Psychosocial Characteristics of Physically Abused Children and Adolescents

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ABSTRACT

Objective: To examine the association between physical abuse and selected psychosocial measures in a community-based probability sample of children and adolescents. Method: A sample of 9- through 17-year-olds (N = 665) and their caretakers in New York State and Puerto Rico were interviewed in the Methods for the Epidemiology of Child and Adolescent Mental Disorders (MECA) Study. Assessments included the Columbia Impairment Scale, the Instrumental and Social Competence Scale, the Diagnostic Interview Schedule for Children, the Peabody Picture Vocabulary Test, and questions regarding physical abuse. Regression analyses were conducted controlling for family income, family psychiatric history, perinatal problems, physical health, and sexual abuse. Results: A history of physical abuse was reported in 172 (25.9%) of the sample. It was significantly associated with global impairment, poor social competence, major depression, conduct disorder, oppositional defiant disorder, agoraphobia, overanxious disorder, and generalized anxiety disorder but not with suicidality, school grades, or receptive language ability. Conclusion: A community probability sample of children and adolescents demonstrated significant associations between physical abuse and psychopathology, after controlling for potential confounders. This supports comprehensive screening for psychopathology among physically abused children and for physical abuse among those with psychopathology. Interventions aimed at improving social competence may be indicated. J. Am. Acad. Child Adolesc. Psychiatry, 1997, 36(1):123-131. Key Words: Diagnostic Interview Schedule for Children, impairment, physical abuse, social competence, receptive language ability.

A major advance in the past three decades has been the increased recognition of the incidence of physical abuse of children and adolescents. This has been paralleled by a growing appreciation of the associated adverse consequences. Several recent review articles in which these consequences are addressed attest to the maturity attained by the field (Cicchetti and Toth, 1995; Knutson, 1995; Knutson and Schartz, in press; Kolko, 1992; Malinosky-Rummell and Hansen, 1993; National Research Council, 1993; Skuse and Bentovim, 1994).

These reviews cite a substantial body of empirical support for a correlation between a history of physical abuse and psychopathology in childhood and adolescence. Dodge et al. (1990) reported a multisite longitudinal study involving a cohort of nonreferred children, some of whom had been physically abused, which concluded that physical abuse is a risk factor for the development of chronic aggressive behavior. In another longitudinal study, Boney-McCoy and Finkelhor (1995) conducted telephone interviews with a national, random sample of youths aged 10 to 16 years. They concluded that, controlling for prior psychopathology and the quality of the parent-child relationship, parental violence was associated with symptoms of posttraumatic stress disorder and depression, while assault by nonfamily perpetrators was associated only with the
former (Boney-McCoy and Finkelhor, in press). However, the remaining studies addressing the relationship between physical abuse and psychopathology have had single-site samples selected from those receiving residential psychiatric treatment (Kazdin et al., 1985; Scerbo and Kolko, 1995), attenders at clinics or agencies for victims of physical abuse (Allen and Tarnowski, 1989; Kaufman, 1991), or children labeled abused by judicial processes (Famularo et al., 1992; Kinard, 1995). Those whose abuse has been recognized comprise a small proportion of all abused children and the effects of the abuse may be confounded by the sequelae of disclosure, such as separation from parents, foster home placement, and labeling of the victims and their families (Dodge et al., 1990).

Furthermore, there is only one study in which a structured instrument yielding specific diagnoses was used. Famularo et al. (1992) used the Diagnostic Interview for Children and Adolescents to yield DSM-III diagnoses for their sample of 96 physically abused children between the ages of 5 and 10 years. The only diagnoses for which the prevalence was higher in the abused group than a control group on both parent and child interview were attention-deficit hyperactivity disorder, oppositional disorder, and posttraumatic stress disorder.

Suicidality can occur in conjunction with several psychiatric conditions (Andrews and Lewinsohn, 1992), and there is evidence from clinic-based research that physical abuse is associated with suicide attempts and/or ideation in childhood or adolescence (Deykin et al., 1985; Shaunesey et al., 1993; Stone, 1993). However, Spirito et al. (1987) compared adolescents hospitalized after a suicide attempt with a control group of adolescent inpatients referred for psychiatric evaluation and detected no differences in terms of a history of physical abuse. These contrary findings may also be due to unrepresentative samples.

In contrast to suicidality, global functional impairment is a nonspecific characteristic of psychopathology (Bird et al., 1993). To the extent that psychopathology may be associated with physical abuse, one would expect that physical abuse would be associated with global functional impairment. However, this has not been subject to empirical confirmation.

One aspect of functional impairment that has received research attention is interpersonal relationships. Although there is compelling evidence that physically abused children have difficulties with peer relationships (Salzinger et al., 1993), there is a divergence of findings regarding the relationship between a history of physical abuse and social competence per se (Levendosky et al., 1995; Manly et al., 1994). Malinosky-Rummell and Hansen (1993) suggest that this lack of consensus may be accounted for by different definitions of social competence and failure to control for relevant family variables. In addition, the relevant studies base their conclusions on samples that are small and unrepresentative of physically abused children in the community.

Impairment can also be manifest in the academic sphere, for example by poor school grades. A plethora of studies, most of which did not control for possible confounding variables such as social class, have documented academic deficits among physically abused children (Eckenrode et al., 1993). Again, there are inconsistent findings (Vondra et al., 1989). In the only study with a large sample ($N = 420$), a control group, specification of type of abuse, and statistical control for social class, age, and gender, Eckenrode et al. (1993) found that children who had been neglected and/or physically abused obtained grades that were significantly lower than those of their peers. Additional analysis revealed that those who had been abused but not neglected did not achieve lower grades. None of the studies addressing this issue used community probability samples.

Finally, academic achievement is intimately allied with intellectual functioning, especially receptive language ability. Several studies with control groups matched for demographic and socioeconomic variables have reported that identified physically abused children obtained relatively low scores on the Peabody Picture Vocabulary Test (PPVT), a test of receptive language ability. This was valid for studies with samples ranging from small groups of young children (Hoffman-Plotkin and Twenryman, 1984; Vondra et al., 1990) to a group of 413 individuals abused in childhood who were assessed at approximately 28 years of age (Perez and Widom, 1994). Despite this consensus, the lack of community-based studies involving older children renders further investigation necessary.

As implied above, there are several variables that may confound the associations between exposure to physical abuse and one or more psychosocial characteristic(s). Besides demographic features, these include (1) family environment (Goodyer, 1990; Skuse and
Bentovim, 1994); (2) family psychiatric history (Simonoff et al., 1994; Skuse and Bentovim, 1994); (3) perinatal problems (Breslau, 1995; Skuse and Bentovim, 1994); (4) current physical health (Breslau, 1985; Skuse and Bentovim, 1994); and (5) a history of sexual abuse (Knutson, 1995).

The purpose of the present report is to document the associations between a history of physical abuse and various psychosocial characteristics. An opportunity to do this with a community probability sample, using standardized instruments and controlling for potential confounding variables, was provided by the National Institute of Mental Health (NIMH) Methods for the Epidemiology of Child and Adolescent Mental Disorders (MECA) Study (Lahey et al., 1996). We hypothesize that a history of physical abuse is associated with (1) the presence of one or more psychiatric diagnoses; (2) suicidality; (3) global functional impairment; (4) poor social competence; (5) low school grades; and (6) poor receptive language ability. If this hypothesis is confirmed, it would provide additional evidence that these characteristics are present in children and adolescents in the community who have been physically abused.

METHOD

Sample

The MECA collaboration included community probability samples from metropolitan San Juan, Puerto Rico, and three mainland sites in the United States: New Haven, Connecticut; Atlanta, Georgia; and Westchester County, New York. Only the Puerto Rico and New York sites (N = 665) were included in the present analysis because these are the only sites at which data regarding physical abuse were obtained.

The target population included all youths aged 9 through 17 years at the time of enumeration residing in a housing unit within the geographic study areas who had lived with the adult informant for at least the previous 6 months. Youths living in any type of institution were excluded from the study. Only subjects living in households whose primary language was English or Spanish were included in the New York sample. There were no language exclusions in Puerto Rico; however, all of their interviews were conducted in Spanish. Multistage sampling was used to obtain probability samples at each of the sites, further details of which are provided by Lahey et al. (1996). Where there was more than one eligible youth residing in the household, the subject for the study was randomly selected from those eligible. The adult informant was selected from a hierarchy of possible respondents: 90% of the interviews were conducted with the biological mother.

Measures

Physical Abuse. The instrument was developed on the basis of a review of existing instruments and consultation with a wide range of clinicians and researchers with expertise in physical abuse. A previous version of the instrument was tested in a pilot study involving youths drawn from schools and mental health clinics (N = 164). Interviewers elicited comments from the respondents regarding the appropriateness of the language used and provided their own impressions about each item based on the behavior and reactions of the respondents. These data informed decisions regarding the final version of the questionnaire.

Both the youth and the adult informant were asked whether the youth had ever experienced each of several types of physical abuse. Physical abuse was defined to have taken place if either the youth or the adult informant replied affirmatively to any of the following types of physical abuse: hit very hard; beaten or kicked; locked in a room for 5 hours or more with the door locked or told that he or she would not have food for a whole day or longer; hurt by someone so that he or she was bruised, had bones broken, or was severely injured; badly punished in some other way; and (if none of these types of abuse had been experienced) hurt badly by an older person. A stricter definition of physical abuse was also used, which excluded those whose only physical abuse was having been hit very hard on fewer than five occasions. (A copy of the instrument is available from the first author.)

Psychiatric Disorder. The computerized version of the NIMH Diagnostic Interview Schedule for Children (DISC) Version 2.3 was used to yield a current diagnosis according to DSM-III-R (American Psychiatric Association, 1987; Shaffer et al., 1996). A criterion was considered met if reported present by either the adult informant or the child (Shaffer et al., 1996). For a diagnosis to be assigned, the following conditions had to be satisfied: (1) meeting DSM-III-R criteria; (2) the presence of at least two of the three to five diagnosis-specific items indicating personal distress or social or academic difficulties resulting from the symptoms of each diagnosis; and (3) a score of ≤ 70 on the Children's Global Assessment Scale (CGAS) (Shaffer et al., 1983, 1996), as assessed by the interviewer of the parent. All diagnoses obtained by more than 2.0% of the MECA sample were included (Shaffer et al., 1996).

Suicidality. This was regarded as being present for all youths who indicated that they had experienced suicidal ideation or made any suicide attempts in the previous 6 months.

Impairment. As just mentioned, functional impairment, as measured by the CGAS, was taken into account in ascribing the psychiatric diagnoses. In addition, functional impairment as assessed by the Columbia Impairment Scale (Bird et al., 1993) was included as a dependent variable. Both the youth's and the adult informant's assessment of the youth’s impairment were included. There are 13 items, tapping the following major areas of functioning: (1) interpersonal relations; (2) broad psychopathological domains; (3) functioning in job or school; and (4) use of leisure time. Each item is scored on a range from 0 (no problem) to 4 (a very bad problem). Previous analyses of the MECA data documented that this instrument has satisfactory validity and reliability (Bird et al., 1993).

Social Competence. This was assessed by the Social Competence subscale of the Instrumental and Social Competence Scale (Beiser et al., 1993). The parent (12 items) and youth (9 items) versions were included. All items are scored from 1 (not true) to 4 (often or very true). As regards internal consistency, the α coefficients ranged between .79 and .84 for each informant at each site (S. Goodman, personal communication).

School Grades. Youths were asked to summarize their grades on their last report card on a scale ranging from 1 (mostly A’s) to 7 (mostly D’s or below).
Receptive Language Ability. Stanine scores from the Peabody Picture Vocabulary Test-Revised (PPVT-R) were used to assess this construct (Dunn and Dunn, 1981). The Spanish PPVT was used with all respondents whose dominant language was Spanish. This instrument has been standardized, and there are published norms for Puerto Rican populations (Dunn et al., 1986).

Family Environment. This was assessed by using the “Family Appgar,” which was completed by the adult informant (Del Vecchio et al., 1979; Good et al., 1979). Each of the five items in the scale refer to satisfaction with an aspect of family relationships, such as support, use of leisure time, and communication. Scores range from 1 (almost always) to 3 (hardly ever), with lower scores indicating a more accepting environment. The α coefficients were .83 for the New York site and .85 for the Puerto Rico site (S. Goodman, personal communication).

Family Psychiatric History. The Family History Epidemiologic (Lish et al., 1995) was used to assess family psychiatric history. The adult informant’s report of specific psychiatric symptoms in either biological parent indicated a positive family history of psychopathology.

Perinatal Problems. These were defined as being present if the adult informant indicated that at least one of the following conditions was present: (1) the birth weight was less than 5 pounds; (2) there was prematurity of 3 weeks or more; or (3) the duration of the hospital stay was more than 1 week after delivery.

Current Physical Health. Both the adult informant and the youth were asked to rate the youth’s physical health on a scale from 1 (excellent) to 5 (very poor). The mean of these two assessments was used to characterize the physical health of the youths.

Sexual Abuse. A history of sexual abuse was based on an affirmative reply by either informant to questions asking whether the informant had been either touched or kissed by an older person in a manner that made him or her feel uncomfortable, or whether an older person had tricked or forced the informant to engage in sexual activity against his or her will.

Procedures

Prior to any personal contact with families living in the selected housing units, a letter was sent in which the study was described and the importance of their participation emphasized. These points were reinforced by an enumerator who subsequently visited each selected housing unit to identify the participants and make arrangements for the interviews. Interviews were conducted simultaneously with the youth and adult informant in private by trained lay interviewers. After completion of the interviews, both the youth and the adult informant received monetary compensation.

Although confidentiality in general was assured, the interviewers informed the respondents that they would report evidence of child abuse. All cases of physical abuse were referred to a mental health clinician; when indicated, referrals for psychological services were made and statutory reporting requirements fulfilled.

Analysis

Analysis was conducted on the combined data from the New York and Puerto Rico sites. Prevalence rates of each psychiatric diagnosis and suicidality were calculated, stratified by physical abuse status. In addition, mean scores for impairment, social competence, school grades, and receptive language ability were calculated stratified by physical abuse status.

To investigate further the association between physical abuse and its hypothesized psychosocial correlates, we constructed a series of regression models, using the hypothesized psychosocial variables as the dependent variables and physical abuse as an independent variable. All models were adjusted for gender, age, race/ethnicity, family income, site (i.e., New York or Puerto Rico), family psychiatric history, perinatal problems, current physical health, and history of sexual abuse. For the dichotomous psychosocial correlates, we developed logistic regression models and report the findings as adjusted odds ratios (ORs) with 95% confidence intervals (CIs). For the remaining correlates, we developed multiple linear regression models and report the results as regression coefficients with the associated standard errors and probability levels. In addition, the multiple linear regression models were rerun, controlling for psychiatric disorder.

Finally, all the above analyses were repeated using the stricter definition of physical abuse (which excluded those whose only physical abuse was having been hit very hard on fewer than five occasions).

RESULTS

The numbers and percentages of children and adolescents who reported having experienced each of the types of physical abuse were as follows: hit very hard, 122 (18.3%); beaten or kicked, 27 (4.1%); locked in a room for 5 hours or more or told that they would not have food for a whole day or longer, 19 (2.9%); hurt by someone so that they were bruised, had bones broken, or were severely injured, 15 (2.3%); badly punished in some other way, 23 (3.5%); and hurt badly by an older person, 29 (4.4%). A total of 172 (25.9%) had experienced any physical abuse. Table 1 provides descriptive data for the control variables, stratified by physical status.

The adjusted ORs for the association between physical abuse and any mood disorder, any disruptive disorder, and any anxiety disorder, as well as for many specific diagnoses, were all significantly greater than 1 (Table 2).

In addition, 15 (8.7%; 95% CI: 4.5 to 12.9%) of the physically abused children and 19 (3.9%; 95% CI: 2.2 to 5.6%) of the children with no history of physical abuse were suicidal. The adjusted OR was 1.8 (95% CI: 0.8 to 3.9), indicating that physical abuse is not significantly associated with being suicidal.

For both the youth and parent informants, there were significant relationships between physical abuse and both global functional impairment and social competence (Table 3). However, this was not the case for school grades and receptive language ability.

When psychiatric diagnosis was entered as an additional control variable in the models reported in Table 3, the findings remained significant (p < .05) for both
TABLE 1
Descriptive Data for Control Variables, Stratified by Physical Abuse Status (N = 665)

<table>
<thead>
<tr>
<th>Physical Abuse</th>
<th>Present (n = 172)</th>
<th>Mean or %</th>
<th>95% CI</th>
<th>Absent (n = 493)</th>
<th>Mean or %</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (% female)</td>
<td>57.0</td>
<td>49.6–64.4</td>
<td></td>
<td>50.3</td>
<td>45.9–54.7</td>
<td></td>
</tr>
<tr>
<td>Age (mean years)</td>
<td>13.1</td>
<td>7.9–18.3</td>
<td></td>
<td>13.1</td>
<td>8.1–18.1</td>
<td></td>
</tr>
<tr>
<td>Race/ethnicity (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>3.5</td>
<td>0.7–6.2</td>
<td></td>
<td>1.2</td>
<td>0.2–2.2</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>11.6</td>
<td>6.8–16.4</td>
<td></td>
<td>8.7</td>
<td>6.2–11.2</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>62.8</td>
<td>55.6–70.0</td>
<td></td>
<td>47.3</td>
<td>42.9–51.7</td>
<td></td>
</tr>
<tr>
<td>African-American</td>
<td>20.3</td>
<td>14.3–26.4</td>
<td></td>
<td>38.9</td>
<td>34.6–43.2</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>1.7</td>
<td>0.0–3.7</td>
<td></td>
<td>3.8</td>
<td>2.2–5.6</td>
<td></td>
</tr>
<tr>
<td>Family income (mean $1,000)</td>
<td>14.6</td>
<td>0.0–100+</td>
<td></td>
<td>18.5</td>
<td>1.1–100+</td>
<td></td>
</tr>
<tr>
<td>Site (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York</td>
<td>43.0</td>
<td>35.6–50.4</td>
<td></td>
<td>57.4</td>
<td>53.0–61.8</td>
<td></td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>57.0</td>
<td>49.6–64.4</td>
<td></td>
<td>42.6</td>
<td>38.2–47.0</td>
<td></td>
</tr>
<tr>
<td>Family environment (mean)</td>
<td>7.0</td>
<td>2.1–12.0</td>
<td></td>
<td>6.2</td>
<td>2.7–9.7</td>
<td></td>
</tr>
<tr>
<td>Family psychiatric history (% positive)</td>
<td>53.9</td>
<td>46.3–61.5</td>
<td></td>
<td>49.5</td>
<td>45.1–54.0</td>
<td></td>
</tr>
<tr>
<td>Perinatal problems (% positive)</td>
<td>26.2</td>
<td>19.6–32.7</td>
<td></td>
<td>20.9</td>
<td>17.3–24.5</td>
<td></td>
</tr>
<tr>
<td>Current physical health (mean)</td>
<td>2.1</td>
<td>0.6–3.5</td>
<td></td>
<td>1.9</td>
<td>0.7–3.2</td>
<td></td>
</tr>
<tr>
<td>Sexual abuse (%)</td>
<td>5.8</td>
<td>2.3–9.3</td>
<td></td>
<td>2.8</td>
<td>1.4–4.3</td>
<td></td>
</tr>
</tbody>
</table>

Note: CI = confidence interval.

youth and parent informants for impairment and for the youth informant for social competence. For the parent informant for social competence, the finding was no longer significant (p = .12).

By the stricter definition of physical abuse (which excluded those whose only physical abuse was having been hit very hard on fewer than five occasions), 112 (16.8%) had a history of physical abuse. This redefinition of physical abuse resulted in a conversion of three variables from significant to nonsignificant ORs: conduct disorder (OR = 1.4; 95% CI: 0.5 to 3.7); oppositional defiant disorder (OR = 2.9; 95% CI: 1.0 to 8.7); and any anxiety disorder (OR = 1.7; 95% CI: 0.9 to 3.2). However, the ORs themselves remained greater than 1.

DISCUSSION

This study has (1) replicated and extended previous conclusions linking physical abuse with impaired social competence and psychopathology; (2) introduced functional impairment as a further adverse correlate of physical abuse; and (3) provided data that serve to question the generalizability of previous results in that the hypothesized association between physical abuse and suicidality, school grades, and receptive language ability was not demonstrated.

Using data from the MECA study to examine these associations broke new ground by virtue of several methodological strengths, at least some of which are absent in all the previous studies. The sample was a community probability sample and was not drawn from children whose abuse had already been disclosed to a social or psychiatric agency. Also, the sample size is large, it is drawn from two sites, and standardized assessment measures were used (such as the DISC). Finally, there was statistical control for several potential confounding variables, not all of which were controlled in any of the previous studies.

However, some aspects of the methodology were suboptimal. There were relatively small proportions of abused and nonabused youths who obtained certain diagnoses or had been suicidal, reducing statistical power to obtain significant findings. The study was cross-sectional, impeding speculation regarding the causal nature of the relationships. Although a wide range of diagnoses was included, there are no data regarding other potentially relevant diagnoses either because of their low prevalence in the MECA sample (for example, psychoactive substance use disorders) or
Table 2

Prevalence of Current Psychiatric Diagnosis, Stratified by Physical Abuse Status, and Adjusted Odds Ratios for Current Psychiatric Diagnosis (N = 665)

<table>
<thead>
<tr>
<th>Physical Abuse</th>
<th>Present (n = 172)</th>
<th>Absent (n = 493)</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosis</td>
<td>No. (%) (95% CI)</td>
<td>No. (%) (95% CI)</td>
<td></td>
</tr>
<tr>
<td>Mood disorders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any mood disorder</td>
<td>17 (9.9) (5.4, 14.3)</td>
<td>15 (3.0) (1.5, 4.6)</td>
<td>2.9 (1.3, 6.7)</td>
</tr>
<tr>
<td>Major depression</td>
<td>15 (8.7) (4.5, 12.9)</td>
<td>12 (2.4) (1.1, 3.8)</td>
<td>3.7 (1.5, 9.1)</td>
</tr>
<tr>
<td>Dysthymia</td>
<td>9 (5.2) (1.9, 8.6)</td>
<td>7 (1.4) (0.4, 2.5)</td>
<td>2.8 (0.9, 8.8)</td>
</tr>
<tr>
<td>Disruptive disorders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any disruptive disorder</td>
<td>22 (12.8) (7.8, 17.8)</td>
<td>16 (3.3) (1.7, 4.8)</td>
<td>4.3 (2.0, 9.0)</td>
</tr>
<tr>
<td>ADHD</td>
<td>5 (2.9) (0.4, 5.4)</td>
<td>5 (1.0) (0.1, 1.9)</td>
<td>3.0 (0.7, 12.5)</td>
</tr>
<tr>
<td>Conduct disorder</td>
<td>11 (6.4) (2.7, 10.1)</td>
<td>6 (1.2) (0.2, 2.2)</td>
<td>4.3 (1.8, 10.3)</td>
</tr>
<tr>
<td>ODD</td>
<td>16 (9.3) (5.0, 13.6)</td>
<td>11 (2.2) (0.9, 3.5)</td>
<td>3.9 (1.3, 11.4)</td>
</tr>
<tr>
<td>Anxiety disorders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any anxiety disorder</td>
<td>32 (18.6) (12.8, 24.4)</td>
<td>37 (7.5) (5.2, 9.8)</td>
<td>2.3 (1.3, 4.0)</td>
</tr>
<tr>
<td>Social phobia</td>
<td>10 (5.8) (2.3, 9.3)</td>
<td>19 (3.9) (2.2, 5.6)</td>
<td>1.0 (0.4, 2.5)</td>
</tr>
<tr>
<td>Simple phobia</td>
<td>7 (4.1) (1.1, 7.0)</td>
<td>8 (1.6) (0.5, 2.7)</td>
<td>1.7 (0.5, 5.5)</td>
</tr>
<tr>
<td>Agoraphobia</td>
<td>15 (8.7) (4.5, 12.9)</td>
<td>7 (1.4) (0.4, 2.5)</td>
<td>6.7 (2.6, 17.6)</td>
</tr>
<tr>
<td>Separation anxiety</td>
<td>8 (4.7) (1.5, 7.8)</td>
<td>10 (2.0) (0.8, 3.3)</td>
<td>1.8 (0.6, 4.9)</td>
</tr>
<tr>
<td>Overanxious disorder</td>
<td>15 (8.7) (4.5, 12.9)</td>
<td>12 (2.4) (1.1, 3.8)</td>
<td>3.4 (1.5, 7.9)</td>
</tr>
<tr>
<td>Generalized anxiety disorder</td>
<td>9 (5.2) (1.9, 8.6)</td>
<td>6 (1.2) (0.2, 2.2)</td>
<td>4.6 (1.5, 14.3)</td>
</tr>
</tbody>
</table>

Note: CI = confidence interval; OR = odds ratio; ADHD = attention-deficit hyperactivity disorder; ODD = oppositional defiant disorder.

* Models are adjusted for gender, age, ethnicity, income, site, family environment, family psychiatric history, perinatal problems, current physical health, and history of sexual abuse.

Table 3

Means and Standard Deviations of Psychosocial Characteristics, Stratified by Physical Abuse Status, and Results of Linear Regression Analysis of Physical Abuse With Psychosocial Characteristics (N = 665)

<table>
<thead>
<tr>
<th>Psychosocial Characteristics</th>
<th>Physical Abuse</th>
<th>Present (n = 172)</th>
<th>Absent (n = 493)</th>
<th>β</th>
<th>SE</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impairment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Youth informant</td>
<td>8.4</td>
<td>7.5</td>
<td>5.6</td>
<td>6.1</td>
<td>1.85</td>
<td>0.57</td>
</tr>
<tr>
<td>Parent informant</td>
<td>7.0</td>
<td>7.3</td>
<td>4.4</td>
<td>5.9</td>
<td>1.01</td>
<td>0.47</td>
</tr>
<tr>
<td>Social competence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Youth informant</td>
<td>3.5</td>
<td>0.5</td>
<td>3.7</td>
<td>0.4</td>
<td>-0.12</td>
<td>0.04</td>
</tr>
<tr>
<td>Parent informant</td>
<td>3.6</td>
<td>0.4</td>
<td>3.7</td>
<td>0.3</td>
<td>-0.07</td>
<td>0.03</td>
</tr>
<tr>
<td>School grades</td>
<td>3.4</td>
<td>1.8</td>
<td>3.1</td>
<td>1.6</td>
<td>0.03</td>
<td>0.15</td>
</tr>
<tr>
<td>Receptive language ability</td>
<td>6.2</td>
<td>2.3</td>
<td>6.1</td>
<td>2.3</td>
<td>0.28</td>
<td>0.19</td>
</tr>
</tbody>
</table>

Note: Models are adjusted for gender, age, ethnicity, income, site, family environment, family psychiatric history, perinatal problems, current physical health, and history of sexual abuse.
significantly greater than 1 for any mood, any disruptive, and any anxiety disorders, and for many of the specific diagnoses. Most of these findings remained significant when we used the stricter definition of physical abuse.

This is the first study that confirms that physical abuse is associated with a wide range of psychopathology in a nonreferred population of children and adolescents. It extends the number of diagnoses associated with physical abuse beyond those reported by Famularo et al. (1992) for children whose physical abuse had been legally or administratively recognized. The results confirm that there is not one specific syndrome or diagnosis that is uniquely associated with physical abuse (Cicchetti and Toth, 1995).

Even though major depression was significantly associated with physical abuse, those who had been abused were not significantly more likely to be suicidal. This is consistent with the finding of Spirito et al. (1987) that adolescents hospitalized after a suicide attempt were not more likely to have history of physical abuse than adolescent inpatients referred for psychiatric evaluation. The significant relationships documented elsewhere (Deykin et al., 1985; Shaunesey et al., 1993; Stone, 1993) may be attributable to the absence of community probability samples and/or the presence of confounding variables.

The significant relationship between physical abuse and functional impairment, as reported by both informants, provides strong evidence that the previously documented deleterious correlates of physical abuse are accompanied by global functional impairment. The robustness of this association is increased by the fact that it remained statistically significant even after we controlled for psychiatric diagnosis.

The significant relationship between physical abuse and both adult and youth report of social competence may contribute to resolving the controversy in the literature regarding the relationship between a history of physical abuse and social competence. The failure of previous studies to confirm this relationship may possibly be ascribed to their methodological limitations, including unrepresentative samples and confounding variables such as family environment (Malinosky-Rummell and Hansen, 1993). However, the fact that in the present study social competence as assessed by the adult informant was no longer significantly associated with physical abuse when we controlled for psychiatric diagnosis indicates that this association is complicated and requires further investigation.

The relationship between a history of physical abuse and school grades and receptive language ability was not significant. Although the finding for school grades is inconsistent with most previous reports, it is consistent with the conclusions reached for children who had been abused but not neglected, in the only study with a large sample size, a control group, specification of the type of abuse, and statistical control for key potential confounders (Eckenrode et al., 1993). It is possible that the majority of youths classified as physically abused in the present study had been physically abused only and not also neglected. The failure to demonstrate a significant relationship between physical abuse and low school grades in this study generalizes the findings of Eckenrode et al. (1993) to a nonreferred population.

The present study is unique in that a significant relationship between physical abuse and receptive language ability was not found. Although further investigations are necessary to replicate this conclusion, it does suggest that the consensus from the previous studies is not generalizable in the presence of statistical control for potential confounders and/or to nonreferred children. It is possible that high grades in school and receptive language ability serve as protective factors for physically abused children; this may contribute to difficulties in these domains being differentially manifest in physically abused children who have been referred (Perez and Widom, 1994).

Clinical Implications

The findings emphasize the necessity of a comprehensive psychiatric assessment of children who have been physically abused, and conversely of inquiring about physical abuse in children and adolescents presenting with a diversity of psychiatric disorders. This diversity implies that one form of intervention is unlikely to be indicated for all physically abused children. However, the association between poor social competence and a history of physical abuse indicates that specific interventions aimed at improving social competence should be considered. Finally, one should be cautious in concluding that satisfactory academic performance indicates an absence of adverse outcomes of physical abuse. This has salience not only for assessments of the efficacy of intervention programs but also
for decisions regarding the provision of special services in education systems for physically abused children. The practice of denying such services to physically abused children who are able to deal with academic demands is not supported by the present results (Cicchetti et al., 1993).

The MECA program is an epidemiological methodology study performed by four independent research teams with the staff of the Division of Clinical Research, which was reorganized in 1992 with components now in the Division of Epidemiology and Services Research and the Division of Clinical and Treatment Research, of the NIMH, Rockville, MD. The NIMH Principal Collaborators were Darrel A. Regier, M.D., M.P.H., Ben Z. Locke, M.S.P.H., Peter S. Jensen, M.D., William E. Narrow, M.D., M.P.H., and Donald S. Rae, M.A.; the NIMH project officer was William J. Huber. The Principal Investigators and Coinvestigators from the four sites are as follows: Emory University, Atlanta, U101 MH46725: Mina K. Dulcan, M.D., Benjamin B. Lahey, Ph.D., Donna J. Brogan, Ph.D., Sherry H. Goodman, Ph.D., and Elaine W. Flagg, Ph.D.; Research Foundation for Mental Hygiene at New York State Psychiatric Institute (Columbia University), New York, U101 MH46718: Hector Bird, M.D., David Shaffer, M.D., Myrna Weissman, Ph.D., Patricia Cohen, Ph.D., Denise Kandel, Ph.D., Christina Hoven, Dr.P.H., Mark Davies, M.P.H., Madelyn Gould, Ph.D., and Agnes Whitsack, M.D.; Yale University, New Haven, CT, U101 MH56717: Mary Schwab-Stone, M.D., Philip J. Leef, Ph.D., Sarah M. Horwitz, Ph.D., and Judith H. Lichtman, M.P.H.; University of Puerto Rico, San Juan, U101 MH46732: Gloria Canino, Ph.D., Maritza Rubio-Stipec, M.A., Milagros Bravo, Ph.D., Margarita Alegría, Ph.D., Julio Ribera, Ph.D., Sara Huertas, M.D., and Michael Woodbury, M.D.


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