ORIGINAL ARTICLE

Childhood Maltreatment Increases Risk for Personality Disorders During Early Adulthood

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Background: Data from a community-based longitudinal study were used to investigate whether childhood abuse and neglect increases risk for personality disorders (PDs) during early adulthood.

Methods: Psychosocial and psychiatric interviews were administered to a representative community sample of 639 youths and their mothers from 2 counties in the state of New York in 1975, 1983, 1985 to 1986, and 1991 to 1993. Evidence of childhood physical abuse, sexual abuse, and neglect was obtained from New York State records and from offspring self-reports in 1991 to 1993 when they were young adults. Offspring PDs were assessed in 1991 to 1993.

Results: Persons with documented childhood abuse or neglect were more than 4 times as likely as those who were not abused or neglected to be diagnosed with PDs during early adulthood after age, parental education, and parental psychiatric disorders were controlled statistically. Childhood physical abuse, sexual abuse, and neglect were each associated with elevated PD symptom levels during early adulthood after other types of childhood maltreatment were controlled statistically. Of the 12 categories of *DSM-IV* PD symptoms, 10 were associated with childhood abuse or neglect. Different types of childhood maltreatment were associated with symptoms of specific PDs during early adulthood.

Conclusions: Persons in the community who have experienced childhood abuse or neglect are considerably more likely than those who were not abused or neglected to have PDs and elevated PD symptom levels during early adulthood. Childhood abuse and neglect may contribute to the onset of some PDs.

Arch Gen Psychiatry. 1999;56:600-606

RESEARCH[1-12] HAS indicated that many patients with personality disorders (PDs) report histories of childhood abuse or neglect. These findings, and studies[13,14] indicating that PDs are more prevalent among persons who experienced child abuse than among matched comparison groups, have suggested that childhood abuse and neglect may play an important role in the onset of PDs.[15,16] Most

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of this evidence, however, is based on retrospective reports by psychiatric patients.[17,18] Although research[19-22] has supported the validity of retrospective reports of childhood maltreatment, to infer from retrospective data[17,18,23,24] alone that childhood maltreatment increases risk for the onset of PDs is problematic. Until prospective research demonstrates that persons with documented childhood maltreatment are at increased risk for PDs independent of other risk factors, it cannot be established that childhood maltreatment plays a role in the onset of PDs.[18]

Two longitudinal studies[25,26] have supported the hypothesis that childhood maltreatment increases risk for PDs. Family instability and lack of parental affection and supervision during adolescence were found[25] to predict dependent and passive-aggressive PDs among men. Physical and sexual abuse were not assessed, however, and not all PDs were investigated. Childhood maltreatment has been reported to predict increased risk for antisocial PD during early adulthood.[26] Neither the association between different types of maltreatment and risk for antisocial PD nor the association between childhood maltreatment and other PDs was investigated. Therefore, many questions about the effects of childhood maltreatment on the risk for PDs remain unanswered. We report findings from a community-based longitudinal study to investigate whether childhood maltreatment increases the risk for *DSM-IV*[27] PDs during early adulthood independent of the effects

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SUBJECTS AND METHODS

PARTICIPANTS AND PROCEDURE

Six hundred thirty-nine families with children between the ages of 1 and 11 years from 2 counties in northern New York State were representatively sampled and interviewed in 1975[28] and reinterviewed in 1991 to 1993. These face-to-face interviews, also conducted in 1983 and 1985 to 1986, were administered by extensively trained and supervised lay interviewers.[29] At each assessment, written informed consent was obtained from all participants after the study procedures were fully explained. The 639 families in the present study were a subsample of 776 families interviewed in 1983 for whom data regarding childhood maltreatment were available from retrospective self-reports by the young adult participants in 1991 to 1993 and from the New York State Central Registry for Child Abuse and Neglect (NYSCR). Childhood maltreatment data were not available for 137 families who no longer lived in New York. These families did not differ from the rest of the sample with regard to socioeconomic status, urban vs rural status, or ethnicity, but there was a higher proportion of male offspring and the mothers were less well educated. The 1983 sample was representative of the regional population in a range of demographic variables, according to US census data.[29] Demographic characteristics of the sample are presented in **Table 1**. Further information regarding the study methodology is available from previous reports.[28,29]

ASSESSMENT OF PERSONALITY DISORDERS

Interview items used to assess early adulthood PDs in 1991 to 1993 were drawn from the parent and youth versions of the Diagnostic Interview Schedule for Children,[30] the Personality Diagnostic Questionnaire,[31] and the Disorganizing Poverty Interview.[28] Items were originally selected by consensus among 1 psychiatrist and 2 clinical psychologists based on correspondence with *DSM-III-R* diagnostic criteria.[32] Following the publication of *DSM-IV*,[27] items from the study protocol were added or deleted to maximize correspondence with *DSM-IV* diagnostic criteria, most notably to assess depressive PD in *DSM-IV* appendix B. One hundred fifty-two items were available to assess 88 (93.6%) of the 94 *DSM-IV* PD diagnostic criteria. For dependent, histrionic, narcissistic, obsessive-compulsive, and paranoid PDs, items were available for the assessment of 78% to 89% of the diagnostic criteria. For the other 7 PDs, all criteria were assessed. The Cronbach α inter-item reliability coefficients for clusters A, B, and C PD symptoms were .66, .72, and .68, respectively. For overall PD symptoms, the α was .87.

Personality disorder diagnoses were assigned to persons who met *DSM-IV* diagnostic criteria, as reported by the youth or mother. The use of multiple informants has been found[33,34] to increase the reliability and validity of psychiatric diagnoses. Evidence[32] supports the reliability and validity of the protocol items and computer algorithms used to assess PD symptoms (J.G.J.; P.C.; Andrew E. Skodol, MD; John M. Oldham, MD; Stephanie Kasen, PhD; Judith Brook, PhD; unpublished data, 1999). Adolescent *DSM-IV* PD symptoms predicted early adulthood Axis I disorders and suicidality, and PD symptom stability when the participants were adolescents was similar to the stability of PD symptoms among adults in the community (J.G.J.; P.C.; Andrew E. Skodol, MD; John M. Oldham, MD; Stephanie Kasen, PhD; Judith Brook, PhD; unpublished data, 1999).

ASSESSMENT OF CHILDHOOD MALTREATMENT

Official data regarding childhood maltreatment was obtained from the NYSCR. Cases referred to state agencies, investigated by childhood protective services, and confirmed as verified cases of abuse or neglect are retained in the NYSCR. The verification of physical abuse required evidence of injury. The verification of sexual abuse required evidence of sexual penetration or a judgment that the youth experienced unwanted sexual contact. The verification of neglect required evidence of educational, emotional, physical, or supervisory neglect. The NYSCR staff ascertained whether confirmed cases of childhood maltreatment were present. Information about the type of abuse was abstracted by one of us (J.B.) under the supervision of NYSCR staff. To ensure confidentiality, participants were identified only by numbers, and data were entered by persons who had no access to information that revealed participants' identities.

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of offspring age and sex, difficult childhood temperament, parental education, and parental psychiatric disorders.

RESULTS

DESCRIPTIVE STATISTICS

In the 639 families, there were 31 (4.9%) documented cases of childhood maltreatment, including 15 cases (2.3%) of physical abuse, 4 cases (0.6%) of sexual abuse, and 23 cases (3.6%) of neglect. Twenty patients (3.1%) had 1 type of maltreatment, and 11 patients (1.8%) had 2 kinds of maltreatment. Fifty-eight persons (9.1%) self-reported childhood maltreatment, including 34 cases (5.3%) of physical abuse, 21 cases (3.3%) of sexual abuse, and 17 cases (2.7%) of neglect. Forty-six persons (7.2%) had 1 type of maltreatment, and 12 persons (1.9%) had 2 or 3 types of maltreatment. There was little overlap between documented and self-reported cases of childhood maltreatment. Only 8 cases of childhood abuse or neglect were identified from both NYSCR records and self-reports, yielding a κ coefficient of 0.11. There were 81 (12.7%) documented or self-reported cases of childhood maltreatment, including 44 cases (6.9%) of physical abuse, 22 cases (3.4%) of sexual abuse, and 39 cases (6.1%) of neglect. Fifty-nine persons (9.2%) had 1 type of maltreatment, and 22 persons (3.4%) had 2 or 3 types of maltreatment. Eighty-six youths (13.5%) were diagnosed as having PDs in 1991 to 1993.

EFFECTS OF CHILDHOOD PHYSICAL ABUSE ON PD SYMPTOM LEVELS DURING EARLY ADULTHOOD

Documented physical abuse was associated with elevated symptom levels of antisocial, borderline, dependent, depressive, passive-aggressive, schizoid, and total PDs after offspring

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Self-reports of childhood maltreatment were obtained from the offspring in 1991 to 1993. Participants were asked whether, before age 18 years, they experienced the following events: anyone they lived with had ever hurt them physically so that they were still injured or bruised the next day, could not go to school as a result, or needed medical attention; they had been left overnight without an adult caretaker before age 10 years; and any older person who was not a boyfriend or girlfriend had ever touched them sexually or forced them to touch the older person sexually.

ASSESSMENT OF PARENTAL EDUCATION AND PSYCHIATRIC DISORDERS AND CHILDHOOD TEMPERAMENT

Parental education and psychiatric disorders were assessed as dichotomous variables. Maternal and paternal education was assessed during the maternal interviews in 1975, 1983, and 1985 to 1986. Low parental education was identified in 28.0% of the families, for whom the mean number of years of parental education was less than 12. Parental psychiatric disorders were assessed using 4 instruments administered during the maternal interview: current maternal emotional problems were assessed in 1983 and 1985 to 1986 using the Hopkins Symptom Checklist-90[35] anxiety, depression, and interpersonal difficulty subscales; parental alcohol and drug abuse between 1975 and 1985 to 1986 was assessed in 1983 and 1985 to 1986; the lifetime parental history of "trouble with the police" was assessed in 1975, 1983, and 1985 to 1986; and the lifetime parental history of psychiatric disorders was assessed in 1983 and 1985 to 1986, with items assessing whether or not the parents had ever been treated for a mental disorder. Parental psychiatric disorders were considered present if significant emotional problems, substance abuse, or trouble with the police was present in either parent in 1975, 1983, or 1985 to 1986 or if, in 1985 to 1986, either parent had ever been treated for a mental disorder. Using these procedures, the lifetime prevalence of parental psychiatric disorders was 38.0%. If the mother could not provide information regarding the father's education or psychiatric disorders, only information regarding the mother was used.

Nine dimensions of childhood temperament[29] were assessed during the 1975 maternal interviews: clumsiness-distractibility, nonpersistence-noncompliance, anger, aggression to peers, problem behavior, temper tantrums, hyperactivity, crying-demanding, and moodiness. If a child experienced severe problems in 1 or more of these domains, the child was identified as having a difficult temperament. Difficult childhood temperament has been found, in this sample, to predict behavior problems,[36] PDs,[37] and Axis I psychiatric disorders during adolescence[38] and drug use during early adulthood.[39]

STATISTICAL ANALYSES

Data analyses were conducted in 5 phases. First, analyses of contingency tables, correlational analyses, and *t* tests were computed to investigate whether risk factors identified by previous research[40,41] predicted childhood maltreatment and early adulthood PD symptom levels (ie, the number of PD diagnostic criteria that were met). Second, analyses of covariance (ANCOVAs) were conducted to investigate whether documented childhood abuse and neglect were associated with elevated early adulthood PD symptoms after offspring age, parental education, and parental psychiatric disorders were controlled. Third, logistic regression analyses were conducted to investigate whether documented childhood maltreatment was significantly associated with the risk for early adulthood PDs after controlling for offspring age, parental education, and parental psychiatric disorders. Fourth, ANCOVAs were computed to investigate whether documented or self-reported childhood maltreatment was significantly associated with elevated symptom levels of early adulthood PD after controlling for the covariates that were associated with both early adulthood PD symptom levels and other types of childhood maltreatment. Fifth, ANCOVAs were computed to investigate whether specific types of PD symptoms remained significantly associated with documented or self-reported childhood abuse or neglect after controlling for other types of PD symptoms that were significantly associated with childhood abuse or neglect. All statistical analyses were conducted using a comparison group that included individuals who did not experience childhood abuse or neglect.

age, parental education, and parental psychiatric disorders were controlled statistically (**Table 2**). Antisocial and depressive PD symptoms remained significantly associated with documented physical abuse after symptoms of other PDs were controlled statistically. Evidence of physical abuse, obtained from either NYSCR records or retrospective self-reports, was associated with elevated symptom levels of antisocial ($F_{1,599} = 10.62$; $P<.005$), borderline ($F_{1,599} = 16.44$; $P<.005$), passive-aggressive ($F_{1,599} = 6.06$; $P<.05$), schizotypal ($F_{1,599} = 8.13$; $P<.005$), and total PDs ($F_{1,599} = 6.95$; $P<.01$) after controlling for offspring age, parental education, parental psychiatric disorders, sexual abuse, and neglect.

EFFECTS OF CHILDHOOD SEXUAL ABUSE ON PD SYMPTOM LEVELS DURING EARLY ADULTHOOD

Documented sexual abuse was associated with elevated symptom levels of borderline PD after offspring age and parental psychiatric disorders were controlled statistically ($F_{1,577} = 5.77$; $P<.02$). Evidence of sexual abuse, obtained from either NYSCR records or retrospective self-reports, was associated with elevated symptom levels of borderline ($F_{1,577} = 31.09$; $P<.005$), histrionic ($F_{1,577} = 11.50$; $P<.005$), depressive ($F_{1,577} = 9.85$; $P<.005$), and total PDs ($F_{1,577} = 11.02$; $P<.005$) after controlling for offspring sex, parental education, parental psychiatric disorders, physical abuse, and neglect.

EFFECTS OF CHILDHOOD NEGLECT ON PD SYMPTOM LEVELS DURING EARLY ADULTHOOD

Documented childhood neglect was associated with elevated symptom levels of antisocial, avoidant, borderline, dependent, narcissistic, paranoid, passive-aggressive, schizotypal, and total PD after controlling for offspring age, parental education, and parental psychi-

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Table 1. Demographic Characteristics of the 639 Sample Offspring

Characteristic	Variable
Age, mean (SD) [range], y	
1975	6.4 (2.6) [1-10]
1991-1993	22.3 (2.6) [18-28]
Sex, No. (%)	
Male	334 (52.3)
Female	305 (47.7)
Ethnicity, No. (%)	
White	575 (90.0)
African American	58 (9.1)
Other	6 (0.9)
Residence, No. (%)	
Rural communities and small towns	341 (53.4)
Large towns	51 (8.0)
Central cities	78 (12.2)
Suburban communities	169 (26.4)
Education, No. (%)	
<12 y	57 (8.9)

Table 2. Documented Childhood Physical Abuse and Personality Disorder (PD) Symptoms* During Young Adulthood

PD Symptoms	PD Criteria Among Those Not Abused or Neglected (n = 608)	PD Criteria Among Victims of Physical Abuse (n = 15)	$F_{1,621}$†
Paranoid	0.73 (0.89)	1.60 (1.45)	3.47
Schizoid	0.75 (0.87)	1.67 (1.23)	6.65‡
Schizotypal	0.95 (1.05)	1.47 (1.41)	0.10
Any cluster A PD	2.43 (2.10)	4.73 (3.13)	4.32§‖
Antisocial	1.18 (1.11)	2.20 (1.57)	5.66‡§
Borderline	0.97 (1.15)	2.00 (1.51)	3.94‡
Histrionic	1.40 (1.21)	2.00 (1.13)	1.51
Narcissistic	0.86 (1.06)	1.87 (1.60)	4.42‡
Any cluster B PD	4.41 (3.20)	8.07 (4.60)	7.62¶
Avoidant	0.72 (0.97)	1.33 (1.45)	1.87
Dependent	1.04 (1.22)	2.27 (1.53)	8.67‖
Obsessive-compulsive	0.88 (0.88)	1.13 (1.19)	0.33
Any cluster C PD	2.63 (2.25)	4.73 (3.26)	4.87‡
Depressive	0.72 (1.04)	1.53 (1.64)	7.07§¶
Passive-aggressive	0.82 (1.00)	1.47 (1.30)	3.92‡
Any PD	9.83 (6.45)	18.33 (10.35)	10.50‖

*Data are given as the mean (SD) number of DSM-IV PD criteria met at assessment interviews conducted during early adulthood.
†Results of analyses of covariance, controlling for offspring age, parental psychiatric disorders, and parental education.
‡P<.05.
§Association remained statistically significant after controlling for co-occurring PD symptoms.
‖P<.005.
¶P<.01.

atric disorders (**Table 3**). Supplemental analyses indicated that symptoms of antisocial, avoidant, borderline, narcissistic, and passive-aggressive PD remained significantly associated with documented neglect after co-occurring PD symptoms were controlled statistically. Evidence of neglect, obtained from either NYSCR records or retrospective self-reports, was associated with elevated symptom levels of antisocial ($F_{1,594}$ = 7.41; P<.05), avoidant ($F_{1,594}$ = 5.71; P<.05), borderline ($F_{1,594}$ = 17.90; P<.005), dependent ($F_{1,594}$ = 7.91; P<.01), narcissistic ($F_{1,594}$ = 7.30; P<.005), passive-aggressive ($F_{1,594}$ = 10.92; P<.005), schizotypal ($F_{1,594}$ = 11.33; P<.005), and total PDs ($F_{1,594}$ = 15.27; P<.005) after offspring age, parental education, parental psychiatric disorders, physical abuse, and sexual abuse were controlled.

EFFECTS OF ANY CHILDHOOD ABUSE OR NEGLECT ON RISK FOR PD DURING EARLY ADULTHOOD

Documented childhood maltreatment was associated with increased risk for antisocial, borderline, dependent, depressive, narcissistic, paranoid, and passive-aggressive PDs after controlling for offspring age, parental education, and parental psychiatric disorders (**Table 4**). Antisocial, borderline, narcissistic, and passive-aggressive PD symptoms remained significantly associated with documented childhood maltreatment after controlling for symptoms of other PDs. Evidence of childhood abuse or neglect, obtained from either NYSCR records or retrospective self-reports, was associated with elevated symptom levels of antisocial ($F_{1,637}$ = 16.26; P<.005), avoidant ($F_{1,637}$ = 4.97; P<.05), borderline ($F_{1,637}$ = 53.96; P<.005), dependent ($F_{1,637}$ = 13.59; P<.005), depressive ($F_{1,637}$ = 9.89; P<.005), histrionic ($F_{1,637}$ = 8.66; P<.005), narcissistic ($F_{1,637}$ = 9.74; P<.005), passive-aggressive ($F_{1,637}$ = 9.19; P<.005), schizotypal ($F_{1,637}$ = 26.44; P<.005), and total PDs ($F_{1,637}$ = 31.65; P<.005) after offspring age, parental education, parental psychiatric disorders, and difficult childhood temperament were controlled statistically.

As the **Figure** indicates, persons who experienced childhood maltreatment were at an elevated risk for *DSM-IV* cluster B, cluster C, and appendix B PDs during early adulthood. When the effects of co-occurring PDs were controlled statistically, however, only cluster B (adjusted odds ratio = 7.94; 95% confidence interval, 1.33-14.82) and *DSM-IV* appendix B (adjusted odds ratio = 4.43; 95% confidence interval, 1.45-13.87) PDs were independently associated with childhood abuse or neglect.

COMMENT

The major finding of the present study is that persons with documented childhood abuse and neglect in a representative community sample were more than 4 times as likely as those who had not been abused or neglected to have PDs during early adulthood. This finding is particularly meaningful because childhood maltreatment predicted early adulthood PDs even after the effects of difficult childhood temperament, parental education, and parental psychiatric disorders were controlled statistically. The present findings are consistent with previous findings[1-13,18,25,42-45] suggesting that childhood physical abuse, sexual abuse, and neglect play an important role in the onset of some PDs.

These findings are also of interest because they are consistent with prior findings[1-12] indicating that patients with PDs are more likely than persons without PD

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Table 3. Documented Childhood Neglect and Personality Disorder (PD) Symptoms* During Young Adulthood

PD Symptoms	PD Criteria Among Those Not Abused or Neglected (n = 608)	PD Criteria Among Victims of Neglect (n = 23)	$F_{1,629}$†
Paranoid	0.73 (0.89)	1.65 (1.47)	10.69‡
Schizoid	0.75 (0.87)	1.30 (1.10)	3.07
Schizotypal	0.95 (1.05)	1.87 (1.36)	7.60§
Any cluster A PD	2.43 (2.10)	4.83 (2.89)	12.87‖¶
Antisocial	1.18 (1.11)	2.22 (1.88)	10.19‡‖
Borderline	0.97 (1.15)	2.48 (1.86)	23.10‖¶
Histrionic	1.40 (1.21)	2.04 (1.55)	3.32
Narcissistic	0.86 (1.06)	2.00 (1.81)	12.05‖¶
Any cluster B PD	4.41 (3.20)	8.74 (5.90)	22.10‖¶
Avoidant	0.72 (0.97)	1.52 (1.38)	9.48‡‖
Dependent	1.04 (1.22)	2.26 (1.51)	14.62‖¶
Obsessive-compulsive	0.88 (0.88)	1.17 (1.03)	1.82
Any cluster C PD	2.63 (2.25)	4.96 (3.02)	15.51¶
Depressive	0.72 (1.04)	1.17 (1.56)	3.29
Passive-aggressive	0.82 (1.00)	1.83 (1.64)	15.69‖¶
Any PD	9.83 (6.45)	19.30 (11.08)	27.33¶

Data are given as the mean (SD) number of DSM-IV *PD criteria met at assessment interviews conducted during early adulthood.*

†*Results of analyses of covariance, controlling for offspring age, parental psychiatric disorders, and parental education.*

‡*P<.005.*

§*P<.01.*

‖*Association remained statistically significant after controlling for co-occurring PD symptoms.*

¶*P<.001.*

Table 4. Documented Childhood Abuse or Neglect and Risk for Personality Disorders (PDs) During Young Adulthood

PD Diagnosis	Prevalence of PD, No. (%): Among Those Not Abused or Neglected (n = 608)	Prevalence of PD, No. (%): Among Victims of Abuse or Neglect (n = 31)	Adjusted Odds Ratio (95% CI)*
Paranoid	5 (0.8)	3 (9.7)	6.59 (1.20-36.03)
Schizoid	6 (1.0)	1 (3.2)	0.84 (0.08-8.44)
Schizotypal	4 (0.7)	1 (3.2)	2.48 (0.22-28.23)
Any cluster A PD	14 (2.3)	4 (12.9)	2.22 (0.59-8.27)
Antisocial	13 (2.1)	4 (12.9)	4.97† (1.33-18.49)
Borderline	7 (1.2)	4 (12.9)	7.73† (1.78-33.48)
Histrionic	9 (1.5)	1 (3.2)	2.65 (0.28-25.06)
Narcissistic	2 (0.3)	3 (9.7)	18.21† (2.19-150.93)
Any cluster B PD	29 (4.8)	11 (35.5)	8.91† (3.53-22.62)
Avoidant	11 (1.8)	3 (9.7)	4.35 (1.00-18.92)
Dependent	12 (2.0)	3 (9.7)	6.35 (1.43-28.21)
Obsessive-compulsive	4 (0.7)	0 (0.0)	. . .
Any cluster C PD	25 (4.1)	6 (19.4)	4.36† (1.50-12.63)
Depressive	7 (1.2)	2 (6.5)	7.19 (1.17-43.95)
Passive-aggressive	10 (1.6)	4 (12.9)	5.54† (1.30-23.58)
Any appendix B PD	17 (2.8)	6 (19.4)	6.83 (2.19-21.26)
Any PD	69 (11.3)	17 (54.8)	6.38 (2.83-14.32)

Controlling for age, parental education, and parental psychiatric disorders. Odds ratios are considered statistically significant if the number 1.0 falls outside the 95% confidence interval (CI). Ellipses indicate not computed.

†*Association remained statistically significant after controlling for co-occurring PDs.*

to report histories of childhood maltreatment. Because concerns have been raised[17,18,23,24] that patients' reports of childhood maltreatment may be due in part to biased memory or reporting, inferring from only retrospective findings that childhood maltreatment plays a role in the onset of PDs has been problematic. Our findings and previous longitudinal research[25,26] indicate that the tendency of many patients with PDs to report childhood maltreatment is not merely an artifact of biased memory or reporting. Childhood maltreatment is indeed much more likely to have occurred among young adults with PDs than among young adults without PDs.

Childhood physical abuse, sexual abuse, and neglect may also be associated with elevations in different types of PD symptoms. After symptoms of other PDs were accounted for, documented physical abuse was associated with elevated antisocial and depressive PD symptoms, sexual abuse was associated with elevated borderline PD symptoms, and neglect was associated with elevated symptoms of antisocial, avoidant, borderline, narcissistic, and passive-aggressive PDs. These findings, and previous research[9,25,46] indicating that childhood physical abuse, sexual abuse, and neglect may be differentially associated with PDs, suggest that it is important that researchers investigate specific etiologic models for each of the different PDs.

Although childhood neglect is more frequently reported than childhood physical or sexual abuse,[47] more research[48-50] has investigated physical and sexual abuse than neglect. Thus, although childhood physical and sexual abuse have been hypothesized to play an etiologic role in PDs,[18,42] childhood neglect has not played a prominent role in etiologic theories. Nonetheless, the present findings and previous research indicating that childhood neglect is associated with an increased risk for PDs, attachment difficulties, antisocial behavior, and other interpersonal and psychological problems[39,51-55] suggest that future theoretical work regarding the onset of PDs should examine the deleterious effects of childhood neglect.

Although the association between self-reported childhood maltreatment and PDs has received considerable investigation, few hypotheses[56,57] have been developed regarding the mechanisms of this association. Childhood maltreatment may independently increase the risk for PDs; maladaptive parenting, rather than childhood maltreatment, may increase the risk for PDs; childhood maltreatment may increase the risk for PDs among persons with biological diatheses for psychiatric disorders; and/or childhood maltreatment may be an indicator of preexisting PDs. Childhood abuse and neglect may increase the risk for PDs independent of childhood and parental psychiatric disorders. Many questions about the association between childhood maltreatment and PDs will not be answered definitively until further research is conducted.

Because the prevalence of specific PDs and specific types of documented childhood maltreatment was low,

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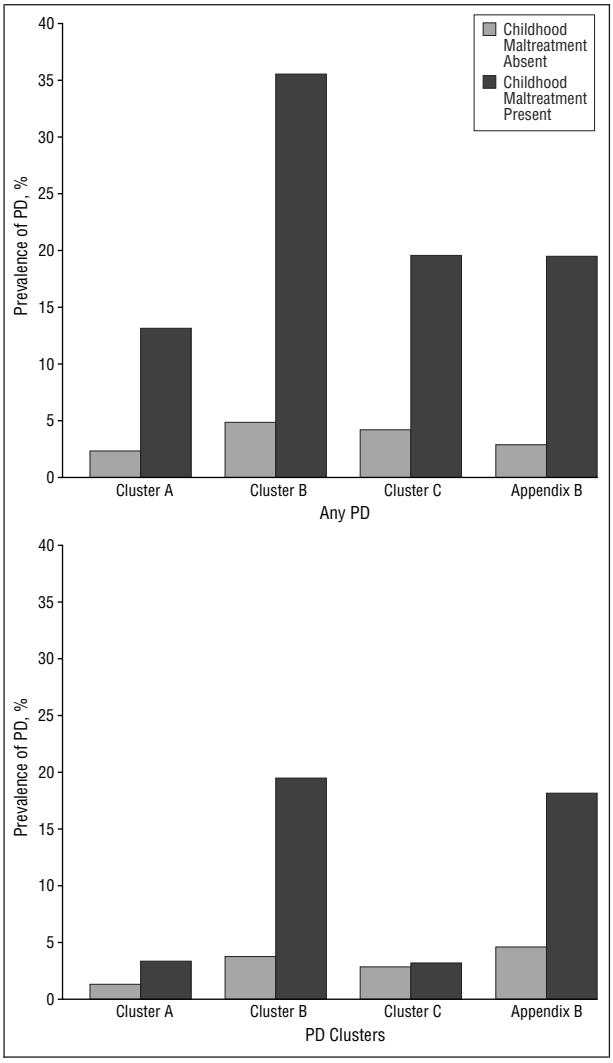

Overall (top) and unique (bottom) associations between documented childhood maltreatment and risk for early adulthood personality disorders (PDs).

it was necessary to investigate associations between documented childhood maltreatment and PD symptoms, rather than PD diagnoses. There was sufficient power, however, to permit investigation of the association between any documented childhood maltreatment and the risk for PDs during early adulthood. Furthermore, supplementing documented evidence of childhood maltreatment with self-reports of childhood abuse and neglect permitted investigation regarding unique associations between different types of childhood maltreatment and different types of PD symptoms.

Because we conducted numerous statistical analyses, some significant associations may have been due to chance. Although numerous findings support the reliability and validity of the items and algorithms used to assess PDs, it is possible that different findings would have been obtained if a structured clinical interview such as the Structured Clinical Interview for *DSM-IV*[58] had been administered. Because a few PD diagnostic criteria were not assessed, more statistically significant associations might have been obtained if all PD criteria had been assessed. A strength of the present study is that we investigated whether childhood maltreatment predicted PD symptoms after controlling for parental psychiatric disorders. Diagnostic interviews were not administered to the parents, however, and parental sociopathy was assessed using a measure of parental trouble with the police, although the present findings were not affected when this item was not included in the analyses. In addition, data regarding paternal education and psychiatric disorders were obtained from the mothers, and data were not available regarding interrater reliability.

Despite these limitations, our study has numerous methodological strengths, including a representative sample, a longitudinal design, the use of official records of childhood abuse and neglect and retrospective self-report data, the assessment of all *DSM-IV* PDs using data from both offspring and their mothers, and the use of statistical procedures to control for offspring age and sex, difficult childhood temperament, parental education, and parental psychiatric disorders. Thus, the present findings contribute to an increased understanding of the association between childhood maltreatment and early adulthood PD symptoms.

Accepted for publication January 14, 1999.

This study was supported by grant MH-36971 from the National Institute of Mental Health, Rockville, Md (Dr Cohen).

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