

# A Review of the Effects of Corporal Punishment on Brain Development in Young Children

**M.A. Rajalakshmi**

PhD Research Scholar, Department of Psychology, Faculty of Science,  
Shri JJT University, Jhunjhunu, Rajasthan 333001, India  
Consultant Homeopathic Physician and Psychotherapist,  
Bangalore, Karnataka, India

## Abstract

The use of punishment as a means to discipline children is still being used in many schools and by parents as well in different parts of the world. This review study looks at research studies on the effects of corporal punishment at school and at home on brain development in young children. The review of literature lead to the conclusion that use of corporal punishment has not just physical, emotional and psychological consequences but could have a major role in retarding the process of normal brain development as well.

**Keywords:** Corporal Punishment, Brain Development, Corpus Callosum

## 1. Introduction

In schools and even in most households the main issue or bone of contention is on the methods to be used to discipline children. One of the more popular sayings "spare the rod and spoil the child" is often used to justify the use of corporal punishment. In spite of the fact that punishment as a method to discipline children has not been very effective it is still believed to be an ideal method to promote obedience and compliance even in very young children. This review study was undertaken to look at the consequences of harsh corporal punishment on brain development. This study hopes to bring about awareness about the need to positive behavior support and compassion to promote self-regulation and self-discipline in children that would be more long-lasting and productive as compared to externally enforced disciplinary measures.

## 2. Review of Literature on Corporal Punishment and Brain Development

2.1 Corporal Punishment and Effect on Brain Development, Akemi Tomoda et al (2009)

This is a study that investigated the neurobiological repercussions of harsh corporal punishment. The study attempted to find out if there were any noticeable changes in the grey matter volumes of the brain in later life in children exposed to harsh corporal punishment using voxel-based morphometry. Studies have shown that childhood exposure to various forms of abuse such as physical abuse, sexual abuse and neglect have been associated with changes in brain structure. The question sought to be addressed in this study was whether exposure to corporal punishment given by parents to young children could be a developmental stressor that was severe enough to cause visible changes in brain structure.

Corporal punishment is the use of physical force to cause pain but without causing injury to discipline the child or to rectify inappropriate behaviors. A definition of harsh corporal punishment by the authors for the purpose of this study was formulated. Harsh corporal punishment can be defined as a severe form of corporal punishment that involved the occasional use of objects such as a belt, brush or paddle to discipline the child that was not done in anger, did not extend beyond the buttocks and did not result in injury to the child.

The reason for differentiating between ordinary corporal punishment and harsh corporal punishment was the hypothesis that there would be more discernible changes in brain structure that could be mapped through brain imaging studies in these children when compared with children exposed to ordinary corporal punishment.

The participants for this study were enrolled from the community through advertisement. 1455 volunteers were initially screened using an online assessment instrument. The online assessment instrument covered a wide range of information about the volunteers that included their and their parents level of education, annual income of the household, race and ethnicity. There was also a questionnaire on the level of perceived financial sufficiency to map the participants perception of financial stress during their growing up years.

Once the screening process was completed the selected participants were called for a face to face interview during the first visit. The participants development history and history of psychiatric disorders was elicited during this interview. The Structured Clinical Interviews for DSM-IV Axis I and II Disorders was used for this. This was followed by the second visit where their intelligence levels and cognitive abilities were measured using standardized psychometric assessment tools.

The instruments used were Wechsler Adult Intelligence Scale-III, The Woodstock-Johnson Test and the Memory Assessment Scale. After this 45 of these subjects were selected for evaluation with MRI studies. Out of these 45, 23 formed the group that was exposed to harsh corporal punishment (HCP) and the other 22 formed the control group.

The 23 young adults who formed the HCP group, 15 of whom were male and eight of were female aged about 21-22 years were those who had a history of exposure to corporal punishment that involved occasional use of objects. The inclusion criteria for the HCP group was that corporal punishment had started before the age of 12 years, continued for more than three years with twelve or more such incidents per year. There was use of a belt, paddle or brush for corporal punishment at least once a year. The corporal punishment should have been done by an adult who was in custody of the child such as a parent or caregiver. This corporal punishment should have been administered by parent mainly to discipline the child and not during fits of anger or lack of emotional control.

Cases where there was physical abuse were excluded. The control group consisted of adults who had no history of abuse or exposure to traumatic events, harsh corporal punishment or minimal exposure to corporal punishment. The control group subjects were those who did not currently or previously have any psychiatric problems.

The Life Experiences Questionnaire was used to screen for history of exposure to corporal punishment. Semi-structured interviews using the Traumatic Antecedents Interview were conducted to confirm the absence of exposure to other types of abuse. The parental verbal aggression scale was used to find out the levels of exposure to childhood verbal abuse.

The assessment of psychiatric symptoms and general well-being was done using self-report questionnaires such as the Dissociative experience scale to measure dissociation, Limbic system checklist to measure limbic irritability and The Kellner's symptom questionnaire to measure levels of depression, anxiety and anger and hostility. Brain change were mapped using magnetic resonance imaging studies. The analysis of these brain images was done using voxel-based morphometry.

The major composition of subjects in the HCP group were males as compared to more number of females in the control group. The educational level of parents in the HCP group was less by two years when compared with the control group. The participants in the HCP group experienced higher levels of verbal abuse when compared with control. The HCP group also experienced higher levels of perceived financial stress growing up when compared to controls. The control group had significantly higher scores on the verbal IQ tests when compared to the HCP group.

The Voxel Based Morphometry of the brain showed that there was a significant reduction in gray matter volume in the HCP group as compared to the control group. Long term exposure to harsh corporal punishment was associated with reduction in gray matter volume in the right medial frontal gyrus. There was some possible association between harsh corporal punishment with reduced gray matter in the left medial temporal gyrus and the right anterior cingulate gyrus.

Studies have found that these brain areas could be associated with some aspects of addiction, suicidal behavior or depression. The areas with reduced prefrontal grey matter belong to the medial rostral prefrontal cortex in the brain. This area has a significant role to play in the development of social

cognition. This area is also important for the development of some aspects of social and emotional development such as mentalizing capacity, self-knowledge and person perception. The posterior portion of the medial rostral prefrontal cortex is also important for the development of cognitive abilities such as attention, action monitoring and working memory.

The other possibility according to the authors was that a preexisting reduction in prefrontal gray matter in these subjects which could have led to deficits in social cognition, self-regulation and some other skills that lead to behavior issues that might have led to more exposure to harsh corporal punishment. In other words, the harsh corporal punishment could be a result and not a causative factor for reduced prefrontal grey matter. Even if this is the case, the use of harsh corporal punishment will likely increase the difficulties faced by the child. This may also worsen the already existing deficits in brain development

Thus, exposure to harsh corporal punishment in young children can be a very stressful life event that can have a significant effect in modifying the developmental course of certain specific brain regions in a negative way.

It was found that neglect had the greatest influence on the size of the corpus callosum in boys when compared to physical abuse, sexual abuse or PTSD. In girls, the effect on the size of the corpus callosum was significantly higher in subjects exposed to sexual abuse. There was a lesser effect on the size of the corpus callosum in girls exposed to neglect at a young age.

## 2.2 Longitudinal Study of School Corporal Punishment in Different Parts of the World, Elizabeth T. Gershoff (2017)

The prevalence, outcomes, physical, neurobiological, developmental and psychological consequences of corporal punishment in schools all over the world are discussed in this study. According to the United Nations Committee on Child Rights, Corporal punishment means punishment that is given to a child with the intention to cause a degree of discomfort or pain with the use of physical force. This has been termed as a form of violence against children. Many of the studies have focused on the use of corporal punishment by parents. However, there is a very widespread use of corporal punishment in schools.

There is use of corporal punishment in schools on schoolchildren of all age groups. Studies have shown that the most frequent use of corporal punishment is in primary school children. Children from different parts of the world have reported being beaten using sticks, straps and wooden boards on different parts of the body such as arms, hands, head and buttocks by their teachers. There are other forms of physical punishments such as throwing objects at the child, a slap on the face, pinching, pulling the ears or pulling the hair.

Corporal punishment is supposedly carried out only in case of serious breach of discipline such as fighting with classmates or when there are severe behavior problems, according to the school administrators. Interviews with the students however reveal a totally different scenario. Children from different countries such as India, Korea, South Africa, Swaziland and the United States have said that corporal punishment could happen for reasons such as not coming in time to class, not doing homework, running in the school premises, bringing cell phones to school, falling asleep in class, using bad language, being absent, not paying the school fees and even making noise in the classroom. Sometimes all the students are punished due to the misbehavior of one student in the class.

Although corporal punishment is legally banned in 128 countries, there are as many as 69 countries where corporal punishment is still allowed as of 2016. Ironically in some of the countries where corporal punishment is legally allowed if an adult is beaten with an object it would be considered an assault and legally punishable. The author reports the detailed statistics of the prevalence of corporal punishment in different countries all over the world. Even in countries where corporal punishment is legally banned in schools it is still seen to continue due to the mindset of teachers and even parents who think that physical punishment is the only way to discipline the child or even improve learning.

Corporal punishment by parents or responsible caregivers has been shown in many studies to not only have psychological and physical consequences, it also leads to developmental difficulties and abnormalities in brain development. In the same way, there is now plenty of information about the negative effects of the use of corporal punishment in schools to cause concern.

The use of severe or even mild forms of corporal punishment are enough to show that it is a form of violence against children and should be stopped even

without the need for providing evidence of its harmful effects.

One of the main negative effects of corporal punishment in schools is on the cognitive abilities of the child. Studies in different countries have shown that there is no evidence to prove that corporal punishment in schools either increases or promotes learning in the classroom. A cross-sectional study of children in Jamaica who received one or types of corporal punishment found had lower math scores. Children who received three or more types of corporal punishment in school had lower performance in spelling, reading and math. In a study in Nigeria it was found that children who experienced corporal punishment at school had lower levels of receptive vocabulary, reduced levels of executive functioning and poor self-motivation when compared with children from a school where corporal punishment was not allowed.

The results from this study showed that between twenty to eighty percent of children in all the four countries reported that they had experienced corporal punishment in school at the age of eight years. In two samples from Peru and Vietnam it was found that higher levels of corporal punishment was correlated with lower scores in math and decreased vocabulary scores. Learning in children may be also impacted by children not wanting to go to school due to the fear of punishment. There have also been studies to show that school corporal punishment can lead to mental health and behavioural issues in children. Children feel emotionally humiliated when punished.

School corporal punishment also comes with economic cost to the society. One of the studies conducted Plan International was on the economic costs of school corporal punishment in India. The study focused on the economic burden due to the effects of corporal punishment in school such as lower achievement, mental and physical health issues, lower earnings and higher reliance on social services. The cost to the society from school dropout due to corporal punishment was also calculated. There was a loss of about \$1.5 billion to \$7.4 billion loss each year from schoolchildren dropping out of school and all the other factors mentioned above which is equivalent to .13% to .64% of India's GDP.

As can be seen from the above-mentioned research studies school corporal punishment can lead to significant interference in children's learning capacity and cause physical and psychological harm. It is also not an effective solution to promote academic achievement or be used as an effective disciplinary measure.

Another roadblock to ending corporal punishment in schools is that most teachers are unaware of alternative methods to use with the children.

The solution according to the author is to end corporal punishment in schools. This not only requires legally banning school corporal punishment but also training teachers in alternative methods. There is a need for a change in the mindset of teachers, parents and society as a whole that believes that corporal punishment whether at home or in schools is an effective disciplinary tool and will help facilitate learning.

### 3. Conclusion

The results of the literature review and analysis found that there were a number of negative consequences of corporal punishment on physical, psychological and emotional well-being in schoolchildren that could continue well into adulthood. There are also serious consequences such as abnormalities in brain development. There is a requirement to end all forms of corporal punishment in schools and at home especially with young children. There is also a need for a change in the mindset of both parents and teachers.

### Acknowledgments

I would like to acknowledge the continuous support and encouragement of my Research Guide Dr. Alice Aloysius, MSc, PhD, Faculty and Student Counsellor, Department of Psychology, Kristu Jayanti College, Bangalore, India.

### References

- [1] Gershoff ET. More harm than good: A summary of scientific research on the intended and unintended effects of corporal punishment on children. *Law and Contemporary Problems*;73(2):31-56 Apr 1 (2010)
- [2] Gershoff ET. School corporal punishment in global perspective: prevalence, outcomes, and efforts at intervention. *Psychology, health & medicine*;22(sup1):224-39 Mar 6 (2017)
- [3] Holden GW, Brown AS, Baldwin AS, Caderao KC. Research findings can change attitudes about corporal punishment. *Child abuse & neglect*;38(5):902-8 May 1 (2014)
- [4] Lansford JE, Sharma C, Malone PS, Woodlief D, Dodge KA, Oburu P, Pastorelli C, Skinner AT, Sorbring E, Tapanya S, Tirado LM. Corporal punishment, maternal warmth, and

- child adjustment: A longitudinal study in eight countries. *Journal of Clinical Child & Adolescent Psychology*;43(4):670-85 Jul 1 (2014)
- [5] Schneider W, MacKenzie M, Waldfogel J, Brooks-Gunn J. Parent and child reporting of corporal punishment: New evidence from the fragile families and child wellbeing study. *Child indicators research*;8(2):347-58 Jun 1 (2015)
- [6] Teicher MH, Dumont NL, Ito Y, Vaituzis C, Giedd JN, Andersen SL. Childhood neglect is associated with reduced corpus callosum area. *Biological psychiatry*;56(2):80-5 Jul 15 (2004)
- [7] Tomoda A, Suzuki H, Rabi K, Sheu YS, Polcari A, Teicher MH. Reduced prefrontal cortical gray matter volume in young adults exposed to harsh corporal punishment. *Neuroimage*;47:T66-71 Aug 1 (2009)
- [8] Tomoda A, Sheu YS, Rabi K, Suzuki H, Navalta CP, Polcari A, Teicher MH. Exposure to parental verbal abuse is associated with increased gray matter volume in superior temporal gyrus. *Neuroimage*;54:S280-6 Jan 1 (2011)