When the Rod Spoils the Child: A Systematic Review of Corporal Punishment in Schools Globally

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Abstract

Despite a global shift towards the prevention of school corporal punishment, the practice remains prevalent in regions worldwide. This study aims to systematically review research on school corporal punishment, focusing on: (a) prevalence, (b) consequences, (c) risk and protective factors, and (d) interventions. Studies included in this review were: peer-reviewed; published in English between 1980 and July 2017; quantitative in design; and specified school corporal punishment as a measured outcome. 671 articles were initially identified and, following screening and methodological assessment, 53 articles were found suitable for inclusion. These were predominantly cross-sectional surveys of moderate quality conducted in the United States (US) and on the African continent, although studies were found in over 15 countries globally. Results indicated that school corporal punishment is highly prevalent in several regions and is associated with negative physical, academic, mental health, and behavioural outcomes for children. A considerable number of studies identified risk and protective factors ranging across the individual, home, school, and socio-cultural levels. Despite these findings, only two intervention studies targeting school corporal punishment were identified. Whilst most articles tended to emerge from regions where school corporal punishment remains legal, results indicated that legal bans do not necessarily prevent it. This reiterates the need for studies to be conducted globally, particularly with regards to school-specific consequences. Future research must focus on developing effective multi-level school corporal punishment interventions that could potentially be incorporated into existing school violence interventions.

Keywords: systematic review; school corporal punishment; school violence; physical punishment; childhood development

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Corporal punishment in schools is a form of institutionalised violence against children that remains not only prevalent, but also legally permitted in many countries worldwide (Gershoff, 2017; UNESCO, 2017). Although parental use of corporal punishment has dominated debate surrounding the practice, more than half of the global child population resides in countries where school corporal punishment is legal (UNESCO, 2017). Even within countries where school corporal punishment is outlawed, its continued use is not uncommon (Devries et al., 2014; Devries et al., 2015; Font & Gershoff, 2017; Gershoff, 2017; Owen, 2005). The continued use of school corporal punishment is of serious concern, as, in line with other forms of child maltreatment, it can result in physical, psychosocial, academic, and behavioural consequences that may be enduring (Csorba et al., 2001; Devries et al., 2014; Han, 2014; Raikhy & Kaur, 2009; Shamu et al., 2016). However, there are very few interventions that address school corporal punishment directly, and many broader school violence interventions that may be effective in reducing school corporal punishment do not specify it as a measured outcome (Baker-Henningham, Walker, Powell, & Gardner, 2009b; Gershoff, 2017; Mweru, 2010; UNESCO, 2017). Given the high prevalence and associated consequences of school corporal punishment, it is necessary to determine what is known about corporal punishment in schools, as well as what is not, in order to begin addressing its concerning prevalence.

Literature Review

Conceptualising School Corporal Punishment

Corporal punishment is defined by the United Nations Committee on the Rights of the Child (UN CRC) as any "any punishment in which physical force is used and intended to cause some degree of pain or discomfort, however light" (2006, p. 4). School corporal punishment is administered in the context of the school environment by educational staff, such as teachers and principals (Ogando Portela & Pells, 2015). Although it is often implemented on the premise that it is a necessary and effective form of classroom discipline, it is also some times regarded as a form of institutionalised violence against children (Gershoff, 2017). School corporal punishment is operationalised differently across various studies, often in terms of severity and method of implementation (for example, whether the school corporal punishment is administered using an implement such as a cane). Whilst the US studies identified in this review generally operationalised school corporal punishment in terms of spanking (also referred to as paddling, smacking, or hitting; and typically regarded as

a ‘milder’ form of physical punishment), many studies in this systematic review included what may be deemed harsh or even abusive physical discipline, such as burning or severe beating. Notably, whilst severity levels are useful and necessary for accurately encompassing children’s experiences of school corporal punishment, researchers must avoid implying that any physical punishment of children may be regarded as normal or acceptable, especially given the links between ‘milder’ forms of physical punishment and negative outcomes found in recent home corporal punishment literature (Gershoff & Grogan-Kaylor, 2016).

Prevalence

Available data seems to suggest that school physical violence, including corporal punishment, poses a considerable challenge in low-, middle-, and high-income contexts (Gershoff, 2017; UNESCO, 2017). There is evidence that the practice persists not only in regions where it remains legal, but also where it is banned (Gershoff, 2017). For example, although school corporal punishment is outlawed in Uganda, 94% of female and 93% of male primary school students reported lifetime prevalence of school corporal punishment in one study (Devries et al., 2014). This continued use of school corporal punishment despite legal bans is also observed in high-income countries (HIC). For example, although 33 states in the United States of America have outlawed school corporal punishment, 1% of public school children reported corporal punishment in schools nationwide (Gershoff, 2017). Where school corporal punishment is legal, prevalence figures are even higher, with a Tanzanian survey finding that 95% of primary school students had been subjected to corporal punishment at least once in their lives (Hecker, Hermenau, Isele, & Elbert, 2014).

Consequences

Such high rates of corporal punishment in schools are concerning given the multitude of associated consequences. Many countries still report incidences of physical injuries due to corporal punishment in schools (Gershoff, 2017; UNESCO, 2017; Youssef, Attia, & Kamel, 1998). Physical injury, particularly where it results in absenteeism, may have direct implications for academic performance (Greydanus et al., 2003; Ncontsa & Shumba, 2013). More indirectly, fear of physical punishment at school has been linked to reduced self-efficacy, concentration, motivation to engage and enjoyment of schooling, as well as increased dropout rates (Anand, 2014; Breen, Daniels, & Tomlinson, 2015; Burton, 2008; Gershoff, 2017; Han, 2014; Youssef et al., 1998). This has been shown to negatively affect students’ academic adjustment, participation, achievement, and ambition (Anand, 2014; Breen et al., 2015; Burton, 2008; Gershoff, 2017; Han, 2014; Mweru, 2010; Ncontsa & Shumba, 2013; UNESCO, 2017; Youssef et al., 1998).

Identified mental health consequences of school corporal punishment, such as increased guilt and humiliation, diminished self-esteem and empathy, and depressive, anxiety, and Post-Traumatic Stress Disorder (PTSD) related symptoms, may also be detrimental for students' psychosocial and academic development (Dupper & Dingus, 2008; Gershoff, 2017; Greydanus et al., 2003; Mweru, 2010; Youssef et al., 1998). Contrary to commonly-held beliefs that corporal punishment is the most efficient and effective form of classroom discipline, research has found that school violence, including corporal punishment, interferes with the culture of teaching and learning – a term that refers to the attitude of educators and pupils towards learning activities (Moyo, Khewu, & Bayaga, 2014; Mweru, 2010; Tafa, 2002; Uzoechina, Oguegbu, Akachukwu, & Nwasor, 2015; Zulu, Urbani, Van Der Merwe, & Van Der Walt, 2004).

School corporal punishment is also associated with poor behavioural outcomes (Anand, 2014; Cheruvalath & Tripathi, 2015; Dupper & Dingus, 2008; Ferguson, 2013; Han, 2014; Hecker et al., 2014; Khoury-Kassabri, Attar-Schwartz, & Zur, 2014; Lamping, 2011; Moyo et al., 2014; Uzoechina et al., 2015). Whilst research suggests that corporal punishment may be effective in establishing immediate compliance in the short-term, instead of improving classroom discipline, it has been shown to exacerbate negative behaviours and ill-discipline (Cheruvalath & Tripathi, 2015; Ferguson, 2013; Hecker et al., 2014; Moyo et al., 2014; Uzoechina et al., 2015). In particular, school corporal punishment has been associated with poor self-control, increased disobedience, dishonesty and disrespect for authority, as well as the development of antisocial behaviours such as verbal and physical aggression (Burton, 2008; Dubanoski, Inaba, & Gerkewicz, 1983; Dupper & Dingus, 2008; Eiermann, Inzano, & Thielbar, 2011; Greydanus et al., 2003;Mweru, 2010; Ncontsa & Shumba, 2013; Rollins, 2012). Notably, school corporal punishment itself may contribute to an overall increase in school violence by depicting physical violence as a legitimate means of conflict resolution (Cheruvalath & Tripathi, 2015; Feinstein & Mwahombela, 2010; Zulu et al., 2004).

Risk and Protective Factors

Given the range and severity of consequences associated with school corporal punishment, research needs to be directed at interventions, and this requires an understanding of the risk and protective factors (Ward, 2015). Bronfenbrenner's (2001) bioecological model provides a comprehensive framework for understanding the reciprocal relationship between developing students and the environmental systems in which they exist (Sigelman & Rider, 2015). At an individual level, child characteristics including school level, age, race, gender, socioeconomic status, and disability have been identified as potential risk factors in certain

contexts (Cheruvalath & Tripathi, 2015; Dubanoski et al., 1983; Dupper & Dingus, 2008; Greydanus et al., 2003; Northington, 2007; Payet & Franchi, 2008). Of particular concern is evidence which suggests that marginalised students are more likely to be victims of school corporal punishment and, specifically, that victimisation appears intersectional, with black male students having the highest risk and white female students the lowest (Gregory, 1995; Han, 2011; McFadden, Marsh, Price, & Hwang, 1992; Shamu et al., 2016).

In relation to home life, research has found that school corporal punishment is associated with parents' use of corporal punishment at home and their support of it in schools (Morrell, 2001; Mweru, 2010). North American research noted that a ban on school corporal punishment challenges teachers' traditional 'in loco parentis' role – a term meaning 'in place of the parent' – which allows parents to delegate full disciplinary authority to educators (Shmueli, 2010). At a school level, increased educator stress, commonly occurring in low- and middle-income contexts due to limited school resources, such as overcrowding, understaffing, and inadequate educator training and support, may increase educators' reliance on corporal punishment (Cheruvalath & Tripathi, 2015; Eiermann et al., 2011; Mweru, 2010; Payet & Franchi, 2008; UNESCO, 2017).

At a socio-cultural level, wider perceived cultural norms regarding school corporal punishment have been identified as a risk factor, especially in countries where legal guidelines on corporal punishment contradict cultural or religious models of discipline (Cheruvalath & Tripathi, 2015; Feinstein & Mwahombela, 2010; Makhasane & Chikoko, 2016; Mweru, 2010; Tafa, 2002). Similarly, legal bans have been argued to have a protective effect only where they codify existing changes in societal norms regarding corporal punishment (Greydanus et al., 2003; Roberts, 2000; Shmueli, 2010; UNESCO, 2017). Research found that some teachers perceive corporal punishment as the norm in African societies, and believe that they have the 'cultural authority' to mete out corporal discipline (Feinstein & Mwahombela, 2010; Makhasane & Chikoko, 2016; Mweru, 2010; Tafa, 2002). Similarly, within conservative regions of the US, legal bans on school corporal contradict broader religious and cultural beliefs (Owen, 2005; Owen & Wagner, 2006).

Addressing School Corporal Punishment

A common trend identified in the literature is the provision of recommendations for a wide range of interventions. Common recommendations include: legally banning corporal punishment in all contexts, effective and accessible reporting, monitoring and referral mechanisms, educator training in student counselling and positive classroom discipline, and finally, school-parent and community collaboration to address enabling beliefs about corporal

punishment and promote awareness regarding its consequences (Breen et al., 2015; Burton, 2008; Burton & Leoschut, 2013; Dubanoski et al., 1983; Eiermann et al., 2011; Gershoff, 2017; Greydanus et al., 2003; Khoury-Kassabri et al., 2014; Mabasa, 2011; Maphosa & Shumba, 2010; Mweru, 2010; Sathiparsad, 2003). Notably though, there are currently only a limited number of interventions available aimed at addressing school corporal punishment.

Learn without Fear, an intervention implemented by Plan International in 2008 across 44 countries globally, employed widespread, collaborative educator training and awareness campaigns, ultimately resulting in a multi-country reduction in teacher use of corporal punishment and improved school violence reporting mechanisms for vulnerable youth (Gershoff, 2017; UNESCO, 2017). ActionAid's *Stop Violence Against Girls*, a five-year intervention implemented in Ghana, Kenya, and Mozambique, adopted a multilevel, collaborative and community approach that combined advocacy and education to address sensitive issues, such as school corporal punishment and its consequences (Gershoff, 2017; UNESCO, 2017). Amongst other intervention effects, students and educators reported decreased levels of various forms of school corporal punishment and perception shifts regarding its utility (Gershoff, 2017). However, the need for positive discipline training for educational staff and parents in order to reduce and prevent corporal punishment was identified (Gershoff, 2017). The Raising Voices' *Good School Toolkit* in Uganda focused on addressing the culture of school violence and reduced school corporal punishment through staff education and training in positive classroom management and implementation coaching (Gershoff, 2017; Mweru, 2010). Finally, the *Incredible Years Teacher Training* programme was effective in increasing educator use of positive classroom discipline methods in low- and high-income contexts such as Jamaica and the United Kingdom (Baker-Henningham et al., 2009b; Webster-Stratton, Reid, & Stoolmiller, 2008).

Rationale and Aims of the Study

Our preliminary literature review suggests that school corporal punishment is prevalent and that its consequences are severe. The development of effective and targeted school corporal punishment interventions, of which only a few appear to exist, requires a thorough and systematic understanding of school corporal punishment. To the best of our knowledge, no such synthesis exists, and, as such, this study chose to conduct a systematic review of the existing literature. A systematic review was selected as this method employs standardised and rigorous processes that minimise bias and produce objective, reliable findings that can inform future research (Higgins & Green, 2011; Hopp & Rittenmeyer, 2015). In this case, such a study design is necessary in order to coherently and consistently

ascertain the state of the research on school corporal punishment, as well as inform future directions for research in order to assist in effectively addressing its continued use.

Based on a review of the literature, the decision was taken to address four key areas in the field, namely:

(1) Prevalence

Given consistent reports that school corporal punishment remains globally pervasive, it is essential to determine the extent to which the practice continues and to examine potential regional differences, in terms of location, income and legal bans, amongst others (UNESCO, 2017; Gershoff, 2017).

(2) Consequences

Although the consequences of home and school corporal punishment may overlap, evidence suggests that school corporal punishment may be associated with unique academic consequences for the child and may have broader implications for the overall learning environment (Devries et al., 2014; Uzoechina et al., 2015; Zulu et al., 2004). As such, studies addressing consequences, particularly with regards to schooling outcomes, must be identified and analysed.

(3) Risk and protective factors

Evidence of associated risk and protective factors is key to informing interventions. There is a need to understand how different factors intersect and impact on the risk, and continued use, of school corporal punishment across various ecological levels within children's lives (Ahmed et al., 2015; Shamu et al., 2016; Youssef et al., 1998).

(4) Interventions

There appears to be a paucity of specific school corporal punishment interventions and, given the seriousness of the practice, this is a notable concern. Despite the existence of few studies on school corporal punishment interventions, it was deemed necessary to systematically assess those identified in order to assist in the future development and implementation of interventions.

Methods

This study builds on the preparatory work of a previous systematic review where the researchers compiled comprehensive databases about violence in schools, including school corporal punishment (Lester, Lawrence, & Ward, 2017). Systematic reviews require stringent adherence to methodological guidelines, including a rigorous and exhaustive search process (Higgins & Green, 2011; Hopp & Rittenmeyer, 2015). As such, we followed the Preferred

Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher, Liberati, Tetzlaff, Altman, & PRISMA Group, 2009; see Figure 1) and used a data extraction document (see Appendix D) throughout the screening and extraction process, in order to ensure the consistency and reproducibility of the search process (Higgins & Green, 2011; Hopp & Rittenmeyer, 2015). Following standard PRISMA procedure, this search process involved four distinct stages: (1) identification; (2) screening; (3) eligibility; (4) included (Moher et al., 2009). These process were completed independently by the research pair to ensure the maintenance of reliability within the review, and reduce the risk of bias and error (Higgins & Green, 2011; Hopp & Rittenmeyer, 2015).

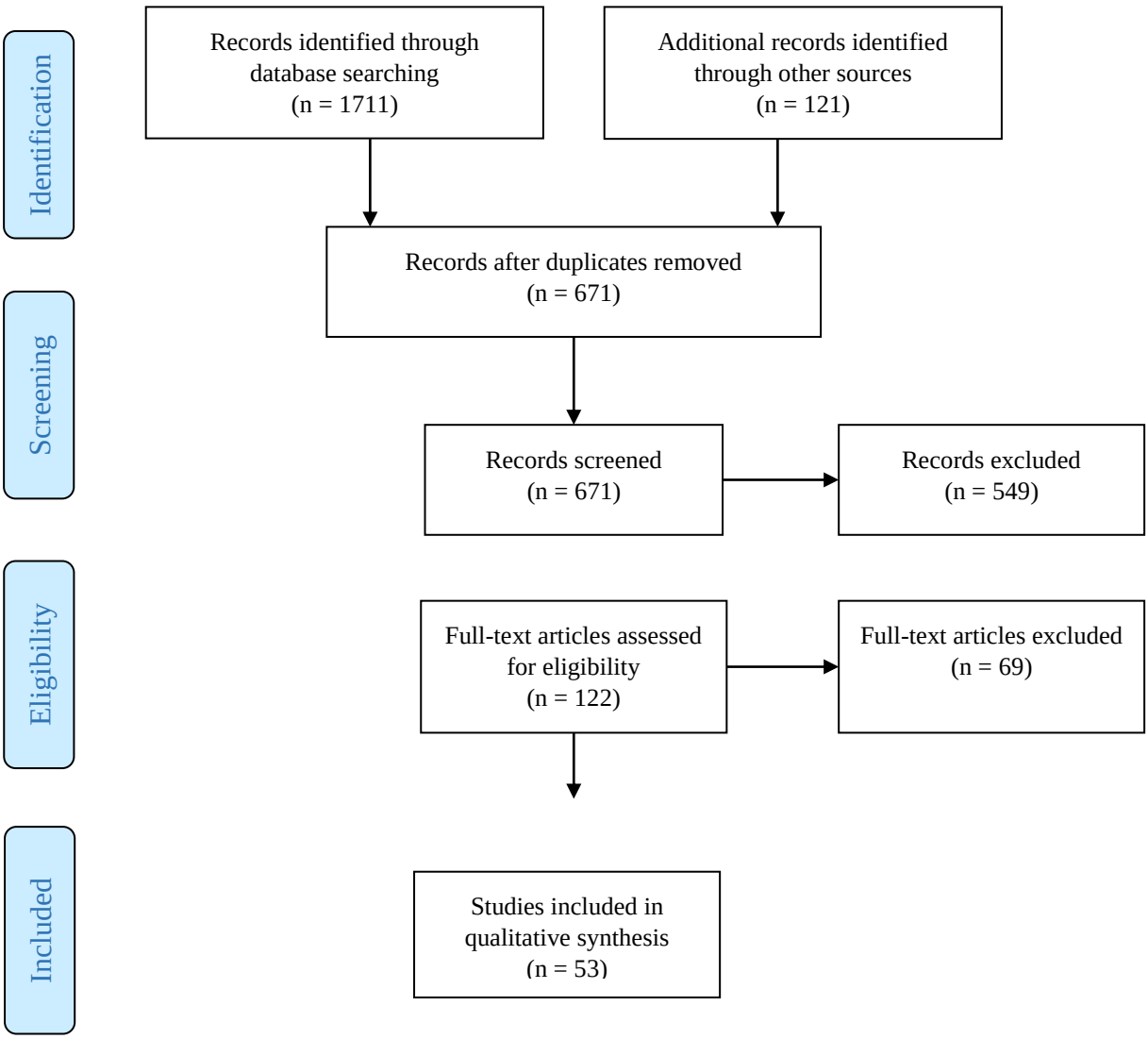

Figure 1. PRISMA diagram adapted from Moher et al. (2009) detailing the number of articles included and excluded at each stage of the search process.

The Lester et al. (2017) EndNote libraries were searched, and their search of online databases and journals (see Appendix A) replicated in order to update their research accordingly. Using the predefined search terms: *school AND corporal punishment*, a total of 1,832 studies was identified, of which 671 studies remained after duplicates were removed. In the screening stage, two researchers (S.H. and C.K.) then assessed the the titles and abstracts of the identified studies for eligibility based on the inclusion criteria, ultimately excluding 549 articles (see Appendix D, Part A). Only studies that were (a) peer-reviewed; (b) published in English between 1980 and July 2017; (c) quantitative in design; and (d) had specified school corporal punishment as a measured outcome for interventions and as a separate measure (such as from home corporal punishment) for all other studies.

The rationale for the above inclusion criteria is as follows. In order to accommodate for the generally limited body of research examining school corporal punishment, it was necessary to employ an expansive publication range to accurately represent the state of the literature on the practice (Gershoff, 2017; Lester et al., 2017). This systematic review considered specifically school corporal punishment studies related to prevalence, consequences, and risk and protective factors, in addition to interventions, for the same reason. Unpublished and non-peer reviewed studies were excluded as including studies of this nature increases the risk of introduction of bias, whether due lowered to methodological rigour or difficulty locating them systematically (Egger, Dickersin, & Smith, 2008; Leibovici & Falagas, 2009). Based on practical considerations, particularly regarding the difficulties surrounding translation, issues surrounding methodological rigour, and the inclusion and systematic appraisal of multiple types of research, non-English and qualitative studies were also excluded (Dixon-Woods et al., 2006; Higgins & Green, 2011; Leibovici & Falagas, 2009; Meline, 2006; Oliver et al., 2005; Petticrew & Roberts, 2012).

Subsequently, in stage three, the full text of the remaining articles (n = 124) were assessed by both researchers in detail for eligibility, in line with the above-mentioned inclusion criteria and by using three pre-existing critical appraisal tools. These included; a modified Downs and Black Checklist (1998) for randomised and non-randomised interventions, and two adapted quality checklists by Greenhalgh, Robert, Bate, Macfarlane, and Kyriakidou (2007) for questionnaire surveys, and mixed-methods case studies and other in-depth complex designs (see Appendix D, Part B). During full-text screening, a list of the 53 studies eligible for final inclusion was compiled (see Appendix B), along with a list of the excluded studies and the reasons for exclusion (see Appendix C).

Part C of the data extraction document (see Appendix D) was then used by both researchers to methodically extract descriptive information during the final stage. The extraction document was compiled following the literature review and updated throughout the screening process in order to ensure that the current research would satisfy its aim of comprehensively representing the global literature on school corporal punishment. As such, in addition to prevalence data, consequences and risk and protective factors of school corporal punishment, the data extraction document also recorded; study design, World Health Organisation (WHO) region (WHO, 2017), site of study, gross national income (GNI) per capita (World Bank Group, 2017), school corporal punishment ban information, sampling information, and participant equity data. Further information was collected in relation to interventions, namely, descriptive (the name, type, and format of the intervention), effects (whether effect size and harmful effects were reported, and type of effect), and outcome information.

Results

The results identified during the final stage described above were ultimately divided into three detailed tables: prevalence and descriptive information, including legal ban (see Table E1); consequences, and risk and protective factors (see Table E2); and interventions (see Table E3). Given the volume of information contained in these tables, they have been included in a separate appendix rather than in-text (see Appendix E). Of the 53 studies, 42 provided prevalence data, 16 provided information relating to consequences, 26 discussed risk and protective factors, and only two assessed interventions. These findings suggest a dearth of peer-reviewed, quantitative studies relating to school corporal punishment, and, particularly, a lack of research pertaining to effective interventions to reduce school corporal punishment. Overall, the majority of studies (22) provided data on the Americas, of which 20 were conducted in the US (the only North American region), and two in the Caribbean. 19 studies provided data on African states; there were four studies conducted in both the South East Asian and Eastern Mediterranean regions; the Western Pacific region produced three studies; and only one study provided data on Europe.

Study Characteristics

The majority of the studies identified were cross-sectional surveys, several were secondary analyses of existing survey data, and only one was a randomised control trial (Devries et al., 2015). All of the studies that relied on national survey data were conducted in the US and nearly all of them had large sample sizes ($N > 1000$) (Arcus, 2002; Frazier, 1990; Gregory, 1995; Han, 2011; Han, 2014; Nickerson & Spears, 2007; Owen, 2005; Owen &

Wagner, 2006; Vandenbosch, 1991). While this generally makes the findings of these studies more widely applicable, it must be noted that one study chose to focus only on schools permitting corporal punishment (Han, 2011) and another on schools in rural areas (Han, 2014), thus limiting their wider applicability. Nevertheless, only one notable deviation from this general pattern was observed in a prevalence study that was unrepresentative and made use of a very small sample ($N < 200$; Little & Akin-Little, 2008). Most of the remaining studies across all regions were cross-sectional surveys conducted at either a state, district, or city level, and tended to rely on random sampling techniques with small to moderate sample sizes ($N <1000$).

Where prevalence rates were markedly high or low, or where results deviated from the general pattern in a particular geographical region, it was necessary to interrogate the sample sizes and techniques more closely. For example, compared to other studies conducted in the same regions, particularly low lifetime prevalence rates of school corporal punishment were found in both Lesotho (Monyooe, 1993) and India (Cheruvalath & Tripathi, 2015). However, neither study made use of random sampling and response rates were not reported. Within the US studies, although sampling was not generally a cause for concern, just over a third of prevalence studies relied on data from the 1980s and 1990s making their findings potentially outdated (Frazier, 1990; Gregory, 1995; Grossman, Rauh, & Rivara, 1995; James, 1994; McFadden et al., 1992; Rose, 1984; Rust & Kinnard; Shaw & Braden, 1990; Vandenbosch, 1991).

Prevalence

As the majority of literature seems to emerge from the US and countries on the African continent, the majority of prevalence data relates to these regions, with only limited data available for the other WHO regions (WHO, 2017). Notably, no prevalence studies were identified in the European region, Canada, or in South and Central America (as part of the Latin America and Caribbean region). This is likely due to the fact that school corporal punishment is banned in all European states, is illegal throughout Canada, and is legal in only one South American region (Guyana) and two Central American regions (Guatemala and Panama), and therefore may not be regarded as an issue that still requires addressing (Gershoff, 2017).

However, the available prevalence data suggests that rates were generally high across all regions studied. Based on student report, lifetime prevalence of school corporal punishment was above 70% in two WHO regions (Africa and Central America), past year prevalence was above 60% in two WHO regions (Eastern Mediterranean and South-East

Asia), and past week prevalence averaged around 50% in two WHO regions (Africa and South-East Asia). Lower rates were found in the Western Pacific region, with lifetime and past year prevalence averaging around 25%. Lower rates were also found in the US (typically measured in terms of whether there was at least one incident of corporal punishment in a school year), although rates were markedly higher in regions where school corporal punishment remains legal.

Legal ban. Findings suggest that school corporal punishment remains prevalent in both HIC and low- and middle-income countries (LMIC), despite legal bans. Of studies conducted in African regions where school corporal punishment is banned, close to 50% of students reported experiencing school corporal punishment in Uganda (Devries et al., 2014, 2015) and South Africa (Shamu et al., 2016). Similarly, at least a third of students reported that corporal punishment was used at their schools in a Kenyan study (Ajowi & Simatwa, 2010) and two studies in South Africa (Nconsta & Shumba, 2013; Steyn & Naicker, 2007). The same pattern was also observed in the US, where a study revealed that at least one incident of school corporal punishment occurred in just under half of US states in 2000 to 2001, regardless of widespread legal bans (Owen & Wagner, 2006). An additional study found that 26.5% of surveyed teachers in New Jersey reported using corporal punishment, despite school corporal punishment having been illegal for over 100 years (Bogacki, Armstrong, & Weiss, 2005). Notably, rates of corporal punishment were actually higher in the eastern Caribbean where there are guidelines specifying that only senior staff members may administer corporal punishment, with principals reporting that many teachers continue to administer corporal punishment despite these regulations of school corporal punishment (Bailey, Robinson, & Coore-Desai, 2014).

School staff versus student reports. Amongst studies conducted on the African continent, there was a good mixture of student and staff reports, both together and in isolation. Similar to the student reports already noted, five prevalence studies conducted across Ghana and Nigeria found that between 71% and 98% of staff reported the use of corporal punishment at their schools (Agbenyega, 2006; Egwunyenga, 2010; Ekanem & Edet, 2013; Mahmoud, Ayanniyi, & Salman, 2011; Owusu & Manger, 1996). However, it is notable that in studies that assessed both student and staff self-reports that there were mixed results. As was expected, two studies in Uganda, where school corporal punishment is banned, found that students tended to report higher rates of school corporal punishment than staff (Devries et al., 2014, 2015). There is also concern that school staff and administrators may underreport school corporal punishment even where it is legal, as evidenced by a study which found only

46 cases of 'school abuse' in Zimbabwe between 1990 and 1997, based on reports to the Public Service Commission (Shumba, 2001). Whilst one study in Tanzania, where the practice is legal, found that similar rates were reported by students and teachers (Feinstein & Mwahombela, 2010), nearly half the amount teachers reported that strokes with a cane or stick were commonly used compared to students, and likewise, nearly half the amount of students reported that physical labour was commonly used compared to teachers. Finally, a study in Ghana, where the practice is also legal, found that student reports were marginally lower than staff reports (Ajowi & Simatwa, 2010). Various factors may have affectedthe rate of student report, including fear of reprisal. These discrepancies in terms of the rates and reported type of school corporal punishment administered indicate that perceptions of school corporal punishment may differ between students and teachers.

School level. Almost all of the primary school studies examined actual experiences of school corporal punishment (generally by student report), of which past-week prevalence generally averaged around 50% (Devries et al., 2014, 2015) and lifetime prevalence above 80% (Bailey et al., 2014; Devries et al., 2014; Hecker et al., 2014; Mahmoud et al., 2011). In contrast, the high school studies (particularly from the African region) often examined whether corporal punishment was used as a disciplinary technique in a particular school. With the exception of one study, these rates ranged from 60-100% (Ajowi & Simatwa, 2010; Egwunyenga, 2010; Ekanem & Edet, 2013; Nconsta & Shumba, 2013; Owusu & Manger, 1996). Of those that measured actual experiences of corporal punishment in high school, the prevalence rates were still notably high, particularly in the South-East Asian region where rates ranged between close to 50% to above 70% (Deb, Kumar, Holden, & Simpson Rowe, 2017; Raikhy & Kaur, 2009, 2011). Two studies in the Western Pacific region found similar reported lifetime rates of corporal punishment by primary and high school students (Ahmed et al., 2015; Lee, 2015). It therefore appears that corporal punishment is prevalent at both school levels.

Consequences

Physical injury. Physical injury was reported in only two studies, and where type of injury was specified, bruising was the most common (Child, Naker, Horton, Walakira, & Devries, 2014; Raikhy & Kaur, 2009). Notably, physical injury was not studied in relation to academic outcomes.

Academic outcomes. Four studies found a significant association between exposure to school corporal punishment and poor academic outcomes. Consequences tended to be global, and included; poorer performance in spelling, reading, and mathematics subtests

(Baker-Henningham, Meeks-Gardner, Chang, & Walker, 2009a), low performance on educational tests amongst girls (Devries et al., 2014), lower verbal and executive functioning skills (Talwar, Carlson, & Lee, 2011) and, more broadly, a negative association between a disciplinary policy of corporal punishment and students' academic aspiration (Han, 2014).

Mental health and behavioural outcomes. Just under a third of the consequence-related studies found that school corporal punishment was associated with internalising problems. These included; increased odds of mental health difficulties (Devries et al., 2014), poorer resilience (Deb et al., 2017), state and trait anxiety (Raikhy & Kaur, 2009), and depressive symptoms (Ahmed et al., 2015; Csorba et al., 2001). Externalising problems were were identified in over half of the consequence-related studies, and were therefore measured measured more frequently. School corporal punishment was significantly associated with increased odds of violent behaviour (Youssef, Attia, & Kamel, 1999), aggressive conduct (Ani & Grantham-McGregor, 1998), violent attitudes in boys (Ritchie, 1983), and both the experience and perpetration of intimate partner violence amongst dating female and male adolescents respectively (Shamu et al., 2016).

At a policy level, the existence of a disciplinary policy that permitted school corporal punishment was significantly associated with poor school attendance (Child et al., 2014; Han, 2014), an increased number of insubordination incidents (Han, 2014), and higher rates of school shooting fatalities (Arcus, 2002). Additionally, although proponents of school corporal punishment often argue that outlawing corporal punishment will increase student misbehaviour, a study in South Africa found no significant relationship between the abolition of corporal punishment and increased misbehaviour by children (Shaikhnag, Assan, & Loate, 2016). Beyond the school environment, there was a significantly higher frequency of nocturnal enuresis in children who also school experienced corporal punishment (Bakhtiar et al., 2014).

Risk and Protective Factors

To enhance understanding of risk and protective factors that may inform future multi-level intervention and prevention strategies aimed at school corporal punishment, an ecological model (Bronfenbrenner, 2001) was employed to structure the findings.

Individual-level.

Grade level and age. Studies in both LMIC and high-income countries showed that children in lower grades were significantly more likely to receive corporal punishment at school (Rose, 1984; Shaw & Braden, 1990; Youssef et al., 1998). Furthermore, an increase of one year in student age was associated with decreased odds of corporal punishment (Youssef

et al., 1998), suggesting increased age and grade level may be a protective factor. However, results were not always consistent, as one study found that the odds of corporal punishment were over double for combined elementary and middle schools compared to elementary schools (Nickerson & Spears, 2007), and another study found that physical maltreatment by teachers did not differ significantly across grade level (Lee, 2015). This may be a product of the earlier identified use of inconsistent measures of school corporal punishment across school levels, and discrepancies in student and teacher reports.

Gender. Overall, boys were found to have at least three times the odds of being corporally punished by their teachers (Ahmed et al., 2015; Gregory, 1995; Youssef et al., 1998). Male students were also consistently found to experience school corporal punishment significantly more than their female peers in various regions, including Egypt (Youssef et al., 1998), India (Raikhy & Kaur, 2009, 2011), Jamaica (Baker-Henningham et al., 2009a), New Zealand (Ritchie, 1983), Tanzania (Hecker et al., 2014), South Africa (Shamu et al., 2016), South Korea (Lee, 2015), and the United States (McFadden et al., 1992). Additionally, while results differed on whether girls or boys experienced more mild and moderate school corporal punishment, boys were at a significantly increased risk of reporting severe corporal punishment (Raikhy & Kaur, 2009, 2011) and related physical injury (Youssef et al., 1998).

Race. Only US studies examined race as a risk factor for school corporal punishment. Race and gender typically intersected in these studies, with black males generally found to be at the greatest risk of corporal punishment, especially when compared to white females (Gregory, 1995; McFadden et al., 1992; Rose, 1984; Shaw & Braden, 1990). Increased risk for ethnic minority students was confirmed in another study, where principals in corporal punishment permitting schools with large proportions of ethnic minority students were over two times more likely to engage in school corporal punishment, compared to principals in schools with smaller proportions (Han, 2011). Owen (2005) identified geographical differences with regards to racial disparities in school corporal punishment use, finding that black students experienced disproportionately high rates of school corporal punishment in Arizona, Georgia, South Carolina, and Tennessee, and disproportionately low rates in Kansas, Kentucky, Ohio, and Pennsylvania.

Learning disability, academic achievement, and behaviour. Whilst one study in Uganda found that reporting disability was associated with decreased odds of past-week physical violence for a specific group of male students (Devries et al., 2014), a US study found that principals at schools with a higher proportion of special education students were almost twice as likely to use corporal punishment, despite school corporal punishment being

permitted in all sampled schools (Han, 2011). Similarly, in a study conducted in Egypt, poor performance in academics was a significant predictor of school corporal punishment (Youssef et al., 1998). Although not significant predictors, students who reported misbehaviour, in the form of disrespect towards teachers, disrupting class discipline, and truancy, were also found to have experienced significantly higher amounts of corporal punishment (Youssef et al., 1998).

Home-level. Two representative studies in lower-middle and upper-middle income countries found significantly increased odds of school corporal punishment where children also experienced corporal punishment at home (Ahmed et al., 2015; Youssef et al., 1998). In relation to this, disruptive home life (in the form of parental conflict and moving house many times) was also associated with increased odds of school corporal punishment (Ahmed et al., 2015).

School level.

School characteristics. In terms of geographic location, living in urban areas (Ahmed et al., 2015; Grossman et al., 1995), and attending city (Han, 2011) or urban-fringe schools (Nickerson & Spears, 2007), was associated with significantly lower odds of school corporal punishment. With regards to school type, the risk of corporal punishment was also higher in schools that frequently used other official disciplinary practices, such as suspension (Han, 2011), and those that had fewer than 500 students (Grossman et al., 1995). In contrast, significantly decreased odds of school corporal punishment were found for elementary schools that employed full-time equivalent (FTE) mental health professionals (Nickerson & Spears, 2007), and schools with multiple student-aimed safety prevention and teacher-aimed safety training programmes had (Han, 2011). Interestingly, schools with poor standardised test performance were also found to have decreased odds of school corporal punishment (Han, 2011). However, this finding is qualified by the fact that principals' perception of school disorder due to student misbehaviour was significantly lower in underachieving schools compared to high achieving schools, and principal perception was found to play an influential role in their decision to adopt physical discipline, regardless of actual levels of problem student behaviour.

School personnel. Certain teacher attitudes and beliefs towards school corporal punishment were identified as risk factors. Specifically, teachers who perceive corporal punishment as effective (Kennedy, 1995), and who believe in and value corporal punishment (Atiles, Gresham, & Washburn, 2017; Vandenbosch, 1991), were significantly more likely to use it. Conversely, belief in and valuing developmentally appropriate practice (DAP) was

associated with significantly more non-punitive responses by teachers (Atiles et al., 2017). In one study, years of teaching experience and the number of other disciplinary methods tried before using corporal punishment were significantly negatively correlated with its use (Rust & Kinnard, 1983). Certain educator personality traits such as closed-mindedness, neuroticism, and extraversion, were significantly positively correlated with educator reported use of corporal punishment (Rust & Kinnard, 1983). Male teachers' personal experience of other forms violence and use of violence against non-students (Devries et al., 2014), as well as educators' experience of corporal punishment as school students (Rust & Kinnard, 1983), were associated with increased risk of corporal punishment. Finally, only one study examined gender as a risk factor, with a national US study finding that female principals were significantly more likely to engage in school corporal punishment (Rose, 1984). However, females made up only 11.2% of the sample, and the lack of corroborative findings in other research casts doubt on this relationship (Rose, 1984).

Socio-cultural and socio-political level.

Socio-economic status (SES). Decreased socio-economic status was found to be a risk factor in high- and low-income countries. Median household income was found to be the only significant predictor of both prevalence and incidence of school corporal punishment in a Kentucky study, even in corporal punishment permitting school districts (McClure & May, 2008). In another US study, an increased percentage of students receiving free and reduced lunch was associated with increased odds of corporal punishment at their schools (Nickerson & Spears, 2007). Likewise, a Ugandan study found that female students who had eaten at least three meals the day before had significantly lower odds of past-week corporal punishment by school staff (Devries et al., 2014).

Social capital. Social capital is defined as "positive relationships and networks among people, which are associated with beneficial social outcomes" (Owen, 2005, p.474), and has been known to be highly correlated with positive child development (Putnam, 2000). One study found that in states where school corporal punishment use is banned, racially disparate use of school corporal punishment is related to social capital, and that there is a significant negative relationship between social capital and rates of school corporal punishment more generally (Owen, 2005). Likewise, in a further study, social capital was found to mediate the effect of evangelical Protestantism on the rate of school corporal punishment (Owen & Wagner, 2006). Another US study demonstrated that corporal punishment use by educators was significantly positively correlated with traditionalist political culture even when controlling for region (Vandenbosch, 1991). In relation to culture acting as a risk factor, one

study found that children who experience school corporal punishment are more likely to experience sexual and / or emotional violence from school staff, as well as any form of violence from others (including in the home) in their lifetime (Devries et al., 2014). This poly-victimisation may suggest that certain overarching socio-cultural, political, and religious attitudes and values (such as those that are traditional, parochial, and patriarchal) which pervade the various environments the child exists in may be integrally linked to the continued use of school corporal punishment, and violence against children more generally. As such, certain religious and political beliefs, and social capital may be risk and protective factors respectively.

Interventions

Two interventions aimed at the reduction of school corporal punishment were identified. The first was a two-week participatory programme which targeted 9th grade mathematics teachers from boys' high schools in Districts Nowshera and Swabi in Pakistan (Ali, Mirza, & Rauf, 2014). The multifaceted intervention included psychoeducational and awareness-raising components regarding the negative consequences of school corporal punishment (2 days of the intervention), and alternatives (preventive and corrective approaches) to classroom discipline (12 days of the intervention). Of the 145 teachers pre-tested using an attitude scale, 51 teachers identified as having positive attitudes towards corporal punishment were selected for training. A pre- and post-test teacher behaviour questionnaire was completed by the 433 students of these teachers regarding teacher corporal punishment use as a measure of teacher behavioural change following intervention. Although the main outcome was a statistically significant reduction in the mean scores of corporal punishment by teachers, the study was methodologically poor and no effect size was reported. It is unlikely that this intervention resulted in a noticeable change in school corporal punishment given the short time period and the failure to provide teachers with implementation practice in positive classroom management, although this cannot be concluded definitively.

Raising Voices' *Good School Toolkit*, implemented in the Luwero District of Uganda, was the second intervention identified. The study is described as the first trial of an intervention aimed at the reduction of physical violence of primary school students by staff (Devries et al., 2015). The *Toolkit* aims to bring about school-wide behavioural changes by involving students, school personnel, and parents in a flexible, six-stage programme that is conducted in schools over a period of 18 months. Each stage involves completing a minimum number of classroom activities aimed at reducing corporal punishment use and increasing

positive discipline use by teachers, with support and training provided by members of the Raising Voices' team throughout. The study was methodologically sound, and the intervention resulted in a 60% reduction of the odds of the past week physical violence by school staff. Specifically, there was a significant reduction in; student self-reports of past week and past term violence by staff, and school staff self-reported past-week physical violence against students. There was some evidence to suggest the intervention had increased effects for male compared to female students, but this relationship was weak, and had the additional effect of improving students' feelings of school safety.

Discussion

Prevalence

The global trend towards the prevention of violence against children may result in the practice being underreported, particularly where school corporal punishment is illegal (Gershoff, 2017). As a result, available prevalence data may be an underestimation of the actual occurrence of school corporal punishment (Gershoff, 2017). Despite this, and the fact that very few studies were identified from anywhere except in the US and Africa, the use of school corporal punishment across both LMIC and HIC at generally high rates is consistent with the literature review findings, which suggest that school corporal punishment is a continued reality for school students worldwide.

Results indicated high prevalence rates for schools at all levels and even in regions where the practice is banned. As such, in addition to the necessity of measuring school corporal punishment both more broadly and globally, the current research illustrates the necessity of measuring school corporal punishment at various school levels and also where legal bans are in place. This latter recommendation is in accordance with current literature, which argues that the effectiveness of legal bans is seemingly contingent on whether said bans precede and codify existing changes in societal norms and public attitudes regarding corporal punishment (Cheruvalath & Tripathi, 2015; Durrant, 1999; Feinstein & Mwahombela, 2010; Greydanus et al., 2003; Lynch & Ross, 2010; Makhasane & Chikoko, 2016; Mweru, 2010; Roberts, 2000; Shmueli, 2010; Tafa, 2002; UNESCO, 2017; Zolotor & Puzia, 2010). Future research could benefit from the use of repeat cross-sectional studies that assess prevalence trends in a particular area over time with the aim of determining the impact, if any, of the introduction of legal bans or school corporal punishment prevention initiatives. Furthermore, measuring school corporal punishment using various measurement timeframes within one study (for example, lifetime, and past week prevalence) would allow for a better understanding of potential patterns of change and continuity.

It is also evident that a number of studies in the US are taking advantage of existing national survey infrastructure aimed at obtaining information regarding the wellbeing of children annually. To illustrate, Gregory (1995) made use of a biennial census conducted by the US Department of Education's (DOE) Office for Civil Rights (OCR). This explains the large number of nationally representative studies on school corporal punishment that are available in the US, compared to other regions. Given the consequences identified, as well as the prevalence of the practice even where it has been banned, it is recommended that other countries consider incorporating school corporal punishment as a measure in existing national surveys concerned with education and the wellbeing of children. This will be an integral step in identifying areas where intervention is required and play a role in informing future interventions aimed at the practice. However, the trade-off of this is that the studies identified in the US generally relied on staff or principal report of corporal punishment, with no studies utilising student-report. In contrast, the African region tended to use a combination of both staff and student-report, and the remaining regions favoured student report. Due to the identified potential for discrepancy between student and staff self-reports, it is recommended that the prevalence of school corporal punishment is measured at a number of levels within the same studies.

School-Specific Consequences

Although research on the consequences of school corporal punishment is limited, it is nevertheless consistent with the larger body of evidence on the relationship between home corporal punishment and multiple short- and long-term negative physical health, cognitive, psychosocial, and behavioural outcomes (Afifi, Mota, Dasiewicz, MacMillan, & Sareen, 2012; Gershoff et al., 2010; Gershoff, 2016; Gershoff & Grogan-Kaylor, 2016; Merrick et al., 2017). Given that school corporal punishment exists on the same continuum of violence against children as home corporal punishment and even physical abuse (Gershoff & Grogan-Kaylor, 2016), it is reasonable to expect that it will have similarly broad negative outcomes. One of the most significant findings of this systematic review is that school corporal punishment, instead of improving student discipline, is actually associated with various behavioural and discipline problems that may actively interfere with teaching and learning. Incorporating these findings into psychoeducational programmes aimed at parents, teachers, and communities alike, is essential to addressing misinformed perceptions of it as a necessary and effective form of classroom discipline and a means to optimise the learning environment (Cheruvalath & Tripathi, 2015; Ferguson, 2013; Hecker et al., 2014; Moyo et al., 2014; Uzoechina et al., 2015). As with home corporal punishment literature, it is also significant

that studies have found that school corporal punishment of children is associated with an increased risk of aggression and violence in childhood and into adulthood (Ani & Grantham-McGregor, 1998; Gershoff & Grogan-Kaylor, 2016; Merrick et al., 2017; Shamu et al., 2016; Youssef et al., 1999). Evidence that school corporal punishment is associated with violent practices such as school shootings and intimate partner violence suggests that the practice may be a potential contributor to the wider cycle of violence that is pervasive in many societies today, and further emphasises the importance of intervention.

Although these findings are invaluable, future research on school corporal punishment must broaden its focus. For example, given the existing knowledge regarding the relationship between physical punishment in childhood and increased risk for enduring and pervasive mental health issues (Merrick et al., 2017), mental health outcomes must be studied more frequently. In addition, although it is reasonable to expect school corporal punishment to interfere with teaching and learning more readily than corporal punishment in the home, only three studies examined consequences in terms of academic outcomes. Although the behavioural and mental health outcomes identified, for example, impaired executive functioning, may have a relationship with academic impairment as suggested in the preliminary literature review, this has not been explicitly explored. Given that school corporal punishment occurs within places of learning, more research is required specifically on the direct and indirect relationship between corporal punishment in schools and negative academic outcomes. Finally, almost all of the studies identified were correlational only, suggesting that the possibility for reverse causation cannot be eliminated (Ogando Portela & Pells, 2015). Consequently, the direction of the relationship and causation for, for example, poor academic performance or externalising behaviours and school corporal punishment of children cannot be determined unless future longitudinal studies are conducted.

Risk and Protective Factors

Given the potential for long-term negative consequences as a result of school corporal punishment, research needs to be directed at interventions, and this requires an understanding of key risk and protective factors (Ward, 2015). Whilst there is an apparent insufficient body of evidence regarding protective factors and longitudinal research generally, risk factors were identified at all levels of the ecological model. This suggests interventions targeting school corporal punishment cannot only involve the individual child, teachers, or even school, but must also target the family and wider community.

There was a unanimous finding that male students were significantly more likely to receive school corporal punishment than their female classmates. This is a likely product of

gender socialisation and norms, particularly surrounding masculinity and femininity, as the experience and perpetration of aggression and physical violence is often more socially acceptable for males than females (Shamu et al., 2016). This increased risk for males may have significant implications, especially when considering related consequences, such as that adolescents who experienced school and home corporal punishment were more likely to perpetrate (boys) or experience (girls) intimate partner violence (Shamu et al., 2016), and male teachers who had experienced certain forms of violence were more likely to corporally punish their students (Devries et al., 2014). There is a long-established body of evidence that has documented the effects of abuse and neglect in childhood, particularly its relationship with long-term negative behavioural outcomes (Widom, 1989; Maxfield & Widom, 1996). In relation to this, evidence suggests that, in combination with the gendered normalisation of violence, corporal punishment adopted by authority figures (in the home or school) normalises the use of interpersonal violence. This may have the effect of increasing acceptability of interpersonal violence for perpetrators and victims, which students may then model and implement in their own interactions, ultimately resulting in a perpetuating cycle of violence (Afifi et al., 2012; Cheruvalath & Tripathi, 2015; Feinstein & Mwahombela, 2010; Fulu et al., 2017; Simons & Wurtele, 2010; Zulu et al., 2004). This is particularly concerning given the evidence in this systematic review that suggested children who experience corporal punishment at home are at increased risk of school corporal punishment, and, indeed, other forms of violence. Given that the prevention of violence (particularly against marginalised individuals, and women and children) is a global concern, corporal punishment interventions are required, as this cycle of violence is not inevitable, and can be broken through strategic intervention and prevention (Widom, 1989).

There was also a consistent intersection between gender and race, with Black males at the highest risk of school corporal punishment, particularly in comparison to White females. Notably though, race was only discussed in US studies, and this focus may arise from the paradoxical pattern that Black students were a numerical minority in the studies reviewed, yet received disproportionately high rates of school corporal punishment. Institutionalised racism may contribute to the normalisation of physical violence against Black bodies, which in turn may account for racial disparities in the administration of corporal punishment in schools (Gershoff & Grogan-Kaylor, 2016). Evidencing this, one study demonstrated that principals' of schools with a greater proportion of ethnic minority students were more likely to perceive their school as disordered due to problem student behaviour, and were more likely to adopt corporal punishment, regardless of actual levels of student misbehaviour (Han, 2011). Given

the racial disparities found, future research in other regions could benefit from analysing such trends and their potential causes. Findings of increased use of school corporal punishment against already victimised and marginalised students (whether as a result of race, impoverishment, or disability) must be taken seriously, as well as studied more comprehensively in order to understand and address the increased risk for these students.

A potential explanation for the additional finding that students with lower SES were also at an increased risk for school corporal punishment, even in HIC like the US, is that lower student SES may indicate decreased resource availability and potentially increased stressors in the children's school and home environments. This has been shown to result in increased reliance on corporal punishment by teachers and parents respectively (Cheruvalath & Tripathi, 2015; Eiermann et al., 2011; Mweru, 2010; Payet & Franchi, 2008; UNESCO, 2017). It may also account for why children who reported corporal punishment in the home and disruptive home life also reported higher rates of school corporal punishment in certain studies.

The relationship between home and school corporal punishment found in some studies may also be accounted for by factors at the socio-cultural and socio-political level. Traditional political culture and conservative religious values have been demonstrated as significant risk factors predominantly in North American literature. Although attitude was not studied in the context of this systematic review as the vast majority of the studies that examined attitude did not measure its association with school corporal punishment, traditional, authoritarian, paternalistic, and certain religious attitudes towards discipline held by parents, schools, and communities alike appear to be risk factors in high- and low-income contexts (Breen et al., 2015; Cheruvalath & Tripathi, 2015; Dupper & Dingus, 2008; Greydanus et al., 2003; Khoury-Kassabri et al., 2014; Moyo et al., 2014; Mweru, 2010). For example, the high prevalence rates in African countries (including in regions where corporal punishment is banned) may be accounted for based on teachers' perception of corporal punishment as the norm within the broader framework of child discipline (Feinstein & Mwahombela, 2010; Makhasane & Chikoko, 2016; Mweru, 2010; Tafa, 2002). Additionally, the higher rates of corporal punishment, among other forms of violence, in Southern regions of the US, have been attributed to traditional and conservative norms, beliefs, and religion, as well as a lack of social capital (Owen, 2005). Evidently, future studies need to investigate more risk and protective factors beyond the individual level of the student and teacher. Furthermore, because socio-cultural and socio-political factors appear to play an integral role in the continued use of corporal punishment in both the home and school, regardless of legal bans,

research must take these associations seriously, if we are to fully understand this continued form of violence in school, and how best to intervene and prevent it.

Interventions

Given the continued global prevalence and negative short and long-term consequences associated with school corporal punishment, the paucity of studies assessing interventions aimed at reducing and eliminating school corporal punishment is problematic. Only two relevant studies met the inclusion criteria, one with poor methodological quality (Ali et al., 2014). The other was of high methodological quality and notably the only applicable randomised control trial identified (Devries et al., 2015). This school-wide intervention is particularly important as it demonstrates that school corporal punishment and entrenched norms regarding physical discipline of school children can be effectively reduced within a relatively short time frame (18 months) and within low-income contexts. It is also positive that these results are likely to be generalisable to other African settings, as prevalence rates seem to be particularly high in this region.

Additionally, from the risk and protective factors identified, it is clear that school corporal punishment is unlikely to be successfully addressed without taking into account the wider context in which the practice occurs. The *Toolkit* successfully does this, as it involves students, all school staff, and parents throughout the various stage-based activities, fosters social support for the intervention, and addresses harmful ideas and attitudes that prevent the reduction of the use of physical punishment against children. However, only moderate effect sizes were found and nearly one-third of students still reported past-week physical violence from staff following intervention. As mentioned by Devries et al. (2015), it is necessary for future research to determine if the intervention effect can be enhanced by increased intervention length, and if the intervention can be sustained when scaled-up and without ongoing support from the Raising Voices' team.

Although excluded from our systematic review due stringent inclusion criteria, it is worth reiterating that other relevant interventions, which had a direct or indirect impact on school corporal punishment, were identified in a preliminary literature search. As such, it is evident that existing school violence interventions are likely to simultaneously address school corporal punishment (as these programmes are generally aimed at reforming the culture of violence within school or even communities), although it may not be a measured outcome. Together, these interventions not only indicate that school corporal punishment can be effectively addressed, but, that, methodologically speaking, there is potential to incorporat

eschool punishment measures and interventions into existing school violence prevention interventions.

Limitations

Inclusion criteria. In terms of inclusion criteria, only studies published in English were included. This study is therefore not reflective of school corporal punishment studies published in other languages (Lester et al., 2017). This may have contributed to the fact that no studies on school corporal punishment were identified in the Latin American region, despite that fact that high rates of violent, physical punishment have been found across Latin America within the home and in other contexts (Global Initiative to End All Corporal Punishment of Children, 2016). However, this gap may also be a product of the fact that 16 of 19 Latin American states have banned school corporal punishment, potentially reducing the likelihood of the practice being studied. Regardless, it should be noted that language restriction has been shown not to introduce systematic bias of any significance into systematic reviews and meta-analyses (Bown & Sutton, 2010; Jüni, Holenstein, Sterne, Bartlett, & Egger, 2002; Morrison et al., 2012). Qualitative studies that are not published and peer-reviewed, as justified in the methods sections, were also excluded. However, it is worth noting that these studies, such as the longitudinal study on school corporal punishment conducted in conjunction with the multi-country Young Lives Study (Ogando Portela & Pells, 2015), have been and can be referred to for additional information and to expand on the quantitative findings assessed in this review (Egger et al., 2008; Leibovici & Falagas, 2009).

Study quality. Although the studies in this paper were rigorously and independently assessed against inclusion criteria designed to reduce risk of bias and using existing methodological checklists by both researchers, the strength of systematic reviews and meta-analyses are inevitably limited by the quality of the studies available (Higgins & Green, 2011). The studies in this review were generally cross-sectional surveys of moderate quality. Whilst the paucity of more methodologically rigorous, larger, representative and longitudinal studies is consequently a limitation of this study, it likewise illustrates the dire need for increased research in all of the key areas discussed.

Lack of intervention studies. Given that systematic reviews are generally utilised where there is expansive research on a particular subject, the usefulness of this study method may be questioned particularly in relation to our analysis of the existing interventions. However, this finding is nevertheless useful and important, highlighting the urgent necessity for more research in this area. It also allowed us to identify that findings relevant to our

current research were not reported sufficiently in several studies, and that school corporal punishment was often not specifically measured as an outcome in otherwise relevant studies. In recognition of the continued prevalence of corporal punishment in schools, as well as the general dearth of information on the practice, future research must therefore include school corporal punishment as a separate measure in child and school violence studies wherever possible.

Conclusions and Future Study

Despite these limitations, this review is the first step in coherently and consistently determining what is, and is not, known about school corporal punishment regarding prevalence, consequences, risk and protective factors, and interventions. It is evident from this synthesis that school corporal punishment remains globally prevalent irrespective of legal bans and that its consequences for youth are far-reaching and may be enduring. As such, in line with the recommendations made throughout the discussion section, more longitudinal studies that investigate the consequences of school corporal punishment, particularly in relation to academic outcomes, are required. Furthermore, the scarcity of targeted interventions aimed at reducing the use of school corporal punishment suggests that increased focus must be directed towards studies that analyse the potential risk and protective factors of school corporal punishment. In particular, these studies must extend beyond the individual level to the socio-cultural and political level, in order to inform effective and contextualised interventions. Finally, the handful of interventions mentioned suggest that school corporal punishment can be effectively reduced, and that emphasis must be placed on incorporating measures and interventions aimed specifically at addressing this practice. In this manner, this study contributes significantly to the field by providing a systematic review of important findings that can inform future research aimed at the elimination and prevention of the use of school corporal punishment against children.

Appendix A

List of Searched Databases and Online Journals from Lester et al. (2017)

EBSCOHost databases

Academic Search Premier

Business Source Premier

Africa-Wide Information

AHFS Consumer Medication Information

ATLA Religion Database with ATLAS serials

CINAHL Communication & Mass Media Complete

ERIC

Health Source: Nursing/Academic Edition

Humanities International Complete

International Bibliography of Theatre & Dance with Full Text

Library, Information Science & Technology Abstracts

MasterFILE Premier

MEDLINE

Philosopher's Index

PsycARTICLES

PsycCRITIQUES

PsycINFO

PsycTESTS

SocINDEX with Full Text

Teacher Reference Center

ProQuest databases

Environment Abstracts

ERIC

International Bibliography of the Social Sciences (IBSS)

International Index to Performing Arts Full Text

Library and information Science Abstracts (LISA)

PAIS International and PAIS archive

PILOTS : Published International Literature On Traumatic Stress

ProQuest Education Journals

Social Services Abstracts

Sociological Abstracts

OCLC FirstSearch

Medline

ERIC

PubMed

Medline

Wiley Online Library

Sage Journals Online – 2014 Premier Package

Web of Science

Africa Bibliography

British Education Index- the free collections

ERIC (directly at eric.ed.gov)

Cochrane Library

Campbell Collaboration Libraries

Open Grey

BDENF

Global Health

HISA

LILACS

MedCarib

WPRIM

Hand search journals

Aggression and Violent Behavior

Journal of School Violence

Journal of Injury and Violence Research

Youth Violence and Juvenile Justice

Violence and Victims

Journal of Aggression, Maltreatment and Trauma

The School Community Journal

Journal of School Health

Journal of Interpersonal Violence

Journal of School Psychology

Journal of Educational Psychology

School Psychology Quarterly

Journal of Applied School Psychology

Contemporary School Psychology

Psychology in the Schools

British Journal of Educational Psychology

School Psychology International

School Psychology Review

Educational Psychology

Appendix B

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Appendix C

Reasons for Study Exclusion and Relevant References

Study	Reason for exclusion
Abrahams, Casey, and Daro (1992)	Only measured teachers' attitudes towards school corporal punishment
Adam, Adom, and Bediako (2016)	Does not measure school corporal punishment specifically
Al-Mahroos (2007)	A review of school corporal punishment literature
Ali, Mirza, and Rauf (2015)	Only measured teachers' attitudes towards school corporal punishment
Anand (2014)	No quantitative measure of school corporal punishment
Ayanniyi, Mahmoud, Olatunji, and Ayanniyi (2009)	Does not differentiate between corporal punishment at home and at school
Bolu-steve, Ogwokhademhe, and Abejirin (2014)	Only measured students' perceptions of the problems with school corporal punishment
Breshears (2014)	A review of school corporal punishment literature
Brown (2009)	Only measured teachers' support for school corporal punishment
Campbell and Williamson (1980)	Only measured teachers' attitudes towards school corporal punishment
Clements, McKernan, and Call (1985)	No quantitative measure of school corporal punishment
Çoban (2015)	Relied solely on independent observations
Conte (2000)	Only measured teachers' willingness to use school corporal punishment
Durant, Getts, Cadenhead, and Woods (1995)	No quantitative measure of school corporal punishment
Evans and Richardson (1995)	A review of school corporal punishment literature
Fakunmoju and Bammeke (2015)	Does not differentiate between corporal punishment at home and at school
Fallahi and Motaghi (2016)	Data too dated (1394)
Gershoff (2017)	A review of school corporal punishment literature
Grasmick, Bursik, and Kimpel (1991)	Only measured adults' support for school corporal punishment
Grasmick, Morgan, and Kennedy (1992)	Only measured adults' support for school corporal punishment
Gregory (1997)	Methodological quality too high risk
Haynes, Comer, and Hamilton-Lee (1988)	Methodological quality too high risk
Hilarski (2004)	Only measured adults' attitudes towards school corporal punishment
Hwang (2001)	A review of school corporal punishment literature
Hyman (1995)	A review of school corporal punishment literature
Hyman (1998)	A review of school corporal punishment literature
Inamullah, Bibi, Sami, and Irshadullah (2013)	Only measured teachers', students' and parents' attitudes towards school corporal punishment
Jambor (1988)	No quantitative measure of school corporal punishment
Kaguamba and Muola (2010)	Only measured students' perceptions of the effectiveness of school corporal punishment
Kelly, Weir, and Fearnow (1985)	Only measured parents' support for school corporal punishment
Kesner, Kwon, and Lim (2016)	Only measured the role of race in teachers' attitudes towards school corporal punishment
Khateeb (2015)	Only measured teachers', students' and parents' attitudes towards school corporal punishment
Kindiki (2015)	No quantitative measure of school corporal punishment
Laurence, Lwo, and Yuan (2011)	Only measured teachers' perceptions of the banning of school corporal punishment
Lucas-Molina, Williamson, Pulido, and Pérez-Albéniz (2015)	Does not measure school corporal punishment specifically

Study	Reason for exclusion
Maphosa and Mammen (2011)	Only measured learners' views on disciplinary strategies
Masitsa (2008)	School corporal punishment not measured as a separate outcome
McLoughlin, Sametz, and Streib (1983)	No quantitative measure of school corporal punishment
Medway and Smircic (1992)	Only measured school administrators' perceptions of behaviours that warrant school corporal punishment
Monyooe (1996)	Only measured teachers' perceptions of school corporal punishment
Morrell (2001)	No quantitative measure of school corporal punishment
Moswela (2008)	No quantitative measure of school corporal punishment
Motseke (2013)	Only measured teachers' perceptions of the banning of school corporal punishment
Moyo, Khewu, and Bayaga (2014)	Does not measure school corporal punishment specifically
Mulaudzi and Mudzielwana (2016)	Does not measure school corporal punishment specifically
Mwai, Kimengi, and Kipsoi (2014)	Only measured teachers' perceptions of the banning of school corporal punishment
Naong (2007)	Only measured teachers' perceptions of the banning of school corporal punishment
Northington (2007)	A review of school corporal punishment literature
Nyarko, Kwarteng, Akakpo, Boateng, and Adjekum (2013)	Only measured consequences associated with the scare of school corporal punishment
Ogbe (2015)	Only measured parents' and teachers' perceptions of school corporal punishment
Oluwakemi and Kayode (2007)	Does not include odds ratios
Opić (2016)	No quantitative measure of school corporal punishment
Pansiri (2008)	No quantitative measure of school corporal punishment
Rajagopal (2013)	Only measured teachers' attitudes towards school corporal punishment
Ron Avi, Benbenishty, Vinokur, and Zeira (2006)	A review of school corporal punishment literature
Saigh (1980)	Does not measure school corporal punishment specifically
Shmueli (2010)	A review of school corporal punishment literature
Shumba (2002)	Only measured teachers' attitudes towards school corporal punishment
Shumba (2004)	Does not measure school corporal punishment specifically
Slate and Perez (1991)	No quantitative measure of school corporal punishment
Soderberg, Bjorkqvist, and Osterman (2016)	Does not measure school corporal punishment specifically
Sümer and Aydin (1999)	A review of school corporal punishment literature
Tas (2106)	Only measured teachers' attitudes towards school corporal punishment
Tie (2014)	Only measured school administrators' understanding of the legality of school corporal punishment
Tingstrom, McPhail, and Bolton (1989)	Only measured university students' perceptions of the effectiveness of school corporal punishment
Tingstrom, McPhail, and Bolton (1990)	Only measured university students' perceptions of the effectiveness of school corporal punishment
Ud Din, Dad, Iqbal, Shah, and Niazi (2011)	No quantitative measure of school corporal punishment
Uzoechina, Oguegbu, Akachukwu, and Nwasor (2015)	No quantitative measure of school corporal punishment
Witt and Robbins (1985)	Only measured teachers' perceptions of the acceptability of school corporal punishment

Appendix D

Data Extraction Document

Reviewer	Date of Extraction
SH/CK	//2017

Citation:	

Part A: Screening (adapted from Lester et al., 2017)

		Exclude if:
1)	Is the publication available in English:	No
2)	Is the publication peer-reviewed:	No
3)	Is the publication quantitative in design:	No
4)	Is corporal punishment at *school* specified in the publication:	No
5)	Are rates of corporal punishment measured and discussed in terms of consequences and/or risk and protective factors, and/or interventions:	No
6)	If interventions, is corporal punishment specified as a measured outcome?	No
7)	Relevant:	No

Part B: Methodological Quality Assessment

Downs and Black (1998) checklist for interventions (randomised and non-randomised)

Reporting		
Item	**Criteria**	**Possible Answers**
1	*Is the hypothesis/aim/objective of the study clearly described?*	Yes = 1 No = 0
2	*Are the main outcomes to be measured clearly described in the Introduction or Methods section?* If the main outcomes are first mentioned in the Results section, the question should be answered no.	Yes = 1 No = 0
3	*Are the characteristics of the patients included in the study clearly described?* In cohort studies and trials, inclusion and/or exclusion criteria should be given. In case-control studies, a case-definition and the source for controls should be given.	Yes = 1 No = 0
4	*Are the interventions of interest clearly described?* Treatments and placebo (where relevant) that are to be compared should be clearly described.	Yes = 1 No = 0
5	*Are the distributions of principal confounders in each group of subjects to be compared clearly described?* A list of principal confounders is provided.	Yes = 2 Partially = 1 No = 0
6	*Are the main findings of the study clearly described?* Simple outcome data (including denominators and numerators) should be reported for all major findings so that the reader can check the major analyses and conclusions. (This question does not cover statistical tests which are considered below).	Yes = 1 No = 0

7	*Does the study provide estimates of the random variability in the data for the main outcomes?* In non-normally distributed data the interquartile range of results should be reported. In normally distributed data the standard error, standard deviation or confidence intervals should be reported. If the distribution of the data is not described, it must be assumed that the estimates used were appropriate and the question should be answered yes.	Yes = 1 No = 0
8	*Have all important adverse events that may be a consequence of the intervention been reported?* This should be answered yes if the study demonstrates that there was a comprehensive attempt to measure adverse events. (A list of possible adverse events is provided).	Yes = 1 No = 0
9	*Have the characteristics of patients lost to follow-up been described?* This should be answered yes where there were no losses to follow-up or where losses to follow-up were so small that findings would be unaffected by their inclusion. This should be answered no where a study does not report the number of patients lost to follow-up.	Yes = 1 No = 0
10	*Have actual probability values been reported (e.g. 0.035 rather than <0.05) for the main outcomes except where the probability value is less than 0.001?.*	Yes = 1 No = 0
External validity		
11	*Were the subjects asked to participate in the study representative of the entire population from which they were recruited?* The study must identify the source population for patients and describe how the patients were selected. Patients would be representative if they comprised the entire source population, an unselected sample of consecutive patients, or a random sample. Random sampling is only feasible where a list of all members of the relevant population exists. Where a study does not report the proportion of the source population from which the patients are derived, the question should be answered as unable to determine.	Yes = 1 No = 0 Unable to determine = 0
12	*Were those subjects who were prepared to participate representative of the entire population from which they were recruited?* The proportion of those asked who agreed should be stated. Validation that the sample was representative would include demonstrating that the distribution of the main confounding factors was the same in the study sample and the source population.	Yes = 1 No = 0 Unable to determine = 0
13	*Were the staff, places, and facilities where the patients were treated, representative of the treatment the majority of patients receive?* For the question to be answered yes the study should demonstrate that the intervention was representative of that in use in the source population. The question should be answered no if, for example, the intervention was undertaken in a specialist centre unrepresentative of the hospitals most of the source population would attend.	Yes = 1 No = 0 Unable to determine = 0
Internal validity - bias		
14	*Was an attempt made to blind study subjects to the intervention they have received?* For studies where the patients would have no way of knowing which intervention they received, this should be answered yes.	Yes = 1 No = 0 Unable to determine = 0

15	*Was an attempt made to blind those measuring the main outcomes of the intervention?*	Yes = 1 No = 0 Unable to determine = 0
16	*If any of the results of the study were based on "data dredging", was this made clear?* Any analyses that had not been planned at the outset of the study should be clearly indicated. If no retrospective unplanned subgroup analyses were reported, then answer yes.	Yes = 1 No = 0 Unable to determine = 0
17	*In trials and cohort studies, do the analyses adjust for different lengths of follow-up of patients, or in case-control studies, is the time period between the intervention and outcome the same for cases and controls?* Where follow-up was the same for all study patients the answer should be yes. If different lengths of follow-up were adjusted for by, for example, survival analysis the answer should be yes. Studies where differences in follow-up are ignored should be answered no.	Yes = 1 No = 0 Unable to determine = 0
18	*Were the statistical tests used to assess the main outcomes appropriate?* The statistical techniques used must be appropriate to the data. For example nonparametric methods should be used for small sample sizes. Where little statistical analysis has been undertaken but where there is no evidence of bias, the question should be answered yes. If the distribution of the data (normal or not) is not described it must be assumed that the estimates used were appropriate and the question should be answered yes.	Yes = 1 No = 0 Unable to determine = 0
19	*Was compliance with the intervention/s reliable?* Where there was noncompliance with the allocated treatment or where there was contamination of one group, the question should be answered no. For studies where the effect of any misclassification was likely to bias any association to the null, the question should be answered yes.	Yes = 1 No = 0 Unable to determine = 0
20	*Were the main outcome measures used accurate (valid and reliable)?* For studies where the outcome measures are clearly described, the question should be answered yes. For studies which refer to other work or that demonstrates the outcome measures are accurate, the question should be answered as yes.	Yes = 1 No = 0 Unable to determine = 0
Internal validity - confounding (selection bias)		
21	*Were the patients in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited from the same population?* For example, patients for all comparison groups should be selected from the same hospital. The question should be answered unable to determine for cohort and case-control studies where there is no information concerning the source of patients included in the study.	Yes = 1 No = 0 Unable to determine = 0
22	*Were study subjects in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited over the same period of time?* For a study which does not specify the time period over which patients were recruited, the question should be answered as unable to determine.	Yes = 1 No = 0 Unable to determine = 0

23	*Were study subjects randomized to intervention groups?* Studies which state that subjects were randomized should be answered yes except where method of randomization would not ensure random allocation. For example alternate allocation would score no because it is predictable.	Yes = 1 No = 0 Unable to determine = 0
24	*Was the randomized intervention assignment concealed from both patients and health care staff until recruitment was complete and irrevocable?* All nonrandomized studies should be answered no. If assignment was concealed from patients but not from staff, it should be answered no.	Yes = 1 No = 0 Unable to determine = 0
25	*Was there adequate adjustment for confounding in the analyses from which the main findings were drawn?* This question should be answered no for trials if: the main conclusions of the study were based on analyses of treatment rather than intention to treat; the distribution of known confounders in the different treatment groups was not described; or the distribution of known confounders differed between the treatment groups but was not taken into account in the analyses. In non-randomized studies if the effect of the main confounders was not investigated or confounding was demonstrated but no adjustment was made in the final analyses the question should be answered as no.	Yes = 1 No = 0 Unable to determine = 0
26	*Were losses of patients to follow-up taken into account?* If the numbers of patients lost to follow-up are not reported, the question should be answered as unable to determine. If the proportion lost to follow-up was too small to affect the main findings, the question should be answered yes.	Yes = 1 No = 0 Unable to determine = 0
Power		
27*	*Did the study have sufficient power to detect a clinically important effect where the probability value for a difference being due to chance is less than 5%?* Sample sizes have been calculated to detect a difference of x% and y%.	Yes = 1 No = 0 Unable to determine = 0

Greenhalgh et al. (2007) quality appraisal checklists for non-intervention studies

Questionnaire surveys

Item	Criteria	Possible answers			Comments
		Yes	**No**	**Can't Answer**	
1	*Research question and design* · Was there a clear research question, and was this important and sensible? · Was a questionnaire the most appropriate research design for this question?				
2	*Sampling* · What was the sampling frame and was it sufficiently large and representative? · Was it conducted at a national, subnational, school, or lower e.g. grade level? · Did all participants in the sample understand what was required of them, and did they attribute the same meaning to the terms in the questionnaire?				
3	*Instrument* · What claims for reliability and validity have been made, and are these justified? · Did the questions cover all relevant aspects of the problem in a non-threatening and non-directive way? · Were open-ended (qualitative) and closed-ended (quantitative) questions used appropriately? · Was a pilot version administered to participants representative of those in the sampling frame, and the instrument modified accordingly?				
4	*Response* · What was the response rate and have non-responders been accounted for?				
5	*Coding and analysis* · Was the analysis appropriate (e.g. statistical analysis for quantitative answers, qualitative analysis for open-ended questions) and were the correct techniques used? · Were adequate measures in place to maintain accuracy of data?				
6	*Presentation of results* · Have all relevant results ('significant' and 'non-significant') been reported?				

	· Is there any evidence of 'data dredging' (i.e. analyses that were not 'hypothesis driven')?				

Mixed-method case studies and other in-depth complex designs

Item	**Criteria**	**Applicable answer (yes / no / can't answer / comment)**
1	*Question* · Did the paper address a clear research question and if so, what was it? · In particular, were complex terms such as 'hospital at home', 'private finance' defined clearly and unambiguously?	
2	*Design* · What was the study design and was this appropriate to the research question?	
3	*Funding* · Who funded the study and what was their perspective?	
4	*Resource system* · In this study, from whom was the innovation said to come?	
5	*Innovation* · What was the nature of the innovation?	
6	*Context* · What was the context of the study? · Was this sufficiently well described so that the findings could be related to other settings?	
7	*User system* · Who was receiving the innovation (or to whom was it marketed)?	
8	*Dissemination mechanism* · What (if any) were the elements of the active dissemination process and how did they interact?	
9	*Implementation mechanism* · What (if any) were the elements of the active implementation process and how did	

	they interact?	
10	*Sampling* · Did the researchers include sufficient cases/settings/observations so that conceptual rather than statistical generalisations could be made?	
11	*Data collection* · Was the data collection process systematic, thorough and auditable?	
12	*Data analysis* · Were data analysed systematically and rigorously? · Were sufficient data presented? How were disconfirming observations dealt with?	
13	*Results* · What were the main results and in what way are they surprising, interesting, or suspect? · Were there any unintended consequences and if so, what were they?	
14	*Conclusions* · Did the authors draw a clear link between data and explanation (theory)? If not, what were the limitations of their theoretical analysis?	
15	*Reflexivity* · Were the authors' positions and roles clearly explained and the resulting biases considered?	
16	*Ethics* · Are there any ethical reservations about the study?	

Part C: Extraction (adapted from Lester et al., 2017)

Please extract the descriptive information from each study first. Information relating to each field needs to be marked with an 'X' if relevant to the study. If the information in a particular field is not specified please specify this using the NS (not specified) option.

Descriptive information

Study design

1 Randomised controlled trial

2 Quasi-experimental

3 Not specified

If 2, please specify:

WHO regions

1 Africa

2 Region of the Americas (specify either North America, or Latin America and the Caribbean)

3 South East Asia

4 Europe

5 Eastern Mediterranean

6 Western Pacific

7 Not specified

Sampling information (specify all of the following, and if unreported)

1 Sampling method

2 Sampling size

3 Response rate

School level

1 Pre-primary only

2 Primary only

3 High only

4 Combination PP + P

5 Combination P + H

6 Combination all

7 Not specified

Equity data (O'Neill et al., 2014)

1 Place

2 Race/ethnicity

3 Occupation

4 Gender/sex

5 Religion
6 Education
7 Socioeconomic status
8 Social Capital
9 Other factors that facilitate disadvantage

Please mark the appropriate columns with an 'X' before continuing to type specific information. If marked 'X' please proceed to corresponding section(s) (designated with letters in parentheses under type specific information).

Prevalence (A)	Consequences (B)	Risk & protective factors (C)	Interventions (D)

Type specific information

A Prevalence

Legal ban of school corporal punishment

1 Yes
2 No
3 Not specified

Classified GNI per capita

1 Low
2 Lower-middle
3 Middle
3 Upper-middle
4 High

Please specify prevalence statistics reported (measure of SCP and actual result):

B Consequences

Domain

1 Physical
2 Psychosocial
3 Academic
4 Behavioural
5 Combination all
6 Combination other
If 6, please specify:

Odds ratio (preferred) or any statistic measuring association reported?

1 Yes

2 No

If 1, please specify:

Relative risk reported?

1 Yes

2 No

If 1, please specify:

Marginal effects reported?

1 Yes

2 No

If 1, please specify:

Please specify statistics reported for consequences:

C Risk and protective factors

Ecological domains

1 Individual only

2 Family only

3 School only

4 Socio-cultural only

5 Combination all

6 Combination other

If 6, please specify:

Odds ratio (preferred) or any statistic measuring association reported?

1 Yes

2 No

If 1, please specify:

Relative risk reported?

1 Yes

2 No

If 1, please specify:

Marginal effects reported?

1 Yes

2 No

If 1, please specify:

Please specify statistics reported for risk and protective factors:

D Interventions

Descriptive

1 Name of intervention:

2 Specific type of intervention considered (e.g. social-emotional program):

3 Format of intervention (e.g. how many sessions, who delivers the intervention program, who is the target):

Outcome behaviour(s) observed

1 Corporal punishment general

2 Specific form(s) of corporal punishment

If 2, please specify (e.g. reduced caning):

Reports effect sizes on relevant outcomes

1 Yes

2 No

If 1, please specify:

Type of effect

1 Reduction in school corporal punishment (effective)

2 No effect on school corporal punishment (ineffective)

3 Increase in school corporal punishment (harmful)

Harmful effects reported?

1 Yes

2 No

Specify score using Downs & Black (1998) checklist:

Appendix E

Results Tables

Table E1

Descriptive information & prevalence data

	Author(s)	Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
	Africa						
1	Agbenyega (2006)	Greater Accra District, Ghana Lower-middle	Random sampling *N* = 100 teachers (50 each from both inclusive and non-inclusive project schools) Response rate not reported	Primary and high	-	Percentage teachers who indicated SCP used in their schools as disciplinary technique	Project schools: • Inclusive: 94.00% • Non-inclusive: 98.00%

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
2	Ajowi & Simatwa (2010)	Kisumu District, Kenya[c] Lower-middle	Random sampling *N* = 916 students (S) *N* = 22 guidance & counselling heads (G&C) *N* = 22 deputy head teachers (DH/T) *N* = 22 head teachers (HT) Response rate not reported	High	Type of school: • Boys: 13.60% • Girls: 9.10% • Mixed: 77.30%	Percentage S, G&C, DH/T, and HT who indicated SCP used in their schools as disciplinary technique	Girls' schools: • S: 83.00% • G&C: 100% • DH/T: 100% • HT: 100% Boys' schools: • S: 83.00% • G&C: 100% • DH/T: 100% • HT: 100.00% Mixed schools: • S: 100% • G&C: 100% • DH/T: 100% • HT: 100%
3	Ani & Grantham-McGregor (1998)	Agege, Lagos, Nigeria Lower-middle	Purposive matched sampling *N* = 94 students (47 aggressive and 47 prosocial boys) Response rate not reported	Primary	Age[d]: • Range 10-13 • *M* = 11.70	-	-

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
4	Child et al. (2014)	Luwero District, Uganda[c] Low	Stratified random sampling *N* = 3,706 students (initial baseline survey for randomised control trial) 21 schools each assigned to control and intervention groups Response rate: 79% (absenteeism accounts for 19% of non-response)	Primary	Gender[e]: • F: 44.00% • M: 56.00% Age[d] range[e]: Majority 12-14	-	-

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
5	Devries et al. (2014)	Luwero District, Uganda[c] Low	Same as Child et al. (2014) (students) *N* = 577 staff members (complete sample) Response rate not reported	Primary	Students: *Gender:* • F: 84.60% • M: 78.70% *SES (ate at least 3 meals day before survey conducted):* • F: 51.00% • M: 46.50% *Age[d] range:* 11-14 *Disability*: • F: 7.60% • M: 8.80% Staff: *Ethnicity:* Majority Buganda • F: 69.20% • M: 53.60% *Age[d] (M):* • F: 33.70 • M: 35.50	Student report: Physical and severe physical violence by school staff Staff report: Physical violence towards students	Lifetime (physical, severe physical violence): • F: 94.00%, 7.10% • M: 93.00%, 6.90% Past week: • F: 52.50%, 1.80% • M: 52.20%, 1.80% Lifetime: • F: 75.74% • M: 80.75% Past week: • F: 42.60% • M: 40.17%

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
6	Devries et al. (2015)	Luwero District, Uganda[c] Low	Same as Child et al. (2014) (students) Response rate (between baseline and endline survey): 92.30%	Primary	Students (by group): *Control:* Gender: • F: 53.70% • M: 46.30% Grade: • 5: 37.40% • 6: 37.00% • 7: 25.6.00% Age[d] (*M*): 13.00 *Intervention:* Gender: • F: 50.80% • M: 49.20% Grade: • 5: 40.50% • 6: 35.30% • 7: 24.20% Age[d] (*M*): 13.10 Staff (by group): *Control:* Gender: • F: 58.20% • M: 41.80% Age[d] (*M*): 35.10 *Intervention:* Gender: • F: 59.00% • M: 41.00% Age[d] (*M*): 33.80	Student report: Past week physical violence by school staff Staff report: Past week physical violence towards students	• Control: 54.60% • Intervention: 52.70% • Overall: 53.70% • Control: 43.10% • Intervention: 39.90% • Overall: 41.60%

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
7	Egwunyenga (2009)	Delta State, Nigeria Lower-middle	Random sampling *N* = 515 principals (326 from public schools, 189 from private schools) Response rate: 100%	High	-	Staff report: SCP used as one possible disciplinary technique	81.40% (Ranked as most frequently used disciplinary method)
8	Ekanem & Edet (2013)	Calabar Metropolis, Cross River State, Nigeria Lower-middle	Stratified random sampling *N* = 250 teachers (130 from public schools, 120 from private schools) Response rate: 100%	High	-	Staff report: SCP used as one possible disciplinary technique	85.00% (Ranked as most frequently used disciplinary method)
9	Feinstein & Mwahombela (2010)	Iringa Region, United Republic (UR) of Tanzania Low	Sampling technique not reported *N* = 448 (194 students, 254 teachers) Response rate not reported	Primary	-	Student report: Received SCP in past-week Staff report: Use of SCP in a week Combined: Most commonly used types of SCP reported by teachers and students	46.00% • Never: 9.00% • 10+ times: 40.00% Teacher %, student %: • Physical labour (41.00%, 18.00%) • Strokes with cane or stick (39.00%, 69.00%)

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
10	Hecker et al. (2014)	Southern town, UR of Tanzania Low	Sampling technique not reported *N* = 409 students Response rate not reported	Primary	Gender: • F: 48.00% • M: 52.00% Age[d] range, (*M*): • 6-15, (10.49)	Student report: Lifetime experience of physical violence by school staff Lifetime witnessing of physical violence by school staff	• F: 91.00% • M: 98.00% • Overall: 95.00% • F: 99.00% • M: 91.00% • Overall: 98.00%
11	Mahmoud et al. (2011)	Ilorin, Nigeria Lower-middle	Random sampling *N* = 283 teachers Response rate: 60.80%	Primary	Gender (of 172 teachers who participated): • F: 52.90% • M: 20.30%	Staff report: Observation of other teachers disciplining students Observation of students being hit on various regions of the body	Cane, horse-whip • 82.00%, 45.90% • Buttocks: 61.00% • Back-side: 48.80% • Hand (palms): 52.30% • Head: 19.80% • Face: 16.30%

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
12	Monyooe (1994)	Lesotho Lower-middle	Convenience sampling *N* = 60 pupils (from 10 secondary schools) Response rate not reported (not applicable, as became participants by responding to open letter published in local newspaper)	High	Gender: • F: 43.33% • M: 56.67% Age[d] range, (*M*): • 14-29, (21.00)	Student report: Measure not reported explicitly (assume lifetime)	M (by age[d] range): • 14-17: 15.00% • 18-29: 41.60% F (by age[d] range): • 14-17: 10.00% • 18-29: 33.30%
13	Nconsta & Shumba (2013)	Buffalo City District, Eastern Cape, South Africa[c] Upper-middle	Purposive sampling *N* = 80 students *N* = 20 teachers *N* = 5 principals Response rate: 100% (students)	High	-	Student report: CP used as school disciplinary technique	• School A: 75.00% • School B: 65.00% • School C: 50.00% • School D: 50.00% • Total: 60.00%

	Author(s)	Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
14	Owusu & Manger (1996)	Greater Accra, Ashanti, and Volta regions, Ghana Lower-middle	Random sampling *N* = 155 teachers Response rate: 95.50%	High	Region: • Greater Accra: 30.42% • Ashanti: 35.13% • Volta: 34.45% Gender: • F: 41.00% • M: 59.00% Age[d]: • ≤40: 79.00% • ≥40: 21.00% Teaching experience (years): • ≤5: 33.00% • ≥5: 67.00%	Staff report: Used lashes 'sometimes' to deal with misbehaviour in the classroom	71.00%
15	Shaikhnag et al. (2016)	North West Province, South Africa[c] Upper middle	Random sampling *N* = 400 students *N* = 100 teachers Response rate: 95.00%	High	-	-	-

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
16	Shamu et al. (2016)	Pretoria, South Africa[c] Upper-middle	Purposive sampling (of schools) *N* = 3,755 students Response rate not reported	High	Gender: • F: 56.60% • M: 43.40%	Student report: Experience of SCP in past 6 months	• F: 46.30% • M: 60.50%
17	Shumba (2001)	Zimbabwe Low	Analysis of school physical abuse reported to Public Service Commission perpetrator files between 1990 and 1997	Primary	Gender: • F: 21.10% • M: 78.90%	Total cases:	38 cases (46 victims) By gender: • F: 41.30% • M: 58.70% By year: • 1990: 2.20% • 1991: 8.70% • 1992: 8.70% • 1993: 2.20% • 1994: 10.80% • 1995: 34.80% • 1996: 30.40% • 1997: 2.20%

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
18	Steyn & Naicker (2007)	Isipingo, Durban, South Africa[c] Upper-middle	Random sampling *N* = 1000 students Response rate: 42.00%	High	Gender: • F: 46.00% • M: 54.00% Age[d]: • 14-15: 52.63% • 16-17: 41.62% • 18-20: 5.74%	Student report: CP used by teachers	• 34.36% ‘yes’ • 19.90% ‘uncertain’

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
19	Talwar et al. (2011)	Region not specified, West Africa Cannot be determined	Sampling technique not reported *N* = 63 children (36 from non-punitive school, 27 from punitive school) Response rate not reported	Pre-primary and primary	Place: Urban neighbourhood Ethnicity: Majority Ewe, with French and Ewe languages (French medium schools) Gender by school: *Punitive:* • M: 58.30% *Non-punitive:* • M: 44.44% SES: Children of wealthy families (could afford school fees) Age[d] (*M)* by school and grade level: *Non-punitive:* • Kindergartners: 4.42 • Grade one: 6.50 *Punitive:* • Kindergartners: 4.47 • Grade one: 6.30	Number of SCP incidents reported in logbook	Punitive school: • *M* = 40 incidents of SCP per day (range: 15 to 65 incidents) Non-punitive school: • No incidents

Author(s)	Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
					SCP measure	Results
Latin America and the Caribbean						
20 Bailey et al. (2014)	Trinidad & Tobago (High); St. Kitts & Nevis (High); Grenada (Upper-middle); St. Vincent & the Grenadines (Upper-middle), Caribbean	Purposive sampling of schools, *N* = 17 Convenience sampling of students, *N* = 835 All available teachers participated, *N* = 206 Response rates not reported	Primary	Students: *Gender* • F: 54.00% • M: 46.00% *Age*[d] *range* • 8-13 Staff: *Gender* • F: 85.00% • M: 15.00%	Student report: Knew of a student who had been 'given lashes' by school staff Personally had been 'given lashes' by school staff Staff report: CP used as a disciplinary technique Use of CP	Overall: 94.00% Overall: 87.00% Overall: 82.00% • Rarely: 40.00% • Sometimes: 37.00%

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
21	Baker-Henningham et al. (2009)	Kingston, Jamaica Upper-middle	Random sampling *N* = 1,300 students Response rate: 72.00%	Primary	Place: • Urban Gender: • F: 51.00% • M: 49.00% Age[d] (*M*): • 11.00	Student report: Physically punished by teacher since entering grade 5 (median = 7.96 months)	Percentage students (by severity: *Moderate (1–2 types of SCP):* • F: 75.10% • M: 68.90% • Total: 72.10% *High (3+ types of SCP):* • F: 13.90% • M: 27.30% • Total: 20.50% Individual items: • 86.80% beaten with a strap, belt, or stick • 36.20% beaten with hand • 34.80% made to stand in uncomfortably • 9.00% made to stand in the sun • 6.60% made to kneel down • 1.60% had something thrown at them

	Author(s)	Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
	North America						
22	Arcus (2002)	US High	Secondary correlational analysis of existing data: *School shooting fatalities rate:* • Reported student deaths from shootings inside school or on school grounds, *N* = 112 • Number of school children per state used to approximate odds of death from school shootings per state *SCP:* • Based on 1997 report from NCACPS (National Coalition to Abolish Corporal Punishment in the Schools): 13 SCP permitting, 10 partial, and 27 banned states	-	Religion (percentage conservative Christian adherents): • SCP permitting: 31.60% • Partial SCP: 22.56% • SCP prohibiting: 18.02% SES (poverty rates): • SCP permitting: 16.41% • Partial SCP: 13.11% • SCP prohibiting: 11.20%	-	-

Author(s)	Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
					SCP measure	Results
		• Reported SCP in school-aged population by US Department of Education (DOE), 1997 *Confounding factors:* • Socioeconomic status: 1995 poverty rate • Religion: number of adherents to conservative Christian denominations per state				

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
23	Atiles et al. (2017)	Midwest regions (states not specified), US High	Convenience sampling *N* = 146 (78 in-service elementary teachers from two school districts, 68 pre-service midwestern university teachers) Response rate: 139 usable surveys	Pre-primary and primary	Occupation: *In-service teaching experience (M):* • 11.01 years Gender: *In-service*: • F: 100.00% *Pre-service:* • F: 98% Age[d] range, (*M*): *In-service:* • 22-61, (37.10) *Pre-service:* • 19-25, (21.23)	-	-

	Author(s)	Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
24	Bogacki et al. (2005)	Pennsylvania, Texas, and New Jersey, US High	Sampling technique not specified (20 schools) *N* = 575 school personnel Response rate: 67.00%	Primary and high	Place: • New Jersey: 50.90% • Pennsylvania: 43.10% • Texas: 6.00% Occupation: • Primary school teacher: 32.30% • High school teacher: 28.20% • Special education teacher: 17.30% Gender: • F: 63.60% • M: 36.40%	Staff report: Used SCP in present school year	By state: • Pennsylvania: 50.60% • Texas: 48.10% • New Jersey: 26.50% Total: • 38.20%

Author(s)	Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
					SCP measure	Results
25 Frazier (1990)	US High	Correlational analysis using existing data: US DOE survey data from 1979-80, 1981-82, 1983-84, 1985-86	-	-	Average percentage of children who received CP at school (across all four surveys)	• Arkansas: 12.74% • Mississippi: 11.45% • Florida: 10.05% • Tennessee: 9.67% • Alabama: 9.59% • Oklahoma: 9.26% • Texas: 8.29% • Georgia: 7.89% • Kentucky: 6.19% • South Carolina: 5.96% • Louisiana: 4.85% • North Carolina: 4.78% • Ohio: 4.76% • Indiana: 3.71% • New Mexico: 3.34% • West Virginia: 3.12% • Missouri: 2.46% • Arizona: 1.98%

Author(s)	Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
					SCP measure	Results
26 Gregory (1995)	US High	Correlational analysis using existing data: 1992 US DOE OCR biennial census Sampling deliberately not random (biased toward larger US school districts) *N* = 4,692 public school districts and 43,034 public schools country-wide (represents 31.00% of school districts nationwide, and 59.00% of enrolled public school children)	-	Race: • Black: *n* = 2,957,081 • White: *n* = 10,283,660 • Proportion of African-American students in CP-permitting states 62.00% greater than in non-CP states Gender: • F: 7,360,874 • M: 7,737,915	Previous academic year	286,539 incidents of SCP in 1992 Gender: • F: 18.51% • M: 81.56% Race: • Black: 127,103 (M: 76.65%) • White: 137,261 (M: 85.79%)

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
27	Grossman et al. (1995)	US High	No sampling required (survey sent to all schools in Washington State) *N* = 2,166 principals Response rate: 47.00%	Primary and high	Place: • Urban: 63.00% • Rural: 37.00% School sex composition: • Mixed: 99.70% • Boys: 0.30% Students receiving subsidised lunches (SES): • 0: 18.90% • <25: 34.00% • 25-49: 29.90% • 50-74: 12.70% • ≥75: 4.50% Age by school level: • Elementary: 58.30% • Middle: 12.40% • High: 14.80% • Combination: 21.80%	Staff report (principals): CP permitted as a school disciplinary tool	Overall: 10.90% Location: • Urban: 7.90% • Rural: 16.20% School type: • Public: 10.40% • Private parochial: 16.30% • Private non parochial: 11.30% School size: • <500: 13.10 % • ≥500: 8.10% Grade structure: • Traditional: 8.80% • Complete (e.g. Kindergarten-8, Kindergarten-12): 19.50% Subsidised lunches: • <25%: 10.20% • ≥25%: 11.90%

Author(s)	Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
					SCP measure	Results
28 Han (2011)	US High	Correlational analysis using existing data: Data obtained through the School Survey on Crime and Safety (SSOCS) 2005-2006 administered by US DOE Stratified random sampling (for school level, size, location, geographic region and minority status), *N* = 2,724 *N* = 362 (purposive selection of schools where SCP permitted only)	Primary and high	Place: • City: 10.50% • Urban fringe: 22.60% • Town: 19.10% • Rural: 47.80% Race (minority students)[f]: • ≤ 5%: 16.50% • 6–20%: 21.90% • 21–50%: 33.80% • 51%+: 27.80% School level • Elementary: 22.70% • Middle: 35.90% • High: 29.50% • Combined: 11.90%	Staff report (principals): SCP used during 2005-2006 school year	Location: • City: 63.16% • Urban fringe: 56.10% • Town: 79.71% • Rural: 72.83% Minority students: • ≤ 5%: 55.56% • 6–20%: 62.50% • 21–50%: 70.27% • 51%+: 80.22% School level: • Elementary: 70.73% • Middle: 69.23% • High: 61.68% • Combined: 86.05% School size: • ≤ 300: 71.64% • 300–499: 73.12% • 500–999: 73.05% • 1,000+: 52.46%

Author(s)	Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
					SCP measure	Results
29 Han (2014)	US High	Correlational analysis using existing data: Data obtained through SSOCS 2005-2006 administered by US DOE Stratified random sampling public schools (by school level, location, and size) *N* = 1,067 schools (rural areas only) Response rate: 77.20%	Primary and high	Place: Rural	During 2007–2008 school year	SCP permitting policies • 20.00% rural schools SCP implemented • 78.50% rural schools
30 James (1994)	Unspecified upper Midwest state, US High	Purposive sampling *N* = 50 directors of special education Response rate: 80.00%	Combination all	-	Staff report: SCP condoned for students emotional/behavioural disorders SCP used on students with emotional/behavioural disorders	13.00% • No: 92.00% • Unsure: 8.00%

Author(s)	Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
					SCP measure	Results
31 Kennedy (1995)	Rural south, US High	Sampling technique not reported *N* = 1,058 (256 teachers, 60 paraprofessionals, 241 practicing student teachers, 480 college students) Response rate: • Teachers and paraprofessionals: 77.00% • Student teachers: 98.00% • Students: 100.00%	Combination all (teachers)	Gender (*n)*: *Teachers:* • F: 214 • M: 42 *Paraprofessionals:* • F: 50 • M: 10 *Student teachers:* • F: 205 • M: 36 *Students:* • F: 304 • M: 176	-	-

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
32	Little & Akin-Little (2008)	US High	Sampling technique not reported *N* = 149 teachers Response rate not reported	Combination all (teachers)	Place (districts): • Rural: 50.00% • Urban: 35.00% • Suburban: 8.00% Race: • White: 83.00% Occupation: • Regular education teachers: 78.00% • 72.00% grades kindergarten–6 teachers Gender: • F: 81.00% • M: 19.00%	Staff report: CP used for chronic offenders CP allowed in school district Observed CP used in school	 10.00% 47.00% 32.00%

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
33	McClure & May (2008)	Kentucky, US High	Sampling frame: 120 counties in Kentucky (county-wide index of SCP)	-	-	Prevalence: • SCP used at least once in 2004-2005 school year Incidence: • County SCP rate	1/3 of districts 44 counties used SCP, by region: • Eastern: 64.300% • Western: 40.60% • Northern: 26.10% • Midwestern: 19.00% • Central: 18.70%
34	McFadden et al. (1992)	South Florida, US High	*N* = 4,391 disciplinary files from August 1987 and April 1988 in South Florida school district (where SCP legal and disciplinary file maintenance is mandatory)	Primary and high	Race (enrolment in district): • Black: 22.00% • Hispanic: 18.00% • White: 57.90% • Other: 2.10%	Disciplinary violations in which SCP was used Racial breakdown of SCP cases	30.30% (second most common) Black: 54.10% Hispanic: 11.80% White: 33.10% Other: 1.00%

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
35	Nickerson & Spears (2007)	US High	Correlational analysis using existing data: Data obtained through the SSOCS, 2000 Stratified random sampling (nationally representative), *N* = 2,270 principals of US public schools Response rate: 70.00%	Primary and high	Place (*n*): • Cities: 603 • Urban fringe: 810 • Towns: 365 • Rural: 492 • Northeast: 397 • Southeast: 548 • Central region: 668 • West: 657 Race: *% minority school students:* • 597 schools: 5.00% • 624 schools: 5-19.00% • 506 schools: 20-49.00% • 543 schools: 50.00%	At least one incident of SCP in the 2000-2001 school year	14% of schools used SCP

Author(s)	Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
					SCP measure	Results
36 Owen (2005)	US High	Correlational analysis of existing data: *SCP practices* Data obtained from 55,769 schools nationally by the US DOE through the 1998 Elementary and Secondary School Survey, which was used to determine the rate of SCP per 100,000 students in each state *Social capital* Researchers conducted the Comprehensive Social Capital Index for each state	Primary and high	-	Rate of SCP	*0.00:* California, Colorado, Connecticut, Illinois, Iowa, Massachusetts, Maine, Maryland, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Dakota, Oregon, Rhode Island, South Dakota, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin *0.01–2,017.00:* Arizona, Delaware, Florida, Idaho, Indiana, Kentucky, Missouri, New Mexico, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Wyoming *2,017.01–4,957.00:* Georgia, Kansas, Louisiana, Tennessee, Texas *4,957.01–7,898.00:* Alabama *7,898.01–10,100.75:* Arkansas, Mississippi

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
37	Owen & Wagner (2006)	US (Hawaii and Alaska excluded) High	Correlational analysis of existing data: *SCP practices:* Data collected from Elementary and Secondary School Survey, 2000 14,681 districts sampled (no mention of sampling, or response rate) *% of rurality and race:* 2000 Census by US Census Bureau, 2003 *Poverty and % education level*: 2000 Census by US Census Bureau, 2003 *ARDA* "Rate (per 1,000) of evangelical and mainline protestant adherents" (p. 483) from national survey of religious organisations, 2000	Primary and high	Place: • *M* = 34.50% rural residents Race: • *M* = 10.20% African-American residents Religion (*M*): • Rate (per 1000) of evangelical adherents: 147.16 • Rate (per 1,000) of mainline adherents: 111.01 SES: • 12.23% residents in poverty	At least one SCP incident in the state in 2001-2002	23 (48.00%) states classified as practicing according to definition

Author(s)	Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
					SCP measure	Results
38 Rose (1984)	US High	Random sampling *N* = 324 schools Response rate: 71.00%	Primary and high	Race (black students): • 0: 18.40% • 1-100: 48.20% • 101-200: 14.50% • 201-300: 7.90% • 301-400: 4.80% • 400+: 6.10% Gender[g] (principals): • F: 11.20% • M: 87.10% Gender (students): M: • 0-150: 22.40% • 151-300: 35.50% • 301-450: 24.60% • 451-600: 9.60% • 600+: 7.90% F: • 0-150: 21.60% • 151-300: 35.80% • 301-450: 22.80% • 451-600: 10.30% • 600 or more: 9.50%	Staff report (principals): SCP allowed in school Number of times SCP used by principal during past month (percentage of principals who responded in each category)	74.10% M: • 0-5: 44.80% • 6-10: 22.70% • 11-15: 18.20% • 16-20: 5.20% • 21-25: 1.30% • 26+: 7.80% F: • 0-5: 88.90% • 6-10: 5.10% • 11-15: 5.90% • 16-20: 0.00% • 21-25: 0.00% • 26+: 0.00% Black: • 0-5: 64.90% • 6-10: 18.40% • 11-15: 11.40% • 16-20: 0.00% • 21-25: 3.50% • 26+: 1.80%

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
39	Rust & Kinnard (1983)	Tennessee, US High	Stratified random sampling *N* = 317 teachers Response rate: 36% (only teacher with complete SCP usage records eligible to participate)	Combination all (including special education)	Race: • Black: 11.00% • White: 89.00% Gender: • F: 83.00% • M: 17.00%	Paddling incidents in previous year based on teacher records	*M* = 19 times Wide range (0-156), but number of uses of SCP by teachers was evenly spread among the 0, 1-5, 6-20 and 20+ SCP use groups
40	Shaw & Braden (1990)	Central Florida, US High	*N* = 6,244 discipline files from one school district between August 1987 and April 1988	Combination all	Race[h] (school population, referral cases): • Black: 19.1%, 27.8% • White: 75.1%, 67.9% Gender (school population, referral cases): • F: 47.6%, 29.6% • M: 52.4%, 68.7%	Swat or lick to buttocks of student with hand or paddle from August 1987 to April 1988	SCP used in 24.7% of all discipline referrals

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
41	Vandenbosch (1991)	US High	Correlational analysis of existing data: Data obtained from OCR 1986-1987 survey Stratified sample of public elementary and secondary schools from 50 states and Washington, D.C. Response rate: 98.00% Current sample: 21.30% of above (3,378 districts, 37,313 schools, and 23,544,704 students)	Primary and high	Race: Corrected for overrepresentation of minority students	Use of SCP in 1986-1987 school year	% students hit per state: 0-5: Arizona, Colorado, Connecticut, Delaware, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, South Dakota, Utah, Virginia, Washington, West Virginia, Wisconsin, Wyoming 5.01-10: Florida, Georgia, Oklahoma, South Carolina, Tennessee, Texas 10.01+: Alabama, Arkansas

	Author(s)	Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
	South-East Asia						
42	Cheruvalath & Tripathi (2015)	India Lower-middle	Sampling technique not reported *N* = 160 teachers Response rate not reported	Primary and high	Gender: • F: 48.75% • M: 51.25%	Staff report: Use of CP in the classroom	• Often: 14.00% • Rare: 56.00% • Never: 30.00%

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
43	Deb et al. (2017)	Puducherry, India Lower-middle	Two-stage cluster sampling *N* = 519 students (complete data) Response rate not reported	High	Gender: • F: 37.40% • M: 62.60% Age[d]: • 11-12: 15.00% • 13-14: 61.50% • 15-16: 23.50% School level: • 8th grade: 42.80% • 9th grade: 33.70% • 10th grade: 23.50%	Student report: Physical injury or seriously hurt due to discipline by school personnel in previous year SCP occurrence rate in previous year	Total: 62.2% By gender: • F: 54.1% • M: 66.5% By school type: • Public: 70.8% • Private: 51.7% By amount: • Rarely (no more than one incident in 6 months): 27.6% • Occasionally (± one incident per month): 44.9% • Regularly (± one or two incidents per week): 27.6%

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
44	Raikhy & Kaur (2009)	Ludhiana City, Punjab, Delhi Lower-middle	Multi-stage random sampling *N* = 200 students Response rate not reported	High	Education: • Majority of parents studied up to matric level SES: • Adolescents of lower-middle class Age[d] range: • 12–16	Student report: Experience of mild[i] SCP: Experience of moderate[i] SCP: Experience of severe[i] SCP:	By gender: • F: 37.68% • M: 17.20% • Overall (*n*): 42 • F: 56.52% • M: 50.54% • Overall (*n*): 86 • F: 5.80% • M: 32.26% • Overall (*n*): 86

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
45	Raikhy & Kaur (2011)	Ludhiana City, Punjab, Delhi Lower-middle	Same as Raikhy & Kaur (2009)	High	Age[d] range: • 12-16	Student report: Experience of mild[i] SCP:	By frequency: *Once a week:* • M: 48.39% • F: 43.47% • Overall (*n*): 75 *Once a month:* • M: 17.20% • F: 31.88% • Overall (*n*): 38
						Experience of moderate[i] SCP:	*Once a week:* • M: 51.35% • F: 20.00% • Overall (*n*): 48 *Once a month:* • M: 9.46% • F: 46.00% • Overall (*n*): 30
						Experience of severe[i] SCP:	*Once a week:* • M: 50.55% • F: 16.95% • Overall (*n*): 56 *Once a month:* • M: 26.37% • F: 59.32% • Overall (*n*): 59

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
	Europe						
46	Csorba et al. (2001)	Budapest and Szeged, Hungary High	Purposive sampling *N* = 526, 8-17 year old outpatients referred to one of five Hungarian child psychiatric facilities in one year, who met inclusion criteria and presented with full data set	Primary and high	Depressive group: *Gender:* • F: 44.20% • M: 55.80% *Age*[d]*:* • *M* = 11.60 Control clinical group: *Gender:* • F: 25.70% • M: 74.30% *Age*[d]*:* • *M* = 10.91 Overall: *Race:* • Caucasian: 97.20% • Gypsy: 2.70% *Gender* • F: 33.30% • M: 66.70% *Age*[d]*:* • *M* = 11.60	-	-

	Author(s)	Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
	Eastern Mediterranean						
47	Ali et al. (2014)	Districts Nowshera and Swabi, Pakistan Lower-middle	Sampling technique not specified *N* = 578 (145 9th grade mathematics teachers, 433 students) Response rate not reported	High	-	-	-
48	Bakhtiar et al. (2014)	Khorramabad, Islamic Republic of Iran Upper-middle	Multi-stage systematic and stratified random sampling *N* = 710 (355 male and female children) Response rate not reported	Primary	Gender: • F: 50.00% • M: 50.00% Age[d] range: • 5–10	-	-

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
49	Youssef et al. (1998)	Alexandria, Egypt Lower-middle	Multistage random sampling *N* = 2,170 students Response rate not reported	Primary and high	Gender: • M: 61.43% • F: 61.57% Age[d] range (*M*): • 10.5-20 (14.58) School level: • Preparatory: 53.46% • Secondary: 46.54%	Student report: Physical punishment by teachers during 1996-1997 school year	• F: 61.53% • M: 79.6%
50	Youssef et al. (1999)	Alexandria, Egypt Lower-middle	Same as Youssef et al. (1998)	Primary and high	School level: Same as Youssef et al. (1998)	-	-

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
	Western Pacific						
51	Ahmed et al. (2015)	Selangor State, Malaysia Upper-middle	Two-stage stratified cluster random sampling *N* = 3,948 eligible students Response rate: 88.90%	Primary	Place: *Urban schools* (medium of instruction Malay): 10 *Rural vernacular schools*: 7 • Chinese medium of instruction: 4 • Tamil medium of instruction: 3 Ethnicity: • Malay: 45.00% • Chinese: 36.00% • Indian: 19.00% Gender: • F: 48.20% • M: 51.80% Age[d]: • Range 10-12	Student report: Lifetime SCP by teachers	• F: 16.20% • M: 34.70% • Total: 25.80%

Author(s)		Site of study and GNI per capita[a]	Sampling and response rate	School level(s)	Equity data[b]	Prevalence data	
						SCP measure	Results
52	Lee (2015)	Seoul and Gyeonggi-Do, South Korea, Republic of Korea High	Random sampling *N* = 1,777 students Response rate not reported	High	Gender: • F: 56.10% • M: 43.90% Age: • Grade 7: 37.80% • Grade 8: 35.90% • Grade 9: 26.40%	Student report: At least once incident of physical punishment during previous year reported	24.30%
53	Ritchie (1983)	Hamilton City, Waikato region, New Zealand High	Sampling method for school selection not reported, convenience for student selection *N* = 363 students from 8 different schools, which included: coeducational, or girls' or boys' only; private or state; not permitting CP, or permitting CP for male students; and Roman Catholic religion or non-religious Response rate not reported	High	Gender: • F: 183 • M: 180 Age: Mainly sixth form	-	-

Note. Studies are presented according to World Health Organisation (WHO) region and alphabetically. Cells that contain only – indicates that the applicable data was not reported. SCP = school corporal punishment; F = female; M = male.

[a]GNI = 2016 gross national income (GNI) per capita, calculated using the World Bank Atlas method where groups are: low income, ≤ $1,005 or less; lower middle income, $1,006–3,955; upper middle income, $3,956–12,235; and high income, ≥ $12,236 (World Bank Group, 2017). [b]All available equity data provided according to PROGRESS-

Plus framework (O'Neill et al., 2014). [c]School corporal punishment bans have been enacted in Kenya (2001), Uganda (1997; although not fully illegal), and South Africa (1996). [d]Age (*M* and range) in years. [e]Equity data for 529 referred children only. [f]Data only available for 328 schools. [g]Deduced from principal name provided where available. [h]Asian and Hispanic students excluded. [i]Mild SCP included "scolding, throwing away of notebook, humiliation, diary writing, detaining during lunch and games period etc."; moderate SCP included "being forced to sit on the floor, kneel down, stand up, cleaning school premises etc."; severe SCP included "beating with a stick, slapping, ear twisting, kicking, strangling, standing in the sun etc." (Raikhy & Kaur, 2011, p. 440-41)

Table E2

Consequences and risk & protective factors

Author(s)	Consequences	Risk & protective factors
Africa		
3	Odds of children exhibiting aggressive behaviour significantly higher for SCP victims, *OR* = 1.38, 95% CI [1.04, 1.82] Frequency of SCP is significant predictor (p = 0.03) when added to regression model containing family and child characteristics	-
4	Student disclosed actions related to SCP: • 13.40% ever missed classes or absent • 11.50% of injured children sought medical attention at clinic	-

Author(s)	Consequences	Risk & protective factors
5	Females: Independently associated with increased odds of: • High levels of mental health difficulty, *AOR* = 1.82, 95% CI [1.17-2.82], *p* = .009 • Low performance on educational tests, *AOR* = 1.78, 95% CI [1.19-2.66], *p* = .006 Males: *With low and medium SDQ[a] difficulties, independently associated with:* • Medium levels of mental health difficulties (versus low levels), *AOR* = 1.73, *p* = .005 • Decreased odds for lower performance on educational tests, *AOR* = 0.71, 95% CI [1.17-2.82], *p* = .04 • Higher odds of any sexual or emotional violence from school staff in lifetime, *AOR* = 2.84, 95% CI [2.10-3.84], *p* < .001 • Higher odds of any violence from others in the lifetime, *AOR* = 1.45, 95% CI [1.19-1.78], *p* = .001 *With high SDQ[a] difficulties, independently associated with:* • Decreased odds for lower performance on educational tests, *AOR* = .24, CI [0.13-0.43], *p* <.001 • Increased odds of any sexual or emotional violence from school staff in lifetime, *AOR* = 4.13, 95% CI [1.40-12.25], *p* < .01	Decreased odds of past-week physical violence by school staff for: • Females, *AOR* = .90, 95% CI [0.84, 0.96], *p* = .003 • Females with higher SES (eaten at least three meals the previous day), *AOR* = .77, 95% CI [0.61, 0.98], *p* = .03 • Males with low and medium SDQ scores, *AOR* = .89, 95% CI [0.82, 0.98], *p* = .02 • Males with low and medium SDQ scores who report disability, *AOR* = .61, 95% CI [0.40–0.95], *p* = .03 Increased odds of SCP use by male staff who: • Experienced "intimate partner violence, non-partner sexual violence, and/or childhood sexual abuse" (p. e314), *OR* = 2.24, 95% CI [1.15–4.37], *p* = .02 • Use violence against other people, *OR* = 2.47, 95% CI [0.99–6.12], *p* = .05 Children who experienced SCP also at increased odds of: • Any sexual or emotional violence from school staff in lifetime, *AOR* = 2.70, 95% CI [1.97-3.70], *p* < .001 • Any violence from others in the lifetime, *AOR* = 1.64, 95% CI [1.27-2.13], *p* < .001
10	-	Boys experienced significantly more SCP than girls, χ^2 = 9.83, *p* = .003
15	No significant relationship between SCP ban and increased misbehaviour, χ^2 = 0.28, *p* = .279 and 0.45, *p* = .417	-

Author(s)	Consequences	Risk & protective factors
16	Odds of male students perpetrating, or female students experiencing, intimate partner violence significantly higher for: • Males exposed to SCP, *OR* = 1.29; 95% [CI = 0.90–1.85] • Males, *OR* = 2.00; 95% [CI = 1.49–2.69], and females, *OR* = 1.69; 95% [CI = 1.15–2.49], exposed to SCP and home corporal punishment	Boys experienced significantly more violence at school than girls, $p < 0.001$
19	Grade one non-punitive school children had significantly higher receptive vocabulary scores than punitive school peers, no difference between younger students, $F(1, 59) = 11.26$, $p < .001$, partial $\eta^2 = .19$ Executive functioning scores higher overall among grade one non-punitive school children than punitive school peers, similar scores between younger students, $F(1, 57) = 4.26$, $p < .05$, partial $\eta^2 = .08$	-
Central America		
20	-	Students in Trinidad & Tobago and St Kitts & Nevis were significantly more likely to report SCP than those in Grenada and St Vincent & the Grenadines, $\chi^2 = 14.06$, $df = 3$, $p < .001$
21	High SCP exposure (3 or more types) associated with significantly poorer performance in: • Spelling, *OR* = −4.19, 95% CI [−7.88, −0.50], $p < .05$ • Reading, *OR* = −3.83, 95% CI [−6.31, −1.35], $p < .01$ • Mathematics, *OR* = −2.73, 95% CI [−4.29, −1.17], $p < .01$ Moderate SCP exposure (1-2 types) associated with significantly poorer performance in: • Mathematics, *OR* = −1.77, 95% CI [−3.12, −0.42], $p < .05$	Boys reported receiving significantly more SCP, $\chi^2 = 21.48$, $p <. 0001$

Author(s)	Consequences	Risk & protective factors
North America		
22	School shooting fatalities increased in relation to SCP policy when controlling for differences in state poverty rates and religious conservatism, $F(2, 45) = 5.36$, $p < .01$, eta = .44 Increased odds for school shooting fatalities in SCP permitting states compared to: • Prohibiting states, $OR = 2.04$, 95% CI [1.62, 2.46], $p < .05$ • Partial states, $OR = 1.7$, 95% CI [1.27, 2.27], $p < .05$	-
23	-	In-service teachers and pre-service teachers who strongly valued: • Developmentally appropriate practice (DAP) reported significantly more non-punitive responses, $B = .51$, $\beta = .38$, $t = 4.56$, $p < .001$ • SCP reported significantly more punitive responses, $B = .19$, $\beta = .28$, $t = 3.41$ $p = .001$ In-service teachers from SCP permitting school district used non-punitive practices significantly less than teachers from SCP banned school district, $B = -.48$, $\beta = -.28$, $t = -2.46$, $p = .002$ In-service teachers used significantly more punitive responses than pre-service teachers in: • SCP permitting district, $B = .51$, $\beta = .23$, $t = 2.63$, $p < 001$ • SCP banned district, $B = .39$, $\beta = .27$, $t = 3.26$, $p = 001$
24	-	School personnel who supported SCP use were significantly more likely to engage in SCP than those with less favourable attitudes, $F(1, 186) = 190.90$, $p < .001$

Author(s)	Consequences		Risk & protective factors
26		-	Likelihood ratios of SCP use: • Males to Females = 4.21:1 • Black to Whites = 3.26:1 • Black males to Black females = 3.06:1 • Black males to White males = 2.81:1 • Black males to White females = 16.00:1
27		-	Odds of SCP use significantly higher in: • Rural schools, *AOR* = 2.10, 95% CI [1.30, 3.40][b] • Schools with <500 students, *AOR* = 1.20, 95% CI [0.71, 2.00], *p* = 0.05

Author(s)	Consequences	Risk & protective factors
28	-	Odds of principals using SCP significantly lower in schools: • With multiple school student safety prevention programmes, *OR* = 0.09, 95% CI [0.88, 0.99], *p* = .0311 • With multiple school safety teacher training programmes, *OR* = 0.93, 95% CI [0.90, 0.97], *p* = .0004 • That are low-performing, *OR* = 0.60, 95% CI [0.51, 0.70], *p* < .0001 • That are larger, *OR* = 0.88, 95% CI [0.82, 0.94], *p* = .0003 • In the city, *OR* = 0.60, 95% CI [0.53, 0.66], *p* = .0003 Odds of principals using SCP significantly higher in schools: • With a large proportion of ethnic minority students, *OR* = 2.06, 95% CI [1.95, 2.19], *p* < .0001 • With a large proportion of special education students, *OR* = 1.83, 95% CI [1.41, 2.37], *p* < .0001 • Where school principals employ other official disciplinary actions (e.g., expulsion, suspension, etc.) frequently, *OR* = 2.64, 95% CI [2.12, 3,28], *p* < .0001 Elementary school principals employing frequent official disciplinary actions more likely to employ SCP than secondary school principals, *OR* = 1.25, 95% CI [1.11, 1.41], *p* = .0004
29	Negative association between SCP and: • Number of violent incidents, $B = -.109$, $p < 0.001$, adj. $R^2 = 0.22$ • Students' academic aspirations, $B = -12.002$, $p < 0.001$, adj. $R^2 = 0.27$ Positive association between SCP and: • Number of insubordination incidents, $B = 0.049$, $p < 0.001$, adj. $R^2 = 0.18$	-

Author(s)	Consequences		Risk & protective factors
31		-	Teacher report of high SCP use associated with judging SCP as more effective, $R^2 = .55$, $p < .0001$ Predictors of perception of SCP effectiveness were increased frequency of SCP use for middle-school teachers and paraprofessionals, $R^2 = 55$, $p < .0001$, and high-school teachers, $R^2 = 53$, $p < .001$
33		-	Moderate regional differences in SCP prevalence, $\chi^2 = 15.541$, $p = .004$ SCP prevalence and incidence significantly associated with median household income, $B = .00$, $p < .001$
34		-	Significant relationship between race and type of punishment, with Black students experiencing greater percentages of SCP and school suspension, and lower internal suspension percentages, $\chi^2 \leq 137$, $df = 16$, $p < .00001$ Significant relationship between gender and type of punishment, with males receiving SCP more often than estimated based on number of disciplinary referrals, $\chi^2 \leq 126$, $df = 13$, $p < .00001$
35		-	Significantly decreased odds of SCP use in: • Elementary schools with full-time equivalent mental health professionals, $B = -.31$, $p = .039$, $OR = .39$ • Urban fringe areas, $B = -.99$, $p < .001$, $OR = .37$ • City schools compared to rural schools, $B = -.80$, $p < .001$, $OR = .45$ Significantly increased odds of SCP use in: • Combined schools compared to elementary schools, $B = .79$, $p = .001$, $OR = 2.21$ • Schools with 21-50% students ($B = .53$, $p = .007$, $OR = 1.7$) and 51%+ students ($B = 1.40$, $p < .001$, $OR = 4.07$) receiving free and reduced lunch, compared to schools with less than 20% of schools receiving free and reduced lunch

Author(s)	Consequences		Risk & protective factors
36		-	SCP rates were significantly higher in East South Central and West South Central areas than other regions, $\chi^2 = 29.06$, $df = 8$, $p < .001$ Significant inverse relationship shared between social capital and: • SCP rate (in SCP banned states), $r = –.55$, n = 23, $p < .01$, $R^2 = .31$ • Regional rate of SCP, $r = –.70$, n = 9, $p < .05$, $R^2 = .49$ • Racially disproportionate SCP use, $r = .44$, n = 22, $p < .05$, $R^2 = .20$ African Americans experienced disproportionately: • High SCP rates in Arizona ($z = –1.05$), Georgia ($z = –1.06$), South Carolina ($z = –1.88$), and Tennessee ($z = –1.50$) • Low SCP rates in Kansas ($z = +1.47$), Kentucky ($z = +1.38$), Ohio ($z = +1.28$), and Pennsylvania ($z = +1.60$)
37		-	Model including social capital and evangelical Protestantism statistically reliable in predicting whether states SCP "practicing" or "non-practicing", χ^2 (2) = 28.22, $n = 48$, $p < 0.001$, $R^2 = .593$. 80.80% of variance explained by model with social capital, $B = -1.54$, $p < .01$, and rate of evangelical adherents, $B = 0.01$, $p < .001$ "Social capital may mediate effect of evangelical Protestantism on rate of SCP" (p. 493), $t = 2.08$, $p < 0.05$
38		-	Female principals, $\chi^2 = 5.24$, $p = .02$, and principals in smaller communities, $\chi^2 = 18.38$, $p = .01$, significantly more likely to use SCP Students in lower grades, $\chi^2 = 7.43$, $p = .05$, and black students, $\chi^2 = 11.50$, $p = .02$, significantly more likely to receive SCP

Author(s)	Consequences		Risk & protective factors
39		-	Teacher reported SCP use correlated: *Positively with:* • Dogmatism and Neuroticism scores (which were highly correlated, r = .77, p < .001), r = .57, p < .001 and r = .64, p < .001 respectively • Extraversion scores, r = .31, p < .01 • Use of physical punishment on current educators by childhood teachers, r = .16, p < .05 *Negatively with:* • Teaching experience (years), r = -.16, p < .05 • Amount of methods tried before SCP, r = - .24, p < .01
40		-	Race (r = .10, p < .006) and gender (r = .19, p < .002) related to and were significant predictors of SCP, R = .214, F = 1.742, p < .004, with increased risk for black males Grade related to SCP, r = -.57, p < .0001, with increased risk in lower grades
41		-	Increased risk of SCP use for traditionalistic political culture, even when controlling for region, r = 0.749, r^2 = 0.560, p = .0001
South East Asia			
43	SCP shared significant positive association with internalising problems, b = 1.05, SE = 0.33, t = 3.16, p <0.01 Relationship between SCP and internalising problems increased with presence of family tension, b = 1.91, SE = 0.62, t = 3.08, p = .002		-
44	Reported injuries due to teacher SCP by gender (and most frequent types): • 36 males (bruises: 29.31%, internal injury: 24.31%) • 22 females (bruises: 20.68%, internal injury: 13.79%) Correlations for state and trait anxiety among adolescents and SCP vary slightly in intensity but in all cases, r < 0.94, p < 0.01 (also no difference between age group and gender)		Significantly more boys experienced severe SCP, z = 4.09, p < .01 Significantly more girls experienced mild SCP, z = 2.94, p < .01

Author(s)	Consequences	Risk & protective factors
45	-	Significantly more boys experienced: • Mild SCP (overall), $t = 2.00$, $p < .05$ • Severe SCP (overall), $t = 4.65$, $p < .01$ Significantly more girls experienced: • Moderate SCP (once a month), $t = 7.21$, $p < .01$
Europe		
46	Odds of children and adolescents presenting with depressive symptoms, as opposed to another psychiatric condition, significantly higher for those who experienced past physical punishment (at least a year prior to assessment) by teachers, $OR = 3.25$, 95% CI [1.07, 9.84], $p = .037$	-
Eastern Mediterranean		
48	Of 78 children who experienced SCP, 14.1% had nocturnal enuresis, $p = 0.036$	-

Author(s)	Consequences		Risk & protective factors
49		-	Significantly more boys: • Experienced SCP, χ^2 = 88.41, p = .00000, OR = 2.50, 95% CI [2.05, 3.4] • Were frequently physically punished by means of sticks and hands, χ^2 = 14.37, p = .00015, χ^2 = 25.37, p = .00000 • Reported SCP-related physical injuries, χ^2 = 12.26, p = .00046 No significant gender difference in most common site (hands and arms) and requirement of medical attention SCP odds decreased per each additional year in child age, OR = .8001, p = .00000[c] Significant association between home and SCP use, χ^2 = 94.88, p = .00000, OR = 2.93[c] Increased SCP risk (final model) for: • Boys, OR = 1.62, p < 0.001[c] • Preparatory students, OR = 1.73, p < 0.001[c] • Those who disrupt class discipline, OR = 1.20, p = 0.013[c] • Students with poor academic performance, OR = 1.23, p = .0003[c]
50	Odds of violent behaviour in children and adolescents significantly higher for those exposed to SCP, OR = 2.65, 95% CI [2.13, 3.30], p < .05 SCP exposure significant independent predictor of child and adolescence interpersonal violence, r = .44, p = .0008, AOR = 1.55, p < .05		-

Author(s)	Consequences	Risk & protective factors
Western Pacific		
51	SCP associated with increased odds of high score (31+) on Centre for Epidemiological Studies Depression Scale for Children (CES-DC), *OR* = 1.395, 95% CI [0.88, 2.21]	Decreased SCP risk for: • Urban compared to rural locations, *AOR* = 0.71, 95% CI [0.56, 0.91][b] • Chinese compared to Malay student ethnicity: *OR* = 0.21, 95% CI [0.15, 0.29][b] Increased risk of SCP associated with children: • Who are male, *AOR* = 2.89, [b] 95% CI [2.25, 3.71][b] • Exposed to parental conflict, *OR* = 2.02, 95% CI [1.47, 2.77][b] • Who move house many times compared to never, *OR* = 3.00, 95% CI [1.76, 5.12][b] • Also physically maltreated at home (double the odds, statistics not reported)[b]
52	-	SCP experiences significantly higher for males than females, χ^2= 37.654, *p* = .000
53	Significantly increased violent attitudes for boys who experienced SCP at primary, *t*(95) = 2.04, *p* < .03, and intermediate levels, *t*(95) = 2.48, *p* <.02, but not secondary.	Boys significantly more likely to experience SCP at primary, intermediate, and secondary level (*p* < .001, at all levels)

Note. Studies are presented according to World Health Organisation (WHO) region and alphabetically. Cells that contain only – indicates that the applicable data was not reported. SCP = school corporal punishment; *OR* = odds ratio; *AOR* = adjusted odds ratio; CI = confidence interval.
[a]SDQ = Strengths and Difficulties Questionnaire, defined as a "brief screening instrument […] used to measure symptoms of common childhood mental disorders" (Devries et al., 2014; p. e131) that has been validated in multiple regions. [b]*P*-value not reported. [c]CI values not reported.

Table E3

Interventions

Author name	Intervention	SCP outcome	Effect size	Harmful effects	Other outcomes	Methodological quality score (total = 28)[a]
47	No specific name for intervention Procedure (conducted over 14 days): • Awareness raising regarding the negative student-related consequences of SCP (first two days) • Presentation of SCP alternatives: Preventive and corrective approaches to classroom management (remaining days) • Focus group (final day after training) Pre-test: scale of attitudes towards SCP (145 teachers selected seemingly using purposive sampling), 51 teachers identified as having positive attitudes towards SCP Training: delivered to these 51 teachers (only 48 available for post-test) Teacher behavioural questionnaire regarding SCP use by teachers completed pre- and post-test by 433 students of the teachers identified as having positive attitudes to SCP. Sampling for student informants not specified	SCP behaviour of teachers at post-test was significantly different beyond $\alpha = .01$ following intervention.	Not reported	Not reported	Not reported	12

Author name	Intervention	SCP outcome	Effect size	Harmful effects	Other outcomes	Methodological quality score (total = 28)[a]
6	Good School Toolkit is a behaviour-change programme aimed at students and all school personnel Raising Voices team introduces programme to participating schools and provides support throughout intervention Procedure: • Identification of staff protagonists (at least two) who attend a three-day training workshop. • Toolkit involves sequential six-step process to be implemented by school protagonists (staff and students) through group face-to-face activities with other members of the school community. • Flexible programme, but certain number of activities needs to be completed at each stage (e.g., reflection on violence experiences; knowledge of positive discipline; opportunities to apply new behavioural techniques).	Reduction in: Students self- reported past-week school physical violence Student self- reported past-term school physical violence School staff self-reported past-week physical violence use Gender differences	 42% reduction in risk, *AOR* = 0.39, 95% CI [0.25-0.62], $p < 0.0001$ *AOR*: 0.31, 95% CI [0.18-0.53], $p < 0.0001$ *AOR*: 0.37, 95% CI [0.20-0.69], $p = 0.0018$ Slightly stronger effect on males, *OR* = 0.34, 95% CI [0.21, 0.56] than females, *OR* = 0.46, 95% CI [0.29, 0.74], $p = 0.043$ (weak)	No	None with statistical significance	20

Note. *SCP* = school corporal punishment; *OR* = odds ratio; *AOR* = adjusted odds ratio; CI = confidence interval.
[a]Downs & Black (1998)

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