studies that used cross-lagged models to examine associations between physical punishment and internalising behaviour found no evidence that internalising elicited more physical punishment over time.^{59,67} Similarly, no reciprocal effects were found for children's social competence⁵⁷ or for children's vocabulary scores.⁶⁷ The lack of evidence of a child elicitation effect for these outcomes indicates there is little evidence of potential reverse causation for outcomes other than externalising behaviour problems.

Theme 5: physical punishment is linked with worsening behaviour over time in studies using quasi-experimental methods

The primary criticism of empirical studies of physical punishment is that they are largely non-experimental, given that random assignment of children to a physical punishment condition would be unethical, and thus cannot rule out other potential explanatory factors.⁴¹ However, several of the studies in our review used methodological designs that help to rule out other potential explanations and thereby increase our confidence that the findings are consistent with a causal conclusion.

Three studies created quasi-experimental comparisons through propensity score matching (PSM), which matches children on a range of individual and family background characteristics so that the only observed difference between them is whether they experienced physical punishment. Using PSM with data from the US ECLS-K study (12 112 families), one study found that children who were physically punished increased their externalising behaviour from age 5–8 years significantly more than did those who had not been physically punished.⁴¹ A second study from Japan (29 182 families) used PSM to determine that children who were physically punished exhibited more behaviour problems over time than did their peers who were not.⁸⁰ The third study, based in Colombia (1167 families), found that young children who were physically punished gained fewer cognitive skills than did those who were not physically punished.⁸³ The fact that these studies using rigorous statistical methods with large samples from three different countries all found that physical punishment predicted poorer outcomes over time lends considerable credence to the conclusion that physical punishment is harmful to children's development.

A second method of ruling out alternative explanations is fixed effects regression, which uses difference scores for both predictor and outcome to control for time invariant unobserved characteristics that could account for associations between physical punishment and child outcomes. Two studies in our review used this method. One used data from the NLSY to find that increases in physical punishment predicted increases in children's externalising behaviours.⁴⁷ The other used fixed effects regressions with data from the FFCWS and found that physical punishment predicted increases in child aggressive behaviour.⁶⁵

Finally, two studies in our review used data from randomised controlled trials of interventions that reduced physical punishment; although the physical punishment was not randomly assigned, the experimentally induced reductions in physical punishment predicted improvements in children's problem behaviours over time.^{30,48}

Theme 6: the associations of physical punishment with increases in detrimental child outcomes are robust across child and parent characteristics

Many of the studies in our review considered whether the associations between physical punishment and child outcomes might vary by characteristics of the child or parent. We highlight the findings for the most commonly considered modifiers: sex of the child, race or ethnicity, and parenting style.

With regard to the sex of the child, studies with four independent samples in the USA found no modification of the link between physical punishment and increased behaviour problems.^{35,37,42,74} Two US studies found a stronger association with problem behaviours for boys than girls,^{24,69} whereas a Chinese study reported an association with externalising behaviours for girls but not boys.²⁰ A study in Canada found no modification by child sex for the outcome of child aggression or conduct problems, but did find that physical punishment was linked with improved prosocial behaviour, but only for girls.⁷² In a national study in Greece, physical punishment predicted more externalising behaviours for boys but fewer externalising or internalising behaviours for girls.²² Most of these studies thus found physical punishment to be linked with increased problem behaviour for both boys and girls, with differences only in the strength of the association.

Previous research has argued that the effects of physical punishment might vary on the basis of the acceptance of physical punishment by the family's culture, an argument referred to as cultural normativeness theory.⁹⁰ Several of the studies we reviewed accordingly tested for effect modification by a family's race or ethnicity. However, no modification of the link to increased externalising behaviour was found in the ECLSK,^{40,82} the FFCWS,^{35,70} or five other independent samples.^{27,42,52,56,77} Findings with the NLSY for child behaviour problems were mixed, with some finding modification by race or ethnicity^{26,29} but others finding no modification.^{23,24,28}

Another study with data from the NLSY found no modification by race or ethnicity for achievement in mathematics or reading ability.⁸⁴ Three studies did find modification, but not in the direction predicted by cultural normativeness theory.^{27,33,50} Overall, these US-based studies provided no support for the notion that the associations of physical punishment with child outcomes are modified by the race or ethnicity of the child.

Some have argued that any negative effects of physical punishment are buffered when parents have an overall positive parenting style. One study using data from the NLSY did find evidence of a buffering effect of responsiveness for the link between physical punishment and behaviour problems,²⁸ but another study that used data from NLSY found neither responsiveness nor cognitive stimulation buffered the links between physical punishment and worse achievement in reading ability and mathematics.⁸⁴ Three other studies found that parental warmth did not buffer the effect of physical punishment on an increase in behaviour problems.^{60,74,77} There is thus little evidence that parenting style modifies the associations between physical punishment and detrimental child outcomes.

Theme 7: physical punishment shows a dose–response relationship with some child outcomes

Seven studies measured the relationship between frequency of physical punishment and level of the outcome variable. Five of these studies found evidence of a dose–response effect—ie, the magnitude of the effect varied with the frequency of the punishment. Three studies using data from the FFCWS found that the association with child aggression became stronger as the frequency of physical punishment increased.^{37,61,64} Two studies used data from the NLSY, one of which did not find a dose–response effect for antisocial behaviour (both one instance and two or more instances of physical punishment predicted antisocial behaviour).²³ The other study found that the association with lower achievement in mathematics and reading ability became stronger as the frequency of physical punishment increased.⁸⁴ Such findings of dose–response associations between physical punishment and increases in detrimental child outcomes over time are indicative of a causal relationship as per Hill’s criteria for establishing causality.^{17,91}

Limitations

The purpose of this narrative review was to summarise and interpret the extant research on physical punishment from prospective studies. Because it is not a meta-analysis or systematic review, this narrative review does not take into account the number of participants in a study or the magnitude of effect sizes. The vast majority of studies that met our selection criteria were undertaken in the USA; only eight studies were from other countries (one each from Canada,⁷² China,²⁰ Colombia,⁸³ Greece,²² Japan,⁸⁰ Switzerland,⁷³ Turkey,⁴⁵ and the UK⁸¹). More research is needed in countries outside the USA, and in low-income and middle-income countries in particular.

Implications for policy

The evidence is consistent and robust: physical punishment does not predict improvements in child behaviour and instead predicts deterioration in child behaviour and increased risk for maltreatment. There is thus no empirical reason for parents to continue to use physical punishment. Moreover, the UN Committee on the Rights of the Child has explicitly stated that physical punishment is a violation of a child’s right to protection and should be prohibited.²

So far, 62 of the world’s countries have prohibited all physical punishment of children, thereby ensuring that their laws protect children and adults equally. These prohibitions are found throughout the world: ten in Africa, ten in Central and South America, six in Asia-Pacific, 35 in Europe, and one in the Middle East.¹⁰ They are found across the world’s cultures, faiths, levels of economic development, political leanings, and legal systems. Two constituent countries of the UK, Scotland and Wales, also passed laws prohibiting all physical punishment of children in 2019 and 2020, respectively.

Evidence is growing that such laws are associated with rapid and dramatic changes in parents’ attitudes and behaviour, reducing both approval and prevalence of physical punishment of children.⁹² Sweden, which prohibited all physical punishment of children

in 1979, provides an example of how a prohibition can lead to steady declines in physical punishment over time. In a study of three cohorts of young to middle-aged adults, the proportion of participants who reported being slapped during childhood decreased from 83% in 1958, to 51% in 1981, and then to 27% in 2011—a two-thirds reduction over 53 years.⁹³ Although public education can help to increase knowledge and shift attitudes, these efforts are slowed and undermined when the law contradicts them. A study of five European countries found that the greatest changes in attitudes about and use of physical punishment occur when public education and law are consistent.^{94,95}

There is no evidence that laws giving children full protection create an influx of caregivers into the justice system. 5 years of police monitoring following the implementation of New Zealand's prohibition found that prosecution was limited to severe acts (eg, kicking, holding by the neck, causing injuries) and none led to prison sentences. After passage of the legal prohibition on physical punishment, police worked more closely with the child protection authority, diverting cases from the justice system to agencies that could respond supportively.⁹⁶ Indeed, in almost all countries with prohibitions, these laws serve an educational rather than punitive function, aiming to increase awareness, shift attitudes, and clarify the responsibilities of parents in their caregiving role.⁹²

In addition to national legal bans, communities and institutions can assist in preventing and reducing physical punishment. One example is No Hit Zones, which have been successfully introduced in many locations in the USA, particularly hospitals. No Hit Zones prohibit the hitting of children in those settings and are effective in increasing both hospital staff's willingness to intervene in situations of parent-child hitting and parents' acceptance of staff advice to avoid physical punishment.⁹⁷ No Hit Zones are low-cost interventions that can be instituted widely across communities and in a variety of settings (eg, schools, libraries, supermarkets). A second strategy is for governments, stakeholders, and practitioners to prioritise educational campaigns and interventions that teach parents and caregivers disciplinary strategies that focus on enhancing children's understanding rather than enforcing their compliance, and that are based on children's rights to protection and dignity.^{98–100}

Conclusions

Our review of prospective longitudinal studies has shown that physical punishment is linked with increases in negative child outcomes. Many of these studies used statistical methods to minimise potential confounding and selection bias. The review has documented compelling evidence that physical punishment is harmful to children's development and wellbeing and has shown no evidence that it is beneficial for children. Given the high prevalence of physical punishment around the world, there is no time to waste—all countries should heed the UN's call to uphold children's human rights and promote their wellbeing by prohibiting physical punishment in all forms and all settings.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Search strategy and selection criteria

We undertook a literature search of MEDLINE, PsycINFO, and Web of Science in June, 2020, and updated the search in October, 2020. The search terms were “physical discipline”, “physical punishment”, “corporal punishment”, “physical chastisement”, “smack”, “spank”, and “slap”. The search syntax for each database can be found in the appendix p 1.

We searched for articles published from January, 2002, onwards, and did not restrict by language or country. We also identified articles from reference lists of earlier reviews and through expert authors. Included studies were peer reviewed; assessed one or more outcomes measured in childhood (up to age 18 years); measured physical punishment by a parent or parental figure (ie, not a teacher); included only parent behaviours that fit our operationalisation of physical punishment; and reported empirical findings from quantitative, prospective designs that adjusted for initial levels of the outcome(s) under study.

We excluded studies that examined severe forms of physical punishment, such as: hitting a child with an object; hitting or slapping on the face, head, or ears; throwing an object at a child; beating; hitting with a fist; punching; kicking; washing a child’s mouth out with soap; throwing down; choking; burning; scalding; and threatening with a knife or gun. We also excluded studies that did not distinguish between physical and verbal forms of punishment. When necessary, study authors were contacted for details to ensure that inclusion criteria were met.

After initial database searches and removal of duplicate articles, all records were divided between two reviewers (AH and AM), who did an initial title screen to exclude irrelevant records that did not relate to physical punishment of children by a parent. Remaining articles were subject to abstract and full-text screening through blind review by AH and AM. Studies were included if both reviewers agreed that inclusion criteria were met. In case of disagreement, consensus was reached through discussion and, when required, a third reviewer (ETG).

For the included studies, data on key study characteristics and findings were extracted (appendix pp 2–11). We then summarised these characteristics and findings for each outcome category and analysed patterns to identify key themes. Given that some studies used the same datasets, we report findings for independent samples or datasets rather than individual studies.

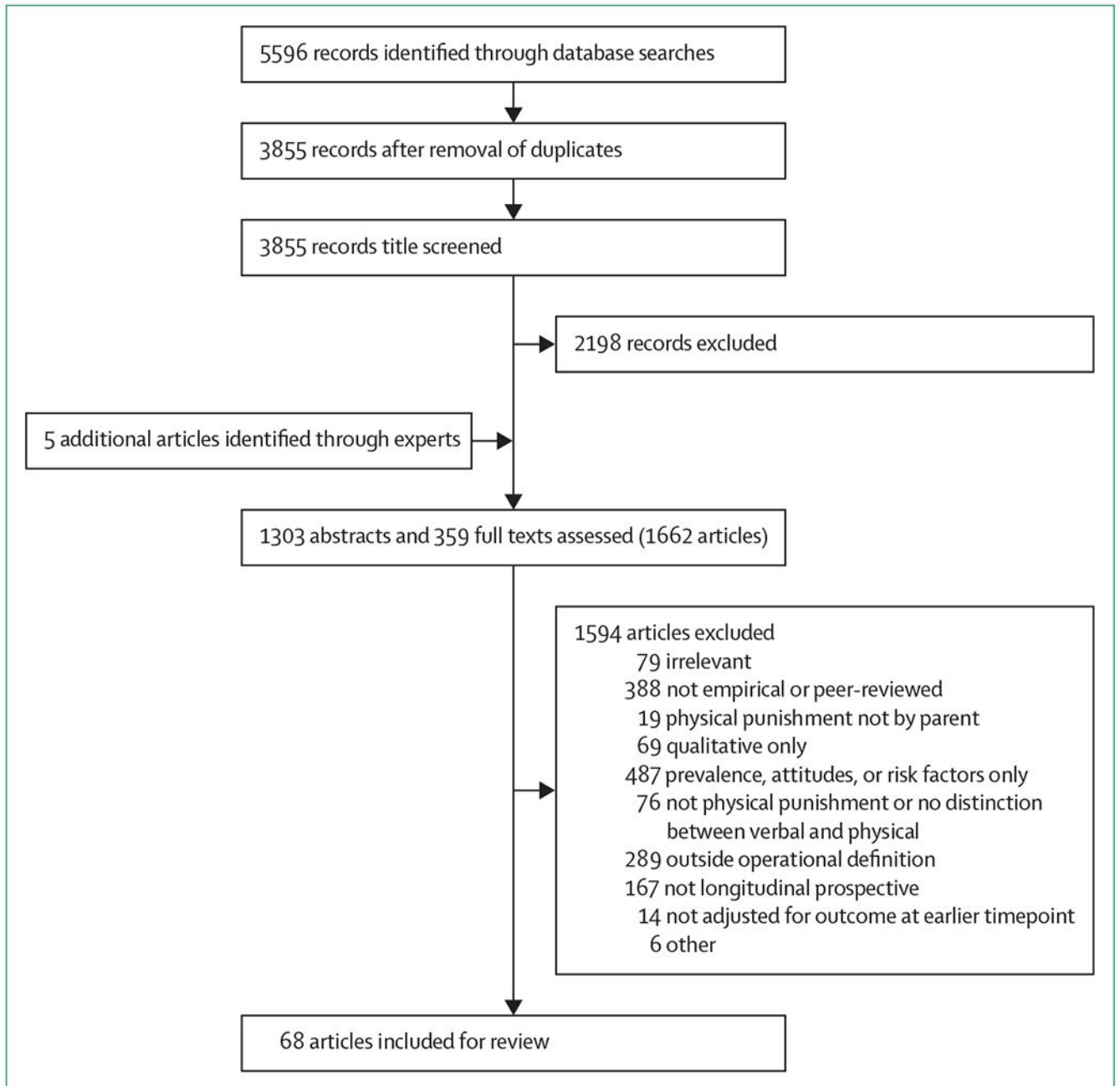


Figure:
Study selection

Overview of included studies, by child outcome

Table:

	Studies examining outcome (n)	Independent samples examining outcome (n)	Among the independent samples			Mixed findings*
			Detrimental outcomes	Beneficial outcomes	No significant associations	
Externalising behaviours						
Externalising behaviour	27	19	13	0	3	3 (Det/NS) ^{20,21} , (Det/Ben) ²²
Aggressive behaviour	20	6	5	0	1	0
Antisocial behaviour or conduct problems	8	5	4	0	0	1 (Det) ^{23,24} (NS) ^{25,26}
Internalising behaviours	15	10	5	0	3	2 (Ben/NS) ²² , (Det/Ben) ²⁷
Total behaviour problems (externalising and internalising)	6	5	4	0	0	1 (Det) ²⁸ , (Det/NS/NS) ²⁹
Prosocial behaviour or social competence	5	5	0	0	5	0
Inattention or ADHD symptoms	2	2	1	0	1	0
Cognitive abilities	8	6	2	0	1	3 (Det/NS/NS) ^{30,31} , (Det/Ben) ³²
Interpersonal relationships	3	3	1	0	1	1 (Det/NS/NS) ³³
Stress reactivity	1	1	1	0	0	0
Involvement with CPS [‡]	3	2	2	0	0	0
Total	98	64	38	0	15	11

Det=detrimental. Ben=beneficial. NS=not significant. ADHD=attention-deficit hyperactivity disorder. CPS=child protective services.

* Differential findings across measures or subgroups within the same study or across studies within the same dataset.

[‡] Only one of the independent samples examining child abuse or neglect controlled for previous maltreatment.