

Maternal Depression Predicts Maternal Use of Corporal Punishment in Children with Attention-Deficit / Hyperactivity Disorder

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Purpose: We sought to determine if maternal depression contributed to the use of corporal punishment in children with attention-deficit/hyperactivity disorder (ADHD). **Patients and Methods:** The data were gathered through chart review of clinic-referred children with ADHD and their mothers who were evaluated at a psychiatric clinic located in a large academic medical center in Seoul, Korea. Daily records kept by parents and 13 items from the Physical Assault of the Parent-Child Conflict Tactics Scales (CTSPC) were used to assess corporal punishment. Ninety-one children with ADHD and their mothers were included in this study. **Results:** Mothers who used corporal punishment showed significantly higher scores on the Beck Depression Inventory ($t = -2.952$, $df = 89$, $p < 0.01$) than mothers who did not. Moreover, maternal depression contributed to the use of corporal punishment in ADHD children (Nagelkerke $R^2 = 0.102$, $p < 0.05$). **Conclusion:** Maternal depression contributes to the use of corporal punishment with children with ADHD. Assessment and management of the maternal depression should be an important focus of evaluation of children with ADHD.

Key Words: Attention-deficit / hyperactivity disorder, maternal depression, corporal punishment

INTRODUCTION

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.¹ It

is frequently used as a means of discipline for children who misbehave. However, many studies have shown that corporal punishment can actually increase aggressive behavior in children.²⁻⁴ Nonetheless, more than half of the parents surveyed reported that they had used corporal punishment in response to child misbehavior within the past year.⁵⁻⁸

A number of studies have examined demographic and clinical risk factors including parental or maternal educational level for the use of corporal punishment.^{9,10} Several studies have reported an association between maternal negative mood and anger and the use of corporal punishment.^{11,12} Moreover, depressed mothers tend to use more negative discipline and corporal punishment, which may increase the rates of child behavior problems.¹³⁻¹⁶ Thus, maternal depression seems to increase the risk for the use of corporal punishment in general.

Attention-deficit/hyperactivity disorder (ADHD), a common neurobehavioral disorder, is frequently associated with family stress and conflict.¹⁷ Children with ADHD are reported to be "less compliant and less cooperative, more demanding of assistance from others, less able to play and work independently of their mothers."¹⁸ These characteristics of children with ADHD can lead to severe parental stress and negative mood,^{19,20} which may be exacerbated by lower perceived parental control.²¹ In fact, several studies have reported higher levels of depressive symptomatology in mothers of ADHD children.^{20,22-25} Not surprisingly, Alizadeh et al. reported that parents

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of children with ADHD use corporal punishment at significantly higher rates than parents of children without ADHD.²⁶ However, relatively little data are available regarding the factors contributing to the use of corporal punishment in mothers of ADHD children, which may identify useful areas for intervention. In this study, we examined several risk factors for the use of corporal punishment including maternal mood. The data regarding the predictive factors for the use of corporal punishment will be useful in developing programs designed to prevent the use of corporal punishment.

Chi and Hinshaw reported that maternal depression was not related to the negative parenting of children with ADHD, observed in a laboratory school settings.²⁷ The data collected by observation in a laboratory setting may result in under-recognition of negative parenting due to the stifling effect and social pressure for desirable parenting behavior.²⁸⁻³⁰ If corporal punishment does not occur every day, it might not be observed during the observation period.²⁹ All of these factors decrease the accuracy of the data on the use of corporal punishment.¹⁶ Because the home environment differs from the one in which the observations were made, it might not be appropriate to generalize the results obtained from the laboratory situation. Data that accurately reflect actual parenting behavior are needed in order to clearly define the relationship between maternal depression and negative parenting practices. Self-report instruments are widely used to assess the use of corporal punishment. However, they are subject to recall bias. For example, Parent-Child Conflict Tactics Scales (CTSPC), which is 1 of the self-report instruments most commonly used to assess the use of corporal punishment,²⁸ consists of questions regarding parenting behavior in the past year, and its supplemental questions contain questions regarding the use of corporal punishment within the previous week.⁵ However, it is unrealistic to expect parents to accurately calculate how often they use corporal punishment within the referred period.⁵ Another limitation of self-report measures is that desire for providing a social acceptance response may result in the under-reporting of the use of corporal punishment.^{5,28,30}

Parental daily record-keeping has several advantages over self-report measures and is less cumbersome than direct observational measures. Daily records of parenting practices with regard to specific situations may reduce the recall bias and help the data to more accurately reflect the actual happenings in natural settings.^{2,29} In the present study, daily records kept by parents and information gathered and recorded during clinical interview were used to assess the use of corporal punishment.

The primary hypothesis was whether the maternal levels of education, depression, and anxiety could predict the use of corporal punishment in children with ADHD. The second hypothesis investigated in the present study was whether the children of mothers who used corporal punishment were more aggressive and had more behavioral problems than children whose mothers did not use corporal punishment in children with ADHD.

PATIENTS AND METHODS

The subjects included 585 clinic-referred children who visited a child and adolescent psychiatric clinic at a large university hospital in Seoul, Korea, between January 2005 and June 2007. All children received a comprehensive evaluation that included a psychiatric clinical interview, psychological testing, rating scales, and assessment of the parental daily records of the in-home situation. Parental daily records have been used to assess the mother-child interaction and help parents to develop strategies to deal with conflict with their children. After explaining the purpose of the parental daily record, parents were asked to log all episodes of child misbehavior and the response in the home situation every day for a period of 2 weeks. The daily records kept by mothers consisted of 6 items regarding the conflict situation: the time at which it occurred, a description of the situation, the thought in the parent's mind, the parent's emotions, the response of the parent, and the consequences of the parental response. The parents were asked to record the aforementioned information on a daily basis in order to reduce any recall bias. Upon submission, clinicians had a

discussion with parents and recorded detailed information regarding the responses of parents including the use of corporal punishment. In this study, the daily records were used for coding corporal punishment. Assessment of maternal depression and anxiety was included as part of the evaluation.

The inclusion criteria used in the current study were as follows. Children who were diagnosed with ADHD by the Kiddie-Schedule for Affective Disorders and Schizophrenia-Present and Lifetime Version-Korean version (K-SADS-PL-PL),³¹ were between 5 and 15 years of age, and had no previous history of treatment for ADHD agreed to participate in the study by providing written informed consent and complete all study measures. Since the purpose of the present study was to examine the risk factors for maternal use of corporal punishment, only the cases in which the mother kept daily records of the mother-child interactions were included. The exclusion criteria were the following: children with a serious comorbid psychiatric disorder requiring treatment with a psychotropic agent other than stimulants, an intelligence quotient lower than 70 as determined by the Korean Wechsler Intelligence Scale for Children (K-WISC-III),³² and ODD or CD. Among 94 cases who met the research criteria, 3 were excluded because the father or grandparents kept daily records. The resultant study sample included the data from 91 children with ADHD and their mothers. The protocol of this study was approved by the Institutional Review Board (IRB) at the university hospital where the study was performed.

Measures

Corporal punishment

In this study, parental daily records were used to assess the use of corporal punishment. The daily records were reviewed by 2 clinicians who were blind to the diagnosis to determine corporal punishment status. Daily records were coded using CTSPC,⁵ which contains 13 items on the physical assault. An example of the 13 items is "spanked him/her on the bottom with your bare hand in the past year." If more than 1 of the 13 items on the physical assault were endorsed, the

subject was included in the corporal punishment group. The rate of inter-rater agreement was reliable (Cohen's kappa = 0.88).

Symptom severity in children with ADHD

Child Behavior problems

The Child Behavior Checklist (CBCL)³³ was completed and provides a broad-band dimensional assessment of child psychopathology. The Korean version of the CBCL was standardized among 3908 Korean children and displayed strong reliability and validity.³⁴ It consists of 119 items and 13 subscales. The aggressive behavior subscale includes 20 items.

ADHD symptoms were assessed with 10-item Conner's abbreviated parent-teacher questionnaire (CAPTQ).^{35,36} The mothers were asked to rate the severity of the child's ADHD symptoms on a scale of 1-3. The total scores ranged from 0 to 30. Higher scores are indicative of more severe symptoms.

Maternal mood symptoms

Depression

The Beck Depression Inventory (BDI) is a self-report instrument used to assess the severity of depressive symptoms.³⁷ The BDI consists of 21 items rated on a scale of 0-3. BDI score is highly correlated with the severity of depression.³⁸ The Korean version of the BDI was standardized and shown to have adequate reliability and validity in both clinical and nonclinical samples.³⁸

Anxiety

Maternal anxiety was measured using the Spielberger's State Trait Anxiety Inventory (STAI).³⁹ The STAI is a self-report instrument and consists of 2 sections. Each section has 20 items. One section is used to assess the severity of state anxiety and the other is used to assess the severity of trait anxiety. Higher scores indicate higher levels of state or trait anxiety. The Korean version of the STAI was standardized among Koreans and proved to be a valid and reliable instrument for the assessment of the severity of state and trait anxiety.⁴⁰

Data analysis

The data analysis was carried out in 2 phases. The initial phase of the analysis examined differences between clinic referred children exposed to corporal punishment vs those who had not displayed corporal punishment during the 2-week evaluation period. Student's *t*-test, univariate analysis of variance, Mann-Whitney *U* test, and chi-square test were used to compare dimension and categoric variables, respectively. In the next phase of the analysis, forward stepwise binary logistic regression analysis was done to test whether the variables that were extracted in the first phase of the analysis predicted the use of corporal punishment. The analysis was performed using SPSS version 13.0. The level of statistical significance was set at $p < 0.05$ (2-tailed).

RESULTS

The mean age of the patients was 9.0 (± 2.3). Among 91 patients, 74 (81.3%) were boys and 17

(18.7%) were girls. Twenty-three (25.3%) children had received corporal punishment during the 2 week assessment phase. Table 1 displays the characteristics of the children who had recently received corporal punishment (CP group) and who did not (non CP group). There was no significant difference in demographics, CAPTQ, CBCL and IQ scores between children in the CP group and non CP group. However, mothers in the CP group showed higher BDI ($t = -2.952$, $df = 89$, $p < 0.01$, effect size = 0.08) than mothers in the non CP group (Table 2).

Forward stepwise binary logistic regression analysis was carried out in order to examine potential maternal risk factor for the use of corporal punishment. Maternal level of education, maternal BDI, and STAI scores were entered as predictors while corporal punishment was entered as a dependent variable. To control for the child's factor, age, gender, and CAPTQ score were entered as independent variables. Maternal BDI score significantly predicted the use of corporal punishment (Table 3). Maternal BDI score correctly predicted 98.4% of the use of non-corporal

Table 1. Comparison of Variables between Patients Who Had Received Corporal Punishment (CP group) and Patients Who Did Not Receive Corporal Punishment (non CP group) in ADHD

	CP group (n = 23)	Non CP group (n = 68)
Age (yrs)	8.8 (± 2.2)	9.1 (± 2.4)
Sex		
Boy	21 (91.3%)	53 (71.6%)
Girl	2 (8.7%)	15 (28.4%)
CAPTQ	13.6 (± 4.7)	13.4 (± 5.4)
CBCL		
Aggression	62.3 (± 10.9)	61.7 (± 10.8)
Int	59.1 (± 15.9)	60.8 (± 9.3)
Ext	61.0 (± 9.7)	60.7 (± 10.4)
Total	61.7 (± 10.6)	63.1 (± 8.0)
IQ		
Verbal	105.3 (± 19.2)	103.7 (± 14.1)
Performance	99.1 (± 18.2)	94.0 (± 14.6)
Total	102.8 (± 19.6)	99.2 (± 14.3)

ADHD, attention-deficit/hyperactivity disorder; CAPTQ, Conner's abbreviated parent-teacher questionnaire; CBCL, Child Behavior Checklist; Int, internalizing behavior problems; Ext, externalizing behavior problems; Total, total behavior problems; IQ, Intelligence quotient by Wechsler Intelligence Scale for Children (WISC-III).

Numbers are the mean (standard deviation) except for gender, which shows the total number of subjects (%).

Table 2. Comparison of the Characteristics of Mothers Who Used Corporal Punishment

	CP group (n = 23)	Non CP group (n = 68)
Maternal education	1.5 (\pm 0.7)	1.4 (\pm 0.6)
SES	3.1 (\pm 0.8)	3.1 (\pm 0.8)
BDI-M*	16.1 (\pm 7.4)	11.3 (\pm 6.5)
SAI-M	46.9 (\pm 10.0)	44.1 (\pm 10.2)
TAI-M	45.8 (\pm 10.3)	44.0 (\pm 8.6)

SES, Socioeconomic status 1: highest, 5: lowest; BDI-M, Maternal score on Beck's Depression Inventory; SAI-M, Maternal state anxiety score on Spielberger's State-Trait Anxiety Inventory; TAI-M, Maternal trait anxiety score on Spielberger's State-Trait Anxiety Inventory.

(CP group) and those who did not use corporal punishment (non CP group) in ADHD.

Maternal education 1: graduate of university, 2: graduate of high school, 3: graduate of middle school, 4: graduate of elementary school, 5: no education.

Numbers are the mean (standard deviation).

* $p < 0.01$.

Table 3. Result of Binary Logistic Analysis

	Nagelkerke R^2	p value
BDI-M	0.102	0.02

BDI-M, Maternal score on Beck's Depression Inventory.

Dependent variable: use of corporal punishment.

punishment, 11.1% of the use of corporal punishment, and 79.3% of the overall group.

DISCUSSION

As in previous studies of children with ADHD,²⁶ corporal punishment is quite high in Korean families with an ADHD child as well. Specifically, 25.3% of mothers of children with ADHD reported the use of corporal punishment within the previous 2 weeks. Data from the United States shows that 59.3% of mothers of children aged 2 - 4 years, and 45.8% of mothers of children aged 5 - 9 years reported the use of corporal punishment during the 6 months preceding the interview.¹⁰ Since we had collected data for 2 weeks, we could not directly compare the prevalence rates. In a study, which was performed in Canada, 41% of mothers surveyed reported the use of corporal punishment within the previous 2 weeks.¹² The prevalence rate determined in the current study was lower than that of the study by Ateah and Durrant.¹² Perhaps,

the lower prevalence rate found in the present study might be due to older age of the children studied in the current study, since the child's age has been shown to be closely linked to the prevalence of the use of corporal punishment.^{1,9,10} The mean age of the subjects in the present study was 9.0 years while the mean age of the subjects in Canadian study was only 3 years. Furthermore, the frequency of the use of corporal punishment declines rapidly after the age of 6 years.^{1,5,7,10}

In the present study, maternal depression was the only predictor for the use of corporal punishment. Chronis et al. reported that maternal depression can be used to predict the development of conduct disorders in children with ADHD.⁴¹ However, the mechanism by which maternal depression is related to the development of conduct disorders is not fully understood. It is speculated that maternal depression may contribute to developing CD via changes in the mother-child interaction. The result in the present study suggests that maternal depression is a risk factor for harsh parenting, independent of characteristics such as severity of ADHD symptoms,

which may affect the negative outcome in children with ADHD. Therefore, the assessment and management of maternal depression appear to be useful in preventing harsh parenting practices such as the use of corporal punishment in children with ADHD.

With regard to the second hypothesis, children in the CP group were no more aggressive than children in the non CP group in ADHD. The primary explanation for this finding is the cross-sectional nature of the current study. Previous research, which found a relationship between antisocial behavior and corporal punishment, was conducted in the form of a longitudinal study.⁴² If the chronicity of corporal punishment is crucial to the development of aggressive behavior in children with ADHD, the 2-week study period used in the present study might have been too short to accurately demonstrate the effect of corporal punishment. Furthermore, the sample of this study consisted of children with pure ADHD. The relationship between harsh parenting and behavior problems was most evident in children with ADHD comorbid with ODD and CD.^{18,43} Since children with ODD and CD were excluded from the present study, the relationship between aggression and corporal punishment was not evident in this study.

Several limitations of the study should be considered when interpreting the results. The primary limitation is the use of the same informant for measures of maternal mood, corporal punishment, and child psychopathology. Since depressed mothers tend to have a more negative view of their parenting practices,²⁷ they might report corporal punishment more frequently than non-depressed mothers. In such a case, the relationship between corporal punishment and maternal depression could be exaggerated. Since mothers who did not comply with the daily record-keeping or rating scales were excluded from this study, it is possible that severely depressed or abusive mothers might have been excluded from the analysis. Although attempts were made to reduce the under-reporting of the use of corporal punishment, some defensive mothers might not have accurately reported their use of corporal punishment.

Since maternal depression was not assessed by

a diagnostic instrument in the present study, the term "depression" refers to a significant number of depressive symptoms endorsed. Another limitation is the modest sample size of the corporal punishment group. The subjects were a clinic-referred sample from a middle-class population of a metropolitan inner city area. Thus, caution should be taken in generalizing the result to children with ADHD in the general population or other communities.

In spite of these limitations, our findings indicate a significant relationship between maternal depression and corporal punishment in children with ADHD. Due to the relative prevalence of mood symptoms in parents of children with ADHD, physicians and other clinicians involved in the care of ADHD youth should routinely screen for maternal depression. Future studies are needed to determine the impact of effectively treating maternal depression on parenting and other areas of impairment related to ADHD. The improvement of maternal depression would be related to less use of corporal punishment. This will be the subject in the future study. Screening for maternal depression may be important in the clinical assessment of children with ADHD.

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