Complex Trauma Among Psychiatrically Impaired Children: A Cross-Sectional, Chart-Review Study

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Objective: To identify subgroups of severely psychiatrically impaired children on the basis of the complexity of their histories of exposure to abuse and other potential traumatic stressors, and to examine the relationship of complex trauma histories to *DSM-IV-TR* psychiatric diagnoses.

Method: In a sample of 397 consecutive inpatient child psychiatry admissions, cluster analysis was used to identify subgroups on the basis of measures of documented physical or sexual abuse, parental impairment (arrest, violence, and/or substance use), and disrupted attachment (ie, out-of-home placement). Data were collected for the years 1992 through 2002.

Results: Four subgroups were identified. Two "low trauma" subgroups had infrequent histories of abuse and out-of-home placement but were distinguished by low/moderate versus high levels of parental impairment. Two "complex trauma" subgroups were characterized by histories of either physical abuse or sexual abuse with multiple perpetrators, as well as extensive out-of-home placement and severe parental impairment. All subgroups had similar profiles of psychiatric diagnoses. Complex trauma status was associated with behavior problem severity and lower body mass index over and above the effects of psychiatric diagnoses, gender, and ethnicity. Although abuse history was a factor in subgroup membership, the multiple out-of-home placements variable was the most consistent correlate of externalizing and internalizing problems and psychosocial impairment.

Conclusions: Childhood adversity that may constitute complex trauma was associated with externalizing behavior problems and psychosocial impairment among psychiatrically hospitalized children, and this association cannot be accounted for fully by existing psychiatric diagnoses, gender, or ethnicity.

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A combination of traumatic victimization and attachment disruption constitutes a form of traumatic stress that may place children at risk for, or exacerbate, psychiatric morbidity. Referred to as "complex trauma"[1] or "developmentally adverse interpersonal trauma,"[2] these adversities are associated with a wide range of psychosocial impairments in childhood[3–5] and adulthood,[6,7] including affect dysregulation, dissociation, and biologic dysregulation[8]—placing the person at risk for not only psychological but also potentially stress-related medical (cardiovascular, metabolic, and immunologic) illnesses in adulthood.[9] These trauma-related self-regulation problems have been proposed to constitute a complex form of posttraumatic stress disorder, for which there is no diagnosis in the *Diagnostic and Statistical Manual of Mental Disorders,* Fourth Edition, Text Revision *(DSM-IV-TR)* of the American Psychiatric Association,[10] and which has been referred to as *developmental trauma disorder.*[7]

Before a new diagnosis is contemplated, however, research is needed to empirically test the clinical utility[11] of existing diagnoses in accounting for these biopsychosocial problems, as well as the assumption that exposure to traumatic stressors is a contributor. Two crucial initial steps are first to determine whether distinct subgroups of children can be identified with complex trauma histories and profound psychosocial impairment, and second to empirically assess whether existing psychiatric diagnoses can account for the impairments associated with complex trauma.

The present study was designed to address these foundational questions in a population of children who were diagnosed with at least one psychiatric disorder with sufficient impairment to have resulted in placement in long-term intensive residential care. As expected,[12] these children have substantial histories of child protective services–documented physical or sexual abuse, parental risk factors, and out-of-home placements. The aims of the present study therefore were to determine (1) whether distinct subgroups can be identified in a sample of psychiatrically impaired children on the basis of differential exposure to potentially traumatic adversities, including physical or sexual abuse, parental impairment, and out-of-home placements, and (2) if membership in the trauma-based subgroups and severity of internalizing and externalizing problems can be accounted for by existing *DSM-IV-TR* psychiatric diagnoses (as well as by age or gender). To the extent that subgroups can be

identified with distinct trauma history profiles and that the subgroups and their levels of emotional and behavioral impairment can be accounted for by *DSM-IV-TR* diagnoses, the findings will support clinical assessment of trauma history but not a novel trauma-related diagnosis. However, if traumatic stress profiles—particularly those involving complex trauma histories—and psychiatric impairment associated with them are empirically independent of *DSM-IV-TR* diagnoses, this finding will provide incremental support for further investigation of a novel child complex posttraumatic stress disorder diagnosis.

The rationale for selecting these 3 specific forms of childhood adversity as potential sources of complex trauma was that childhood victimization, especially child abuse, is associated with a range of severe health and psychosocial problems in childhood,[13] adolescence,[14] and adulthood.[15] Abuse places children and adults at risk for internalizing disorders, particularly anxiety and depressive disorders,[16,17] and externalizing[12] disorders. Two other significant childhood adversities that may disrupt primary attachment relationships and often co-occur with abuse and violence are parental impairment and out-of-home placement. When parental impairment or out-of-home placements occur, the child is at risk for cumulative adversity[9,18] and neglect.[17] Children of parents who are domestically violent,[19–21] psychiatrically impaired,[18] or incarcerated[18,19] are at risk for psychiatric and psychosocial impairment. Children who experience extended or serial out-of-home placements are subject to multiple losses and relational disruptions that compromise a child's trust in and capacity to seek and sustain secure attachment relationships.[18] Therefore, measures of parental impairment and out-of-home placements were used to assess attachment disruption.

Finally, stress-related disorders in childhood have been found to be related alternately to high body mass index (BMI) and obesity,[22,23] and to very low BMI (eg, in restricting eating disorders such as anorexia[24]); therefore, BMI also was assessed as a potential correlate of exposure to trauma.

METHOD

Participants

Study data were collected at the Devereux School in Massachusetts, a not-for-profit residential treatment center serving high risk and seriously emotionally disturbed children and adolescents aged 6 to 19 years from the New England and Mid Atlantic regions of the United States. Children and adolescents are placed in this facility through child protective agencies, public mental health agencies, as a stepdown after acute inpatient psychiatric hospitalization, by juvenile justice authorities as an alternative to incarceration, and by school districts. All Devereux residents are classified as seriously emotionally disturbed. Legal guardians for 397 Devereux residents consented to participate. (See Table 1 for children's characteristics.)

Procedure

Participants were systematically assessed and all data were obtained in a standardized clinical assessment. Data were deidentified and collected so as to protect participants' confidentiality. The protocol was reviewed and approved by both the residential treatment site and the University of Massachusetts Institutional Review Board. Independent written informed consent was obtained from all parents and guardians and assent was obtained from all child participants for all study procedures.

Data were collected for the years 1992 through 2002. The assessment procedure[25,26] involved a board-certified or board-eligible child psychiatrist evaluating all children and determining current psychiatric diagnoses and documented history of abuse based on a clinical interview of the child and an adult caregiver, with corroborating data from the clinical record. Facility clinicians or teachers completed rating scales with each participant within 1 month after intake. Family history was ascertained by interviewing the child or the caregiver. IQ scores were obtained by chart review of prior intellectual functioning testing with standardized tests.

Measures

Physical and sexual abuse. Data regarding physical and sexual abuse were gathered from an examination of participants' medical records. Participants were categorized as having a history of sexual or physical abuse if the written medical record supported a documented legal charge against a caregiver because of suspected abuse, a court appearance because of abuse charges, or a supported protective services evaluation of abuse as mandated by state child protective service law. Independent confirmation of documented history of physical abuse ($\kappa = 0.85$) or sexual abuse ($\kappa = 0.93$) was provided for a randomly selected 10% (N = 40) of the sample. This represents a more conservative strategy than studies that use only self-report data to ascertain abuse history and has been used in previously published research.[27] More than half of the sample (55%; 50% of boys and 80% of girls) had documented histories of abuse, including physical (45%) and/or sexual abuse (33%).

Parental risk factors. Parents' histories of alcohol or substance abuse, violence, or arrest were established on the basis of chart review of data from the psychosocial history interview and medical and legal records. When combined as a single additive index of parental impairment, the 3 parental impairment items showed evidence of adequate internal consistency (Cronbach $\alpha = .66$).

Out-of-home placements. Children's histories of out-of-home placements (coded to represent the number of total placements [none, 1, more than 1], whether placement[s] occurred before the age of 6 years, and whether placement[s] were with persons other than biologic family members) were established on the basis of chart review of data from the psychosocial history interview and medical and child

welfare records. When combined into a single additive index of extent of out-of-home placement, the 3 items did not yield an internally consistent scale (α = .06), and therefore they are used separately in all analyses except an initial descriptive analysis of the extent of out-of-home placement for the empirically-derived subgroups.

Intelligence. Full-scale IQ, Verbal IQ, and Performance IQ were obtained by chart review of testing done within the past 2 years with standardized measures of intellectual functioning, most often for youths 16 years and older by the Wechsler Adult Intelligence Scale[28] and for younger children by the Wechsler Intelligence Scale for Children, 3rd edition.[29]

Psychiatric diagnoses. Diagnoses were made using *DSM-IV* criteria. In order to establish diagnosis reliability with the κ statistic, a board-eligible or board-certified child psychiatrist conducted an independent chart review on 10% of the sample (N = 40) for 5 composite diagnosis classifications that were identified in the following percentages of the total sample: internalizing disorders (56%; κ = 0.87), disruptive behavior disorders (74%; κ = 0.92), psychotic disorders (15%; κ = 0.53), developmental disorders (41%; κ = 0.75), and substance use disorders (20%; κ = 0.74). All raters were blind to study aims and hypotheses.

Externalizing, internalizing, and developmental behavior problem scores. The Devereux Scales of Mental Disorders (DSMD) are reliable and well-validated 110-item behavior rating scales designed to evaluate psychopathology in young children and adolescents consisting of 3 broadband and 6 narrow-band scales.[30] The total score indicates the overall level of psychopathology. DSMD standardization data, based on a large sample representative of the US population comprising 3,153 children and adolescents aged 5 to 18 years, indicate that the DSMD instrument has high internal consistency and retest reliability. Interrater reliability, when examined across parent and teacher raters, was adequate (range, 0.44 to 0.66; all *P* < .01).[30] Item content and content-related validity adequately reflect *DSM-IV-TR* criteria.[30] The DSMD, which is treatment sensitive and reliably assesses psychopathology over the previous 4 weeks,[30] was completed by classroom teachers. Subscales from the DSMD for attention, conduct, internalizing, and developmental problems were used as indices of problem severity. Correlational analyses (not shown but available from the first author) showed that these scores were relatively independent of each other and highly correlated with other DSMD subscales, and therefore only those 4 DMD subscales were selected for use in the study.

Conners' Teacher Questionnaire. The Conners' Teacher Questionnaire, a widely used 10-item teacher rating scale scored on a 0 to 3 Likert-type scale, was used to assess problems with impulsivity and hyperactivity. Scores range from 0 to 30, and those greater than 15 indicate significant impulsivity and hyperactivity.[31] The measure has strong retest reliability (0.91 to 0.98 over 1-week intervals), adequate interrater reliability (parent-teacher agreement *r* = 0.49), and has shown evidence of concurrent, discriminant, and construct validity across a range of studies and samples of children.[31(pp664–665)]

Clinical Global Impressions-Severity of Illness Scale. The Clinical Global Impressions-Severity of Illness (CGI-S) scale[32] is a clinician-completed scale extensively used in pediatric clinical trials research. The CGI-S scale assesses the overall severity of a patient's psychiatric condition on a 7-point scale with scores ranging from 1 ("not ill") to 7 ("extremely severe"). CGI-S ratings were made by Devereaux staff psychiatrists on admission.

Body mass index. Body mass index was calculated on the basis of the child's height and weight data from the admission physical examination using the formula $BMI = kg/m^2$, in which kg = the body weight in kilograms and m = the height in meters. Body mass index was used as an indicator of risk for being overweight or obese (at higher levels[22]) or for stress-related problems including anorexia (at low levels[24]).

Statistical Analyses

Descriptive statistics were calculated to characterize the sample. Next, hierarchical cluster analysis was conducted to identify distinct subgroups, using abuse (sexual, physical), parental impairment (substance use, violence, arrest), and out-of-home placement (none vs single vs multiple; before age 5; with nonfamily caregivers) as proxies for potential trauma exposure. The subgroups were first compared to identify differences in age, gender, ethnicity, IQ, diagnosis profile, prevalence of abuse, extent of parental impairment, and out-of-home placement. Next, a multivariate analysis of covariance (MANCOVA) was conducted, with gender and ethnicity as covariates, comparing the subgroups on the continuous measures of externalizing (ie, Devereux scales for attention and conduct problems, Conners' Teacher Questionnaire), internalizing (ie, Devereux scales internalizing summary score), impairment (ie, CGI-S), and bodily functioning (ie, BMI). Following a statistically significant multivariate main effect, univariate analyses of covariance (ANCOVA) with Scheffé post hoc tests were used to compare subgroups on each measure. Last, stepwise multiple linear regression analyses were conducted, first entering gender, ethnicity, and psychiatric diagnoses, then complex trauma subgroup membership (low trauma subgroups versus complex trauma subgroups) in a second step, followed by a third step in which the components of trauma history (ie, abuse, parental impairment, or out-of-home placement) were entered, in order to determine whether complex trauma's effects could be accounted for by some or all of its components. In the multivariate analysis for BMI, the possibility that stimulant medication might be a confounding variable was addressed by adding this as a dichotomous variable (based upon chart review of participants' prescribed medications) to the third step of the regression model.

Table 1. Demographic, Diagnostic, and Trauma History Characteristics and Continuous Symptom, Impairment, and Body Mass Index Scores of the Study Sample and Trauma History Subgroups[a]

Characteristic or Measure	Full Sample (N = 387)	Low Trauma + Low/Moderate Parental Impairment (n = 89)	Low Trauma + High Parental Impairment (n = 97)	Complex Trauma + Physical Abuse (n = 131)	Complex Trauma + Sexual Abuse (n = 70)
Age, mean ± SD, y**	13.4 ± 2.6	14.2 ± 2.6[b]	13.4 ± 2.8	12.8 ± 2.7[c]	13.3 ± 2.4
Gender*					
Male	312 (81)	79 (89)[b]	86 (90)[b]	104 (79)[b]	43 (61)[c]
Female	75 (19)	10 (11)[b]	11 (10)[b]	27 (21)[b]	27 (39)[c]
Ethnicity					
White	254 (68)	67 (78)	60 (63)	82 (67)	45 (66)
African American	52 (14)	7 (8)	18 (19)	17 (14)	10 (15)
Hispanic	66 (18)	12 (14)	17 (18)	24 (20)	13 (19)
Verbal IQ, mean ± SD*	83.2 ± 16.8	87.2 ± 16.8[b]	85.3 ± 17.4	80.0 ± 16.3[c]	80.0 ± 15.0[c]
Performance IQ, mean ± SD	84.2 ± 18.5	84.7 ± 17.9	86.3 ± 19.5	83.6 ± 18.8	81.7 ± 17.4
Diagnosis categories					
Substance use disorders	78 (20)	14 (16)	24 (25)	22 (17)	18 (26)
Psychotic disorders	59 (15)	14 (16)	13 (13)	19 (15)	13 (19)
Internalizing disorders*	217 (56)	45 (51)[b]	42 (43)[b]	82 (63)[c]	48 (69)[c]
Externalizing disorders*	286 (74)	70 (79)[b]	79 (81)[b]	87 (66)[c]	50 (71)[c]
Developmental disorders	161 (42)	33 (37)	36 (37)	59 (45)	33 (47)
Abuse history					
Physical abuse**	181 (47)	0 (0)[b]	1 (1)[b]	129 (99)[c]	51 (73)[c]
Sexual abuse**	126 (33)	0 (0)[b]	10 (10)[b]	47 (36)[b]	69 (99)[c]
Parental impairment					
Substance use**	253 (65)	17 (19)[b]	73 (75)[c]	107 (82)[c]	56 (80)[c]
Violence history**	274 (71)	0 (0)[b]	83 (86)[c]	126 (96)	63 (90)[c]
Arrest history**	164 (42)	7 (8)[b]	43 (44)[c]	79 (60)[c]	35 (50)[c]
Impairment index, mean ± SD**	1.7 ± 1.7	0.9 ± 1.1[b]	1.8 ± 1.1[c]	2.2 ± 1[c]	1.8 ± 1.0[c]
Placement history					
2+ placements**	175 (45)	17 (19)[b]	28 (29)[b]	76 (58)[c]	55 (78)[c]
Before age 5 y	268 (69)	72 (81)	74 (76)	75 (57)	47 (67)
Nonfamily care**	169 (43)	10 (11)[b]	28 (29)[b]	88 (66)[c]	42 (60)[c]
Placement index, mean ± SD**	1.4 ± 1.0	0.8 ± 1.0[b]	1.1 ± 1.0[b]	1.75 ± 0.8[c]	2.0 ± 0.8[c]
DSMD problem scales, mean ± SD					
Attention problems*	52.9 ± 10.0	51.2 ± 10.0	50.9 ± 9.0	54.7 ± 10.4	54.5 ± 10.0
Conduct problems*	55.7 ± 12.3	53.5 ± 12.6	53.7 ± 11.5	57.3 ± 11.9	58.4 ± 13.2
Internalizing problems	59.7 ± 12.9	58.5 ± 12.1	57.3 ± 12.1	60.6 ± 12.8	62.7 ± 14.6
CTQ, mean ± SD	12.6 ± 8.1	11.6 ± 8.5	11.8 ± 8.1	13.9 ± 8.1	13.4 ± 7.6
CGI-S, mean ± SD*	2.7 ± 1.5	2.3 ± 1.4[b]	2.6 ± 1.5	2.9 ± 1.6[c]	2.8 ± 1.5[c]
Body mass index, mean ± SD*	24.1 ± 6.9	24.2 ± 6.4	25.1 ± 7.8[c]	22.7 ± 7.2[b]	25.0 ± 5.1[c]

[a]Data are presented as N (%) unless otherwise noted.
[b,c]Superscripts b and c attached to values within the same row signify that these subgroups were statistically significantly different from each other (P < .05).
Abbreviations: CGI-S = Clinical Global Impressions-Severity of Illness scale, CTQ = Conners' Teacher Questionnaire, DSMD = Devereaux Scales of Mental Development.

RESULTS

Descriptive statistics for the full sample are presented in Table 1. Hierarchical cluster analysis identified cluster solutions ranging from 2 to 11 subgroups. A 4-group solution yielded groups that were sufficiently large to permit between-group statistical comparisons and were generally comparable on IQ and demographics (with 1 exception each for age, gender, and IQ; Table 1). Two subgroups ("low trauma") had infrequent histories of abuse and out-of-home placement. The low trauma subgroups differed from each other in their mean levels of parental impairment (ie, one with low/moderate levels, the other with high levels; Table 1). Two "complex trauma" subgroups were characterized by histories of (a) physical abuse or (b) sexual abuse with multiple perpetrators; and both had extensive out-of-home placements and severe parental impairment (Table 1).

The subgroups differed in distribution of gender ($\chi^2 = 24.4$, $df = 3,387$; $P < .001$) but not ethnicity, with the sexual abuse subgroup more likely to include female patients than the other subgroups. One-way analyses of variance (ANOVA) with Scheffé post hoc comparisons of group means showed that the subgroups differed in age ($F_{3,383} = 5.34$, $P < .001$) and verbal IQ ($F_{3,383} = 4.75$, $P < .01$) but not performance IQ, with the low trauma + low/moderate parental impairment subgroup having a higher mean age than the physical abuse subgroup and having higher verbal IQ levels than the physical abuse or sexual abuse subgroups (Table 1).

The subgroups did not differ ($\chi^2 = 0.9$ to 4.6, $df = 3,387$; $P = .20$ to .82) in likelihood of having 3 of the composite psychiatric diagnoses: addictive, psychotic, and developmental disorders (Table 1). Internalizing disorder diagnoses were more likely to occur ($\chi^2 = 14.2$, $df = 3,387$; $P < .01$) and externalizing disorder diagnoses were less likely to occur

Table 2. Multivariate Regression Analyses of Gender, Ethnicity, Diagnosis, and Complex Trauma History With Externalizing Problems[a,b]

	Attention Problems					Conduct Problems					Conners' Teacher Questionnaire				
	B	SE	β	t	P	B	SE	β	t	P	B	SE	β	t	P
Step 1[c]															
Female gender	1.99	1.36	.08	1.46	.15	**3.61**	**1.63**	**.12**	**2.21**	**.03**	−0.39	1.11	−.02	−0.35	.72
Nonwhite ethnicity	**2.50**	**1.16**	**.11**	**2.16**	**.03**	1.03	1.39	.04	0.74	.46	0.74	0.95	.04	0.78	.43
Psychotic disorder	−0.36	1.55	−.01	−0.24	.81	1.20	1.86	.04	0.65	.52	0.01	1.27	.00	0.01	1.00
Internalizing disorder	1.69	1.13	.08	1.50	.14	1.59	1.36	.07	1.17	.24	−0.07	0.93	.00	−0.07	.94
Externalizing disorder	2.64	1.35	.12	1.95	.05	1.94	1.62	.07	1.20	.23	**3.16**	**1.11**	**.17**	**2.85**	**.01**
Developmental disorder	**3.55**	**1.06**	**.18**	**3.36**	**.00**	**5.28**	**1.27**	**.21**	**4.16**	**.00**	**2.31**	**0.87**	**.14**	**2.67**	**.01**
Substance use disorder	−0.95	1.32	−.04	−0.72	.47	**−5.54**	**1.58**	**−.18**	**−3.50**	**.00**	−1.48	1.08	−.07	−1.37	.17
Step 2[d]															
Female gender	1.41	1.36	.06	1.04	.30	3.03	1.64	.10	1.85	.07	−0.85	1.11	−.04	−0.76	.45
Nonwhite ethnicity	**2.29**	**1.15**	**.10**	**1.99**	**.05**	0.81	1.39	.03	0.58	.56	0.57	0.94	.03	0.61	.55
Psychotic disorder	−0.24	1.53	−.01	−0.16	.87	1.32	1.84	.04	0.72	.47	0.10	1.26	.00	0.08	.94
Internalizing disorder	1.27	1.13	.06	1.12	.26	1.16	1.36	.05	0.86	.39	−0.40	0.92	−.02	−0.43	.67
Externalizing disorder	**2.88**	**1.34**	**.13**	**2.15**	**.03**	2.19	1.61	.08	1.35	.18	**3.34**	**1.10**	**.18**	**3.05**	**.00**
Developmental disorder	**3.24**	**1.05**	**.16**	**3.08**	**.00**	**4.96**	**1.27**	**.20**	**3.92**	**.00**	**2.06**	**0.86**	**.12**	**2.39**	**.02**
Substance use disorder	−0.88	1.30	−.04	−0.68	.50	**−5.47**	**1.57**	**−.18**	**−3.49**	**.00**	−1.43	1.07	−.07	−1.34	.18
Complex trauma	**3.09**	**1.05**	**.16**	**2.96**	**.00**	**3.12**	**1.26**	**.13**	**2.47**	**.01**	**2.43**	**0.86**	**.15**	**2.83**	**.01**
Step 3[e]															
Female gender	0.88	1.36	.04	0.65	.52	2.68	1.65	.09	1.63	.11	−1.27	1.11	−.06	−1.15	.25
Nonwhite ethnicity	2.15	1.21	.10	1.78	.08	−0.24	1.46	−.01	−0.16	.87	0.27	0.98	.02	0.28	.78
Psychotic disorder	−0.75	1.53	−.03	−0.49	.62	1.16	1.85	.03	0.63	.53	−0.25	1.24	−.01	−0.20	.84
Internalizing disorder	1.27	1.13	.06	1.12	.26	1.54	1.36	.06	1.13	.26	−0.42	0.92	−.03	−0.46	.65
Externalizing disorder	2.80	1.34	.12	2.09	.04	2.21	1.62	.08	1.37	.17	**3.39**	**1.09**	**.18**	**3.12**	**.00**
Developmental disorder	**3.58**	**1.06**	**.18**	**3.38**	**.00**	**5.43**	**1.28**	**.22**	**4.24**	**.00**	**2.13**	**0.86**	**.13**	**2.47**	**.01**
Substance use disorder	−0.97	1.32	−.04	−0.74	.46	**−5.24**	**1.59**	**−.17**	**−3.30**	**.00**	−1.90	1.07	−.09	−1.77	.08
Complex trauma	1.56	1.33	.08	1.17	.24	1.05	1.61	.04	0.65	.52	0.56	1.08	.03	0.51	.61
Parental impairment index	−0.71	0.54	−.08	−1.32	.19	0.52	0.65	.05	0.80	.43	−0.06	0.44	−.01	−0.13	.90
Nonfamily placement	−1.11	1.20	−.06	−0.93	.36	−1.61	1.46	−.07	−1.11	.27	−0.26	0.98	−.02	−0.27	.79
Placed before age 5 y	**−2.35**	**1.19**	**−.11**	**−1.98**	**.05**	−2.53	1.43	−.10	−1.76	.08	0.04	0.97	.00	0.05	.96
Multiple placements	**2.18**	**0.79**	**.16**	**2.77**	**.01**	**1.98**	**0.95**	**.12**	**2.08**	**.04**	**2.59**	**0.64**	**.23**	**4.03**	**.00**
Physical abuse	1.77	1.41	.09	1.26	.21	2.14	1.70	.09	1.26	.21	0.85	1.15	.05	0.74	.46
Sexual abuse	0.30	1.30	.01	0.23	.82	−0.69	1.57	−.03	−0.44	.66	0.84	1.06	.05	0.79	.43

[a]$N = 387$ with pairwise deletion of missing data.
[b]$P < .05$ for entries in boldface.
[c]Attention problems: $R^2 = 0.059$, R^2 change $= 0.041$, $F_{5,364} = 3.200$, $P = .008$. Conduct problems: $R^2 = 0.094$, R^2 change $= 0.085$, $F_{1,363} = 6.816$, $P = .000$.
Conners' Teacher Questionnaire: $R^2 = 0.055$, R^2 change $= 0.048$, $F_{6,357} = 5.719$, $P = .003$.
[d]Attention problems: $R^2 = 0.081$, R^2 change $= 0.022$, $F_{5,364} = 8.747$, $P = .003$. Conduct problems: $R^2 = 0.109$, R^2 change $= 0.015$,
$F_{1,363} = 6.117$, $P = .014$. Conners' Teacher Questionnaire: $R^2 = 0.076$, R^2 change $= 0.020$, $F_{6,357} = 8.000$, $P = .005$.
[e]Attention problems: $R^2 = 0.113$, R^2 change $= 0.032$, $F_{5,364} = 2.154$, $P = .047$. Conduct problems: $R^2 = 0.134$, R^2 change $= 0.025$, $F_{1,363} = 1.692$, $P = .122$.
Conners' Teacher Questionnaire: $R^2 = 0.121$, R^2 change $= 0.046$, $F_{6,357} = 3.093$, $P = .006$.

($\chi^2 = 7.9$, $df = 3,387$; $P < .05$) in the abuse subgroups than in the low trauma subgroups (Table 1).

One-way ANOVAs (Table 1) showed, as expected, that based on the cluster analysis criteria, the low trauma + high parental impairment subgroup and both abuse subgroups scored higher on parental impairment index than the low trauma + low/moderate parental impairment subgroup ($F_{3,383} = 26.0$, $P < .001$), and that the abuse subgroups had significantly more extensive out-of-home placement histories (ie, the additive index combination of 3 out-of-home placement scores) than the low trauma subgroups ($F_{3,383} = 31.8$, $P < .001$). As expected, the low trauma and abuse subgroup participants differed in likelihood of past physical ($\chi^2 = 85.6$, $df = 3,387$; $P < .001$) and sexual ($\chi^2 = 47.0$, $df = 3,387$; $P < .001$) abuse (Table 1).

In the MANCOVA, there was a statistically significant main effect for membership in the 4 subgroups ($F_{18,1086} = 1.80$,

$P < .05$) after controlling for the effects of gender, ethnicity, and the presence of each of the 5 diagnosis classifications. In univariate ANCOVAs, controlling for gender, ethnicity, and diagnoses, there was a statistically significant main effect for subgroup membership on attention problems ($F_{3,355} = 2.88$, $P < .05$) and conduct problems ($F_{3,355} = 3.38$, $P < .05$), but there were no significant ($P < .05$) between-group post hoc comparisons. The subgroups did not differ on teacher-rated hyperactivity and impulsivity (Conners' Teacher Questionnaire), but the abuse subgroups were rated as more impaired on the CGI-S than the low trauma + low/moderate parental impairment subgroup, and the physical abuse subgroup had a lower BMI than the low trauma + high parental impairment subgroup (Table 1).

In multivariate logistic regression analyses, subgroup membership was collapsed to compare the low trauma versus complex trauma (ie, abuse) subgroups (Table 2). Gender,

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Table 3. Multivariate Regression of Gender, Ethnicity, Diagnosis, and Complex Trauma History With Internalizing Problems, Clinical Global Impressions-Severity of Illness (CGI-S) Scale, and Body Mass Index (BMI)[a,b]

	Internalizing Problems					CGI-S					BMI[c]				
	B	SE	β	t	P	B	SE	β	t	P	B	SE	β	t	P
Step 1[d]															
Female gender	**5.19**	**1.72**	**.16**	**3.02**	**.00**	**0.58**	**0.21**	**.15**	**2.78**	**.01**	1.34	0.91	.08	1.47	.14
Nonwhite ethnicity	−0.48	1.47	−.02	−0.33	.74	−0.08	0.18	−.02	−0.42	.68	1.48	0.78	.10	1.90	.06
Psychotic disorder	2.11	1.96	.06	1.08	.28	0.24	0.24	.06	1.01	.31	1.99	1.04	.11	1.91	.06
Internalizing disorder	1.32	1.43	.05	0.93	.35	0.18	0.18	.06	1.03	.30	0.25	0.76	.02	0.33	.74
Externalizing disorder	0.84	1.71	.03	0.49	.63	**0.59**	**0.21**	**.17**	**2.82**	**.01**	0.09	0.91	.01	0.09	.93
Developmental disorder	**5.64**	**1.34**	**.22**	**4.23**	**.00**	0.00	0.16	.00	0.02	.99	−0.15	0.71	−.01	−0.21	.83
Substance use disorder	−2.99	1.67	−.09	−1.80	.07	−0.13	0.20	−.04	−0.66	.51	1.61	0.89	.10	1.82	.07
Step 2[e]															
Female gender	**4.79**	**1.73**	**.15**	**2.77**	**.01**	**0.51**	**0.21**	**.13**	**2.43**	**.02**	1.64	0.92	.10	1.79	.07
Nonwhite ethnicity	−0.63	1.47	−.02	−0.43	.67	−0.10	0.18	−.03	−0.58	.57	**1.60**	**0.78**	**.11**	**2.05**	**.04**
Psychotic disorder	2.19	1.95	.06	1.12	.26	0.26	0.24	.06	1.08	.28	1.93	1.03	.10	1.86	.06
Internalizing disorder	1.04	1.44	.04	0.72	.47	0.13	0.18	.04	0.73	.47	0.47	0.76	.04	0.62	.54
Externalizing disorder	1.00	1.71	.03	0.59	.56	**0.62**	**0.21**	**.18**	**2.98**	**.00**	−0.04	0.91	.00	−0.04	.97
Developmental disorder	**5.43**	**1.34**	**.21**	**4.05**	**.00**	−0.04	0.16	−.01	−0.23	.82	0.01	0.71	.00	0.02	.99
Substance use disorder	−2.95	1.66	−.09	−1.77	.08	−0.13	0.20	−.03	−0.62	.54	1.58	0.88	.10	1.79	.07
Complex trauma	2.12	1.33	.08	1.59	.11	**0.39**	**0.16**	**.13**	**2.40**	**.02**	**−1.60**	**0.71**	**−.12**	**−2.27**	**.02**
Step 3[f]															
Female gender	**4.20**	**1.74**	**.13**	**2.41**	**.02**	**0.46**	**0.21**	**.12**	**2.14**	**.03**	1.35	0.91	.08	1.48	.14
Nonwhite ethnicity	−1.40	1.54	−.05	−0.91	.36	−0.02	0.19	.00	−0.08	.94	1.05	0.81	.07	1.30	.19
Psychotic disorder	1.92	1.95	.05	0.99	.33	0.22	0.24	.05	0.91	.37	1.94	1.02	.10	1.90	.06
Internalizing disorder	1.29	1.44	.05	0.90	.37	0.08	0.18	.03	0.46	.65	0.66	0.75	.05	0.88	.38
Externalizing disorder	0.99	1.70	.03	0.58	.56	**0.59**	**0.21**	**.17**	**2.84**	**.01**	0.13	0.89	.01	0.14	.89
Developmental disorder	**5.74**	**1.35**	**.22**	**4.24**	**.00**	−0.10	0.17	−.03	−0.60	.55	−0.09	0.71	−.01	−0.13	.90
Substance use disorder	−3.09	1.68	−.10	−1.84	.07	−0.18	0.21	−.05	−0.88	.38	1.36	0.88	.08	1.55	.12
Complex trauma	0.37	1.70	.01	0.22	.83	**0.49**	**0.21**	**.16**	**2.36**	**.02**	**−2.37**	**0.89**	**−.18**	**−2.67**	**.01**
Parental impairment index	0.27	0.69	.03	0.40	.69	0.00	0.08	.00	0.01	.99	**0.75**	**0.36**	**.13**	**2.08**	**.04**
Nonfamily placement	−2.95	1.54	−.11	−1.92	.06	−0.05	0.19	−.02	−0.24	.81	−0.89	0.80	−.07	−1.11	.27
Placed before age 5 y	−1.80	1.51	−.07	−1.19	.23	0.09	0.19	.03	0.48	.63	−0.12	0.79	−.01	−0.15	.88
Multiple placements	**2.75**	**1.01**	**.16**	**2.74**	**.01**	0.22	0.12	.11	1.82	.07	0.50	0.53	.05	0.94	.35
Physical abuse	1.84	1.80	.07	1.03	.31	**−0.46**	**0.22**	**−.15**	**−2.10**	**.04**	0.45	0.94	.03	0.48	.63
Sexual abuse	0.60	1.66	.02	0.36	.72	0.09	0.20	.03	0.44	.66	1.26	0.87	.08	1.46	.15

[a]N = 387 with pairwise deletion of missing data.
[b]P < .05 for entries in boldface.
[c]BMI analysis includes stimulant medication in Step 3.
[d]Internalizing problems: $R^2 = 0.088$, $F_{5,364} = 4.940$, $P = .000$. CGI-S: $R^2 = 0.039$, $F_{1,363} = 1.666$, $P = .142$. BMI: $R^2 = 0.041$, $F_{6,357} = 1.524$, $P = .181$.
[e]Internalizing problems: $R^2 = 0.095$, R^2 change = 0.006, $F_{5,364} = 2.513$, $P = .114$. CGI-S: $R^2 = 0.054$, R^2 change = 0.015, $F_{1,363} = 5.772$, $P = .017$. BMI: $R^2 = 0.054$, R^2 change = 0.020, $F_{6,357} = 5.154$, $P = .024$.
[f]Internalizing problems: $R^2 = 0.124$, R^2 change = 0.030, $F_{5,364} = 2.026$, $P = .062$. CGI-S: $R^2 = 0.078$, R^2 change = 0.023, $F_{1,363} = 1.508$, $P = .175$. BMI: $R^2 = 0.075$, R^2 change = 0.020, $F_{6,357} = 2.433$, $P = .026$.

ethnicity, and psychotic and internalizing disorders were generally unrelated to DSMD attention and conduct problems and Conners' Teacher Questionnaire hyperactivity/impulsivity problems. Developmental disorders were related to all 3 externalizing problem indices. As expected, substance use disorders were related to conduct problems, and externalizing disorders were related to impulsivity/hyperactivity (Table 2). When complex trauma status was entered in the multivariate models, the explained variance increased statistically significantly, and complex trauma was a statistically significant contributor (Table 2).

Next, the parental impairment index, out-of-home placement indices, and physical and sexual abuse history indices were added in a third step. Complex trauma status no longer was statistically significant, and multiple out-of-home placements were statistically significant, in the analyses with attention problems, conduct problems, and impulsivity/hyperactivity (Table 2). Placement before age 5 years also was

statistically significant in the multivariate model for attention problems, but was associated with *less* severe attention problems. The parental impairment index, out-of-home placements with nonfamily caregivers, and physical and sexual abuse status lacked statistical significance in this third multivariate externalizing problem models (Table 2).

When internalizing problems were considered (Table 3), female gender and developmental disorders were significant multivariate contributors, but complex trauma was not. However, multiple out-of-home placements did separately add to the multivariate model for internalizing problems.

When psychosocial impairment on the CGI-S was considered, in addition to female gender and externalizing disorders, complex trauma status was a significant contributor (Table 3). Complex trauma remained statistically significant when the specific trauma components were added to the multivariate model, and physical abuse history was inversely associated with impairment severity.

Finally, BMI was statistically significantly inversely associated with complex trauma history (Table 3). The complex trauma subgroups on average had a 2-point lower BMI than low trauma subgroups (Table 1). Complex trauma remained statistically significant in the final multivariate model, with parental impairment (positively associated with BMI; Table 3) and stimulant medication (inversely related to BMI; not shown) also statistically significant contributors.

DISCUSSION

Two subgroups of psychiatrically impaired children with complex trauma histories were identified and found to have particularly severe teacher-rated behavior problems and clinician-rated psychosocial impairment. This association was found to be independent of the effect of substance use disorder, developmental disorder, and externalizing behavior disorder diagnoses. Moreover, substance use disorders were unrelated to behavior problems when the effect of complex trauma was included, and externalizing disorders were associated with impulsivity and hyperactivity only after the effect of a core component of complex trauma—multiple out-of-home placements—was accounted for.

Study findings thus suggest that differential levels of severity of externalizing problems among seriously emotionally disturbed children are related to complex trauma exposure over and above the effect of *DSM-IV-TR* psychiatric diagnoses. The findings do not demonstrate that children with severe psychiatric impairment and complex trauma histories require a new diagnosis, but they suggest that existing *DSM-IV-TR* diagnoses do not fully account for the heightened severity of behavior problems and impairment that is associated with complex trauma histories. Surprisingly, although the complex trauma patients were rated as having more severe attention, conduct, and hyperactivity problems than other patients, they were *less* likely to receive externalizing disorder diagnoses such as attention-deficit/hyperactivity, oppositional defiant, or conduct disorder. This disparity may reflect clinicians' judgment that trauma-related behavioral problems do not precisely fit the criteria of existing diagnoses. Or it could reflect underdetection of externalizing problems due to other more prominent complex trauma-related symptoms (eg, affect dysregulation, dissociation).

Following the criteria for clinical utility recommended by First and colleagues,[11] it seems likely from these results with the Devereux dataset that *DSM-IV-TR* diagnoses are being used with adequate accuracy—fulfilling the clinical utility criteria of "establishing current use"[11(p948)] and "assessing the accuracy of application of diagnostic criteria."[11(p950)] However, *DSM-IV-TR* child diagnoses may fail to identify a particularly symptomatic and impaired subgroup of children who are distinguished by extensive histories of parental impairment, abuse, and out-of-home placements.

Although the research on treatment of children with complex trauma histories is very limited, studies with adults suggest that treatment may require adaptation for these children in order to prevent suboptimal outcomes.[33,34] With both adults[35] and children,[36] although evidence-based cognitive behavioral therapy approaches have been shown to have benefits across a range of severity and complexity of trauma histories, adaptations for patients with more complex trauma histories are commonly recommended to avoid iatrogenesis and to enhance therapeutic alliance, engagement, and retention. If the subtypes identified in the present study can be replicated and shown to have differential responses to standard therapeutic interventions (in terms of improvement and retention; cf, McDonagh et al[37]), they may constitute a syndrome, such as van der Kolk's[7] developmental trauma disorder, or constellations of self-regulatory deficits.[1,2,38] The present findings are novel in demonstrating that extant psychiatric diagnoses cannot fully account for these trauma-related impairments. Clinical decision making[11(p950)] with treatment-refractory children with complex trauma histories may be enhanced if what clinicians see in these children that goes beyond extant diagnoses is articulated in diagnostic formulations and studied in treatment outcome research. Randomized clinical trials also are needed to examine whether differential outcomes in terms of externalizing problems occur in evidence-based pediatric psychotherapies and pharmacotherapies depending on whether participants have complex trauma histories, and to test[11(pp951–952)] systematic treatment adaptations.[39] Prospective studies are needed to describe the trajectory(ies) of complex trauma–related symptomatic and impairment differentials over time, as are etiologic family studies of probands with complex trauma history and symptom/impairment profiles.[11(p952)]

Although complex trauma history status per se was not associated with internalizing problem severity, multiple out-of-home placements were associated with more severe internalizing problems. Internalizing disorder diagnosis was unrelated to severity of internalizing problems, perhaps in part due to the high levels of internalizing symptoms reported by these psychiatrically impaired children regardless of diagnosis. However, developmental disorders, which include learning and intellectual functioning impairments and autism-spectrum disorders, were related to more severe internalizing symptoms. Developmental disorders and multiple out-of-home placements thus may reflect or contribute to severe attachment disruption (eg, neglect), rather than traumatic stress per se.[40] The finding that multiple out-of-home placements contributed to the severity of behavior problems beyond the effects associated with abuse or parental impairment is consistent with views of childhood adversity and complex trauma that emphasize the importance of sustaining attachment relationships when children are exposed to abuse or impaired parenting.[41] While the present data cannot specifically illuminate the role of caregiver-child attachment bonds, it appears that neither

early onset out-of-home placement (with 1 exception, attention problems) nor placement with nonfamily caregivers is as strongly associated with externalizing and internalizing problems as the disruptions in security, safety, and continuity that occur with multiple out-of-home placements.

Although a subgroup was identified that was particularly likely to have experienced sexual abuse (typically in combination with physical abuse), this subgroup generally did not differ on symptom severity, psychosocial impairment, parental impairment, or out-of-home placements from children with primary histories of physical abuse. Sexual abuse appears to have distinct course and sequelae in comparison to physical abuse, but it commonly occurs along with physical and emotional abuse and family violence or breakdown.[42] Although sexual abuse may warrant specific treatment adaptations in order to address survivors' unique experiences of betrayal,[43] sexual abuse per se does not appear to warrant a unique diagnostic classification among psychiatrically impaired children.

Physical abuse was associated with more severe impairment on a bivariate basis, but the opposite was true when other potential sources of complex trauma were included in multivariate models: physical abuse was associated with *less severe* impairment. Physical abuse is more likely with impaired parents, and may lead to or occur as a result of out-of-home placements. Physically abused children are reported by independent observers and caregivers to be more verbally and physically assaultive than other children,[44,45] and they are more likely to be described by peers as being mean and picking fights.[46,47] However, the present findings suggest that it may not be abuse per se but the larger constellation of potentially traumatic conditions that often arise in the context of abuse, including parental impairment and out-of-home placements. Research modeling the direct and indirect effects over time of physical abuse and associated adversities clearly is warranted.

The finding of an inverse association of complex trauma history with BMI is unexpected in light of evidence linking traumatic stress exposure, stress-related disease states (eg, Prader Willi syndrome) and their treatments (eg, steroids), and treatments for serious mental illness (eg, some atypical antipsychotic medications) with obesity.[23] The complex trauma subgroup did not have a very low BMI on average (mean BMI = 23), so the effect does not appear to be related to restricting eating disorders (eg, anorexia). The potential confound of stimulant medication use was controlled for and did not eliminate the inverse relationship between complex trauma and BMI. Whether the relatively lower BMI levels among these psychiatrically impaired children with complex trauma histories can be replicated and is related to persistent stress reactivity requires further study.

Limitations of the study include the use of a convenience sample of children and youth with sufficiently severe psychiatric impairment to be placed in intensive long-term residential care, with a relatively small number of girls and

children of ethnoracial minority backgrounds. Another limitation is that although children with complex trauma histories were identified on the basis of extensive histories of physical and sexual abuse, multiple out-of-home placements, and parental impairment, the question of whether these adversities were psychologically traumatic or led to disrupted attachment relationships was not assessed in the study. Other study limitations include the cross-sectional design and the use of chart review as the source of data on abuse, diagnosis, parental impairment, out-of-home placement, and IQ. Independent confirmation verified the reliability of abuse and diagnostic data, except for psychotic disorder diagnoses. IQ was assessed with validated standardized tests, but IQ testing reliability was not assessed. The abuse criterion of child protective services charges was not subject to retrospective reporting biases and was more stringent than self- or collateral-reported abuse,[17,48] but may be subject to false positives (eg, charges that were not subsequently confirmed or incidents that were not psychologically traumatic) or false negatives (eg, data missing in the medical record).

CONCLUSION

Psychiatrically impaired children appear to be heterogeneous with regard to complexity of trauma history in ways that are not fully accounted for by *DSM-IV-TR* psychiatric diagnoses. Children who had complex trauma histories characterized by multiple out-of-home placements, severe parental impairment, and physical or sexual abuse had more severe externalizing symptoms and psychosocial impairment and lower BMI levels than other psychiatrically impaired children. These differences were only partially accounted for by the effects of *DSM-IV-TR* diagnoses, gender, and ethnicity. Complex trauma history therefore warrants careful assessment both for clinical treatment planning and as a basis for scientific research on the psychobiologic alterations and the most effective treatment approaches[40] for psychiatrically impaired children.

REFERENCES

1. Cook A, Spinazzola J, Ford J, et al. Complex trauma in children and adolescents. *Psychiatr Ann.* 2005;35(5):390–398.
2. Ford JD. Treatment implications of altered affect regulation and information processing following child maltreatment.

Psychiatr Ann. 2005;35(5):410–419.

3. Manly JT, Kim JE, Rogosch FA, et al. Dimensions of child maltreatment and children's adjustment: contributions of developmental timing and subtype. *Dev Psychopathol.* 2001;13(4):759–782.

4. Scheering MS, Zeanah CH. A relational perspective on PTSD in early childhood. *J Trauma Stress.* 2001;14(4):799–815.

5. Turner HA, Finkelhor D, Ormrod R. The effect of lifetime victimization on the mental health of children and adolescents. *Soc Sci Med.* 2006;62(1):13–27.

6. McCauley J, Kern DE, Kolodner K, et al. Clinical characteristics of women with a history of childhood abuse: unhealed wounds. *JAMA.* 1997;277(17):1362–1368.

7. van der Kolk BA. Developmental trauma disorder. *Psychiatr Ann.* 2005;35:401–408.

8. De Bellis MD. Developmental traumatology: a contributory mechanism for alcohol and substance use disorders. *Psychoneuroendocrinology.* 2002;27(1–2):155–170.

9. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *Am J Prev Med.* 1998;14(4):245–258.

10. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders,* Fourth Edition, Text Revision. Washington, DC: American Psychiatric Association; 2000.

11. First MB, Pincus HA, Levine JB, et al. Clinical utility as a criterion for revising psychiatric diagnoses. *Am J Psychiatry.* 2004;161(6):946–954.

12. Ford JD, Racusin R, Ellis CG, et al. Child maltreatment, other trauma exposure, and posttraumatic symptomatology among children with oppositional defiant and attention-deficit/hyperactivity disorders. *Child Maltreat.* 2000;5(3):205–217.

13. Finkelhor D, Ormrod RK, Turner HA. Poly-victimization: a neglected component in child victimization. *Child Abuse Negl.* 2007;31(1):7–26.

14. Dixon A, Howie P, Starling J. Trauma exposure, posttraumatic stress, and psychiatric comorbidity in female juvenile offenders. *J Am Acad Child Adolesc Psychiatry.* 2005;44(8):798–806.

15. Nock MK, Kessler RC. Prevalence of and risk factors for suicide attempts versus suicide gestures: analysis of the National Comorbidity Survey. *J Abnorm Psychol.* 2006;115(3):616–623.

16. Schumm JA, Briggs-Phillips M, Hobfoll SE. Cumulative interpersonal traumas and social support as risk and resiliency factors in predicting PTSD and depression among inner-city women. *J Trauma Stress.* 2006;19(6):825–836.

17. Widom CS, DuMont K, Czaja SJ. A prospective investigation of major depressive disorder and comorbidity in abused and neglected children grown up. *Arch Gen Psychiatry.* 2007;64(1):49–56.

18. Rutter M, Pickles A, Murray R, et al. Testing hypotheses on specific environmental causal effects on behavior. *Psychol Bull.* 2001;127(3):291–324.

19. Lahey BB, Waldman ID, McBurnett K. The development of antisocial behavior: an integrative causal model. *J Child Psychol Psychiatry.* 1999;40(5):669–682.

20. Maxwell CD, Maxwell SR. Experiencing and witnessing familial aggression and their relationship to physically aggressive behaviors among Filipino adolescents. *J Interpers Violence.* 2003;18(12):1432–1451.

21. Ford JD, Hartman JK, Hawke J, et al. Traumatic victimization, posttraumatic stress disorder, suicidal ideation, and substance abuse risk among juvenile justice-involved youth. *J Child Adolesc Trauma.* 2008;1:75–92.

22. Dwyer JT, Stone EJ, Yang M, et al. Prevalence of marked overweight and obesity in a multiethnic pediatric population: findings from the Child and Adolescent Trial for Cardiovascular Health (CATCH) study. *J Am Diet Assoc.* 2000;100(10):1149–1156.

23. Gustafson TB, Sarwer DB. Childhood sexual abuse and obesity. *Obes Rev* 2004;5(3):129–135

24. Skuse D, Albanese A, Stanhope R, et al. A new stress-related syndrome of growth failure and hyperphagia in children, associated with reversibility of growth-hormone insufficiency. *Lancet.* 1996;348(9024):353–358.

25. Connor DF, McLaughlin TJ. A naturalistic study of medication reduction in a residential treatment setting. *J Child Adolesc Psychopharmacol.* 2005;15(2):302–310.

26. Connor DF, Doerfler LA, Toscano PF Jr, et al. Characteristics of

27. Connor DF, Melloni RH Jr, Harrison RJ. Overt categorical aggression in referred children and adolescents. *J Am Acad Child Adolesc Psychiatry.* 1998;37(1):66–73.

28. Wechsler D. *Manual for the Wechsler Adult Intelligence Scale-Revised.* Revised ed. San Antonio, TX: The Psychological Corporation; 1981.

29. Wechsler D. *Wechsler Intelligence Scale for Children.* 3rd ed. San Antonio, TX: The Psychological Corporation; 1991.

30. Naglieri JA, LeBuffe PA, Pfeiffer SI. *Devereux Scales of Mental Disorders.* San Antonio, TX: The Psychological Corporation; 1994.

31. Barkley RA. *Attention Deficit Hyperactivity Disorder. A Handbook for Diagnosis and Treatment.* New York, NY: Guilford Publications, 1990.

32. Guy W. *ECDEU Assessment Manual for Psychopharmacology.* US Dept Health, Education, and Welfare publication (ADM) 76-338. Rockville, MD: National Institute of Mental Health; 1976:218–222.

33. Ford JD, Kidd P. Early childhood trauma and disorders of extreme stress as predictors of treatment outcome with chronic posttraumatic stress disorder. *J Trauma Stress.* 1998;11(4):743–761.

34. Nemeroff CB, Heim CM, Thase ME, et al. Differential responses to psychotherapy versus pharmacotherapy in patients with chronic forms of major depression and childhood trauma. *Proc Natl Acad Sci U S A.* 2003;100(24):14293–14296.

35. Resick PA, Monson CM, Gutner C. Psychosocial treatments for PTSD. In: Friedman MJ, Keane TM, Resick PA, eds. *Handbook of PTSD: Science and Practice.* New York, NY: Guilford Press; 2007:330–358.

36. Saxe GN, MacDonald HZ, Ellis BH. Psychosocial approaches for children with PTSD. In: Friedman MJ, Keane TM, Resick PA, eds. *Handbook of PTSD: Science and Practice.* New York, NY: Guilford Press; 2007:359–375.

37. McDonagh A, Friedman M, McHugo G, et al. Randomized trial of cognitive-behavioral therapy for chronic posttraumatic stress disorder in adult female survivors of childhood sexual abuse. *J Consult Clin Psychol.* 2005;73(3):515–524.

38. Briere J, Kaltman S, Green BL. Accumulated childhood trauma and symptom complexity. *J Trauma Stress.* 2008;21(2):223–226.

39. Ford JD. Cloitre M. Best practices in psychotherapy for children and adolescents. In: Courtois C, Ford JD, eds. *Treating Complex Traumatic Stress Disorders: An Evidence-Based Guide.* New York, NY: Guilford Press; 2009:59–81.

40. Lieberman AF, Knorr KK. The impact of trauma: a developmental framework for infancy and early childhood. *Pediatr Ann.* 2007;36(4):209–215.

41. Lyons-Ruth K, Dutra L, Schuder MR, et al. From infant attachment disorganization to adult dissociation: relational adaptations or traumatic experiences? *Psychiatr Clin North Am.* 2006;29(1):63–86.

42. Putnam FW. Ten-year research update review: child sexual abuse. *J Am Acad Child Adolesc Psychiatry.* 2003;42(3):269–278.

43. Freyd JJ. Betrayal trauma: traumatic amnesia as an adaptive response to childhood abuse. *Ethics Behav.* 1994;4(4):307–329.

44. Crittenden PM, Claussen AH, Sugarman DB. Physical and psychological maltreatment in middle childhood and adolescence. *Dev Psychopathol.* 1994;6:145–164.

45. Shields A, Cicchetti D. Reactive aggression a mong maltreated children: the contributions of attention and emotion dysregulation. *J Clin Child Psychol.* 1998;27(4):381–395.

46. Feldman RS, Salzinger S, Rosario M, et al. Parent, teacher, and peer ratings of physically abused and nonmaltreated children's behavior. *J Abnorm Child Psychol.* 1995;23(3):317–334.

47. Salzinger S, Feldman RS, Ng-Mak DS, et al. The effect of physical abuse on children's social and internalizing status: a model of cognitive and behavioral processes explaining the association. *Dev Psychopathol.* 2001;13(4):805–825.

48. Caspi A, McClay J, Moffitt TE, et al. Role of genotype in the cycle of violence in maltreated children. *Science.* 2002;297(5582):851–854.

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