

### RESEARCH BRIEF

## Siblings of Children who have been Physically Abused

### PURPOSE OF THE STUDY

*Child physical abuse is associated with a range of behavioral, social, and mental health problems. Yet, little is known about the effects of exposure to the physical abuse of a sibling. The purpose of this study was to explore differential education outcomes for children who were allegedly physically abused and children who were exposed to child physical abuse.*

### BACKGROUND & PURPOSE

During 2015, an estimated 4.0 million referrals were received by child protective services (CPS) agencies in the U.S., and an estimated 3.4 million children received an investigation or alternative response (U.S. Department of Health & Human Services, 2017). In 2015, there were approximately 683,000 victims of child maltreatment in the U.S., with 17.2% having been physically abused (U.S. Department of Health & Human Services, 2017). Data on children's exposure to a sibling's physical abuse are largely unavailable; yet, there is evidence to suggest that when one child in a family is physically abused, other children are not. Results from a national sample of 1,467 children, ages 2–17, revealed that 7.2% experienced physical abuse and 2.8% were exposed to the physical abuse of a sibling (Finkelhor, Turner, Ormrod & Hamby, 2009).

Child physical abuse has been linked with a wide range of behavioral, psychological, and social problems among children. With respect to educational outcomes, researchers have found that children who were physically maltreated were less engaged in school, had lower grades, had poorer test scores, experienced more suspensions, had higher absenteeism, and were more likely to drop out of school compared to children who were not maltreated (Gutman, Sameroff & Cole, 2003; Johnson-Reid, Drake, Kim, Porterfield & Han, 2004; Kinard, 1999; Kurtz, Gaudin, Wodarski & Howing, 1993; Leiter, 2007; Leiter & Johnson, 1997; Rowe & Eckenrode, 1999; Shonk & Cicchetti, 2001). Little is known about the effects associated with exposure to the physical abuse of a sibling, and what has been explored has primarily focused on behavioral and psychological outcomes. The purpose of this study was to explore differential education outcomes for children who were allegedly physically abused and children who were exposed to the alleged child physical abuse in comparison to their peers who never came in contact with the child protection system. In this study we answered the following questions:

- 1. Do school attendance and achievement patterns differ for children who were involved with CPS due to physical abuse compared to their peers who were not involved with CPS?**
- 2. Do school attendance and achievement patterns differ for children who were allegedly physically abused compared to children who were exposed to alleged physical abuse?**



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## METHODS

*Child protection and education records were used to identify children who were allegedly physically abused, those exposed to the alleged physical abuse of a sibling, and a matched comparison group of non-maltreated children.*

*The sample was made up of 8-10 year olds who were involved in CPS for the first and only time in AY 2011-2012 and 2012-2013.*

Using Minn-LInK, a cohort of children was identified in CPS records provided by the Minnesota Department of Human Services. Accepted maltreatment reports from 2000-2016 were used to identify a statewide population of children who were the subject of or exposed to alleged physical abuse for the first and only time in academic years (AY) 2011-2012 or 2012-2013, when they were 8-10 years old. Due to the focus on single type and incident, children with other types of maltreatment and children with subsequent maltreatment allegations were excluded. Children were coded as either having been the alleged victim in a physical abuse allegation or as having been exposed to the alleged physical abuse of another child in the household. A comparison group of similarly-situated children who had never been involved in CPS was created using propensity score matching. The comparison group was matched on gender, race/ethnicity, school district, grade level, receipt of free or reduced lunch, and receipt of special education services.

Education records from the Minnesota Department of Education were used to track school attendance and academic achievement over four years (in the AY of the CPS report and three following years). Descriptive statistics were used to understand characteristics of children who were involved in CPS as compared to their peers (see Table 1). Generalized Estimating Equations were used to determine differences in attendance and academic achievement over four years, starting in the year of the maltreatment report.

## FINDINGS

*The attendance and achievement of children involved with CPS decreased at significantly faster rates than those of their peers who were not involved with CPS. Further examination revealed significant differences in attendance patterns for children who were exposed to the alleged physical abuse of another child in the household compared to their peers, and significant differences in math and reading achievement patterns of children who were the alleged victims of physical abuse compared to their peers.*

## CHARACTERISTICS AND EXPERIENCES

Using propensity score matching, children who had CPS involvement as either an alleged victim of physical abuse or exposure to the alleged physical abuse of another child in their household were matched to a similarly-situated group of children without a history of CPS involvement. The final sample of 1,740 children were similar with respect to gender, race/ethnicity, receipt of special education services, receipt of free or reduced price lunch (an indicator of poverty), grade level, and school district. Both groups (CPS-involved and the matched comparison) had equal numbers of females and males. The matched comparison and CPS-involved groups had nearly equal percentages of White, Black, and Hispanic children, but the CPS-involved group had slightly more Asian and American Indian/Alaska Native children (52.1% and 53.7%, respectively) than the matched comparison group. Children in both groups also received special education services and were eligible for free or reduced price lunch at nearly equal rates.

## SCHOOL ATTENDANCE

Although children maintained high attendance (above 92%) across the four-year time period, all groups experienced an overall decline in attendance. This is a normal phenomenon as children progress through school. However, the rate of decline differed depending upon children's experiences of maltreatment. School attendance patterns were first examined for children who were involved in CPS reports for physical abuse (regardless of being exposed to alleged maltreatment or experiencing the alleged maltreatment) and children with no history of CPS involvement. During the year of the maltreatment incident, the attendance rates of all

**Table 1**  
*Characteristics of children in the sample*

	Alleged child physical abuse	Exposed to alleged child physical abuse	Total	v.	Matched Comparison Group
Female	21.2%	28.8%	50.0 %		50.0 %
Male	26.3%	23.7%	50.0 %		50.0 %
White	24.5%	25.2%	49.7 %		50.3 %
Black	21.8%	28.0%	49.8 %		50.2 %
Hispanic	23.5%	26.1%	49.6 %		50.4 %
Asian	24.0%	28.1%	52.1 %		47.9 %
American Indian/ Alaskan Native	29.3%	24.4%	53.7 %		46.3 %
Special Education	30.1%	20.8%	50.9 %		49.1 %
Free/reduced lunch	23.6%	26.9%	50.5 %		49.5 %
Total	24.0%	26.0%	50.0 %		50.0 %

children were nearly identical (94.91% matched comparison and 94.88% CPS-involved); however, children who were involved in an accepted report of physical abuse experienced a decline in attendance in the year following the report and maintained lower attendance than their non-CPS-involved peers over the four-year time period. Attendance rates of children with CPS involvement declined at a significantly faster pace than that of their peers ( $\beta = -0.71, p=.017$ ). When attendance was further examined with a focus on victimization and exposure to physical abuse, significant differences continued to emerge. Declines in attendance for children who were exposed to the alleged physical abuse of another child in the household were significantly greater than those of their matched peers ( $\beta = -0.81, p=.025$ ), whereas the patterns of attendance for children who were the alleged victims of physical abuse and their matched peers were not significantly different from one other (see Figure 1).

### ACADEMIC ACHIEVEMENT

Overall, CPS-involved children, regardless of exposure or alleged victimization, were less proficient than their matched peers on the Minnesota Comprehensive Assessment (MCA) math and reading tests across all four time points. Similar to school attendance, a decrease in proficiency is typical as children progress in school. In the year of the maltreatment report, CPS-involved children demonstrated lower proficiency than their matched peers on both assessments. MCA proficiency of CPS-involved children decreased at a significantly faster rate ( $\beta = 0.319, p=.001$  math;  $\beta = 0.348, p < .001$  reading) than that of their non-CPS-involved peers on both the MCA math and reading assessments.

OVERALL, CPS-INVOLVED CHILDREN, REGARDLESS OF EXPOSURE OR ALLEGED VICTIMIZATION, WERE LESS PROFICIENT THAN THEIR MATCHED PEERS ON THE MINNESOTA COMPREHENSIVE ASSESSMENT (MCA) MATH AND READING TESTS ACROSS ALL FOUR TIME POINTS.

Achievement over time was also examined by maltreatment experience to determine whether or not differences existed for children who were exposed to alleged physical abuse and those who were the alleged victims of physical abuse as compared to their peers. MCA math proficiency of children who were the alleged victims of physical abuse declined at a significantly faster rate than those of their matched peers ( $\beta = 0.645, p < .001$ ), whereas the patterns of achievement on the MCA math assessment for children who were exposed to alleged physical abuse and their matched peers were not significantly different from one another (see Figure 2). In fact, children who were exposed to alleged maltreatment had nearly identical math achievement as their matched peers.

Similar to math achievement, the decline in reading proficiency of alleged victims was significantly more pronounced than that of their matched peers ( $\beta = 0.499, p < .001$ ), but the patterns of achievement for those exposed to alleged maltreatment and their

matched peers were also significantly different from one another ( $\beta = 0.218, p = .048$ ; see Figure 3). The trajectory of reading proficiency over the four-year period for children who were alleged victims of physical abuse was similar to that of the matched comparison group, but proficiency declined steeply in the fourth year which was similar to the decrease in proficiency experienced by children who were alleged victims.

Figure 1. Average attendance over a 4-year time period

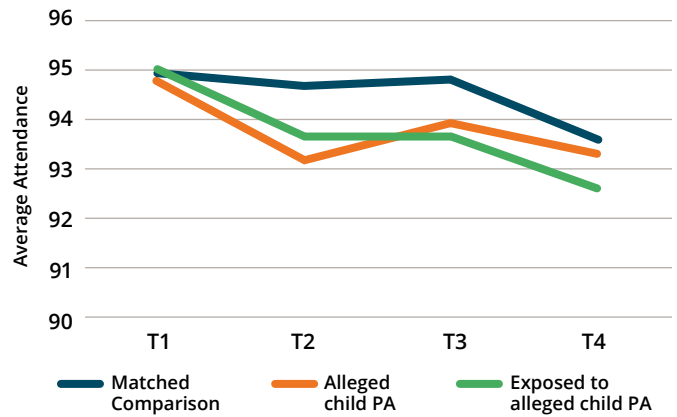


Figure 2. MCA math proficiency over a 4-year time period

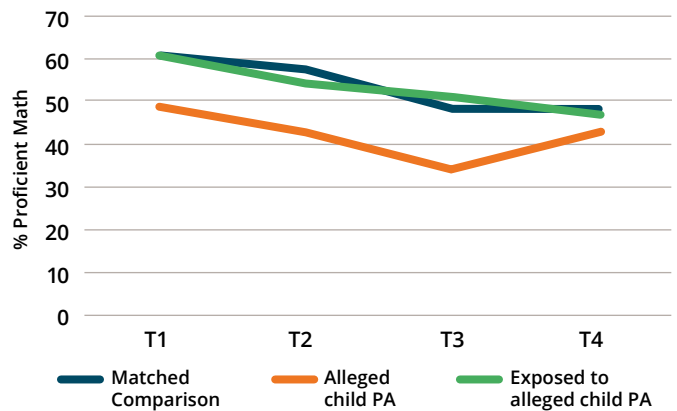
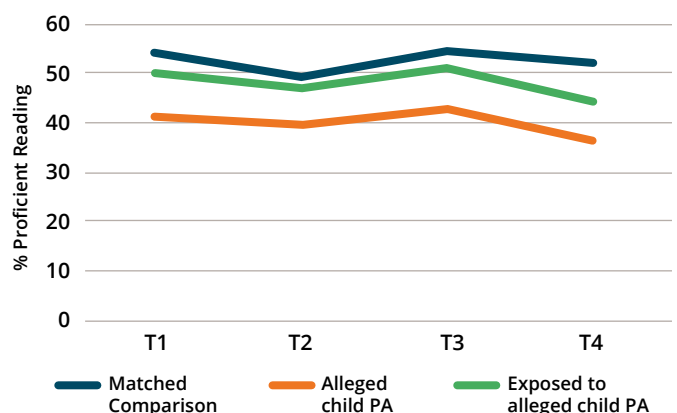


Figure 3. MCA reading proficiency over a 4-year time period



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## Conclusion

The purpose of this study was to explore differential education outcomes for children who were the alleged victims of physical abuse and children who were exposed to alleged child physical abuse as compared to their peers. In particular, this study was developed to understand differences in both the educational stability (attendance) and academic achievement (performance on standardized achievement tests) of these three groups of children. With respect to academic stability, the attendance rates of children with CPS involvement declined at a significantly faster rate than the attendance rates of their peers. Our findings revealed differences in attendance patterns that coincided with exposure to alleged physical abuse but not the alleged experience of physical abuse. The attendance patterns of children who were exposed to the alleged physical abuse of another child in the household declined at a significantly faster rate than that of their matched peers. However, the attendance pattern of children who were the alleged victims of physical abuse was not significantly different from that of their matched peers. Lower school attendance among children exposed to the maltreatment of a sibling may be linked with children's behavioral health. Children exposed to physical abuse of a sibling may exhibit feelings of guilt because they were not directly maltreated and/or helplessness because they could not stop the abuse (Gil, 1983). Feelings of guilt may translate into symptoms of depression or anxiety which may lead to avoidance of the school environment. Child welfare and school professionals should be aware of the potential negative effects of exposure to child maltreatment and provide academic support, counseling, and other interventions to support children's academic stability.

The math and reading proficiency of children with CPS involvement also declined at significantly faster rates than those of their peers. Our findings revealed differences in achievement patterns that coincided with the alleged experience of physical abuse on both math and reading assessments and the exposure to alleged physical abuse on reading assessments. Declines in math proficiency were significantly more pronounced for children who were the alleged victims of physical abuse than for their peers. However, reading achievement patterns among both children exposed to alleged physical abuse and alleged victims of physical abuse were significantly different from their peers. Child welfare and school professionals should be mindful of potential academic challenges among children who have been maltreated and recognize that children may require academic supports for several years following the incident of abuse.

## LIMITATIONS

*We were unable to control for alleged victimization or exposure to physical abuse that did not occur in Minnesota, as well as exposure to physical abuse where a child was not named in a CPS report. Additionally, we did not account for whether or not the alleged abuse was substantiated or whether or not the family received additional services.*

## References

- Finkelhor, D., Turner, H., Ormrod, R., & Hamby, S. L. (2009). Violence, abuse, and crime exposure in a national sample of children and youth. *Pediatrics*, *124*(5), 1411-1423.
- Gil, E. (1983). *Outgrowing the pain: A book for and about adults abused as children*. New York: Dell Publishing.
- Gutman, L. M., Sameroff, & Cole, R. (2003). Academic growth curve trajectories from 1st to 12th grade. *Developmental Psychology*, *39*, 777-790.
- Johnson-Reid, M., Drake, B., Kim, J., Porterfield, S., & Han, L. (2004). A prospective analysis of the relationship between reported child maltreatment and special education eligibility among poor children. *Child Maltreatment*, *9*, 382-394.
- Kinard, E. M. (1999). Psychosocial resources and academic performance in abused children. *Child Abuse & Neglect*, *21*, 351-376.
- Kurtz, P. D., Gaudin, Wodarski, J. S., & Howing, P. T. (1993). Maltreatment and the school-aged child: School performance consequences. *Child Abuse & Neglect*, *17*, 581-589.
- Leiter, J. (2007). School performance trajectories after the advent of reported maltreatment. *Children and Youth Services Review*, *29*, 363-382.
- Leiter, J., & Johnsen, M. C. (1997). Child maltreatment and school performance declines: An event-history analysis. *American Educational Research Journal*, *34*, 563-589.
- Rowe, E., & Eckenrode, J. (1999). The timing of academic difficulties among maltreated and nonmaltreated children. *Child Abuse & Neglect*, *23*, 813-832.
- Shonk, S. M., & Cicchetti, D. (2001). Maltreatment, competency deficits, and risk for academic and behavioral maladjustment. *Developmental Psychology*, *37*, 3-17.
- U.S. Department of Health & Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2017). *Child maltreatment 2015*. Available from <http://www.acf.hhs.gov/programs/cb/research-data-technology/statistics-research/child-maltreatment>.

**Suggested citation:** Renner, L. M., Piescher, K., & Mickelson, N. (2018). Siblings of children who have been physically abused. (Minn-LInK Brief No. 33). Available at [http://cascw.umn.edu/portfolio\\_tags/minn-link/](http://cascw.umn.edu/portfolio_tags/minn-link/)

**Manuscript citation:** Renner, L. M., Piescher, K., & Mickelson, N. (in progress). Educational outcomes among children with direct and indirect experiences of physical child abuse.

**Funding & Other Acknowledgements:** This work was supported by the USDA National Institute of Food and Agriculture, Hatch project MIN-55-030.

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