

Spanking by Parents and Subsequent Antisocial Behavior of Children

Murray A. Straus, PhD; David B. Sugarman, PhD; Jean Giles-Sims, PhD

Objective: To deal with the causal relationship between corporal punishment and antisocial behavior (ASB) by considering the level of ASB of the child at the start of the study.

Methods: Data from interviews with a national sample of 807 mothers of children aged 6 to 9 years in the National Longitudinal Survey of Youth-Child Supplement. Analysis of variance was used to test the hypothesis that when parents use corporal punishment to correct ASB, it increases subsequent ASB. The analysis controlled for the level of ASB at the start of the study, family socioeconomic status, sex of the child, and the extent to which the home provided emotional support and cognitive stimulation.

Results: Forty-four percent of the mothers reported

spanking their children during the week prior to the study and they spanked them an average of 2.1 times that week. The more spanking at the start of the period, the higher the level of ASB 2 years later. The change is unlikely to be owing to the child's tendency toward ASB or to confounding with demographic characteristics or with parental deficiency in other key aspects of socialization because those variables were statistically controlled.

Conclusions: When parents use corporal punishment to reduce ASB, the long-term effect tends to be the opposite. The findings suggest that if parents replace corporal punishment by nonviolent modes of discipline, it could reduce the risk of ASB among children and reduce the level of violence in American society.

Arch Pediatr Adolesc Med. 1997;151:761-767

MOST CHILDREN in the United States experience spanking and other legal forms of corporal punishment (CP) by their parents. Research up to about 1985 shows that more than 90% of parents used CP on toddlers and more than half continued to use it during the early teen years.^{1,2} Even this high figure represents a decrease from 99% in the 1950s³ and 97% in 1975.⁴ There have been further decreases since 1985, but almost all children continue to experience CP.^{1,4} These high prevalence rates and the high rates of approval of spanking⁵ may be interpreted as an indication that parents spank with little thought of possible side effects, such as later aggression.

Pediatricians, psychologists, and sociologists⁶ have also given little attention to the possible harmful side effects of CP, despite a large body of research indicating that CP is associated with an increased probability of physical aggression and other antisocial behavior (ASB).¹ There are many reasons this evidence has been ignored, including that the limitations of the available research do not allow concluding that CP causes child behavior problems. This article describes findings from a study that avoids some of the limitations of the previous research and, therefore, allows a stronger causal inference.

CP AND ITS RELATION TO ASB

For this article, corporal punishment is defined as "the use of physical force with the intention of causing a child to experience pain, but not injury, for the purpose of correction or control of the child's behavior."⁷ Examples of frequent types of CP include slapping a child's hand or buttocks and squeezing a child's arm.

There have been many studies of the relationship between CP and child aggression^{3,8,9} and almost all have found a relationship between them, starting with the classic research of Sears et al.⁷ Other research has linked childhood CP to severely aggressive or delinquent behavior.^{1,9-13} Still other studies found a relationship between CP and emotional and behavioral problems such as low self-esteem¹⁴ and depression^{1,15} and low educational attainment (unpublished data, April 1995).

Despite some inconsistencies,^{16,17} the preponderance of the studies have found a correlational relationship between CP and aggression at all age levels. For example, Power and Chapieski¹⁸ observed

From the Family Research Laboratory, University of New Hampshire, Durham (Drs Straus and Sugarman), and Texas Christian University, Fort Worth (Dr Giles-Sims).

This article is also available on our Web site: www.ama-assn.org/peds.

SUBJECTS AND METHODS

SUBJECTS

The sample was drawn from the 7725 women aged 14 to 21 years who were first interviewed in 1979 as part of the National Longitudinal Survey of Youth-Child Supplement (NLSY-CS) conducted at the Ohio State University Center for Human Resource Research, Columbus.³¹ By 1986 these women had a total of 8513 children. Assessments of these children were added in 1987 when the women were aged 21 to 28 years. The data for the age-of-child by year-of-survey combinations are given in Table 1. The main analysis to be presented is based on data from interviews with mothers of the 1239 children who were 6 to 9 years old at the time of the 1988 survey. Because of missing data on 1 or more of the variables, the number of children for the analyses to be reported is 910, which is 73% of the 1988 cohort.

MEASURES

Antisocial Behavior

The dependent variable is the ASB score of the Behavior Problems Index.³² Many of the items were from well-established scales of childhood behavior problems such as Achenbach and Edelbrock,³² Graham and Rutter,³³ and Peterson and Zill.³⁴

The ASB scale for children aged 6 to 9 years is based on 6 items. The mothers were asked the extent to which each of the following items described their child during the preceding 3 months: "cheats or tells lies," "bullies or is cruel or mean to others," "does not feel sorry after misbehaving," "breaks things deliberately," "is disobedient at school," and "has trouble getting along with teachers." These items represent a broader concept of ASB than "aggression" assessed in much of the previous research on the effects of CP.

The items were scored as "often true" (1), "sometimes true" (2), and "not true" (3). Scores were reversed and summed so that higher scores represent more ASB. The raw scores were then standardized as ZP scores. The ZP scores (M.A.S., PhD, unpublished data, July 1980) are a linear transformation of z scores with a mean 50 ± 20 . The ASB scores were standardized for each wave of testing to control for average developmental change in ASB. Thus, the ASB scores indicate how far above or below the mean the child is relative to other children of that age.

Corporal Punishment

Parents almost never use terms such as "corporal punishment" or "physical punishment." Instead, they describe what they do as "a swat," "a spanking," "a whooping," and others. Spanking seems to be the most widely used term. Consequently, to be consistent with everyday language, many interview studies use spanking as a generic term for CP when questioning parents about discipline, and that practice was followed in the NLSY-CS. The spanking question in the NLSY-CS, which is part of the Home Observation for Measurement of the Environment scale³⁵ is: "Sometimes kids mind pretty well and sometimes they do not. About how many times, if any, have you had to spank your child in the past week?" Although the parents were asked about spanking, qualitative explorations by one of us (M.A.S., unpublished data, 1980) indicate that parents do not usually restrict this term to mean hitting a child on the buttocks. It is often used to refer to most forms of CP that are within the socially acceptable level of severity, such as a slap on the hand for taking something off of a supermarket shelf. Consequently, in this article, we use CP and spanking as synonyms. Data for this sample on differences in spanking by the characteristics of the child, the mother, and the family are described by Giles-Sims et al.²⁸ Because many of the children were living with both parents, a more complete measure would require obtaining the same data from fathers. However, the NLSY-CS did not conduct interviews with the fathers, nor did it ask the mothers about spanking by the father or other caregivers.

For the correlation and regression analyses, the frequency of spanking categories were 0, 1, 2, 3, 4-5, 6-9, 10-14, and 15 or more times spanked in the past week. For the analysis of variance (ANOVA), to provide enough children in each group to use as the independent variable, the spanking measure was recoded into the following weekly frequency categories: 0 (n=451), 1 (n=160), 2 (n=114), and 3 or more times (n=82). The frequencies are for 807 mothers of 6- to 9-year-old children in 1988 having complete data on all variables needed for the multivariate analyses. Almost half (44%) of these mothers reported spanking their children in the week prior to the study.

Maternal Emotional Warmth and Cognitive Stimulation

The measures of maternal cognitive stimulation and emotional warmth in the NLSY-CS data set are subscales from the Home Observation for Measurement of the Environment scale.³⁵ Examples of cognitive stimulation items

1-year-old children and found that those who were frequently spanked by their mothers had a 58% higher rate of noncompliance with mothers' requests than did children whose parents rarely or never spanked them. Among elementary school aged children, Strassberg et al.¹⁹ found that those who were spanked that year had double the rate of physical aggression against other children in school. Using children of widely varying ages, Straus¹ found that children in the National Family Violence Survey who experienced frequent spanking were 4 times as likely to repeatedly and severely assault a sibling than children who were not spanked that year, and that parents in the survey who recalled having experienced CP during their early teen years (about half of the sample) were 3 times more

likely to have hit their spouse during the 12 months preceding the study.

See also pages 758, 768, and 777

If spanking and other legal forms of CP are causes of violence and other behavior problems, they have tremendous implications for the primary prevention of aggression and other ASB. However, most studies have relied on correlational data, which cannot establish CP as a cause of behavioral or emotional problems for children. Even the few longitudinal studies have failed to control for a child's aggression at time, (t_1)¹⁶ or have confounded spanking

include whether the mother reads to the child, how often the child was taken to a museum in the past year, and whether the house is minimally cluttered. Examples of emotional warmth items include whether the mother introduced the child to the interviewer by name, whether the mother caressed or kissed the child, and whether the mother's voice showed positive feeling toward the child. Scores on these scales were computed by counting the presence of a behavior. Completion rates were about 90% for this assessment and average values were assigned for items not completed by the mother. The original emotional warmth scale also included items on CP. We recomputed the scale without the CP items.

SES Scale

A SES scale was used in all multivariate analyses to control for the confounding of this aspect of the family environment. Parallel scores were computed for each wave of the survey. The SES scale combined the following 3 indicators: (1) occupational status of the mother's most recent job, (2) total net family income, and (3) highest educational level completed by the mother. Factor analysis of the 3 SES indicators resulted in a single factor and the factor scores were used as the SES scale after transforming them to normalized stanine scores. When the SES scale was computed, if there were missing data on 1 of the items, we substituted an estimate derived from regressing each SES indicator on the other 2. We investigated the effect of these substitutions by repeating the factor analysis using listwise deletion and found a similar factor structure.

ANALYSIS STRATEGY

Three statistical procedures were used to examine the effect of spanking on a child's ASB. We first computed zero-order correlations relating spanking with the ASB score. This was done cross-sectionally and time-lagged. We also examined the correlations of the independent variables with each other. These ranged from the expected near 0 correlation between SES and sex of the child to 0.38 for SES and cognitive stimulation. Because most of the correlations fluctuated near 0.2, we do not think that multicollinearity was a problem. The hypotheses were then tested using multiple regression. Finally, we repeated the analysis using ANOVA. We used the Statistical Program for Social Sciences multivariate ANOVA program (SPSS, Chicago, Ill) to perform ANOVA because it includes an option to compute means that have been adjusted for each of the other independent variables. The results from the regression and

ANOVA analyses were parallel. We decided to present the ANOVA data because the adjusted mean output enabled us to plot the mean ASB scores for each category of CP, controlling for the effects of the other independent variables. We also plotted the adjusted means to examine the nature of interaction effects.

The ANOVA was computed using the following 7 independent variables: the +category measure of spanking described previously, ASB score of the child at t_1 (low, middle, or high quartile), cognitive stimulation (low, middle, or high quartile), emotional support (low, middle, or high quartile), sex of the child (girls, 1; boys, 0), ethnic group (European American, 1; minority, 2), and SE5 (low, middle, or high quartile). The 7 independent variables enabled us to test the hypothesis that variation in CP at t_1 is related to ASB at t_2 after controlling for the effects of the other 6 independent variables, of which ASB at t_1 is the most crucial, and to examine the interaction of CP with the 6 other independent variables. Because CP (the independent variable) may cause t_1 ASB (a covariate), our test of the effect of CP on t_2 ASB (the dependent variable) will be extremely conservative.³⁶

We replicated the analyses for the 5 combinations of age groups (3-5, 6-9, and ≥ 10 years) and survey year (1986-1988, 1986-1990, and 1988-1990) for which data were available. The findings differed in respect to which of the other independent variables and which interaction effects were significant, but the results of the main effect for the relation of CP to ASB were parallel across all 5 analyses. In view of the parallel results for the key issue of the research and the many pages of tables that would be needed to present all of the replications, with the exception of the bivariate correlations, only the findings for children who were aged 6 to 9 years at the time of the 1988 survey will be presented.

We chose the age range of 6 to 9 years and the base year of 1988 for the following reasons: (1) for the 3- to 6-year-old cohort, the measure of ASB changes when they enter school, thus, introducing noncomparability in the measure from t_1 to t_2 ; (2) the number of cases for the group aged 10 years and older is substantially lower, thus, increasing the risk of type II error; (3) the implications of ASB such as "cheats or tells lies" may be more serious for 6- to 9-year-old children than for preschool aged children; (4) use of 1988 as the base year reduces the percentage of children born to extremely young mothers and therefore increases the representativeness of the sample; and (5) it is an age range in which CP is still preponderant, but not so nearly universal as with toddlers,^{1,28} where it poses a threat of limited variance to the key independent variable.

with other disciplinary practices.' Thus, controversy continues to exist, and there are strong grounds for caution about whether existing research supports the theory that CP causes ASB by children.

CAUSAL DIRECTION

A survey conducted in 1968 for the National Commission on the Causes and Prevention of Violence found that 94% of the US adult population agreed that "It is sometimes necessary to discipline a child with a good hard spanking."⁵ The percentage agreeing has declined with each of several surveys since then, but two thirds still agree.⁵ The implication of this question is that it is the child's aggression that causes

the parents to spank. From this perspective, the link between CP and ASB reflects the effects of the child's misbehavior, not the effects of the parent's use of CP. Our perspective recognizes that causal path but argues that there is a bidirectional causal process. From this perspective, although spanking may result in compliance in the immediate situation, the available evidence shows that in the long run, it is associated with an increased probability of noncompliance,¹⁸ aggression,^{3,8,9} or delinquency and other ASB.¹ To establish more than association, experimental and longitudinal research is necessary.

Ethical and practical problems prevent experimental studies with random assignment to a spanking condition. Data about causal direction probably must come from

Table 1. Zero-Order Correlations of the Weekly Frequency of Spanking and the Antisocial Behavior Score Across Age Groups and Time of Measurement for All Male and Female Samples

Data Collection for Frequency of Spanking by Year and Age Group, y	Year of Data Collection for the Antisocial Behavior Score*			N
	1986	1988	1990	
Total sample				
1986				
3-5		.263	.204	735
≥6		.272	.198	1035
1988				
3-5		.240	.266	671
6-9		.286	.293	996
≥10		.189	.219	343
Male sample				
1986				
3-5		.281	.231	380
≥6		.261	.181	514
1988				
3-5		.292	.260	311
6-9		.294	.312	516
≥10		.198	.171	183
Female sample				
1986				
3-5		.238	.157	355
≥6		.287	.214	521
1988				
3-5		.212	.168	360
6-9		.262	.211	480
≥10		.259	.221	160

*Ellipses indicate data not available. All correlations are significant at $P < .01$ (1-tailed tests). One-tailed tests were used because the theory clearly specifies the direction of the hypothesized relationship. The .01 level was used because 30 correlations were evaluated.

longitudinal research. None of the longitudinal studies we were able to find controlled for the child's aggression at t_1 . Without such a control, longitudinal studies are subject to the same causal direction problem as cross-sectional studies. When a study finds that the more CP a child experienced at t_1 , the more aggressive behavior was likely at time t_2 , it could simply reflect the fact that parents were responding to a high level of aggression at t_1 . Since aggression is a relatively stable trait, it is not surprising that the most aggressive children at t_1 are still the most aggressive at t_2 . Probably the most that can be concluded from longitudinal studies that do not control for the child's aggression at t_1 is that they can show that CP is ineffective in reducing the level of aggression.

The research reported in this article allowed us to go beyond that because, by controlling for the child's ASB at t_1 , the dependent variable (the child's ASB at t_2) becomes a measure of change in the child's ASB behavior from t_1 to t_2 . This enabled us to test the following hypothesis: controlling for the level of ASB at t_1 , the more parents use CP at t_1 , the more ASB at t_2 .

OTHER METHODOLOGICAL ISSUES

Much of the existing research also fails to deal with 1 or more of 3 other methodological issues, each of which poses threats to validity.

Confounding With Other Parental Behaviors

The purported harmful side effects of CP might be an artifact of confounding with other parental practices and parenting styles rather than CP per se.²⁰ This possibility is consistent with research showing that parental rejection and lack of affection are associated with overt aggression against a child²¹ and could be why Simons et al¹⁶ found that CP is unrelated to adolescent aggressiveness, delinquency, or psychological well-being after controlling for the quality of parental involvement.

These studies point to the need to view CP within the context of a parent's childrearing style. Operationally, this means that research must separate the contributions of CP from the effects of other parental behaviors. To do that, we chose the 2 major dimensions of parenting identified by Maccoby and Martin²²—emotional warmth and cognitive stimulation—as the context variables. Specifically, we controlled for these 2 variables while testing the link between CP and ASB, and we also examined the interaction of CP with emotional warmth and cognitive stimulation. The interaction is important because it can be argued that the children of parents who provide adequate warmth and cognitive stimulation suffer no harmful effects from CP.

Confounding With Sex and Socioeconomic Status (SES)

Another methodological issue is the need to control for sex differences and for social structural variables. For sex differences, boys exhibit higher levels of disruptive behavior, school truancy, and verbal and physical violence than girls²³⁻²⁵ and because parents are more likely to use CP with boys than with girls,^{1,16} the relationship between a child's ASB and the parents use of CP may be a function of the confounding of CP and ASB with the sex of the child.²⁶ There is also the possibility that CP has different effects for boys and girls and we therefore examined the interaction of CP with the sex of the child.

A similar problem applies to SES and ethnic group because low SES parents and minority parents use more CP^{1,3,27-29} and low SES children have higher rates of ASB and delinquency.^{29,30} One must examine the interaction of CP with ethnic group because it has been argued that in the context of the inner city, CP is a necessary disciplinary tool (unpublished data, November 1992).

Age-Specific Effects

Corporal punishment might have different effects at different ages. For example, we think it is widely believed that CP of toddlers, if done in moderation, does not have harmful side effects, whereas CP of teenagers is thought to interfere with the transition to adult levels of development and autonomy. However, it is also plausible to argue that CP of toddlers will have a greater effect because it occurs at a crucial developmental stage. Although different age populations exist in different studies, we were unable to find research that has actually tested an age-specific developmental effect hypothesis. Nevertheless, there are plausible grounds for expecting age differences. Consequently, we initially replicated the analy-

Table 2: Antisocial Behavior in 1988 by Corporal Punishment 2 Years Earlier With Analysis of Variance Controlling for 6 Other Independent Variables for Children Aged 6 to 9 Years

Source of Variance*	Degrees of Freedom	Mean Square Variance	F Ratio
Main effects			
Spanking, weekly frequency, 1988	3	1014.9	4.4†
Sex of child (female, 1; male, 0)	1	3404.6	14.6‡
Cognitive stimulation, 1988	2	587.4	2.5
Emotional support, 1988	2	561.4	2.4
Ethnic group of mother (European American, 1; minority, 2)	1	99.9	0.4
Socioeconomic scale	2	38.3	0.2
Antisocial behavior, 1988	2	19978.9	86.1‡
2-Way interactions with spanking			
Sex of child (female, 1; male, 0)	3	598.8	2.6§
Cognitive stimulation, 1988	6	192.4	0.8
Emotional support, 1988	6	246.5	1.1
Ethnic group of mother (European American, 1; minority, 2)	3	710.8	3.1§
Socioeconomic scale, 1988	6	307.7	1.3
Antisocial behavior, 1988	6	154.4	0.7

*Multiple R² was 0.34.
 †P < .01 by 2-tailed test.
 ‡P < .002 by Z-tailed test.
 §P < .05 by Z-tailed test.

sis to be reported for children of 3 age groups: 3 to 5 years, 6 to 9 years, and 10 years and older.

RESULTS

CORRELATION ANALYSIS

Table 1 gives the zero-order correlations for all age groups and all years. The data permitted computing 30 correlations between the weekly frequency of spanking and the ASB scores. Fifteen of these are concurrent correlations and 15 relate CP at t₁ to ASB scores 2 years later. Table 1 summarizes data that show that all contemporaneous correlations and all 15 time-lagged correlations are positive and significant at the P ≤ .01 level. Thus, the more frequently a mother spanked her child in the week prior to the study, the higher the child's ASB score that year and 2 years later.

Despite the uniformly positive correlations, there is variation among the coefficients. We therefore performed z tests to investigate whether the size of the correlations differ by time of measurement, age, and sex.³⁷ For age groups, the largest difference (z = 1.64) was between the 6- to 9-year-olds sample (r = 0.29) and the 10 years of age or older sample (r = 0.19). For differences by year of measurement, only one contrast exhibited a significant difference in the correlation between spanking frequency and ASB scores—between children who were 6 years of age or older in the years 1986 (r = 0.27) and 1988 (r = 0.20; t(1032) = 2.53; P < .02). Comparison of the correlations for boys and girls revealed no significant differences. Thus, with only one exception, the relationship between CP and ASB applies about equally across all of the replications.

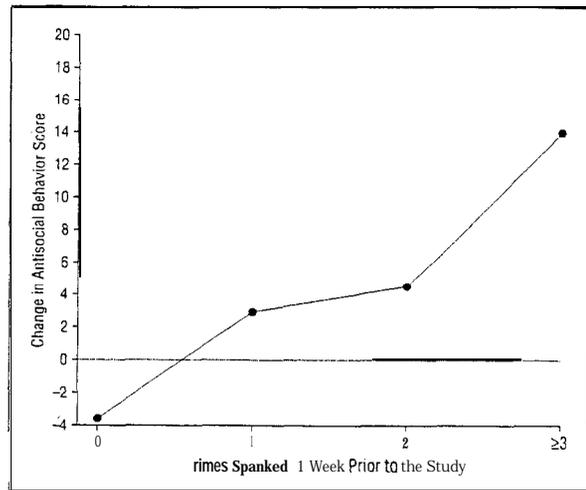


Figure 1. Change in antisocial behavior from 1988 to 1990 due to spanking in 1988 for children aged 6 to 9 years in 1988, controlling for 7988 antisocial behavior. Mean adjusted for time, antisocial behavior; time, cognitive stimulation; time, parental emotional support; and child sex, race, and socioeconomic status.

ANOVA ANALYSES

The results of the ANOVA to test the hypothesis that CP results in an increase in a child's ASB 2 years later are given in Table 2 and Figure 1. The first row of Table 2 shows that spanking in 1988 was significantly related to ASB 2 years later, despite controlling for the level of misbehavior during the year that the spanking occurred. Figure 1 shows the mean ASB score in 1990 after adjusting for ASB in 1988 and 6 other variables. It can be seen from Figure 1 that there was an average decrease in the ASB score of children whose mothers did not spank them during the week of the survey and that the more frequent the spanking in 1988, the greater the increase in ASB 2 years later.

The second row of Table 2 lists data that shows that the child's sex is also related to ASB. Thus, girls have lower ASB scores than boys even after partialing out all 6 of the other variables. The last row shows that the strongest antecedent of ASB in 1990 was ASB 2 years earlier.

The section of Table 2 that gives the interactions of the other independent variables with CP shows significant interactions with sex and ethnic group. The adjusted means are shown in Figure 2. This figure shows that the tendency for spanking to be related to an increase in ASB 2 years later is stronger and more linear for boys than for girls and also for European American children compared with minority children (Figure 2, right).

COMMENT

Because parents use CP to control misbehavior, research testing the idea that, on average, CP increases misbehavior must consider the child's behavior at t₁. In our study of ASB we controlled for ASB at t₁ and found that after controlling for the t₁ level of ASB, the more CP used by the mothers in this sample, the higher the ASB score at t₂. Moreover, the findings are robust across age groups (3-5, 6-9, and ≥10 years) and years (1986-1988 and 1988-1990) and across types of analysis (multiple regression and ANOVA).

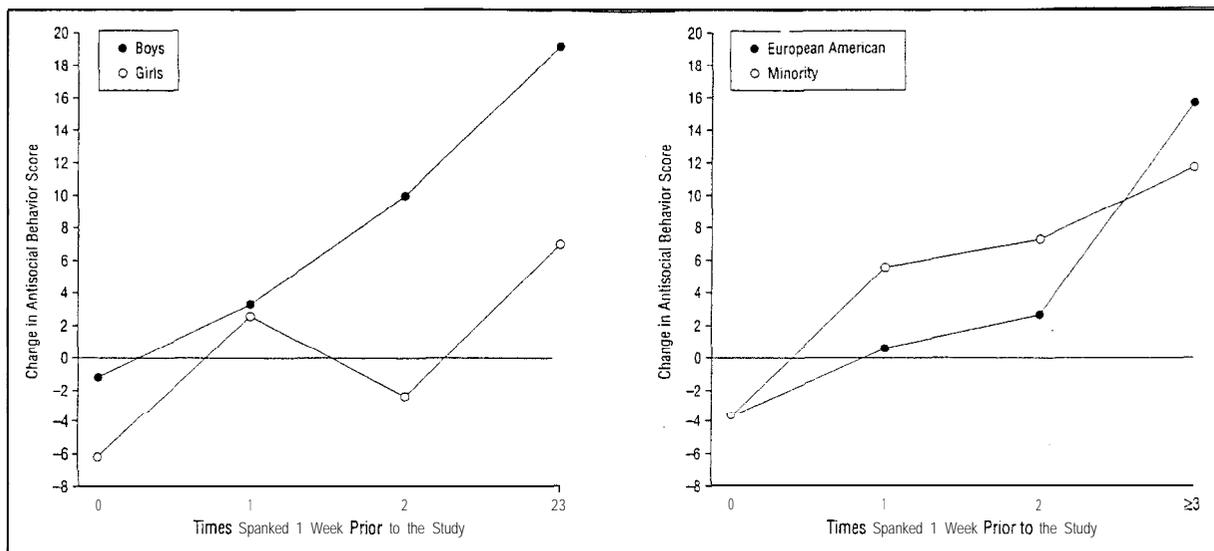


Figure 2. Change in antisocial behavior from 1988 to 1990 due to spanking in 1988 by sex of the child (left) and ethnic group of the mother (right) for children aged 6 to 9 years in 1988, controlling for 1988 antisocial behavior. Mean adjusted for time, antisocial behavior; time, cognitive stimulation; time, parental emotional support; and child sex, race, and socioeconomic status.

The analysis also controlled for 6 important demographic and parental behavior variables and examined the interaction of CP with these 6 variables. The findings on the net effect of CP are consistent with the theory that regardless of whether parents provide a satisfactory socialization environment in other respects, CP tends to increase the risk of ASB. More specifically, the tendency for CP to be associated with an increase in the level of ASB applies regardless of the extent to which parents provide cognitive stimulation and emotional support and regardless of SES, ethnic group, and sex of the child.

The variation in interaction effects across age groups and periods raises a question about the validity of the interaction effects shown in Figure 2. With this caution in mind, Figure 2 indicates that CP is associated with a much larger increase in ASB among boys compared with girls and a somewhat larger increase among children of European American mothers compared with children of minority group mothers. Nevertheless, although the amount of increase in ASB associated with CP may be smaller for girls and minority group children, both experienced an increase in ASB in proportion to the amount of CP to which they had been subjected 2 years earlier. If the finding in minority group children is valid, it is particularly important because many minority group parents believe that under the conditions of inner-city life their children "need strong discipline," to use one of many euphemisms for CP.³⁸⁻⁴¹ Children growing up in those difficult circumstances no doubt need closer supervision and control, but attempting to do this by CP may exacerbate rather than help the situation.

CONCLUSION

After controlling for the effect of ASB at t_1 and for the effect of other parental behaviors and socioeconomic variables CP remains a statistically significant predictor of ASB 2 years later. Moreover, the increase in ASB starts with children whose mothers spanked them only once during the

week prior to the survey. However, one must keep in mind that even frequent CP does not necessarily lead to ASB, just as frequent smoking does not necessarily lead to death from a smoking-related disease. At age 65 years, two thirds of frequent smokers can point out that they smoked more than a pack of cigarettes a day all of their lives and have not died from cancer or other smoking-related diseases.⁴² Similarly, most adults who experienced frequent CP can say, "I was spanked and I am OK."

The behavior problems associated with CP are not confined to aggression and other ASB by children. There is evidence that when CP extends into early adolescence, as it does for more than half of American children,⁷ it is associated with adult behavior problems including depression, physical assault on a spouse and other adults, physical abuse of children, alienation, and masochistic sex.⁷ For example, even one instance of CP at age 13 years is associated with a 53% increase in the probability of a parent going beyond legal CP and severely assaulting a child.⁷ However, this is still a small proportion of parents. Moreover, the findings are based on recall by adults rather than a prospective study. Prospective research is needed to determine the extent to which CP of toddlers and young children is associated with the adult behavior problems listed previously. In the meantime, the results of the prospective study reported in this article, together with research that shows that ASB in childhood is associated with violence and other crime as an adult,^{12,43} suggests that there is a "dose-response" to CP starting with young children. The more frequent the CP, and the longer it lasts in the life of the child, the greater the probability of behavior problems.

We suggest that reduction or elimination of CP could have major benefits for children and for reducing ASB in the society. A rough estimate of the potential for reducing ASB can be obtained by comparing the change in ASB scores for children in the category "0 in the past week" with scores of children in the category "3 or more times in the past week" (Figure 1). The children who did not experience CP in the

week prior to the study, on average, had a decrease in ASB 2 years later, whereas the children in the highest category of CP had a substantial increase. The 18-point difference between the 0 and the 3 or more times group is almost 1 SD.

We used the term "major benefits" despite the fact that most adults who experienced frequent CP will not have problems such as serious depression or abuse of their own children or spouse because such a large proportion of children experienced CP—almost all toddlers and just more than half of early adolescents.^{1,2} In our sample, 10% of the 6- to 9-year-old children were spanked 3 or more times in the week preceding the interview. The millions of children they represent would have the greatest probability of improved behavior if their parents stopped hitting them. In addition, because Figure 1 shows that even 1 instance of CP in the week prior to the study is associated with an increased risk of ASB, an additional 19.8% of children could benefit by a reduction from 1 to 0 times spanked and 14.1% could benefit by a reduction from 2 to 1 time spanked in a week, making a total of 44% of the children in this national sample whose ASB would, on average, decrease if parents spanked them less.

The children in the 0 group are children who were not spanked in the week prior to the study. Data from other studies indicate that many of these children are likely to have experienced frequent CP, even though not in the week prior to the study.⁷ Thus, because almost all American children experience CP, although to varying degrees, our findings suggest that almost all American children could benefit from a reduction or elimination of CP. Moreover, considering research showing that ASB in childhood is associated with violence and other crime as an adult, society as whole, not just children, could benefit from ending the system of violent childrearing that goes under the euphemism of spanking.

Accepted for publication March 4, 1997.

This study was supported by grant T3215161 from the National Institute of Mental Health, National Institutes of Health, Bethesda, Md.

Presented at the Conference on Research on Discipline: The State of the Art, Deficits, and Implications, Chapel Hill, NC, April 2-5, 1996 and the Annual Meeting of the National Council on Family Relations, Minneapolis, Minn, November 1994.

We thank Nancy L. Asdigian, PhD, for her reorganization of the data files and ANOVA analyses.

Corresponding author: Murray A. Straus, PhD, Family Research Laboratory, University of New Hampshire, Durham, NH 03824.

REFERENCES

1. Straus MA. *Beating the Devil Out of Them: Corporal Punishment in American Families*. San Francisco, Calif: Jossey-Bass Publishers Inc/Lexington; 1994.
2. Straus MA, Donnelly D. Corporal punishment of adolescents by American parents. *Youth Soc*. 1993;24:419-442.
3. Sears RR, Maccoby EC, Levin H. *Patterns of Child Rearing*. New York, NY: Harper & Row Publications Inc; 1957.
4. Daro D, Gelles RJ. Public attitudes and behaviors with respect to child abuse prevention. *J Interpersonal Violence*. 1992;7:517-531.
5. Straus MA, Mathur AK. Social change and change in approval of corporal punishment by parents from 1968 to 1992. In: Frehsee D, Horn W, Bussman K, eds. *Family Violence Against Children*. Berlin, Germany: DeGruyer; 1996:91-106.
6. Anderson K, Anderson D. Psychologists and spanking. *J Clin Child Psychol*. 1976; 5:46-49.
7. White K. Where pediatricians stand on spanking. *Pediatr Manage*. 1993;September: 11-15.
8. Larzelere R. Moderate spanking: model or deterrent of children's aggression in the family? *J Fam Violence*. 1986;1:27-36.
9. Eron LD, Huesman RL, Zelli A. The role of parental variables in the learning of aggression. In: Pepler DJ, Rubin KM, eds. *The Development and Treatment of Childhood Aggression*. Hillsdale, NJ: Lawrence A Erlbaum Associates; 1991:169-188.
10. Becker W, Peterson D, Luria Z, Shoemaker D, Hellmer L. Relations of factors derived from parent-interview ratings to behavior problems of five-year-olds. *Child Dev*. 1962;33:509-535.
11. Bryan J, Freed F. Corporal punishment: normative data and sociological and psychological correlates in a community college population. *J Youth Adolesc*. 1982; 11:77-87.
12. Caesar PL. Exposure to violence in the families-of-origin among wife-abusers and maritally nonviolent men. *Violence Vict*. 1988;3:49-63.
13. Gelles R. *The Violent Home: A Study of Physical Aggression Between Husbands and Wives*. Beverly Hills, Calif: Sage Publications Inc; 1974.
14. Coopersmith S. *The Antecedents of Self-Esteem*. San Francisco, Calif: WH Freeman & Co; 1967.
15. DuRant RH, Getts A, Cadenhead C, Emans SJ. Exposure to violence and victimization and depression, hopelessness, and purpose in life among adolescents living in and around public housing. *J Dev Behav Pediatr*. 1995;16:233-237.
16. Simons RL, Johnson C, Conger RD. Harsh corporal punishment versus quality of parental involvement as an explanation of adolescent maladjustment. *J Marriage Fam*. 1994;56:591-607.
17. Yarrow M, Campbell JD, Burton RV. *Child Rearing: An Inquiry Into Research and Methods*. San Francisco, Calif: Jossey-Bass Publishers Inc; 1968.
18. Power TG, Chapieski ML. Childrearing and impulse control in toddlers: a naturalistic investigation. *Dev Psychol*. 1986;22:271-275.
19. Strassberg Z, Dodge KA, Pettit GS, Bates JE. Spanking in the home and children's subsequent aggression toward kindergarten peers. *Dev Psychopathol*. 1994;6:445-461.
20. Herzberger SD. The cyclical pattern of child abuse: a study of research methodology. *Am Behav Sci*. 1990;33:529-545.
21. Pinto A, Folkers E, Sines JO. Dimensions of behavior and home environment in school-age children: India and the United States. *J Cross-Cultural Psychol*. 1991; 22:491-508.
22. Maccoby EM, Martin J. Socialization in the context of the family: parent-child interaction. In: Hetherington EM, Mussen PH, eds. *Handbook of Child Psychology, Vol 4: Socialization, Personality and Social Development*. New York, NY: John Wiley & Sons Inc; 1983:1-101.
23. Cullinan D, Epstein MH. Behavior disorders. In: Haring NG, ed. *Exceptional Children and Youth*. 3rd ed. Columbus, Ohio: Charles E. Merrill Publishing Co; 1982:207-239.
24. Hyde JS. How large are gender differences in aggression? a developmental analysis. *Dev Psychol*. 1984;20:722-736.
25. Maccoby EM, Jacklin CN. Sex differences in aggression: a rejoinder and reprise. *Child Dev*. 1980;51:964-980.
26. Houghugh M. *Assessing Child and Adolescent Disorders: A Practice Manual*. Beverly Hills, Calif: Sage Publications Inc; 1992.
27. Garbarino J, Gilliam G. *Understanding Abusive Families*. Lexington, Mass: Lexington Books; 1980.
28. Giles-Sims J, Straus MA, Sugarman DB. Child, maternal and family characteristics associated with spanking. *Fam Relations*. 1995;44:170-176.
29. Bank L, Forgatch MS, Patterson GS, Fetrow RA. Parenting practices of single mothers: mediators of negative contextual factors. *J Marriage Fam*. 1993;55: 371-384.
30. Feshback S. Aggression. In: Mussen PH, ed. *Carmichael's Manual of Child Psychology, Vol 2*. New York, NY: John Wiley & Sons Inc; 1970:159-260.
31. Baker PC, Keck CK, Mott FL, Quinlan SV. *MLSY Child Handbook*. Columbus, Ohio: Center for Human Resource Research, The Ohio State University; 1993.
32. Achenbach TM, Edelbrock CS. Behavioral problems and competencies reported by parents of normal and disrupted children aged four through sixteen. *Monogr Soc Res Child Dev*. 1981;46:188.
33. Graham PJ, Ruder ML. The reliability and validity of the psychiatric assessment of the child. II: interview with the parent. *Br J Psychiatry*. 1968;114:581-592.
34. Peterson JL, Zill N. Marital disruption, parent-child relationships, and behavioral problems in children. *J Marriage Fam*. 1986;48:295-307.
35. Caldwell B, Bradley R. *Home Observation for Measurement of the Environment*. Little Rock: University of Arkansas; 1984.
36. Tabachnick BG, Fidell LS. *Using Multivariate Statistics*. 3rd ed. New York, NY: Harper & Row Publications Inc; 1996:321-330.
37. Bruning JL, Kintz BL. *Computational Handbook of Statistics*. 3rd ed. New York, NY: HarperCollins Publications Inc; 1987:226-228.
38. Alvy KT, Marigna M. *Effective Black Parenting*. Studio City, Calif: Center for the Improvement of Child Caring; 1987.
39. Kohn ML. *Class and Conformity: A Study in Values*. Homewood, Ill: Dorsey Press; 1969.
40. Peters MF. *Nine Black Families: A Study of Household Management and Childrearing in Black Families with Working Mothers*. Ann Arbor, Mich: University Microfilms; 1976.
41. Young V. Family and childhood in a southern negro community. *Am Anthropol*. 1970;72:269-288.
42. Matteson ME, Pollack ES, Cullen JW. What are the odds that smoking will kill you? *Am J Public Health*. 1987;77:425-431.
43. Tonry M, Ohlin LE, Farrington DP. *Human Development and Criminal Behavior: New Ways of Advancing Knowledge*. New York, NY: Springer-Verlag NY Inc; 1991