

# Maltreatment in Psychiatrically Hospitalized Children and Adolescents with Developmental Disabilities: Prevalence and Correlates

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## ABSTRACT

**Objective:** The goals of this study were (1) to determine the prevalence of child maltreatment in hospitalized children and adolescents with developmental disabilities and concomitant psychiatric disorders, and (2) to identify the contribution of specific mother and child characteristics to the use of more severe disciplinary practices by mothers. **Method:** One hundred thirty-eight psychiatrically hospitalized children and adolescents with developmental disabilities and mothers were assessed using a semistructured interview (Child Abuse and Neglect Interview Schedule) examining factors associated with risk of child maltreatment, and questionnaires measuring maternal and child functioning. The Child Abuse and Neglect Interview Schedule and hospital charts were then used to derive ratings on the prevalence and severity of child maltreatment. **Results:** Findings revealed that 61% of children had experienced some form of severe maltreatment by a care provider in their lifetime. Regression analysis indicated that interactions between high levels of social functioning and disruptive/oppositional behaviors and younger age in children, and low levels of social support and increased anger reactivity in mothers, were most predictive of mothers' use of severe disciplinary practices. **Conclusions:** Maltreatment in psychiatrically hospitalized children and adolescents with disabilities is very prevalent, and it warrants careful clinical assessment. In the psychiatric setting, families in which the child is younger, higher functioning, and behaviorally disruptive, and where mothers have little social support and exhibit increased anger reactivity, are at especially elevated risk. *J. Am. Acad. Child Adolesc. Psychiatry*, 1994, 33, 4:567-576. **Key Words:** child maltreatment, developmental disability, inpatients.

Interest in the association between maltreatment and behavioral and emotional problems in children and adolescents has burgeoned in recent years. This is due, in part, to (1) increased reports of child abuse and neglect in the general population (National Research

Council, 1993), (2) the disproportionate prevalence of maltreatment in psychiatric populations (Monane et al., 1984), and (3) the growing literature documenting the etiological contribution of maltreatment to development of selected psychiatric disorders. Links between maltreatment and specific psychiatric disorders in children have been identified (e.g., see Kaufman, 1991).

Surprisingly little attention has been directed toward abuse and neglect in children and adolescents with both developmental disabilities and concomitant psychiatric disorders. This population, comprising children and youth suffering from a variety of psychiatric (e.g., autism, pervasive developmental disorder, mental retardation) and physical (e.g., seizure disorders, genetic syndromes, sensory impairments) conditions, would appear to be at especially high risk to experience abuse and neglect. In fact, some have argued that children with disabilities may be at greater risk of maltreatment

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than their nondisabled counterparts (Ammerman et al., 1988). In particular, two factors have been hypothesized to contribute to the heightened risk for abuse in children with disabilities. First, the added stress secondary to the often challenging behavior problems (e.g., aggression, self-injury) exhibited by a subgroup of children with developmental disabilities may increase the likelihood of physical abuse in already at-risk families. Second, children and adolescents with disabilities are often more vulnerable to maltreatment. For example, cognitive limitations of children with mental retardation make them comparatively "easy" targets for sexual abuse. Similarly, the varied medical needs of some children with disabilities make them especially susceptible to the negative consequences of neglect.

Only one investigation has examined maltreatment in psychiatrically referred children with developmental disabilities. Using a retrospective review of hospital charts, Ammerman et al. (1989) assessed physical abuse, neglect, and sexual abuse in 150 consecutive admissions to an inpatient psychiatric unit for children and youth with developmental disabilities. Results indicated that 39% of the sample had experienced or had a history that warranted suspicion of past and/or current maltreatment. While providing preliminary information concerning the extent of maltreatment in this population, this study was limited by its sole reliance on data collected retrospectively.

It is important to establish a more accurate and comprehensive account of the extent of maltreatment in psychiatrically hospitalized children and adolescents with disabilities for three reasons. First, such information would facilitate efforts by clinicians serving this population to screen for possible abuse and neglect and subsequently make appropriate referrals to child protective service agencies. Second, maltreatment impinges on psychiatric and medical intervention, in that such treatment is likely to be unsuccessful if the child's home environment is compromised by physical abuse, neglect, and/or sexual abuse. Third, maltreatment has potential etiological significance to presenting psychiatric and medical disorders. Moreover, injuries secondary to severe maltreatment can cause disabilities or exacerbate preexisting medical conditions.

Another area that has been largely unexplored involves identification of factors associated with maltreatment in this population. Such data are critical (1) to identify subgroups of high-risk children with

disabilities and psychiatric disorders, and (2) to formulate models that describe the interrelationships among variables in the development of maltreatment. For example, some have suggested that children with mild disabilities are at greater risk for physical abuse than their more severely disabled peers (Martin and Beezley, 1974). These investigators contend that absence of overt signs of disability in these children makes it more likely that parents will have higher expectations for their children or will ascribe intent to misbehavior, thereby facilitating a punitive response. Others emphasize the role of severe behavior problems in children in maintaining the coercive processes that characterize physically abusive families in general (Reid et al., 1982), or on the primacy of parental factors (e.g., low frustration tolerance) in the occurrence of physical abuse (see Wolfe, 1987). However, none of the above speculations has been subjected to empirical scrutiny in a high-risk sample of children and youth with developmental disabilities.

The purposes of this study were twofold. First, we sought to determine the prevalence of maltreatment in a sample of 138 psychiatrically hospitalized children and adolescents (aged 3 to 18 years) with disabilities. To this end, mothers were administered a semistructured interview (i.e., Child Abuse and Neglect Interview Schedule; CANIS) constructed specifically for this study. The CANIS, which collected information on recent and past history of child maltreatment by care providers, was used in conjunction with hospital records to derive ratings using scales reflecting child disciplinary practices, child care and supervision, and child sexual abuse. In contrast with past research, which typically relies on involvement with child protective service agencies to determine abuse and neglect status, we believed that an in-depth interview was likely to uncover potential maltreatment that had previously been unrecognized during standard clinical assessments.

The second purpose of the study was to identify correlates of the use of more severe disciplinary practices in mothers. In particular, we were interested in the differential relationships of maternal (e.g., psychopathology, social isolation) and child (e.g., behavior problems, functional abilities) characteristics to disciplinary practices. Accordingly, mothers were administered a comprehensive assessment measuring a variety of areas of mother and child psychosocial functioning which

were, in turn, examined in relation to the types of disciplinary practices currently used.

## METHOD

### Subjects

Subjects consisted of 138 children and adolescents admitted to the inpatient unit of the John Merck Program for Multiple Disabilities (Western Psychiatric Institute and Clinic, University of Pittsburgh Medical Center) and their mothers or female care providers. The John Merck Program serves children and adolescents with developmental disabilities and concomitant psychiatric disorders. The John Merck Program is part of a large, inner-city university psychiatric hospital and provides services to children and their families from Western Pennsylvania, Ohio, and West Virginia. A breakdown of types of psychiatric disorders (derived from discharge diagnoses) represented in the sample is as follows (multiple diagnoses result in total exceeding 100%): mental retardation,  $N = 91$  (66%); pervasive developmental disorders,  $N = 30$  (22%); disruptive behavior disorders,  $N = 113$  (82%); and affective disorders,  $N = 27$  (20%).

Demographic characteristics were as follows: Seventy-nine percent of children and adolescents were male; the mean age was 9.79 years ( $SD = 4.22$ ). Eighty-three percent of the sample were Caucasian, and the remainder were African-American. Most of the families were from lower socioeconomic status (SES) backgrounds, as exemplified by the following breakdown of Hollingshead categories: unskilled = 55%, semiskilled = 27%, skilled = 11%, medium business = 4%, professional = 3%. The mean age of female care providers was 34.97 years ( $SD = 14.25$ ). Female care providers were primarily biological mothers ( $N = 128$ ). Foster mothers, a maternal grandmother, and other female relatives ( $N = 10$ ) comprised the remainder. For purposes of readability, this group will be referred to as "mothers." Similarly, father figures (i.e., biological fathers, stepfathers, paramours) are referred to as "fathers."

### Procedures

Families were informed of the project by social workers on the unit within 1 week of admission. The study was described as a large investigation of children and adolescents with disabilities and psychiatric disorders and their families, of which questions about disciplinary practices and child history of maltreatment were a part. Interested families were subsequently contacted by a research assistant, who described the study in greater detail. Two sessions were scheduled, 1 week apart, during which the assessment was administered. In the first session, mothers signed a consent form agreeing to their participation. Mothers were paid \$150 upon completion of the assessment.

To obtain a representative sample, attempts were made to approach every other admission to the unit, in order to recruit subjects into the project. However, the shifting rates of admissions and the vicissitudes of conducting research in a psychiatric hospital serving multiproblem children and their families sometimes precluded approaching each potential participant in the study. Moreover, a portion of families ( $N = 73$ ) declined participation, most often citing distance from the hospital and time pressures as reasons. As previously noted, the John Merck Program serves many families who live far away from the hospital, thereby often making attendance at two assessment sessions difficult. No families identified

the content or purposes of the study as their reasons for not participating. Children for whom the court was legal guardian were not approached, given the absence of a primary source of information. Statistical comparisons between the sample and those who were unable to participate revealed no statistically significant ( $p > .05$ ) group differences on child gender, age, or SES.

### Measures

*Maltreatment Interview and Ratings.* Mothers were administered the CANIS (Ammerman, Hersen, Van Hasselt, unpublished; copies available upon request to the first author), a semistructured interview assessing factors associated with risk for maltreatment. The CANIS, which was administered by the first two authors, consists of seven sections (each including up to 20 questions): demographics, family structure, child care, child behavior problems and disciplinary practices, past history of family violence, sexual abuse, and parent history. Representative questions addressing maltreatment include the following: How do you discipline your child? Have you ever lost control with your child? Is your child ever left unattended? Has anyone ever had sexual contact with your child? Mothers were asked about their own practices as well as those of others who have had responsibility of caring for the child (e.g., father, paramour, baby-sitter, teacher). In a previous, unpublished study interrater agreement on the CANIS was high, with percentage agreement exceeding 85% on all items.

Data from the CANIS were subsequently rated by the first two authors for evidence of recent and past maltreatment. Medical charts from current and past hospitalizations were also used to assist in making the ratings, although the CANIS was the primary source of information. Rating scales were developed reflecting three types of maltreatment (copies available from the first author upon request). The first, Disciplinary Practices Scale, represented a 5-point continuum of progressively severe forms of discipline and corporal punishment. Sample criteria for each rating point are 0 = no use of physical punishment, minor physical reprimands (e.g., slapping hands); 1 = spanking with hands on buttocks; 2 = use of paddle or switch on buttocks; 3 = corporal punishment resulting in marks or abrasions, reported loss of control during discipline, binding of hands as a restraint; 4 = corporal punishment resulting in injury, use of clearly inappropriate objects (e.g., frying pan, bat). The second index, Care and Attention Scale, used a 5-point scale reflecting extent of inadequate supervision and care (e.g., poor hygiene, exposure to dangerous situations, inadequate nutrition, failure to obtain adequate medical care). Sample criteria include 0 = adequate care; 1 = single incident of poor judgment (e.g., child permitted to play in dangerous area; "common" childhood accidents, such as accidentally hitting chin on coffee table were not included); 2 = consistent pattern of poor judgment and inattentiveness in one domain (e.g., child repeatedly falls down stairs without attempts to prevent subsequent accidents); 3 = blatant neglect of needs in two or more domains (e.g., poor hygiene and inadequate supervision); and 4 = consistent and severe pattern of neglect in two or more domains. Unlike the first two scales, which reflect escalating severity, the Sexual Abuse Confidence Scale used a 5-point scale reflecting the degree to which the rater was confident that sexual abuse had occurred. The decision to use a scale based on level of confidence rather than on severity of sexual mistreatment was made because reports by mothers of possible sexual abuse were often vague, uncertain, and lacking in detailed information. Accordingly, criteria for the scale points were 0 = no evidence of sexual abuse or exploitation (excessive masturbation or sex play

that did not elicit parental and/or professional suspicion of sexual abuse was assigned this rating); 1 = precocious sexual play or talk, or inappropriate sexual behavior that arouses suspicion in parents and/or professionals; 2 = prolonged contact with a known molester that arouses suspicion in parent and/or professionals; 3 = plausible account of sexual abuse is described, although details are vague; 4 = clear account of sexual abuse is described in which precise details are provided.

Based on the mother's report and chart reviews, separate ratings for each scale were determined for three caregivers (mother; father or a stable father figure, such as a paramour; and other) both recently (within the previous year) and in the past (greater than 1 year) yielding a total of 18 ratings (3 scales  $\times$  3 caregivers  $\times$  2 time periods).

For all cases, ratings were completed independently by both of the first two authors. Discrepancies were resolved by consensus. For all three scales, percentage of exact agreement ranged from 69.4% to 100% (total = 84.7%). The vast majority of "misses" between raters were within one point, as reflected by the high percentage agreement when criteria for a "hit" were changed to within one point (range 88% to 100%, total = 94%). The  $\kappa$  coefficient for all ratings combined was .683.

An additional concern when interviewing individuals about sensitive topics, such as child maltreatment, is the veracity of their reports. Because of the social undesirability associated with admitting to maltreatment, it is possible that respondents will underreport their use of more severe disciplinary practices. To examine this question, ratings on the Disciplinary Practices Scale (recent) for mothers were correlated with scores on the Lie scale from the Child Abuse Potential Inventory (Milner, 1986). The Lie scale is an index of a socially desirable response tendency. The Pearson coefficient was not statistically significant ( $r = .09$ ,  $p > .05$ ), therefore arguing against a systematic bias in favor of underreporting the use of more severe forms of discipline.

*Mother Self-Report.* Mothers completed a variety of self-report measures examining a broad range of areas of functioning implicated in previous research on child abuse and neglect (see review by Ammerman, 1990). Such areas include psychopathology, parenting competence, anger reactivity, and extent of social support. These measures are described below.

The Symptom Checklist-90-Revised (Derogatis, 1983), a widely used measure of psychiatric symptomatology, consists of 58 items reflecting symptoms that are endorsed using a 4-point scale (1 = not at all, 4 = extreme distress). In this study, only the scales reflecting overall functioning (Global Severity, Positive Symptom Distress, Positive Symptom Total) were included in the statistical analyses.

The Knowledge of Behavioral Principles as Applied to Children (KBPAC) (O'Dell et al., 1979) is a 50-item inventory measuring understanding of basic child management skills. Specifically, it includes a brief description of problematic parent-child situations, followed by four possible responses. An advantage of the KBPAC is that it uses a number of problematic situations, many of which are often reported as precipitants of abusive behavior.

The Social Provisions Scale (Russell and Cutrona, unpublished, 1984) evaluates the degree to which the mother's social relationships satisfy her needs. The Social Provisions Scale consists of 24 statements that are endorsed on a 4-point scale reflecting the degree to which the item is true for the respondent.

The Novaco Provocation Inventory (Novaco, 1975) is an 80-item measure of anger responsiveness and overall proneness to provocation referred to as reactivity. It consists of a brief description

of situations involving provocation in which the respondent endorses the degree of anger she would experience if that event should occur.

The Child Abuse Potential Inventory (Milner, 1986) is a 160-item measure designed to screen for parents who might engage in abusive behavior toward their child. Parents indicate whether they agree or disagree with statements reflecting child problems, unhappiness, loneliness, negative self-concept, and other behavioral and personality domains. For purposes of this study, only the Abuse scale was included in the analyses.

The Beck Depression Inventory (Beck et al., 1961) is one of the most commonly used measures of depressive affect in adults. It consists of 21 symptoms and statements that are rated on a 4-point scale of intensity.

The Questionnaire on Resources and Stress-Short Form (Friedrich et al., 1983) is designed to assess the impact of a developmentally delayed, handicapped, or chronically ill child on other family members. It is considered to be a general measure of adaptation and coping, as it evaluates both the positive and negative impact of the child in the family.

The Shipley Institute of Living Scale-Revised (Zachary, 1986) is a quick method to estimate general intelligence. It is composed of Vocabulary (40 items) and Abstraction (20 items) subtests, yielding an estimate of full-scale IQ based on the WAIS-R.

*Mother Report of Child.* The Aberrant Behavior Checklist (Aman and Singh, 1983) is a 58-item questionnaire tapping behavior problems frequently exhibited by individuals with mental retardation and multiple handicaps. Each behavior is endorsed along a continuum of 0 to 3 reflecting problem severity. The Aberrant Behavior Checklist is typically used to summarize daily behavior. To obtain a more global picture of the child's behavior, mothers were asked to consider their child's behavior in the month before admission when endorsing items.

The AAMD Adaptive Behavior Scales (ABS) (Nihira et al., 1974) provide objective descriptions of adaptive and functional behavior in individuals with mental retardation. The instrument, which was administered to mothers in interview format, yields standardized summary scores from a variety of behavioral domains. For purposes of this study, only the following domains were subjected to statistical analysis: Independent Functioning, Socialization, Aggressiveness, Antisocial Behavior, and Rebelliousness. These areas reflect aspects of functioning (i.e., functional impairment, behavior problems) that have emerged from speculations about the importance of child factors in the maltreatment of persons with disabilities.

## RESULTS

### Prevalence of Maltreatment

Tables 1 and 2 present prevalence data on maltreatment in the sample. Table 1 shows the number and percentage of cases rated on the Disciplinary Practices, Care and Attention, and Sexual Abuse Confidence scales for recent (within 1 year) and past (greater than 1 year) time periods. For the Disciplinary Practices and Care and Attention scales, data are presented for mothers (female care providers) and fathers (includes

**TABLE 1**  
 Number (and Percentages) of Cases for Each Rating of Disciplinary Practices, Care and Attention, and Sexual Abuse during Recent (<1 Year) and Past (>1 Year) Time Periods (*N* = 138)

Scale	5-Point Rating						Combination Categories <sup>b</sup>			
	0	1	2	3	4	UNK <sup>a</sup>	Mild	Moderate	Severe	UNK <sup>a</sup>
<b>Disciplinary Practices</b>										
Mother										
Recent	34 (24)	52 (38)	28 (20)	20 (15)	3 (2)	1 (1)	86 (62)	28 (20)	23 (17)	1 (1)
Past	15 (11)	49 (35)	31 (22)	41 (30)	2 (1)	0 (0)	64 (46)	31 (22)	43 (32)	0 (0)
Father										
Recent	55 (40)	31 (22)	14 (10)	15 (11)	1 (1)	22 (16)	86 (62)	14 (10)	16 (12)	22 (16)
Past	47 (34)	30 (22)	16 (12)	28 (20)	3 (3)	14 (10)	77 (55)	16 (12)	31 (23)	14 (10)
<b>Care and Attention</b>										
Mother										
Recent	101 (72)	8 (6)	23 (17)	1 (1)	4 (3)	1 (1)	109 (78)	23 (17)	5 (4)	1 (1)
Past	92 (66)	12 (9)	25 (19)	1 (1)	8 (6)	0 (0)	104 (75)	25 (19)	9 (6)	0 (0)
Father										
Recent	99 (71)	4 (3)	18 (14)	2 (1)	4 (3)	11(8)	103 (74)	18 (14)	6 (4)	11 (8)
Past	100 (72)	8 (6)	17 (12)	2 (1)	6 (5)	5 (4)	108 (78)	17 (12)	8 (6)	5 (4)
<b>Sexual Abuse Confidence</b>										
Mother										
Recent	136 (98)	1 (1)	0 (0)	0 (0)	0 (0)	1 (1)	137 (99)	0 (0)	0 (0)	1 (1)
Past	135 (98)	1 (1)	2 (1)	0 (0)	0 (0)	0 (0)	136 (99)	2 (1)	0 (0)	0 (0)
Father										
Recent	127 (92)	1 (1)	1 (1)	1 (1)	2 (1)	6 (4)	128 (93)	1 (1)	3 (2)	6 (4)
Past	126 (91)	2 (1)	1 (1)	2 (1)	2 (1)	5 (4)	128 (93)	1 (1)	4 (3)	5 (4)
Other										
Recent	125 (91)	5 (4)	6 (4)	2 (1)	0 (0)	0 (0)	130 (94)	6 (4)	2 (1)	0 (0)
Past	107 (78)	11 (8)	7 (5)	3 (2)	9 (6)	1 (1)	118 (86)	7 (5)	12 (8)	1 (1)

<sup>a</sup> Unknown indicates lack of or insufficient information provided by mother or in the case of fathers, absence of a father figure in the household.

<sup>b</sup> Mild = 0 + 1; Moderate = 2; Severe = 3 + 4.

father figures, such as paramours) only, given that the vast majority of other (nonparental) care providers received ratings of 0 on these two scales (range = 76% to 94%). Other caregivers are represented on the Sexual Abuse Confidence Scale given their higher proportional representation on this index relative to parents. Table 1 presents prevalence data in two forms. On the left-hand side, the 5-point rating format described in the "Method" section is presented. On the right-hand side, these ratings are reduced to three categories by combining the 5-point scales in the following way: mild = 0 + 1, moderate = 2, severe = 3 + 4. In addition to summarizing in a more concise manner the range of practices carried out by care providers, reducing the ratings into three groups created cells of more adequate size for purposes of subsequent statistical comparison. Finally, Table 2 presents number and percentages of cases experiencing each rating level in recent, past, and lifetime time periods collapsing across

type of caregiver (mother, father, and other care provider) and rating scale. Both the 5-point format and three combination categories are represented here.

#### Group Comparisons Using Disciplinary Practices Scale

To determine the relationship between severity of disciplinary practices and parent and child functioning, the three combination categories (mild, moderate, severe) for female care provider's recent ratings on the Disciplinary Practices Scale were contrasted. These groups were not statistically different ( $p > .05$ ) in terms of child's gender, SES, or the diagnostic categories of mental retardation, pervasive developmental disorders, disruptive behavior disorders, and affective disorders.

The three groups were then compared on mother's self-report and mother's report of child questionnaires. Separate multivariate analyses of variance were conducted and found to be statistically significant for mother's self-report measures (Wilks'  $\lambda = .661$ ,  $F$

TABLE 2

Number and Percentages Using 5-Point Ratings and the Three Combination Categories on All Scales (Combined) Collapsed across Perpetrators for Recent (<1 Year), Past (>1 Year), and Lifetime

Time Period	5-Point Rating	N	%	Combination Categories	%
Recent (<1 yr)	0	19	14		
	1	40	29	Mild	43
	2	40	29	Moderate	29
	3	31	22		
	4	8	6	Severe	28
Past (>1 yr)	0	5	4		
	1	21	15	Mild	19
	2	31	23	Moderate	23
	3	53	38		
	4	28	20	Severe	58
Lifetime	0	5	4		
	1	21	15	Mild	19
	2	28	20	Moderate	20
	3	55	40		
	4	29	21	Severe	61

[22, 208] = 2.17,  $p < .01$ ) and mother's report of child measures (Wilks'  $\lambda = .789$ ,  $F [14, 234] = 2.09$ ,  $p < .05$ ). Table 3 presents the means, standard deviations,  $F$  values, and  $p$  values for the subsequent univariate analyses of variance conducted on three measures. Newman-Keuls post hoc contrasts ( $p < .05$ ) were performed to compare groups where significant  $F$  values were obtained. Several statistically significant findings emerged, primarily differentiating mothers using mild forms of discipline from their severe counterparts. Significant differences were evident on mother's age, KBPAC, Child Abuse Potential Inventory (Abuse scale), Questionnaire on Resources and Stress, estimated WAIS-R full-scale IQ, Independent Functioning, and Antisocial Behavior (both from the ABS).

#### Predictors of Disciplinary Practices in Mothers

To elucidate more fully the relationships between mother's recent disciplinary practices and mother and child characteristics, a multiple regression analysis was conducted using the 5-point continuum from the Disciplinary Practices Scale as the dependent variable. The goal in conducting the regression was to identify a model that elucidated the contribution of mother and child factors in the prediction of disciplinary practice ratings, with particular attention focused on the interaction between these variables. Because of missing data,

the  $N$  was reduced to 116 subjects for whom all measures were available. Table 4 presents the summary table for the regression analysis. Squared multiple correlation coefficients ( $R^2$ ) were used to assess the goodness of fit of the model at each step. Standardized partial regression coefficients ( $\beta$  weight) that control for the effects of all other variables in the equation were used to gauge which terms made more important contributions. Thus, the  $\beta$  weights presented were associated with the final step of the analysis, as opposed to a stepwise ordering. To control for the effects of mother IQ, SES, and type of female care provider (biological mother versus nonbiological mother), these variables were entered into the equation first. IQ accounted for 4%, female care provider for 1%, and SES for none of the variance. Three statistically significant interaction terms were identified. The first interaction term, child's age and the Socialization subscale from the ABS, reflects an increased likelihood for younger children who are more socially competent to receive more severe discipline than their older counterparts. The second interaction term was maternal social support (as measured by the Social Provisions Scale) and the Independent Functioning subscale from the ABS. This relationship was characterized by use of more severe disciplinary practices in mothers reporting low levels of social support with children who function at a higher level of functional independence and self-sufficiency. Finally, the third interaction term, involving the Novaco Provocation Inventory and the Rebelliousness subscale from the ABS, represents more severe forms of discipline carried out by mothers with higher levels of anger reactivity and who have children who are noncompliant and oppositional. In mothers with low scores on the Novaco Provocation Inventory, there was no relationship between anger reactivity and child rebelliousness.

#### DISCUSSION

Findings from this study document high rates of maltreatment in this sample of psychiatric patients with concomitant developmental and physical disabilities. Indeed, the lifetime prevalence of maltreatment (defined as obtaining a rating of 3 or 4 on any of the three scales) matches or exceeds that found in most other psychiatric samples (e.g., Monane et al., 1984). The 61% prevalence rate contrasts with that found in

TABLE 3

Analyses of Variance Contrasting the Three Combination Category Groups Reflecting Severity Level Derived from Recent (<1 Year) Ratings on the Disciplinary Practices Scale on Mother's Self-Report and Report on Child Measures

Measure	Combination Category			F	p
	Mild	Moderate	Severe		
Child's age					
Mean	10.15	9.55	8.75	1.06	NS
SD	4.41	4.00	3.70		
Mother's age					
Mean	35.47	36.57	31.13	3.88*	.023
SD	7.78	7.90	5.39		
SCL-90-R					
Global Severity					
Mean	56.00	56.69	58.05	<1	NS
SD	7.91	7.27	7.74		
Positive Symptom Distress					
Mean	56.11	56.12	58.67	<1	NS
SD	9.15	11.47	9.54		
Positive Symptom Total					
Mean	57.78	58.92	60.71	<1	NS
SD	9.73	9.09	9.80		
Knowledge of Behavioral Principles					
Mean	21.85	17.33	16.06	4.59 <sup>d</sup>	.012
SD	9.28	9.08	7.60		
Social Provisions Scale					
Mean	78.89	76.65	71.04	5.39 <sup>d</sup>	.006
SD	10.24	10.53	9.55		
Novaco Provocation Inventory					
Mean	243.65	242.15	245.80	<1	NS
SD	53.34	54.14	64.54		
Child Abuse Potential					
Mean	148.80	159.75	232.09	6.57 <sup>c</sup>	.002
SD	95.59	97.30	107.70		
Beck Depression Inventory					
Mean	10.85	10.52	14.04	1.21	NS
SD	9.78	6.57	9.81		
Questionnaire on Resources and Stress					
Mean	23.93	24.14	19.09	3.04 <sup>d</sup>	.049
SD	9.44	7.15	7.27		
WAIS-R estimate					
Mean	91.05	86.35	82.26	3.96 <sup>d</sup>	.022
SD	14.40	13.73	12.36		
Aberrant Behavior Checklist					
Mean	66.91	55.17	48.38	2.08	NS
SD	27.35	31.01	18.48		
Adaptive Behavior Scales					
Independent Functioning					
Mean	21.58	31.77	34.41	3.86 <sup>c</sup>	.024
SD	20.58	27.49	24.12		
Socialization					
Mean	27.50	38.27	41.45	2.79	.066
SD	27.67	30.55	30.50		
Aggressiveness					
Mean	15.38	15.85	7.45	2.33	NS
SD	17.31	14.41	11.57		
Antisocial Behavior					
Mean	34.40	28.96	18.77	4.50 <sup>d</sup>	.013
SD	23.35	19.42	18.24		
Rebelliousness					
Mean	23.91	26.46	18.05	1.36	NS
SD	17.79	21.33	15.18		

Note: WAIS-R estimate of full-scale IQ based on Shipley Institute of Living Scale. Contrasts: \*mild, moderate > severe; <sup>d</sup>mild > severe; <sup>c</sup>severe > mild, moderate; <sup>d</sup>mild > moderate, severe; 'nonsignificant contrast. Abbreviation: SCL-90-R = Symptom Checklist-90-Revised.

TABLE 4  
Multiple Regression Predicting Recent (<1 Year) Ratings on Disciplinary Practices Scale for Mothers ( $N = 116$ )

Predictor	$R^2$	$F$	$R^2$ Change	$F$ Change	$\beta$	$T$
WAIS-R estimate	.04	4.89*	.04	4.89*	.04	-0.49
Socioeconomic status	.04	2.74	.00	0.59	-.03	-0.32
Female care provider	.05	2.03	.01	0.65	.08	0.93
Child's age					-.27	-3.15*
Socialization (ABS)					.26	2.73*
Child's age $\times$ Socialization	.20	4.56***	.15	6.78***	-.24	-2.92*
Social Provisions Scale					-.25	-2.74**
Independent Functioning (ABS)					.03	0.34
Social Provisions $\times$ Independent	.29	4.73***	.09	4.25**	-.16	-2.01*
Novaco Provocation Inventory					-.04	-0.45
Rebelliousness (ABS)					-.04	-0.50
Novaco $\times$ Rebelliousness	.36	4.72***	.07	3.64*	.26	3.22**

Note: ABS = Adaptive Behavior Scales.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

our previous retrospective chart review (39%) (Ammerman et al., 1989). This discrepancy is probably due to the in-depth assessment conducted in the current investigation and the different classification strategies used in both studies. Moreover, in the current effort, we drew upon several sources of information to formulate ratings, thereby increasing the likelihood of identifying various forms of maltreatment.

Factors that contributed to the high rate of maltreatment observed in this study are speculative. By any standard, this sample must be considered at increased risk for maltreatment given the multitude of factors exhibited that have been repeatedly implicated in abuse and neglect in prior research. These include low SES, low maternal IQ, and having behaviorally disordered children. Indeed, within this context, it is just as significant that a sizable proportion of children were *not* victims of maltreatment. Use of comprehensive, in-depth interviews such as the CANIS may also have contributed to identification of a large number of cases of maltreatment, some of which might previously not have been recognized. In addition, the etiological link between maltreatment and behavior problems *and* disability increases the likelihood that maltreated children will be referred to psychiatric settings in the first place.

Physical abuse was found to be more common than neglect, both in past and current time periods. There are two possible explanations for this finding. First, the well-established association between physical punishment and behavioral acting-out would increase the likelihood that such children would come to the attention of clinicians. And second, a careful home-based assessment is needed to fully identify neglect. Our reliance on self-report and hospital charts falls short of this ideal, thereby increasing the likelihood that our prevalence rates for care and attention underestimate the full extent of inadequate care.

Results from the regression analysis are among the first to reveal the complex relationships between parent and child factors and current maternal disciplinary practices in children and adolescents with disabilities. Use of more severe disciplinary techniques was associated with children who were young, oppositional, and higher functioning, *and* with mothers who reported low levels of social support and increased anger reactivity. Decreased social support and higher anger reactivity have often been found in research with physically abusive parents. There are several mechanisms by which low levels of social support may facilitate the use of physically punitive discipline. First, loss of assistance in caring for the child can result in greater strain,



thereby taxing the coping resources available to the mother. Second, diminished social support limits the mother's exposure and access to role models for positive and effective parenting. Third, lower levels of social support may parallel more limited social contacts in general. To the extent that presence of others can inhibit or discourage use of severe physical discipline because of the widespread social disapproval of such practices, limited social contacts will provide more opportunities to carry out physical discipline in isolation.

Importantly, the above maternal factors entered in the regression equation as *interactions* with certain child characteristics. These included being younger in age, having increased functional abilities, and being oppositional. As previously mentioned, it has been suggested that children with mild disabilities are at greater risk for physical abuse because of excessive expectations on the part of parents. Although we did not directly measure parental expectancy in this study, we were able to examine this hypothesis in a preliminary way. Specifically, we selected 16 items from the Child Abuse Potential Inventory that reflected excessive expectations for child behavior (e.g., "Children should never go against their parents' orders"). These items, which exhibited a high degree of internal consistency (Cronbach's  $\alpha = .993$ ), were combined to create an index of expectancy. After correcting for skew, expectancy was found to correlate positively with current disciplinary practices ( $r = .27, p < .01$ ), although nonsignificant correlations were found between expectancy and the Socialization and Independent Functioning subscales from the ABS. Moreover, the partial correlations between expectancy and disciplinary practices while controlling for Socialization and Independent Functioning were similar to the zero-order correlations. Thus, level of functional ability did not mediate the relationship between expectancy and disciplinary practices.

What, then, accounts for the association between higher levels of functioning in children and use of more severe disciplinary techniques by mothers? It is possible that the *ways* in which these children act out are especially challenging to mothers. That is, we suggest that higher functioning children may engage in more subtle forms of manipulation, which may be particularly irritating to mothers. This adds to their frustration and leads to subsequent outbursts of physical

punishment by mothers who already are compromised by social isolation and low frustration tolerance.

There are several limitations of the current study. Caution must be used in extending the prevalence ratings of maltreatment found in this sample to other psychiatrically referred children and adolescents with developmental disabilities. Such populations are notoriously heterogeneous in clinical presentation, and care must be applied in comparing patients across settings and between locations. In addition, our requirement that a primary care provider be available to participate in the assessment precluded participation of children under court protection, virtually all of whom were likely to have experienced maltreatment. Finally, our reliance on mothers as the primary source of information imposes additional limitations. First, information about fathers was not directly assessed, despite the fact that they often shared responsibility for care and discipline of the children. (It should be noted that attempts were made to recruit both mothers and fathers into the study, although only 27% of fathers agreed to participate. Data from these fathers were not presented here given our belief that they were nonrepresentative of the sample as a whole.) Second, information from other sources may have led to disparate findings. Clearly, however, maltreatment occurs in alarming proportions in this population. Moreover, factors contributing to use of severe physical discipline interact in complex ways. Future research in this area should continue to delineate subgroups at greatest risk for maltreatment, to facilitate early identification and intervention.

#### Clinical Implications

Several clinical implications emerge from our study. First, it is clear that psychiatrically hospitalized children and adolescents with developmental disabilities, many of whom live with families that exhibit risk factors for maltreatment in general, are likely to have experienced some form of maltreatment in their lifetime. To the extent that such experiences may contribute to the psychiatric presentation and to the occurrence and extent of physical disability, as well as have implications for treatment selection and discharge planning, it is essential to assess carefully for current and past maltreatment. Careful questioning addressing issues of maltreatment from several different angles, as exemplified by the CANIS, may have value in the detection

of maltreatment. Although the CANIS was designed specifically for use with families of children and adolescents with disabilities and psychiatric disorders, the items are applicable to children without such conditions. A comprehensive, detailed assessment of maltreatment raises the likelihood that abuse and neglect will be detected, thereby necessitating a mandated report to child protective service agencies. In our sample, a number of families were currently involved or had past involvement with child protective service agencies. Anecdotally, it appeared that the CANIS was most useful in identifying past maltreatment, expanding upon information about already reported maltreatment, or uncovering inappropriate disciplinary practices that were clinically relevant but did not warrant reporting. Given that maltreatment influences clinical intervention, and ongoing abuse and neglect can undermine treatment, it is desirable to uncover as much information about this topic as possible.

The second clinical implication of our findings is the delineation of a potential subgroup of families at particular risk for physical abuse. This subgroup, composed of younger, higher functioning, and oppositional children of socially isolated mothers with high anger reactivity, is in need of additional intervention. Early identification of families exhibiting this constellation of factors is critical in preventing escalation of violence and in reversing existing maladaptive patterns of parent-child interactions.

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