



Research article

Impact of corporal punishment on victims' future violent behavior in extracurricular sports

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ABSTRACT

Background: Over 500 cases of school-based corporal punishment (CP) are reported annually in Japan. A major feature of CP in Japanese schools is its high prevalence during extracurricular sports activities.**Objective:** The purpose of this study was to examine the influence of having suffered a CP-related injury on victims' later use of CP in an athletics environment.**Participants and setting:** Participants were 704 undergraduate students of a sports instructor training course who were recruited as volunteers during classes.**Methods:** A questionnaire on past experiences of CP and later perpetration of CP was administered to the participants. It was found that 31.3% of the students had experienced CP and 2.3% had perpetrated CP on others. We conducted logistic regression analyses with CP as an objective dependent variable and gender, grade and past CP experience (elementary, junior high school, or high school) as explanatory variables.**Results:** The results of the analysis revealed that having experienced CP had a significant relationship with the victims' perpetration of CP. Elementary school was the only life stage for which there was a significant correlation between having been a victim of CP and practicing it in the future.**Conclusions:** Many studies have explored the use of CP in families, while others have demonstrated that physical education students who received CP themselves are more likely to find CP an acceptable method of maintaining discipline. This is the first study that investigates whether students who experienced CP show a higher prevalence of CP perpetration. The findings indicate that experiencing CP in childhood is a risk factor for future use of CP. Proper care is required for children who have experienced CP at a young age.

1. Introduction

According to the definition adopted by the United Nations Child Rights Committee, the monitoring body of the United Nations Convention on the Rights of the Child in 2006, corporal punishment (CP) is "punishment by tangible force intended to cause some kind of distress or discomfort no matter how light it is" (United Nations Convention on the Rights of the Child, 2006). Any reference to the elimination of the CP of children implies the elimination of all forms of CP, including at home, at school, in the juvenile justice system, in alternative advocacy environments, and in places where children work.

Most previous research on CP has focused on the perpetration of parental CP (Gershoff and Grogan-Kaylor, 2016); therefore, there is a current need to accumulate research on the use of CP at school.

According to Gershoff (2017), who summarized the concerns regarding school CP, school CP is related to learning inhibition and the increased risk of physical injury, mental health issues, and problem behavior. Furthermore, some studies reveal that the higher the occurrence of CP in schools, the higher the rate of incidence of student violence and homicide (Straus, 1996).

According to the global progress report (Global Initiative to End All Corporal Punishment of Children & The President's Foundation for the Wellbeing of Society, 2018), school CP is prohibited in 131 countries (65.8%) but not completely prohibited in 68 countries. In addition, it is banned in all countries in Europe and most countries in South America and East Asia. Three industrialized countries continue to be outliers and allow school CP: Australia, the Republic of South Korea, and the United States. Covell and Becker (2011) report that school CP continues to occur

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in both countries where CP is legally prohibited and countries where it is not, and, to date, millions of children have been subjected to assault.

In 1994, Japan ratified the Convention on the Rights of the Child. This specifically and clearly prohibits the use of CP in schools under article 11 of the Education Law of 1947. The [Ministry of Education, Culture, Sports, Science and Technology \(MEXT\) \(2013\)](#) defines CP as any action that causes injury to the human body, or as a disciplinary action that results in physical suffering, including holding a specific posture. In addition, the Student Guidance Requirement ([MEXT, 2010](#)), which is the basic guidance document for school students and teachers, points out that violence does not contribute to settlement and states that guidance and CP should never be confused. The opinion that CP should be forbidden is shared by educators and the general public alike. CP is a social problem, and some local governments, such as in [Osaka Prefecture \(2007\)](#)[bib_citation_to_be_resolved](#) and [Kanagawa Prefecture \(2013\)](#)[bib_citation_to_be_resolved](#), have created their own guidelines for the prevention of CP.

Nevertheless, the perpetration of CP continues to emerge as a social problem. According to the [MEXT \(2019\)](#), the number of CP incidents that occurred among students in elementary, junior high, high, and special support schools in 2018 was 767, and the number of victimized children was 1,474. It should be noted that 287 cases occurred in high schools, followed by 268 in junior high schools, 183 in elementary schools, and 20 in special support schools. In most cases, 36.5% of students receive CP in class, followed by 25.0% in extracurricular school sports (*bukatsu*). This high rate of CP in extracurricular school sports (*bukatsu*) is one of the characteristics of school corporal punishment in Japan ([Uchiumi, 2014](#)).

Annual trends indicate peak values of 4,175 cases in 2013 ([MEXT, 2015a](#)), 1,126 cases in 2014 ([MEXT, 2015b](#)), and 890 cases in 2015 ([MEXT, 2016](#)). Though the number of cases has decreased, it remains high.

The current study established and verified the hypothesis that the experience of school CP in childhood affects the use of CP in a school athletics environment, by examining the relationship between experiencing CP and using it among undergraduate university students aiming to become sports coaches and physical education teachers. The purpose of this study was to examine the relationship between a victim's past experience of school CP in athletics environments and future violent behavior, thereby establishing the importance of eliminating CP in schools. Our findings may assist coaches, educators, and policymakers in understanding the factors that contribute to this ongoing problem and informing preventative efforts.

1.1. Corporal Punishment

CP continues to occur in schools throughout the world, both in countries where it is legal and countries where it is banned ([The International Society for the Prevention of Child Abuse and Neglect, 2018](#)[bib_citation_to_be_resolved](#)). It estimates of millions of children subject to legalized assault at their schools ([Covell and Becker, 2011](#)). Schoolchildren of all ages are subject to CP, although it has been shown that it is used more often in primary school ([Clacherty et al., 2005](#); [Human Rights Watch and the ACLU, 2008](#)[bib_citation_to_be_resolved](#); [Youssef et al., 1998](#)). Studies of the international prevalence of CP have reported rates ranging from 13% to 97% ([Gershoff, 2017](#)).

Children are likely to under-report CP because they are afraid of repercussions ([Morrow and Singh, 2014](#); [Parkes and Heslop, 2013](#)). Previous research in Japan has shown that people who have been injured through CP in school athletic activities are quite accepting of CP ([Ae, 2000, 2014](#); [Takahashi and Kumeda, 2008](#); [Kondo, 2017](#); [McDonald and Kawai, 2017](#); [Muramoto and Matsuo, 2016](#); [Miyasaka et al., 2018](#)). Although interpretation varies, such acceptance has been explained using cognitive dissonance theory ([Festinger, 1957](#)). In other words, the cognitive process for handling the fact that one was a victim of CP is to justify the experience as having not been in vain, that it, rather made one mentally and physically stronger. Stirling, A. E., & Kerr, G. (2013) showed that experience in emotionally abusive coaching practices

heightened their motivation to exercise their best efforts in training. However, negative training effects motivation, including reduced motivation, decreased sport enjoyment, decreased concentration, and difficulty learning new skills were also reported.

In addition to being physically painful, school CP is also often emotionally humiliating for children ([Feinstein and Mwahombela, 2010](#)). Feelings of humiliation can be heightened when children are punished in front of their class ([Feinstein and Mwahombela, 2010](#)). CP is closely linked to children externalizing their problems ([Hecker et al., 2014](#)), and school CP has been linked with mental health issues and behavioral problems. [Gershoff \(2017\)](#) showed that school CP is related to the learning inhibition and an increased risk of physical injury, mental health issues, and problem behavior. [Temple et al. \(2018\)](#) indicated that childhood CP was associated with a prevalence of physical dating violence in young adults.

Longitudinal studies suggest that exposure to CP at a young age predicts aggression and antisocial or delinquent behavior in adolescence and adulthood ([Berlin et al., 2009](#); [Dodge et al., 1995](#); [Mulvaney and Mebert, 2007](#); [Weaver et al., 2008](#)). Children who experience violence at a young age may learn to behave aggressively through observational learning. Social modeling may be particularly toxic when the child admires the perpetrator and perceives the individual as competent and of high social status ([Ehrensaft et al., 2003](#); [Roberts et al., 2011](#)). A number of studies have indicated that children who experience CP are more likely to commit CP as adults ([Gershoff, 2010](#); [Madigan et al., 2019](#); [Widom and Wilson, 2015](#)). Experiencing childhood violence has also been linked to future intimate partner violence, attitudes towards violence ([Temple et al., 2013](#)), and poor problem-solving skills ([Luthra and Gidycz, 2006](#)).

1.2. Corporal punishment in East Asian schools

In many countries, CP continues to be perpetrated either legally or illegally in schools. Although there are many studies on the use of CP by parents at home, there are relatively fewer studies on the use of CP in schools.

Though the East Asian countries of South Korea, China, and Japan are culturally distinct, one commonality is that CP is used for group management and discipline, which builds on students' submission to school leaders. The practice of CP remains legal in South Korea. There are regions of South Korea where CP is partially accepted; however, in economically developed regions of South Korea, including metropolitan areas, CP is completely banned. School-based CP is legal in S. Korea, although it is banned in economically developed regions, including metropolitan areas ([Gershoff, 2017](#)). The rate of CP practiced by teachers has been estimated at 62.0% (minor = 8.8%, serious = 43.8%) for South Korea ([Kim et al., 2000](#)). One study reported a prevalence of 98% and estimated that 94% of discipline involves physical punishment ([Gershoff, 2017](#)).

According to a 2016 report on student rights by the Seoul Metropolitan Office of Education, approximately 19% of nearly 21,000 surveyed students in Seoul had experienced physical punishment in 2015 ([Hyun-jeong, 2016](#)). Furthermore, [Whang \(2013\)](#) stated that CP may be perpetrated in physical fitness classes in South Korea.

On the other hand, CP is legally prohibited in schools in China. In a survey involving 1,200 first- and second-year university students in China, 32.1% reported having experienced CP perpetrated by a teacher in childhood ([UNICEF East Asia and Pacific Regional Office, 2012](#)[bib_citation_to_be_resolved](#)). The rate of CP practiced by teachers has been estimated at 51.1% for China ([Kim et al., 2000](#)). Furthermore, [Tse et al. \(2016\)](#) summarized a survey conducted in rural areas of China and reported that 89% of elementary school students had been subjected to CP. In addition, the reasons for the use of CP included "not doing homework," "not observing discipline," "fighting with other children," and so on. Another study reported a CP prevalence of 58% in China ([Gershoff, 2017](#)).

An overview of previous studies on school CP in Japan reveals the prevalence of CP in extracurricular school sports environments. According to a survey administered to 3,957 college students by the [Japanese Association of University Physical Education and Sports \(2014\)](#) [bib_citation_to_be_resolved](#), the percentage of students who experienced CP in physical education programs was 31.2%. In contrast, only 11.9% of students experienced CP outside of physical education programs. [Uchiumi \(2014\)](#) showed that extracurricular school sports (*bukatsu*) have long occupied an important position in Japan. [McDonald and Kawai \(2017\)](#) revealed the ways in which students normalize the acts of violence performed on them by coaches, accepting these acts as necessary to inculcate discipline.

Furthermore, the research done in Japan showed that those who had experienced CP tended to accept it more readily ([Muramoto and Matsuo, 2016](#)). [Muramoto and Matsuo \(2016\)](#) conducted a survey on the actual conditions of CP experienced by students belonging to the university physical education society while participating in extracurricular school sports from elementary school to university. Results revealed that 22.6% had experienced CP in elementary school, 34.3% in junior high school, 29.7% in high school, and 2.9% at university. In addition, 71.2% of the group who had experienced CP perceived it to be good for the individuals, and 52.8% considered CP a “whip of love.” Further, students who had experienced CP were more likely to tolerate such treatment from sports coaches than students who had not experienced it. These results suggest that students who receive CP abide the treatment and accept the penalty. In a study by [Mori et al. \(2015\)](#), 46% of respondents agreed that violence was an acceptable part of sport instruction, and 62% of participants who had experienced CP indicated that they believed it to be necessary.

The [Tokyo Metropolitan Board of Education \(2013\)](#) [bib_citation_to_be_resolved](#) lists four causes of CP: teachers, students, the school culture and teachers' awareness, and a social environment that accepts CP. The board also pointed out that students might remember how CP perpetrated by a coach had a positive effect on competition results and, thus, hold a misguided image of leaders. However, since these claims have not been demonstrated empirically, findings supported by evidence are needed.

There is a relationship between the injury caused by CP and the future violent behavior of victims ([Gershoff, 2018](#); [Morris and Gibson, 2011](#)). It is assumed that the impact differs according to the age when the victim experienced CP; however, these results do not indicate that the timing is relevant. Furthermore, as [Uchiumi \(2014\)](#) shows, school CP in Japan is generally more prevalent in extracurricular school sports environments. The CP of athletes not only results in physical injury but also reduces their motivation to play sports, diminishes their performance in competitions, and has a significant psychological impact.

2. Methods

2.1. Participants and procedures

From April to May 2014, a questionnaire survey was administered to students attending University A (N = 704; 527 males, 175 females, and two unknown; between 18 and 22 years old with a mean age of 19.4) participating in a teacher-training course with the aim of becoming physical education teachers and sports coaches. The University has a teacher training course aimed at becoming a physical education teacher for four years. First and second grade students take basic courses in teaching and sports. Only those who have acquired a certain amount of credit can advance to the third year, and third and fourth grade students take practical courses. The questionnaire used in this survey was distributed and collected over a period of 1–2 months. This time period was chosen because we wanted to avoid the curriculum affecting the survey (a seminar on corporal punishment was planned for after the time we conducted the study). Therefore, in order to eliminate the learning effects from attending the corporal punishment seminar, we distributed

and collected questionnaires only during the two months after the first-year students began studying and before the seminar on corporal punishment began.

Since there are about 34,000 university students aiming to become physical education teachers throughout Japan ([MEXT, 2018](#)), the sample size was calculated with a tolerance of 5% and 90% reliability, and more than 500 responses were obtained. Using a table of sample sizes based on 95% confidence intervals prepared by [Haebara \(2002\)](#), the sample size was calculated to keep the width of the confidence intervals at ± 0.15 . Convenience sampling was adopted as the sampling method. The research was explained to students after classes at the collaborating A university. A questionnaire was distributed to 780 students and 704 agreed to participate. After completing the survey, participants were asked to deposit them in designated boxes. The survey took roughly 10–15 min to complete. The selected study participants completed the questionnaire in the university setting, in the presence of the research team, and in an environment that ensured the participants' privacy, confidentiality, and autonomy. Upon completion, all participating students were offered a leaflet as additional information and a contact information as support to address any recalled negative experiences. The protocol was approved by the ethics committee of the division of clinical psychology in the faculty of human-environment studies at Kyushu University. All study protocols were in accordance with the ethical principles of the Declaration of Helsinki and in compliance with the ethical rules established by the Japanese Psychological Association and the “Rules on handling life science research for human subjects” established by Kagoshima University. We informed the participants of the study goals and procedures, along with the address of the corresponding author of this study, in the survey questionnaire. In addition, informed consent of the participants was obtained for the study and their identities were anonymized. The recovery rate was 90.2%.

2.2. Measures

Participants were asked to report their age and gender on the cover page of the question paper. The questionnaire was developed by the authors by adding items related to the use of CP to the survey on the experience of CP conducted by the [Japanese Association of University Physical Education and Sports \(2014\)](#) [bib_citation_to_be_resolved](#). The questionnaire comprised two sections: Q1, related to CP experience, and Q2, related to coaches' use of CP on younger athletes (Supplementary Material). Q1 was in a semi-structured, multiple-choice format. Each question included several predefined choices and “other” free-form options. Participants could select multiple answers. Q1 items included participants' CP experience (yes/no), period when injury was experienced (elementary school/junior high school/high school), setting of the CP (during class/after school/extra-curricular sports [*bukatsu*]/on-campus sports club/other), and type of violent act (slap/hit/kick/thrown object/other). Q2 was semi-structured: the question of perpetration or non-perpetration of CP required a yes/no answer, while related circumstances were explored through open-ended questions. The questionnaire is provided in the Supplementary Material.

2.3. Statistical analyses

Data were analyzed using the statistical programming language R, version 3.4.4 ([R Core Team, 2016](#) [bib_citation_to_be_resolved](#)). Descriptive statistics were examined to outline the sample characteristics and the circumstances of CP. All statistical tests used a significance level of .05. Fisher's exact test was used to compare the number of perpetrators of CP based on CP experience.

A nominal scale with two choices (0/1) was used to record the experience of CP, which is the objective variable. The explanatory variables include the presence of CP injury during elementary, junior high, or high school, the subject's gender and grade. Logistic regression analyses

were used to clarify the association between potential confounding explanatory variables and objective variables.

3. Results

3.1. Sample characteristics

Table 1 depicts the attributes of the participants, their experiences of CP injury, and their experiences of CP perpetration. It is noted that 221 participants, 31.4% of the total, had experienced CP. Regarding experiences of corporal punitive injury, 16 participants, 2.3% of the total, had perpetrated CP on younger athletes as sports coaches.

3.2. Contents of receiving corporal punishment

Table 2 depicts the setting of the CP incident, and Table 3 shows the types of CP. The largest proportion of participants (61.5%) reported having experienced CP in junior high school, followed by 59.3% in high school, and 38.9% in elementary school. Extracurricular school sports environments were most frequently the setting for CP, and 76.5% of high school students experienced CP while attending extracurricular school sports. Regarding the types of CP, the most common method of CP was slapping, which was followed by punching and kicking.

3.3. Factors associated with the use of corporal punishment

Table 4 depicts the number and ratios of participants who were victims of CP. Fisher's exact test showed a significant difference in the number of CP perpetrators between those who had experienced CP and those who had not ($p < .01$). Multiple logistic regression models were used to examine the relationship between variables and the perpetration of CP.

A logistic regression analysis was conducted using the experience of CP as an objective variable and CP experience in each school period and gender as explanatory variables. The results are shown in Table 5. With regard to the possibility of multicollinearity, all explanatory variables were applied to binary values, and it was judged that there was no such risk because no correlation could be considered. Only the experience of CP at an elementary school was significant in terms of use of CP, with an odds ratio of 5.083 and a 95% confidence interval of 1.215–21.268 ($p < .05$). In addition, a logistic regress analysis was conducted using the experience of CP as an objective variable and grade as an explanatory variable; however, no significant results were obtained (Table 6).

4. Discussion

4.1. Experiencing corporal punishment

Previous studies have shown that physical education students who had experienced CP are more likely to accept the use of CP. The current study was the first to examine whether the prevalence of CP use is high among students who had experienced CP, and the results revealed an important relationship between elementary school experiences of CP and future use of CP.

The study revealed that 221 participants had experienced CP, which accounts for 31.3% of the total sample. This result is quite similar to the ratio in physical education programs reported by the Japanese Association of University Physical Education and Sports (2014) [bib_citation_to_be_resolved](#). Physical education students' experience of CP injury may be higher than that of students who do not participate in athletics. The rates identified in this and other Japanese studies are lower than those identified in many other regions, such as Africa, other parts of Asia, and Latin America and the Caribbean, but significantly higher than those in other developed nations (Gershoff, 2017).

Regarding the time when CP occurred in this study, of those participants who had experienced CP, 38.9% received CP in primary school, 61.5% in junior high school, and 59.2% in high school. This indicates that some individuals suffered CP over multiple periods. The tendency for most students to be affected when they are in junior high school is similar to the results of the Japanese Association of University Physical Education and Sports (2014) [bib_citation_to_be_resolved](#). Notably, the Japanese Association of University Physical Education and Sports (2014) [bib_citation_to_be_resolved](#) report also indicated that only 11.9% of students experienced CP outside of physical education school settings, which highlights sports as a significant area of focus for research and policymaking.

As mentioned above, according to the types of CP experienced by participants, the most common form was slapping, followed by hitting and kicking. CP involving serious physical contact occurred in extracurricular school sports environments. Although extracurricular school sports are part of any education, they are optional activities, and this seems to create a closed and exclusive space where only coaches and students interact; it is hard for other teachers to observe such activities. In particular, tough athletic competitions or a crucial sports game are thought to be specific situations when CP is considered more acceptable by teachers and sports coaches for the sake of improving the students' fitness and instilling a winning attitude in participants.

Table 1. Participant descriptions.

Participants	Male	Female	Unknown	N	%
Total N	527	175	2	704	100
Grade					
1 st year	258	72	1	331	47
2 nd year	133	34	0	167	23.7
3 rd year	54	35	1	90	12.8
4 th year	82	36	0	118	16.8
Experienced CP					
Yes	166	55	0	221	31.4
No	361	120	2	483	68.6
Committed CP					
Yes	15	1	0	16	2.3
No	512	174	2	688	97.7

Note. CP = corporal punishment.

Table 2. Setting of CP incidents.

	Total	During class	After school	Extracurricular activity	External club	Other
Elementary school (%)	86 (100)	26 (30.2)	7 (8.1)	37 (43)	26 (30.2)	2 (2.3)
Junior high school (%)	136 (100)	34 (25)	16 (11.8)	82 (60.3)	10 (7.4)	1 (0.7)
High school (%)	131 (100)	21 (16)	5 (3.8)	104 (79.4)	3 (2.3)	7 (53.8)

Note. Values are the relevant percentage of participants (%). CP = corporal punishment.

Table 3. Types of corporal punishment.

	Elementary school ^a N (%)	Junior high school ^b N (%)	High school ^c N (%)
Slap	62 (72.1)	86 (63.2)	83 (63.4)
Punch	77 (89.5)	55 (40.4)	47 (35.9)
Kick	26 (30.2)	35 (25.7)	44 (33.6)
Thrown object	28 (32.6)	38 (27.9)	37 (28.2)
Other	4 (4.7)	9 (6.6)	10 (7.6)

Note. Values are the relevant percentage of participants (%).

^a N = 86.

^b N = 136.

^c N = 131.

Table 4. Prevalence of the use of corporal punishment among participants who had experienced it.

	No (n = 688) n (%)	Yes (n = 16) n (%)
Did not receive	479 (69.6)	4 (0.6)
Received	209 (30.3)	12 (1.8)

Table 5. Logistic regression models showing the prevalence of CP use.

	B	Wald	p ^a	OR	95% CI OR
Experienced CP ^b in elementary school	1.626	4.957	0.026	5.083	[1.215,21.268]
Experienced CP ^b in junior high school	-0.019	0.001	.979 n.s.	0.981	[.240,4.020]
Experienced CP ^b in high school	0.091	0.016	.899 n.s.	1.095	[.269,4.458]
Gender ^c	1.073	0.972	.324 n.s.	2.924	[.347,24.667]

Note. OR = odds ratio. CI = confidence interval; CP = corporal punishment; n.s. = not significant.

^a Estimated using Wald's test.

^b Reference group was "No."

^c Reference group was "Female."

4.2. Factors associated with the use of corporal punishment

The total number of people who used CP was 2.3%. The findings of relatively low rates of CP usage in this study do not appear to align well with studies that highlight the acceptance of CP among Japanese

individuals who have experienced it (Ae, 2000, 2014; Kondo, 2017; McDonald and Kawai, 2017; Muramoto and Matsuo, 2016; Takahashi and Kumeda, 2008). Our findings are based on self-reported measures, which could partly explain the difference.

Table 6. Logistic Regression Models Showing the Prevalence of CP Use in grades.

Grade	B	Wald	p ^a	OR	95% CI OR
1st grade ^b	-17.160	.000	1.000 n.s.	.000	[.000]
2nd grade ^b	-1.023	1.034	.309 n.s.	.360	[.050,2.583]
3rd grade ^b	.609	.519	.471 n.s.	1.839	[.350,9.647]
4th grade ^b	1.582	0.815	.052 n.s.	4.866	[.985,24.026]

Note. OR = odds ratio. CI = confidence interval; CP = corporal punishment; n.s. = not significant.

^a Estimated using Wald's test.

^b Reference group was "No."

In light of the fact that children are likely to under-report CP because they are afraid of the repercussions (Morrow and Singh, 2014; Parkes and Heslop, 2013), CP rates may be an underestimate of the actual rate. Since there is no prior research showing the percentage of sports coaches who use CP, comparative examinations cannot be done; however, some students who plan to become sports coaches and physical education teachers have already caused some CP-related injuries. This study shows that the experience of receiving a CP-related injury in elementary school significantly affects the experience of administering CP.

The low rates of adult CP use identified in this study do not appear to reflect the findings of previous studies regarding the future perpetration of violence by those who experience CP as children (Gershoff, 2010; Straus, 1991; Widom and Wilson, 2015). However, these findings may support research that highlights the need to examine additional factors such as victims' gender, social class, cultural context, and other variables (Kurz, 1991; Miller, 2010). It is possible that the low rates of perpetration of CP identified in this study are reflective of social changes in Japan that are recasting the appropriateness of CP.

Since previous studies have not revealed these results concerning sports coaches, this can be considered an important finding. Furthermore, this study showed that elementary school was the only life stage during which there was a significant correlation between being a victim of CP and practicing it in the future. As mentioned above, CP is closely linked to children's problems with externalization (Hecker et al., 2014). Longitudinal studies suggest that exposure to CP at a young age predicts aggression and antisocial or delinquent behavior in adolescence and adulthood (Berlin et al., 2009; Dodge et al., 1995; Mulvaney and Mebert, 2007; Weaver et al., 2008). Children may learn to behave aggressively through observational learning. Social modeling may be particularly toxic when the child admires the perpetrator, and perceives the individual as competent and of high social status. The modeling may occur in childhood due to direct experience of violence by coaches. Investigating the causal relationship between CP and future problems requires more long-term research.

4.3. Ending school CP

The data summarized above make it clear that CP experiences at school in early childhood may be linked with future use of CP. Ending school CP will require educating the public about the harm caused by CP; instituting appropriate sanctions for continued use of CP by school personnel; monitoring compliance with bans; creating procedures for students, parents, or staff to report use of CP; and instructing teachers in alternative methods of discipline (Global Initiative to End All Corporal Punishment of Children & The President's Foundation for the Wellbeing of Society, 2018bib_citation_to_be_resolved). The reasons why teachers use CP included the belief that it was the most effective way to discipline children and that parents had authorized its use (Mweru, 2010). Even if CP is legally prohibited in a country, teachers will readily break the prohibition if they believe it is for the children's good. It is therefore very important to train teachers how to discipline children in a non-violent way. There have been a limited number of school- and community-level interventions to reduce school CP, but their results to date are very promising. Currie et al. (2018) indicated that the prevalence of CP and non-violent disciplinary practices was not correlated across countries, and the majority of the respondents in the survey, from 36 countries, reported using at least one of three non-violent disciplinary behaviors.

The human rights message about ending CP may need to be applied to stories with which local people are familiar. Miller-Perrin and Perrin (2017) showed that declines in positive attitudes about spanking were highest when the intervention included progressive (non-violent) biblical interpretations of bible passages related to child discipline in addition to empirical research showing potential harms of the practice. This suggests that it is important to incorporate cultural values into efforts to reduce CP.

4.4. Limitations

The study has some limitations. The number of participants who received and perpetrated CP is quite small. Participants were not equally distributed across grade levels, and the number of seniors, who are more likely to use CP, was low. Therefore, the power of the analysis is not sufficient to provide comprehensive results. Similarly, other factors such as intensity of CP and number of instances of CP in sports versus non-sports environments may be relevant to predicting the perpetration of CP, as well might the potential impact of socioeconomic status; however, these were not considered in the study. Future studies should examine this phenomenon on a broader geographical and sociocultural scale to identify potential variations in prevalence.

The research method of self-report questionnaire also limits this study. Self-reported measures can be influenced by social desirability bias, whereby the respondent feels uncomfortable admitting to a behavior that may not be socially acceptable. Future studies can compare results with CP statistics in relevant institutions or gather data from students/athletic participants.

5. Conclusion

School CP is a fact of life for millions of children around the world, despite no evidence that it promotes learning. Experiencing CP in elementary school is a risk factor for future use of CP. Proper care is required for children who have experienced CP at a young age. Furthermore, the need to focus preventative measures and education on reporting CP in elementary school should be emphasized. There is still much work to be done to educate teachers about alternatives to CP so that they might completely abandon its use in schools.

Declarations

Author contribution statement

K. Takahashi: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

E. Ozawa: Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

S. Harizuka: Contributed reagents, materials, analysis tools or data; Wrote the paper.

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Competing interest statement

The authors declare no conflict of interest.

Additional information

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References

- Ae, M., 2000. Undoubushidousha no bouryokutekikoudou no eikyuu: shakaiteki eikyokatei no shiten kara. [The influence of coaches' violence on young female athletes from the viewpoint of social influence process]. *Taiikugaku kenkyuu* 45, 89–103.
- Ae, M., 2014. Undoubukatsudou ni oketu taibatsu ga kodomo ni ataeru eikyuu [Influence of corporal punishment on children on physical exercise activities]. *Taiikuka kyouikugaku kennyuu* 30 (1), 63–67.
- Berlin, L.J., Ispa, J.M., Fine, M.A., Malone, P.S., Brooks-Gunn, J., Brady-Smith, C., 2009. Correlates and consequences of spanking and verbal punishment for low-income

- White, African American, and Mexican American toddlers. *Child Dev.* 80 (5), 1403–1420.
- Clacherty, G., Donald, D., Clacherty, A., 2005. Children's Experience of Corporal and Humiliating Punishment in Swaziland. Save the Children Sweden, Auckland Park.
- Covell, K., Becker, J., 2011. Five Years on: A Global Update on Violence against children, Report for the NGO Advisory Council for Follow-Up to the UN Secretary-General's Study on Violence against Children. United Nations, New York.
- Currie, W.D., Fluke, D.J., DiGiuseppi, G.C., Juarez-Colunga, E.E., Comstock, R.D., Runyan, L.D., 2018. Prevalence of corporal punishment and harsh verbal punishment in 36 countries. In: Dubowitz, H., Hein, H., Tummala, P. (Eds.), *World Perspective on Child Abuse*, thirteenth ed., t. International Society for the Prevention of Child Abuse and Neglect, pp. 12–26.
- Dodge, K.A., Pettit, G.S., Bates, J.E., Valente, E., 1995. Social information-processing patterns partially mediate the effect of early physical abuse on later conduct problems. *J. Abnorm. Psychol.* 104 (4), 632–643.
- Ehrensaft, M.K., Cohen, P., Brown, J., Smailes, E., Chen, H., Johnson, J.G., 2003. Intergenerational transmission of partner violence: a 20-year prospective study. *J. Consult. Clin. Psychol.* 71, 741–753.
- Feinstein, S., Mwahombela, L., 2010. Corporal punishment in Tanzania's schools. *Int. Rev. Educ.* 56, 399–410.
- Festinger, L., 1957. *A Theory of Cognitive Dissonance*. Stanford University Press, Stanford.
- Gershoff, E.T., 2010. More harm than good: a summary of scientific research on the intended and unintended effects of corporal punishment on children. *Law Contemp. Probl.* 73 (2), 31–56. Retrieved from: <https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=1565&context=lcpl>.
- Gershoff, E.T., 2017. School corporal punishment in global perspective: prevalence, outcomes, and efforts at intervention. *Psychol. Health Med.* 22 (sup1), 224–239.
- Gershoff, E.T., 2018. Corporal punishment associated with dating violence. *J. Pediatr.* 198, 322–325.
- Gershoff, E.T., Grogan-Kaylor, A., 2016. Spanking and child outcomes: old controversies and new meta-analyses. *J. Fam. Psychol.* 30 (4), 453–469.
- Global Initiative to End All Corporal Punishment of Children & The President's Foundation for the Wellbeing of Society, 2018. Working towards Universal Prohibition of Corporal Punishment 2018. Retrieved from: <https://endcorporalpunishment.org/resources/global-progress-publications/special-progress-report-2018/>.
- Haebara, T., 2002. *Shinri Tokeigaku No Kiso Togoteki Rikai No Tameni* [Foundations of Statistics for Psychological Research]. Tokyo: Yuhikaku.
- Hecker, T., Hermenau, K., Isele, D., Elbert, T., 2014. Corporal punishment and children's externalizing problems: a cross-sectional study of Tanzanian primary school aged children. *Child Abuse Negl.* 38 (5), 884–892.
- Human Rights Watch and the ACLU, 2008. A Violent Education: Corporal Punishment in US Public Schools. Retrieved from: https://www.aclu.org/files/pdfs/humanrights/aviolenteducation_report.pdf.
- Hyun-jeong, L., 2016. April 4). 20% of Seoul Students Still Face Corporal Punishment: Report. *South Korea Herald*. Retrieved from: <https://www.South.Koreaherald.com/view.php?ud=20160404000771>.
- Japanese Association of University Physical Education and Sports, 2014. *Undou Bukatadoutou Ni Okeru Taibatu/bouryoku Ni Kansuru Choushoukokusho* [Survey Report on Corporal Punishment/Violence in Exercise Club Activities]. Retrieved from: <http://daitairen.or.jp/2013/wp-content/uploads/2015/01/f2cb4f9e1c5f5e1021e44042438f44ab.pdf>.
- Kanagawa Prefecture, 2013. *Taibatsu Boushi Gaidorain* [Guideline for Prevention of Corporal Punishment]. Retrieved from: http://www.pref.kanagawa.jp/docs/cy3/gkt/documents/taibatsuguidelines_201307.pdf.
- Kim, D.H., Kim, K.I., Park, Y.C., Zhang, L.D., Lu, M.K., Li, D., 2000. Children's experience of violence in China and Korea: a transcultural study. *Child Abuse Neglect* 24 (9), 1163–1173.
- Kondo, T., 2017. *Taibatsu kenkyuu no kinnenn no doukou to konngo no kadai* [The review of recent study about physical punishment]. *Kyouiku jissenn kenkyuu: Toyamadaigaku ninngennhattatsu kagakukennkyuu jissennsougousentaa kiyou* 12, 1–6.
- Kurz, D., 1991. Corporal punishment and adult use of violence: a critique of "discipline and deviance. *Soc. Probl.* 38 (2), 155–161.
- Luthra, R., Gidycz, C.A., 2006. Dating violence among college men and women: evaluation of a theoretical model. *J. Interpers Violence* 21, 717–731.
- Madigan, S., Cyr, C., Eirich, R., Fearon, R., Ly, A., Rash, C., Alink, L., 2019. Testing the cycle of maltreatment hypothesis: meta-analytic evidence of the intergenerational transmission of child maltreatment. *Dev. Psychopathol.* 31 (1), 23–51.
- McDonald, B., Kawai, K., 2017. Punishing coaching: *bukatsudo* and normalisation of coach violence. *Jpn. Forum* 29 (2), 196–217.
- Miller, A., 2010. *Taibatsu: 'corporal punishment' in Japanese socio-cultural context*. *Jpn. Forum* 21 (2), 233–254.
- Ministry of Education, Culture, Sports, Science and Technology (MEXT), 2015a. *Taibatsu No Jittai Haaku Ni Tsuite 25nendo* [About the Actual Conditions of Corporal Punishment 2013]. Retrieved from: https://www.mext.go.jp/component/a_menu/education/detail/_icsFiles/afiedfile/2015/01/30/1354718_20.pdf.
- Ministry of Education, Culture, Sports, Science and Technology (MEXT), 2015b. *Taibatsu No Jittai Haaku Ni Tsuite 26nendo* [About the Actual Conditions of Corporal Punishment 2014]. Retrieved from: https://www.mext.go.jp/component/a_menu/education/detail/_icsFiles/afiedfile/2015/12/25/1365261_04.pdf.
- Ministry of Education, Culture, Sports, Science and Technology (MEXT), 2018. *Taibatsu No Jittai Haaku Ni Tsuite 29nendo* [About the Actual Conditions of Corporal Punishment 2017]. Retrieved from: https://www.mext.go.jp/component/a_menu/education/detail/_icsFiles/afiedfile/2018/12/25/1411826_10.pdf.
- Ministry of Education, Culture, Sports, Science and Technology (MEXT), 2019. *Taibatsu No Jittai Haaku Ni Tsuite 30nendo* [About the Actual Conditions of Corporal Punishment 2018]. Retrieved from: https://www.mext.go.jp/content/20191224-mxt_zaimu-000003245_H30_taibatsuzittai.pdf.
- Ministry of Education, Culture, Sports, Science and Technology (MEXT), 2010. *Seito Shidou Teiyou* [Student Guidance Requirement]. Retrieved from: http://www.mext.go.jp/a_menu/shotou/seitoshidou/_icsFiles/afiedfile/2018/04/27/1404008_01.pdf.
- Ministry of Education, Culture, Sports, Science and Technology (MEXT), 2019. *Taibatsuno Kinishi Oyobi Jidouseito Rikain Ni Motodoku Shidou No Tetteini Tsuite* [Prohibition of Corporal Punishment and Thorough Guidance Based on Student Understanding]. Retrieved from: http://www.mext.go.jp/a_menu/shotou/seitoshidou/1331907.htm.
- Ministry of Education, Culture, Sports, Science and Technology (MEXT), 2016. *Taibatsu No Jittai Haaku Ni Tsuite 27nendo* [About the Actual Conditions of Corporal Punishment 2015]. Retrieved from: https://www.mext.go.jp/component/a_menu/education/detail/_icsFiles/afiedfile/2016/12/21/1380741_02.pdf.
- Miller-Perrin, Cindy, Perrin, Robin, 2017. Changing attitudes about spanking among conservative Christians using interventions that focus on empirical research evidence and progressive biblical interpretations. *Child Abuse Negl.* 71, 69–79.
- Miyasaka, T., Fujita, S., Ichikawa, Y., 2018. *Taikusenougakusei ni okeru taibatsuishiki no honshitsu wo saguru: tekisuto mainingu niyoru taibatsuishiki no bunseki* [Exploring the essence of physical punishment consciousness in students majoring in sports science: an analysis of physical punishment consciousness via text mining]. *Nihon taikuu daigaku kiyou* 47 (2), 207–216.
- Mori, K., Rhind, D., Gervis, M., Callan, M., Nakamoto, H., Elmes, D., Hamada, K., Sakanaka, M., Nakamura, I., Yamada, R., 2015. *Wagakuniokeru supotushidouhanyoru kodomonitaisuru gyakutai oyobi taibatsu no genjouto kodomo hogo seido no hitsuyousei* [Current situation of child abuse and corporal punishment by sports coaches and the need for a child protection system in Japan]. *Gakujutsu kenkyu kiyou, Kanoya taikuu daigaku* 50, 17–24.
- Morris, S.Z., Gibson, C.L., 2011. Corporal punishment's influence on children's aggressive and delinquent behavior. *Crim. Justice Behav.* 38 (8), 818–839.
- Morrow, V., Singh, R., 2014. *Corporal Punishment in Schools in Andhra Pradesh, India: Children's and Parents' Views*. Young Lives, Oxford.
- Mulvaney, M.K., Mebert, C.J., 2007. Parental corporal punishment predicts behavior problems in early childhood. *J. Fam. Psychol.* 21, 389–397.
- Muramoto, S., Matsuo, T., 2016. *Daigakuundoubuin ni okeru koukouki no hitaibaiteiken to undoubu kuukann no tokusei ni kansuru kenkyuu* [A study of experiences of corporal punishment of sports-oriented university students in high school life and characteristics of athletic club space]. *Rikkyo Daigaku komyunithi hukushikennkyuuji kiyou* 4, 85–96.
- Mweru, Maureen, 2010. Why are Kenyan teachers still using corporal punishment eight years after a ban on corporal punishment? *Child Abuse Rev.* 19 (4), 248–258.
- Osaka Prefecture, 2007. *Taibatsu Boushi Manyuaru* [Manual for Prevention of Corporal Punishment]. Retrieved from: <http://www.pref.osaka.lg.jp/kotogakko/seishi/taibatu-boushi.html>.
- Parkes, J., Heslop, J., 2013. *Stop Violence against Girls in School: A Cross-Country Analysis of Change in Ghana, Kenya, and Mozambique*. ActionAid International, Washington, DC. Retrieved from: http://www.actionaidusa.org/sites/files/actionaid/svags_review_final.pdf.
- R Core Team, 2016. *R: A Language and Environment for Statistical Computing*. R Foundation for Statistical Computing, Vienna, Austria. Retrieved from: <https://www.r-project.org/>.
- Roberts, A.L., McLaughlin, K.A., Conron, K.J., Koenen, K.C., 2011. Adulthood stressors, history of childhood adversity, and risk of perpetration of intimate partner violence. *Am. J. Prev. Med.* 40, 128–138.
- Straus, M.A., 1991. Discipline and deviance: physical punishment of children and violence and other crime in adulthood. *Soc. Probl.* 38 (2), 133–154.
- Straus, M.A., 1996. Spanking and the making of a violent society. *Pediatrics* 98 (4), 837–842.
- Takahashi, H., Kumeda, M., 2008. *Gakkouundoubukatadou ni okeru taibatsu ni kansuru chousakennkyuu* [An investigation of bodily punishment in school athletic clubs]. *Kyoutokujissennsougousentaa kiyou* 17, 161–170.
- Temple, J.R., Shorey, R.C., Tortolero, S., Wolfe, D.A., Stuart, G.L., 2013. Importance of attitudes about violence and gender in the relationship between exposure to interparental violence and the perpetration of teen dating violence. *Child Abuse Negl.* 37, 343–352.
- Temple, J.R., Choi, H.J., Reuter, T., Wolfe, D., Taylor, C.A., Madigan, S., Scott, L.E., 2018. Childhood corporal punishment and future perpetration of physical dating violence. *J. Pediatr.* 194, 233–237.
- The International Society for the Prevention of Child Abuse and Neglect (ISPCAN), 2018. *World Perspective on Child Abuse 2018, 13TH EDITION*. Retrieved from: <https://www.ispcan.org/product/world-perspectives-on-child-abuse-13th-edition/>.
- Tokyo Metropolitan Board of Education, 2013. *Taibatsu Konzetsu Ni Muketa Sougouteki Na Taisaku* [Comprehensive Measures for Eradicating Corporal Punishment]. Retrieved from: <http://www.metro.tokyo.jp/tosei/hodohappyo/press/2013/09/documents/20n9c801.pdf>.
- Tse, W.C., Chen, J., Chang, L., 2016. *Chuugoku ni okeru jime taibatsu gyakutai no genjou to kenkyuudoukou* [Current situation and research trends of bullying, corporal punishment and abuse in China]. *Educa (Educare)* 36, 51–54.
- Uchiumi, K., 2014. *Extracurricular school sport (Bukatsu) and corporal punishment in Japan*. *Asia Pac. J. Sport Soc. Sci.* 3 (2), 108–114.
- UNICEF East Asia and Pacific Regional Office, 2012. *Child maltreatment: prevalence, incidence and consequences in the East Asia and Pacific region: a systematic review*

- of research. Bangkok: UNICEF. Retrieved from. https://www.unicef.org/eapro/Child_Maltreatment.pdf.
- United Nations Convention on the Rights of the Child, 2006. CRC General Comment No8. The Right of the Child to protection from Corporal Punishment and Other Cruel or Degrading Forms of Punishment (U.N. CRC/C/GC/8). Retrieved from. <http://www.refworld.org/docid/460bc7772.html>.
- Weaver, C.M., Borkowski, J.G., Thomas, L., 2008. Violence breeds violence: childhood exposure and adolescent conduct problems. *J. Community Psychol.* 36 (1), 96–112.
- Whang, S.H., 2013. Shakaiteki · bunkateki taibatsu no nihonn · kannkoku no hikaku: taibatsu kinnshigo no taisaku · daiann wa arunoka [Comparison of social and cultural corporal punishment between Japan and Korea—are there any countermeasures/alternatives after the corporal punishment prohibition?]. *Taiiku no kagaku* 63 (10), 797–805.
- Widom, C.S., Wilson, H.W., 2015. Intergenerational transmission of violence. In: Lindert, J., Levav, I. (Eds.), *Violence and Mental Health*. Springer, Dordrecht.
- Youssef, R.M., Attia, M.S., Kamel, M.I., 1998. Children experiencing violence II: prevalence and determinants of corporal punishment in schools. *Child Abuse Negl.* 22, 975–985.