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Is the use of physical discipline associated with aggressive behaviors in young children?

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Abstract

Objectives—To determine the association between use of physical discipline and parental report of physically aggressive child behaviors in a cohort of young children who were without indicators of current or past physical abuse

Methods—The data for this study were analyzed from an initial cohort of patients enrolled in a prospective, observational, multi-center PED-based study investigating bruising and familial psychosocial characteristics of children less than four years of age. Over a seven-month period, structured parental interviews were conducted regarding disciplinary practices, reported child behaviors, and familial psychosocial risk factors. Children with suspected physical abuse were excluded from this study. Trained study staff collected data using standardized questions. Consistent with grounded theory, qualitative coding by two independent individuals was performed using domains rooted in the data. Inter-rater reliability of the coding process was evaluated using the kappa statistic. Descriptive statistics were calculated and multiple logistic regression modeling performed.

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Results—372 parental interviews were conducted. Parents who reported using physical discipline were 2.8 [95% CI 1.7, 4.5] times more likely to report aggressive child behaviors of hitting/kicking and throwing. Physical discipline was utilized on 38% of children overall, and was 2.4 [95% CI 1.4, 4.1] times more likely to be utilized in families with any of the psychosocial risk factors examined.

Conclusions—Our findings indicated that the use of physical discipline was associated with higher rates of reported physically aggressive behaviors in early childhood as well as with the presence of familial psychosocial risk factors.

Keywords

corporal punishment; psychosocial risk factors; spanking

Introduction

Physical discipline (corporal punishment) is the use of any physical means, such as spanking, to correct or punish behavior. More than 90% of American families report using physical discipline at some time during a child's life although it is less common in very young children.¹ In a nationally representative study, 64% of parents reported spanking children 19–35 months of age, and 6% of parents reported spanking infants 4–9 months of age.²

Despite the widespread use of physical discipline, there is considerable debate about the benefits versus risks of this method of discipline.³ Proponents state that physical discipline is effective in immediately reducing or stopping the undesired behavior.^{4–6} Opponents cite a myriad of deleterious effects in children that can persist into adulthood.^{7–10} Spanking has been associated with impaired child-parent relationships, poor child self-esteem, mental health problems in adolescence and adulthood, substance abuse, adult domestic violence, and increased aggressive behavior in children.^{3,7–9,11}

Spanking that has escalated is the etiology of many substantiated reports of physical abuse by child protective services.^{3,8,9,12} The pediatric emergency department (PED) is a common location for physical child abuse screenings. It is therefore reasonable that such screenings conducted in the PED include questions regarding parental disciplinary practices and descriptors of frustrating child behaviors since parental frustration with a behavior (e.g. crying) is likely to be associated with an increased risk for abuse.¹³ This data could potentially inform points of intervention for parents where parental discipline techniques are ineffective or problematic as well as inform future abuse prevention strategies. These questions should be asked across all ages since some parents report spanking young infants.

Familial psychosocial risk factors such as domestic violence, substance abuse, mental illness, child abuse, and police involvement have been linked to child aggressive behavior as well as a host of negative child outcomes, although this link is usually examined in somewhat older children.^{7,9,14–17} These risk factors have also been linked to the use of physical discipline in different populations.^{7,18–20} Knowledge about the associations between physical discipline, child aggressive behaviors, and psychosocial risk factors in a

diverse population that presents to an acute care setting without indicators for physical abuse, a known confounder for child aggressive behaviors, is important for further understanding the influence that family milieu and disciplinary practices have on a child's behaviors. To our knowledge, no study to date has assessed these associations in the diverse setting of the PED among children with non-abuse related injuries.

The purpose of this investigation was to examine the following hypotheses in a cohort of children from the PED with no known physical abuse. The primary hypothesis was that there would be a significant association between parents' reports of physical discipline and of child aggressive behavior. A secondary hypothesis was that parents who reported using physical discipline would also be more likely to report the presence of familial psychosocial risk factors.

Methods

Participants and Study Design

The data for this study were analyzed from an initial cohort of patients enrolled in an ongoing, prospective, observational, multi-center study investigating bruising characteristics of children less than four years of age and familial psychosocial characteristics. Eligibility criteria were age under 4 years, presentation to a participating PED, bruising identified by deliberate exam, and no concerns for abuse.²¹ Consecutive eligible patients were approached for enrollment during designated research shifts conducted over a seven month period (September 5, 2012 – March 31, 2013). The study was conducted at three free standing PEDs with academic affiliations in different areas of the United States. All three PEDs are part of large, urban, tertiary care children's hospitals, and they collectively evaluate more than 50,000 children annually in the study-eligible age range. The use of multiple urban PEDs with large catchment areas was selected to increase the likelihood for diversity of patient demographics in the study population. Patients undergoing abuse evaluations and those with current or past physical abuse diagnoses were excluded from this cohort study as the purpose was to target a population with no known or suspected physical abuse (Figure). This exclusion is because physical abuse is a known confounder for child aggressive behavioral problems and inappropriate parental disciplinary practices.^{9,14} An expert panel process, described below, was used to further assure only patients with very low likelihood of physical abuse were included.

Institutional Review Board (IRB) approval was obtained prior to study commencement. Consent was obtained from parents prior to study participation.

Development of interview questions

Prior to the start of this study, candidate interview questions were developed regarding parental disciplinary practices, perceptions of the child's attributes, and expectations of the child's capabilities and developmental progress. Questions were also developed regarding familial risk factors that have well-established links for potentially negative developmental child outcomes: current or prior familial state social services involvement, domestic violence, police involvement, substance abuse, and mental health issues.^{22,23} The candidate

interview questions were developed through a working group forum comprised of social work, psychology, and medical personnel. Candidate interview questions were based on existing clinical social work protocols for child abuse assessments at the participating study sites and expanded based on published literature.^{22–24} The detailed open-ended questions were designed to meet the constraints of conducting research in the busy emergency department setting, while still paralleling the psychosocial evaluation process outlined by the child abuse pediatrics teams at the participating sites. We aimed to obtain similarly rich information in the PED setting regarding the disciplinary methods, child behaviors, and familial environment of our targeted low risk population defined as patients without indicators for physical abuse, and for whom there was no known or suspected physical abuse. The candidate questions were piloted in the PED in a separate study of 100 families to establish feasibility of use in the acute care setting (i.e. quick, non-intrusive to the clinical process, and non-resource intensive) and parent willingness to answer psychosocial questions. As a result of this piloting, the standardized interview questions for this study were refined and finalized (Table 1). This iterative process was required, as there are no validated psychosocial questionnaires appropriate for the PED setting.

Data collection

Data were collected by trained study staff through structured parental interview using the standardized questions. Responses to all non-dichotomized questions were documented by the researcher verbatim via free text. Following the interview, child's age, gender, race, ethnicity, and insurance type (as a proxy for family income level) were abstracted from the medical record. Data regarding the patient's previous visits to the PED were also abstracted to determine if any prior medical, trauma, and/or abuse histories were present.

Determination of non-abuse and abuse related injuries

A nine-member expert panel composed of four child abuse pediatricians, four pediatric emergency medicine physicians, and a bioengineer reviewed the history of injury, examination findings, and test results for the current PED visit. All prior PED visits on record at the same hospital were also reviewed for each participating patient. Each expert independently reviewed the case information provided a case determination of whether the child's injuries were related to abusive versus accidental trauma and whether there were past concerns of abuse. The expert panel members were blinded to the parental responses to the standardized interview questions (e.g. disciplinary practices and familial psychosocial risk factors). Study inclusion required an expert panel consensus of accidental trauma and no past concerns of abuse involving the patient.

Coding of Qualitative Data

The parental interviews had several open-ended questions. Specifically, parent disciplinary behaviors, child aggressive behaviors, and psychosocial risk were all derived from these open-ended questions. Techniques from the grounded theory approach were used to code these qualitative data from the parental interviews.²⁵ First, two reviewers (GM and BB) independently conducted an initial examination of the data to identify relevant themes and establish preliminary codes rooted in the data in order to develop an initial coding frame. An additional two reviewers (MCP and KK) then compared the data to the initial coding frame

and identified additional codes such that the coding frame was built through an iterative process. The coding frame resulting from the iterative process was reviewed and discussed by all authors. In discussion, the authors agreed that the coding frame was complete, resulting in a final list of the coding domains, which are described below.

The parental interview data was coded by two independent raters utilizing the final coding frame. The two codes were independently examined by two separate reviewers, all of whom coded/reviewed different but overlapping cases. KK and GM were the primary raters, and reviewed 100% and 74% of cases, respectively. The two reviewers, MCP and BB, examined 20% of the cases each and analyzed coding to ensure agreement between the parental interview and the coding as completed by KK and GM. Cases with coding discrepancies were discussed by all four reviewers and coding consensus was achieved. In terms of validity, this procedure was transparent, allowing the assessment of different reviewers from different clinical and research perspectives. Such transparency is a key indicator of validity in qualitative data coding.²⁶ The original codes provided by the two primary raters was used in the assessment of inter-rater reliability detailed below. The consensus codes produced by the discussion of discrepant cases among all reviewers were used in the statistical analyses detailed below.

Establishment of domains for parental disciplinary methods

The responses to the questions regarding discipline, child behaviors that were frustrating to the parent, and child misbehaviors were coded into the discipline categories defined in Table 2. With the exception of *No Discipline*, which was exclusionary of the other disciplinary methods, all disclosed methods were coded for each patient. Each case had the potential to have between one and eleven domains coded as “Yes”. This large number of domains of disciplinary methods were dichotomized into physical or non-physical discipline, as summarized in Table 2, in which physical discipline involved some type of parental hitting behavior including hand smacking, spanking, and use of objects. All other discipline methods were categorized as non-physical discipline. Any patient with a physical discipline disclosure was considered a physical discipline case regardless of the other disciplinary methods that might have been utilized.

Establishment of the domains for child’s aggressive behaviors

The responses to the questions regarding discipline, child behaviors that parents found frustrating, and child misbehaviors were coded into the categories for child aggressive behaviors defined in Table 2. All aggressive behaviors were coded. A child could be positive for several different aggressive behaviors. Generally, each form of aggressive behavior was a separate outcome. Hitting/kicking/throwing was defined as present if any of these forms of behavior were present.

Establishment of the domains for familial psychosocial risk factors

The parental respondents were asked to take into account all of the key adults in close contact with their child including mother, father, parental paramours, step-parents, grandparents, adult siblings, babysitters and nannies. The responses to the questions regarding the psychosocial risk factors of the child’s caregivers were coded as present or

absent among the child's network of caregivers. The number of risk factors present was summed for each patient, with the sum ranging from zero to five risk factors present among their network of caregivers. The psychosocial risk factors are defined in Table 2.

Data Analysis

Demographics, physical discipline methods, and aggressive child behaviors were summarized with counts and percentages. The inter-rater reliability of the coding provided by the two primary raters was evaluated using the kappa statistic with 95% confidence intervals calculated via nonparametric bootstrap. Unadjusted odds ratios and 95% confidence intervals were calculated for the relationship between the reported use of physical discipline and the following variables: presence of psychosocial risk factors (yes/no), age (< or ≥ 18 months), gender, race (white/non-white), ethnicity (Hispanic/non-Hispanic), insurance status (private/non-private), and study site. The association between aggressive child behaviors and the use of physical discipline was examined with multiple logistic regression models. Models were defined in which four aggressive child behaviors (and one combined aggressive behavior variable) served as the response variables. The predictors included in each model were reported use of physical discipline (yes/no), presence of psychosocial risk factors (yes/no), age (< or ≥ 18 months), gender, race (white/non-white), insurance status (private/non-private), and study site. Interaction terms were defined between the use of physical discipline and the presence of psychosocial risk factors to determine whether the presence of psychosocial risk factors modified any physical discipline-aggressive behavior relationships. The inclusion of individual psychosocial risk factors and the cumulative number of psychosocial risk factors in the multiple logistic regression models was not feasible due to the low number of individuals with each individual risk factor and with multiple psychosocial risk factors (n = 25). All analyses were conducted in the open-source R software environment.²⁷

Results

Demographics

A total of 372 interviews were conducted of parents whose children ranged in age from 2 to 47.9 months. The distribution of patient's ages did not differ by study site (Table 3). The majority of patients were male (60%), of non-Hispanic ethnicity (62%), white (86%), and approximately half of the patients were privately insured and approximately half had government insurance. Gender, ethnicity, and insurance type differed by study site in that patients from Site 3 were more likely to have been female, only 1 Hispanic patient was enrolled at Site 2, and patients from Site 3 were less likely to carry private insurance.

Inter-rater agreement

The kappa coefficient between primary coders (KK and GM) for the identification of the use of physical discipline was 0.98, indicating strong agreement. The coders also substantially agreed in the identification of psychosocial risk factors, with a kappa coefficient of 0.92. For the identification of any aggressive child behavior, the kappa coefficient was 0.85, indicating sufficient agreement.

Discipline Methods and Physical Discipline Associations

Table 4 shows the overall rate of use for each discipline method and the rates of use for each age interval. Most parents (76%) reported utilizing more than one discipline method with their child (Range = 0–6; Mode = 2). Physical discipline was utilized with 140 (38%) children, and the likelihood of use increased with the child's age (Table 4). Notably, physical discipline was utilized for 17 (22%) children less than 18 months of age.

The reported presence of psychosocial risk factors was associated with the use of physical discipline (Table 5). Fifty-four percent (43 of 79) of families reporting psychosocial risk factors also reported using physical discipline, compared to 33% (97 of 293) of those that did not report psychosocial risk factors (OR = 2.4). There was evidence that a greater number of psychosocial risk factors was associated with a higher likelihood of physical discipline use – 33% (97/293) of children with 0 risk factors, 49% (27/55) of children with 1 risk factor, and 64% (16/25) of children with 2 or more risk factors were physically disciplined (Fisher's exact test, $p = .002$). Child age was also associated with the use of physical discipline, as children 18 months of age and older were more likely to have been physically disciplined than children less than 18 months of age (42% vs. 22%, OR = 2.6). Child's gender, race, ethnicity, and family insurance type were not related to the reported parental use of physical discipline. The reported use of physical discipline was 57% at study Site 2, significantly higher than reported use at Sites 1 (30%) and 3 (35%).

Child Behavior and Physical Discipline

Parents reported aggressive child behaviors of hitting/kicking, throwing (objects), biting, and/or tantrums in 169 of the 372 (45.4%) children in the study. The reported use of physical discipline was associated with higher reported rates of the aggressive child behaviors of hitting/kicking and throwing (Table 6). Children who were reported to have been physically disciplined were 2.7 times more likely to exhibit hitting/kicking or throwing. Physical discipline was not associated with rates of biting or tantrums. The presence of psychosocial risk factors was not associated with any aggressive child behaviors. Further, the presence of psychosocial risk factors did not modify the relationship between physical discipline and any of the aggressive child behaviors, as interaction terms involving these two variables were non-significant for all 5 regression models ($p > .14$). In general, other subject characteristics were not associated with aggressive child behaviors with a few exceptions. Females were less likely than males to exhibit hitting, kicking, or throwing (27% vs. 36%). Non-white children were less likely than white children to exhibit biting (4% vs. 11%). Families with public or no insurance were more likely to have children exhibiting throwing than families with private insurance (18% vs. 8%).

Discussion

To our knowledge, this is the first study to conduct parental interviews regarding disciplinary methods and familial psychosocial risk factors of PED patients with non-abuse related injuries.

Given the adverse outcomes associated with physical discipline, several prominent professional organizations have policy statements against the use of physical discipline.^{1,14} The American Academy of Pediatrics (AAP) advises that physical discipline in children <18 months of age increases the chance for injury, is less effective as a long term discipline strategy compared to other approaches, and models aggressive behavior as conflict resolution that is likely to be incorporated by the child.¹ Children in this very young age range imitate the actions of their caregivers so it is reasonable to suspect that the use of spanking as a method of discipline may teach the child to hit when there is conflict or frustration. This interpretation is supported by the results of Simons and Wurtele who found that children whose parents used physical discipline were more likely to use aggressive means such as hitting to resolve conflicts with their siblings and peers. Simons and Wurtele concluded that “children do learn from their parents’ discipline strategies. They learn it is acceptable to hit others to resolve conflicts.”²⁸ Such learning or modeling can extend into the long term, culminating in intergenerational continuity in use of physical discipline.^{29,30}

Gershoff pointed out there is strong irony in parents acting aggressively (i.e. spanking) to reduce aggression in their children.¹⁴ In a meta-analysis of studies investigating the association between physical discipline and child’s behaviors and experiences, Gershoff concluded that physical discipline was associated with undesirable behaviors and experiences including increased child aggression.³ A growing body of literature suggests the relationship between physical discipline and child’s aggression is “bidirectional or transactional in nature.”^{31–33} Lee et al. investigated children in a similar age group as the participants in our study and found that increases in spanking between ages 1 and 3 predicted increases in child aggression between ages 3 and age 5, and child aggression at age 3 predicted increases in maternal spanking between ages 3 and 5.³¹ Thus, it appears that child aggression and parent physical discipline can become a “vicious cycle” of sometimes escalating aggression.

In our sample, nearly one-quarter of children less than 18 months of age were already being physically disciplined. Our rate of 22% is aligned with previous studies that showed 5–35% of parents use physical discipline in children < 1 year of age.^{2,8,34} Zolotor et al. reported that 8% of mothers of children 3–9 months of age reported having spanked their child by this time.⁸ The evidence revealing parental use of physical discipline on very young children is noteworthy given that this young population has the highest risk of fatal or near-fatal abuse.³⁵ The parents of these children likely represent a group who could benefit from earlier education efforts focused on alternative discipline techniques. The AAP’s Practicing Safety Module and the Bright Futures guidelines recommend parents begin modeling positive behaviors when their child is 9 months of age and that the medical provider initiate a discussion with the parents regarding thoughts about discipline and disciplinary plans.^{36,37} Our study and others suggest that screening for disciplinary practices should begin at an early age.⁸

Previous studies have shown a link between the aggressive behavior of children and parental use of physical discipline in specific populations such as low-income and minority groups.^{8,38,39} In our cohort, the child’s gender, race, ethnicity, and insurance status had no

bearing on the association between aggressive behavior of children and parental use of physical discipline.

Affi et al. reported that participants with a family history of dysfunction were more likely to experience harsh physical punishment.¹⁰ Our study found that children from families with psychosocial risk factors were nearly twice as likely to be physically disciplined as children from families without risk factors. The association between psychosocial risk factors and physical discipline highlights the importance of evaluating the child's overall environment.

Limitations

Parental report was the primary method for obtaining information for this study. Some parents may not have disclosed the use of physical discipline or presence of psychosocial risk factors. Parental report is an accepted method of obtaining information in the clinical setting and has been used in previous studies investigating the effects of physical discipline. Due to the young ages of our population, we interpreted our results as the child learning aggressive behaviors from their parents' use of physical discipline. However, the directionality of this association cannot be assessed with these data.

Parental consent was required for participation in the study. Some parents declined to participate, which may have introduced bias. All eligible patients/families were approached for study participation regardless of race/ethnicity; however, our resulting study sample was predominantly white, limiting our ability to draw strong conclusions about this variable. Inclusion criteria required the patient to have a bruise, which may have led to the relatively low number of black patients/families since black children have a lower bruise prevalence compared to white children.⁴⁰ It is possible that a different racial distribution may have altered our primary conclusion that aggressive child behavior and physical discipline are associated. However, we note that homogeneity tests of the aggression-discipline odds ratios between the races failed to reject the homogeneity assumption (Breslow-Day test, $p > .18$), indicating either that there were no racial differences in the aggression-discipline relationship or that there were too few non-white cases in our data set to illustrate significant racial differences. A study strength is that more than one-third of the children in the sample were Hispanic, as this is a subgroup that is understudied and a growing segment of the population in the United States. Further study to determine if the aggression-discipline relationship differs by race or ethnicity may be warranted.

There was no difference in race for the included versus excluded patients due to abuse concerns or declined participation (Fisher's exact test, $p = .55$). Patients excluded due to concerns of abuse were more likely to have government insurance (Fisher's exact test, $p < .001$), thus contributing to the lower number of government insurance patients in the study. We had limited information on socioeconomic status, with the exception of insurance status. Our examination of social risk factors was necessarily incomplete and did not include such items as child health vulnerability, parent childhood experience of physical discipline, or parental age. The focus of this investigation was on physical discipline, rather than on optimal parenting approaches. As such, several approaches included in the reference group (such as yelling) are likely associated with some negative outcomes.⁴¹

Although a methodological approach was used to exclude abuse patients, it is possible that some abuse patients without overt indicators may have been included. Study site was found to be significantly associated with parental use of physical discipline. It is unclear whether this association is due to regional-cultural differences in attitudes toward discipline or the effectiveness of the interviewer at this site. We speculate there is a regional element as earlier studies have noted higher rates of spanking in specific geographic regions.^{20,42} We used a standardized interviewing process and the same trained interviewers at each site.

Conclusion

Our findings indicated that the use of physical discipline was associated with higher rates of reported physically aggressive behaviors in early childhood as well as with the presence of familial psychosocial risk factors. It is possible that rather than reducing unwanted behaviors, physical discipline is modeling and promoting child physical aggression. Additionally, the use of physical discipline may be an indicator of the presence of more serious psychosocial risk factors in the family network.

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References

1. American Academy of Pediatrics Committee on Psychosocial Aspects of Child and Family Health. Guidance for effective discipline. *Pediatrics*. 1998; 101(4 Pt 1):723–8. [PubMed: 9521967]
2. Regalado M, Sareen H, Inkelas M, et al. Parents' Discipline of Young Children: Results from the national survey of early childhood development. *Pediatrics*. 2004; 113(6 Suppl):1952–8. [PubMed: 15173466]
3. Gershoff ET. Corporal punishment by parents and associated child behaviors and experiences: a meta-analytic and theoretical review. *Psychol Bull*. 2002; 128(4):539–79. [PubMed: 12081081]
4. Graziano AM, Hamblen JL, Plante WA. Subabusive violence in child rearing in middle-class American families. *Pediatrics*. 1996; 98(4 Pt 2):845–8. [PubMed: 8885986]
5. Larzelere RE. A Review of the Outcomes of Parental Use of Nonabusive or Customary Physical Punishment. *Pediatrics*. 1996; 98(4):824–828. [PubMed: 8885980]
6. Larzelere RE, Kuhn BR. Comparing Child Outcomes of Physical Punishment and Alternative Disciplinary Tactics: A Meta-Analysis. *Clinical Child and Family Psychology Review*. 2005; 8(1): 1–36. [PubMed: 15898303]
7. Taylor CA, Manganello JA, Lee SJ, Rice JC. Mothers' spanking of 3-year old children and subsequent risk of children's aggressive behavior. *Pediatrics*. 2010; 125(5):e1057–65. [PubMed: 20385647]
8. Zolotor AJ, Robinson TW, Runyan DK, et al. The emergence of spanking among a representative sample of children under 2 years of age in North Carolina. *Front Psychiatry*. 2011; 2:36. [PubMed: 21738509]
9. Zolotor AJ, Theodore AD, Chang JJ, et al. Speak softly-and forget the stick. Corporal punishment and child physical abuse. *Am J Prev Med*. 2008; 35(4):364–369. [PubMed: 18779030]
10. Afifi TO, Mota NP, Dasiewicz P, et al. Physical punishment and mental disorders: results from a nationally representative US sample. *Pediatrics*. 2013; 130:184–92. [PubMed: 22753561]

11. Slade EP, Wissow LS. Spanking in Early Childhood and Later Behavior Problems: A Prospective Study of Infants and Young Toddlers. *Pediatrics*. 2004; 113(5):1321–1330. [PubMed: 15121948]
12. Straus MA. Corporal Punishment and Primary Prevention of Physical Abuse. *Child Abuse Negl*. 2000; 24(9):1109–1114. [PubMed: 11057699]
13. Barr RG. Preventing abusive head trauma resulting from a failure of normal interaction between infants and their caregivers. *Proc Natl Acad Sci*. 2012; 109(Suppl 2):17294–301. [PubMed: 23045677]
14. Gershoff ET. Spanking and Child Development: We Know Enough Now to Stop Hitting Our Children. *Child Development Perspectives*. 2013; 7(3):133–137. [PubMed: 24039629]
15. Brennan PA, Hall J, Bor W, et al. Integrating biological and social processes in relation to early-onset persistent aggression in boys and girls. *Dev Psychol*. 2003; 39(2):309–23. [PubMed: 12661888]
16. Lau AS, Litrownik AJ, Newton RR, et al. Factors affecting the link between physical discipline and child externalizing problems in Black and White families. *Journal of Community Psychology*. 2006; 34:89–103.
17. Thompson R, Tabone JK. The impact of early maltreatment on behavioral trajectories. *Child Abuse Negl*. 2010; 34:907–916. [PubMed: 21111247]
18. Chung EK, Mathew L, Rothkopf AC, et al. Parenting Attitudes and Infant Spanking: The Influence of Childhood Experiences. *Pediatrics*. 2009; 124:e278–86. [PubMed: 19620204]
19. Lee SJ, Perron BE, Taylor CA, et al. Paternal psychosocial characteristics and corporal punishment of their 3-year old children. *J Interpers Violence*. 2011; 26(1):71–87. [PubMed: 20522884]
20. Giles-Sims J, Straus MA, Sugarman DB. Child, maternal, and family characteristics associated with spanking. *Family Relations*. 1995; 44(2):170–6.
21. Pierce MC, Magana JN, Kaczor K, et al. The Prevalence of Bruising Among Infants in Pediatric Emergency Departments. *Ann Emerg Med*. 2016; 67:1–8. [PubMed: 26233923]
22. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults. *Am J Prev Med*. 1998; 14(4):245–258. [PubMed: 9635069]
23. Brown DW, Anda RF, Tiemeirer H, et al. Adverse Childhood Experiences and the Risk of Premature Mortality. *Am J Prev Med*. 2009; 37(5):389–396. [PubMed: 19840693]
24. Glaser, B. Basics of grounded theory analysis. Mill Valley, CA: Sociology Press; 1992.
25. Kolko DJ. Clinical Monitoring of Treatment Course in Child Physical Abuse: Psychometric Characteristics and Treatment Comparisons. *Child Abuse Negl*. 1996; 20(1):23–43. [PubMed: 8640423]
26. R Core Team. R: A Language and Environment for Statistical Computing. Vienna, Austria: R Foundation for Statistical Computing; 2014. Available at: <http://www.R-project.org/>
27. Schwandt TA, Lincoln YS, Guba EG. Judging interpretations: but is it rigorous? trustworthiness and authenticity in naturalistic evaluation. *New Directions for Evaluation*. 2007; 114:11–25.
28. Lee SJ, Altshul I, Gershoff ET. Does warmth moderate longitudinal associations between maternal spanking and child aggression in early childhood? *Dev Psychol*. 2013; 49(11):2017–28. [PubMed: 23339588]
29. Lunkenheimer ES, Kittler JE, Olson SL, Kleinberg F. The intergenerational transmission of physical punishment: Differing mechanisms in mothers' and fathers' endorsement? *J Fam Viol*. 2006; 21:509–519.
30. Thompson R, Jones DJ, Litrownik AJ, et al. Linking mother and youth parenting attitudes: Indirect effects via maltreatment, parent involvement, and youth functioning. *Child Maltreat*. 2014; 19:233–246. [PubMed: 25113632]
31. Bell RQ. A reinterpretation of the direction of effects in studies of socialization. *Psychol Rev*. 1968; 75(2):81–95. [PubMed: 4870552]
32. Sameroff, AJ. The transactional model. In: Sameroff, AJ., editor. *The transactional model of development: How children and contexts shape each other*. Washington DC: American Psychological Association; 2009. p. 3–21.

33. Simons DA, Wurtele SK. Relationships between parents' use of corporal punishment and their children's endorsement of spanking and hitting other children. *Child Abuse Negl.* 2010; 34(9): 639–46. [PubMed: 20638720]
34. Wissow LS. Ethnicity, income, and parenting contexts of physical punishment in a national sample of families with young children. *Child Maltreat.* 2001; 6(2):118–129. [PubMed: 16705787]
35. Kellogg ND. Evaluation of suspected physical abuse. *Pediatrics.* 2007; 119(6):1232–41. [PubMed: 17545397]
36. American Academy of Pediatrics. [Accessed December 31, 2015] Practicing Safety Module Practice Guide: Effective Discipline. Available at: <https://www2.aap.org/sections/scan/practicingsafety/Modules/EffectiveDiscipline/EffectiveDiscipline.pdf>
37. [Accessed December 31, 2015] Bright Futures Guidelines for Health Supervision of Infants, Children, and Adolescents. Infancy: Prenatal to 11 months. Available at: <https://brightfutures.aap.org/Bright%20Futures%20Documents/15-Infancy.pdf>
38. Berlin JL, Ispa JM, Fine MA, et al. Correlates and consequences of spanking and verbal punishment for low-income White, African American, and Mexican American toddlers. *Child Dev.* 2009; 80(5):1403–20. [PubMed: 19765008]
39. Mahoney A, Donnelly WO, Lewis T, et al. Mother and father self-reports of corporal punishment and severe physical aggression toward clinic-referred youth. *J Clin Child Psychol.* 2000; 29(2): 266–81. [PubMed: 10802835]
40. Sugar NF, Taylor JA, Feldman KW. Bruises in infants and toddlers: those who don't bruise rarely bruise. *Arch Pediatr Adolesc Med.* 1999; 153:399–403. [PubMed: 10201724]
41. English DJ, Thompson R, White CR, et al. Why should child welfare pay more attention to emotional maltreatment? *Children and Youth Services Review.* 2015; 50:53–63.
42. Straus MA, Stewart JH. Corporal punishment by American parents: national data on prevalence, chronicity, severity, duration, in relation to child and family characteristics. *Clin Child Fam Psychol Rev.* 1999; 2(2):55–70. [PubMed: 11225932]

What's new

This is the first known study of disciplinary practices of parents of non-physically abused young children presenting to pediatric emergency departments. Parental use of physical discipline is significantly associated with children's aggressive behaviors and familial psychosocial risk factors.

Figure.
Flow diagram of sample Inclusions and exclusions and data collection

Table 1

Structured interview questions

Discipline	How do you discipline your child? Do you or have you ever spanked your child? Have you used objects to physically discipline your child?
Frustrating behavior	What is your child's most frustrating behavior? Why do you think your child does this? What do you do in response to this behavior?
Misbehaviors	How does your child misbehave? Why do you think your child does this? What do you do when your child misbehaves?
Psychosocial risk factors	Who, if anyone of the people around your child, is or has been involved with: • social services? • domestic violence/interpersonal violence? • police involvement? • drugs? • alcohol problem/abuse? • mental health issues ?

Table 2

Coding definitions for the disciplinary methods, child's aggressive behaviors, and psychosocial risk factor domains

Part A. Disciplinary methods	
<i>Non-physical discipline</i>	
No Discipline	Any explicit statement of no use of discipline
Ignore behavior	Any statement of ignoring or walking away from the patient or allowing the behavior to continue without mediation
Talking with/telling no	Any statements of talking with the patient, explaining the inappropriateness of the behavior, or telling the patient no or not to engage in the behavior
Counting	Any statements of use of counting or demonstrating counting, or use of books and resources for the 1-2-3-Magic Parenting program
Taking something away	Any use of the words "take something away", "removal of objects or privileges" or descriptions of taking an object or privilege away (e.g. taking away toys or TV or snack privileges)
Timeout	Any statement of the word "timeout" or descriptions of sitting out of an activity or environment or being placed in a chair or bedroom for specified amount of time
Redirection/removal/distraction	Any explicit statements of redirecting the patient's attention and activities, removing the child from the environment or behavior, and/or distracting the child from the behavior – or- descriptions of these actions
Yelling/screaming	Any explicit disclosures of yelling and/or screaming
Threatening the use of physical discipline	Any statements of verbally threatening to spank or beat the child or hit the child with an object. Descriptions of parents raising their hands as if to spank or making the motion to spank but without actually doing so
<i>Physical Discipline</i>	
Hand smacking	Any statements of hitting, popping, slapping, smacking, spanking, tapping, "toasting" the child's hand
Spanking	Any statements of spanking, or hitting, patting, swatting, tapping, "toasting" the child on the behind/bottom/butt/legs/thigh and/or flipping, hitting, or tapping on the mouth
Use of objects	Any explicit statements of using an object (e.g. belt) to hit the child
Part B. Child's aggressive behaviors	
Hitting/kicking	Any statements of child hitting, kicking, swiping, or whacking another person or pet
Throwing objects	Any statements of child deliberately throwing objects (e.g. food, toys) out of anger, frustration, or defiance
Biting	Any explicit statements of the child deliberately biting (e.g. parents, siblings, peers)
Tantrums	Any explicit statements or descriptions of temper tantrums (crying and throwing themselves on the floor)
Part C. Psychosocial risk factors	
Social service involvement	Any disclosures of prior involvement with social service for allegations of physical or sexual abuse or neglect related to the index child, another child, or in the caregiver's childhood. (Of note: There were multiple disclosures of social service involvement because the adult is a foster parent; these involvements were not coded as a risk factor.)
Domestic or interpersonal violence	Any disclosures of domestic violence between the child's parents or parent and paramour, or during the caregiver's childhood. Domestic violence includes description of physical altercations, sexual assault, or emotional abuse.
Police involvement	Any police involvement for violent acts (physical altercations, sexual assault), theft, burglary, driving under the influence, drug use, terroristic threats, or violation of protective orders
Substance abuse (drugs and/or alcohol)	Any disclosures of drug and/or alcohol problems

Mental health issues	Any disclosures of bipolar disorder, schizophrenia, depressive conditions, suicide ideation, anger management issues, anxiety disorders, post-traumatic stress disorder, and severe cognitive impairment

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Table 3

Characteristics of study sample

Variable	Overall (N = 372)	Site 1 (N = 227)	Site 2 (N = 91)	Site 3 (N = 54)	P-value
Age (months)					
0–11	21 (6%)	17 (7%)	1 (1%)	3 (5%)	.22
12–23	133 (36%)	83 (37%)	30 (33%)	20 (37%)	
24–35	110 (30%)	58 (26%)	35 (38%)	17 (31%)	
36–47	108 (29%)	69 (30%)	25 (27%)	14 (26%)	
< 18	78 (21%)	52 (23%)	15 (16%)	11 (20%)	.44
Sex					
Male	225 (60%)	146 (64%)	55 (60%)	24 (44%)	.03
Female	147 (40%)	81 (36%)	36 (40%)	30 (56%)	
Ethnicity					
Non-Hispanic	229 (62%)	112 (49%)	90 (99%)	27 (50%)	< .001
Hispanic	143 (38%)	115 (51%)	1 (1%)	27 (50%)	
Race					
White	321 (86%)	200 (88%)	78 (86%)	43 (80%)	.26
Black	19 (5%)	10 (4%)	9 (10%)	0 (0%)	
Other	32 (9%)	17 (7%)	4 (4%)	11 (20%)	
Insurance					
Private	181 (49%)	113 (50%)	51 (56%)	17 (31%)	.01
Government	178 (48%)	111 (49%)	38 (42%)	29 (54%)	
None	10 (3%)	2 (1%)	2 (2%)	6 (11%)	
Unknown	3 (1%)	1 (0%)	0 (0%)	2 (4%)	

Characteristics of study sample. Values are count (%). P-values are from chi-square tests. Due to sparse counts, chi-square tests for age, race, and insurance status were conducted on collapsed two-way tables in which (1) age 0–11 months was merged with age 12–23 months, (2) “Black” and “Other” race were merged, and (3) “Government”, “None”, and “Unknown” were merged.

Table 4

Rates of use for each discipline method, overall and by child age
Values are counts (percentages).

Discipline Methods	Overall Rate of Use n=372	Rate of Use, by Age (mo)				
		0-11 n=21	12-23 n=133	24-35 n=110	36-47 n=108	
Talking with/telling no	243 (65%)	12 (57%)	102 (77%)	75 (68%)	54 (50%)	
Timeout	194 (52%)	1 (5%)	44 (33%)	71 (65%)	78 (72%)	
Redirection/removal/distraction	118 (32%)	5 (24%)	46 (35%)	42 (38%)	25 (23%)	
Taking something away	63 (17%)	0 (0%)	13 (10%)	13 (12%)	37 (34%)	
Ignore behavior	52 (14%)	1 (5%)	19 (14%)	20 (18%)	12 (11%)	
No Discipline	20 (5%)	7 (33%)	9 (7%)	2 (2%)	2 (2%)	
Counting	20 (5%)	0 (0%)	2 (2%)	5 (5%)	13 (12%)	
Yelling/screaming	13 (3%)	0 (0%)	3 (2%)	2 (2%)	8 (7%)	
Threatening physical discipline	9 (2%)	0 (0%)	2 (2%)	5 (5%)	2 (2%)	
Physical discipline*	140 (38%)	2 (10%)	43 (32%)	48 (44%)	47 (44%)	
Hand smacking	42 (11%)	2 (10%)	20 (15%)	11 (10%)	9 (8%)	
Spanking	113 (30%)	0 (0%)	30 (23%)	39 (35%)	44 (41%)	
Use of objects	1 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (1%)	
Total number of reported discipline methods**	888	28	290	285	285	

* Cumulative of unique cases in the hand smacking, spanking, and use of objects domains. Some parents utilized more than one method of physical discipline.

** Most parents utilized more than one discipline method.

Table 5

Associations between physical discipline and patient variables.

Variable	Not Physically Disciplined (n = 232)	Physically Disciplined (n = 140)	Odds Ratio (95% CI)	P-value
Psychosocial Risk				
No	196 (67%)	97 (33%)	Ref	
Yes	36 (46%)	43 (54%)	2.4 (1.4, 4.1)	< .001
Age				
< 18 months	61 (78%)	17 (22%)	Ref	
18 months	171 (58%)	123 (42%)	2.6 (1.4, 4.9)	.001
Gender				
Male	141 (63%)	84 (37%)	Ref	
Female	91 (62%)	56 (38%)	1.0 (0.7, 1.6)	.91
Race				
White	200 (62%)	121 (38%)	Ref	
Non-White	32 (63%)	19 (37%)	1.0 (0.5, 1.9)	1.0
Ethnicity				
Non-Hispanic	147 (64%)	82 (36%)	Ref	
Hispanic	85 (59%)	58 (41%)	1.2 (0.8, 1.9)	.38
Insurance				
Private	122 (67%)	59 (33%)	Ref	
Non-Private	110 (58%)	81 (42%)	1.5 (0.9, 2.4)	.06
Site				
1	158 (70%)	69 (30%)	Ref	< .001
2	39 (43%)	52 (57%)	3.0 (1.8, 5.2)	
3	35 (65%)	19 (35%)	1.2 (0.6, 2.4)	

Table 6

Association of child's aggressiveness with parental use of physical discipline, familial psychosocial risk factors, and demographic characteristics

Variable	N	Hitting/Kicking		Throwing		Biting		Tantrum		Hit/Kick/Throw	
		Count (%)	Adjusted OR (95% CI)	Count (%)	Adjusted OR (95% CI)	Count (%)	Adjusted OR (95% CI)	Count (%)	Adjusted OR (95% CI)	Count (%)	Adjusted OR (95% CI)
Physical Discipline											
No	232	40 (17%)	2.70 * (1.61, 4.57)	19 (8%)	2.53 * (1.32, 4.95)	19 (8%)	1.77 (0.84, 3.77)	45 (19%)	1.20 (0.70, 2.04)	54 (23%)	2.76 * (1.71, 4.49)
Yes	140	53 (38%)		30 (21%)		19 (14%)		36 (26%)		67 (48%)	
Psychosocial Risk Factors											
No	292	66 (23%)	1.40 (0.77, 2.49)	35 (12%)	0.88 (0.40, 1.80)	27 (9%)	1.44 (0.63, 3.17)	58 (20%)	1.42 (0.77, 2.57)	87 (30%)	1.23 (0.70, 2.13)
Yes	79	27 (34%)		13 (16%)		11 (14%)		22 (28%)		33 (42%)	
Age											
< 18 months	78	16 (21%)	0.99 (0.97, 1.02)	6 (8%)	1.03 (0.99, 1.06)	8 (10%)	0.98 (0.95, 1.01)	15 (19%)	1.00 (0.98, 1.02)	20 (26%)	1.00 (0.98, 1.02)
18 months	294	77 (26%)		43 (15%)		30 (10%)		66 (22%)		101 (34%)	
Gender											
Male	225	63 (28%)	0.62 (0.37, 1.04)	35 (16%)	0.53 (0.26, 1.03)	28 (12%)	0.47 (0.21, 1.01)	44 (20%)	1.43 (0.85, 2.38)	82 (36%)	0.59 * (0.36, 0.96)
Female	147	30 (20%)		14 (10%)		10 (7%)		37 (25%)		39 (27%)	
Race											
White	321	84 (26%)	0.56 (0.24, 1.22)	44 (14%)	0.73 (0.23, 1.94)	36 (11%)	0.27 * (0.04, 0.98)	70 (22%)	1.16 (0.53, 2.41)	109 (34%)	0.58 (0.27, 1.19)
Non-White	51	9 (18%)		5 (10%)		2 (4%)		11 (22%)		12 (24%)	
Ethnicity											
Non-Hispanic	229	56 (24%)	0.99 (0.50, 1.97)	24 (10%)	1.61 (0.66, 4.12)	25 (11%)	0.75 (0.28, 1.97)	45 (20%)	1.97 (0.97, 4.04)	68 (30%)	1.24 (0.66, 2.33)
Hispanic	143	37 (26%)		25 (17%)		13 (9%)		36 (25%)		53 (37%)	
Insurance											
Private	181	41 (23%)	1.15 (0.64, 2.07)	15 (8%)	2.21 * (1.03, 4.91)	19 (10%)	0.97 (0.42, 2.21)	36 (20%)	0.86 (0.47, 1.57)	50 (28%)	1.33 (0.77, 2.30)
Non-Private	191	52 (27%)		34 (18%)		19 (10%)		45 (24%)		71 (37%)	
Site											
1	227	51 (22%)		28 (12%)		20 (9%)		44 (19%)		69 (30%)	
2	91	30 (33%)	1.38 (0.70, 2.69)	15 (16%)	1.78 (0.71, 4.61)	13 (14%)	1.35 (0.54, 3.38)	24 (26%)	1.94 (0.95, 3.97)	36 (40%)	1.37 (0.73, 2.60)
3	54	12 (22%)	1.03 (0.47, 2.15)	6 (11%)	0.89 (0.30, 2.28)	5 (9%)	1.29 (0.40, 3.55)	13 (24%)	1.22 (0.57, 2.50)	16 (30%)	1.00 (0.49, 1.97)

Note: Values are counts (%) and adjusted odds ratios with 95% confidence intervals. Odds ratios are adjusted for all other variables in the logistic regression model (listed). Percentages are within-row.

* Significant at $p < .05$