
A Multimodal Assessment of Behavioral and Cognitive Deficits in Abused and Neglected Preschoolers

Author(s): Debbie Hoffman-Plotkin and Craig T. Twentyman

Source: *Child Development*, Vol. 55, No. 3 (Jun., 1984), pp. 794-802

Published by: Wiley on behalf of the Society for Research in Child Development

Stable URL: <https://www.jstor.org/stable/1130130>

Accessed: 04-10-2019 10:07 UTC

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at <https://about.jstor.org/terms>



JSTOR

Society for Research in Child Development, Wiley are collaborating with JSTOR to digitize, preserve and extend access to *Child Development*

A Multimodal Assessment of Behavioral and Cognitive Deficits in Abused and Neglected Preschoolers

Debbie Hoffman-Plotkin and Craig T. Twentyman

University of Rochester

HOFFMAN-PLOTKIN, DEBBIE, and TWENTYMAN, CRAIG T. *A Multimodal Assessment of Behavioral and Cognitive Deficits in Abused and Neglected Preschoolers*. *CHILD DEVELOPMENT*, 1984, **55**, 794–802. 42 preschool children who had a previous history of physical abuse, serious neglect, or no prior history of child maltreatment participated in a multimodal assessment of cognitive and behavioral functioning. In addition to standardized tests of cognitive ability and behavioral observations in the classrooms, both the parents and teachers rated the children on several measures. Results show that the abused and neglected children had lower scores on all the measures of cognitive functioning when compared to the matched comparison children. The behavioral observation data from the classrooms, however, were more complex. That is, differences among groups depended on the type of behavior observed. Neglected children engaged in the least number of interactions with other children, and the abused children demonstrated the most aggression. Both parents and teachers rated the maltreated children as more aggressive, less mature, and less ready to learn. In summary, differences between abused, neglected, and comparison children were present on a number of measures, indicating that maltreated children display significant cognitive and social deficits.

National epidemiological surveys conducted by Gil (1970) and Light (1973) have provided convincing evidence that child abuse and neglect is not only a serious problem, but one that occurs at an alarmingly high rate. Remarkably, although the incidence of child maltreatment is so high, there are few empirically based reports on the psychological problems these children exhibit.

To date the major sources of information that have been employed in the identification of developmental differences of maltreated children come from case studies and uncontrolled group designs. The consensus of these clinical descriptions is that abused and neglected children manifest physical, emotional, and intellectual impairment (Elmer & Gregg, 1967; Martin, Beezley, Conway, & Kempe, 1974; Morse, Sahler, & Friedman, 1970). Obviously, however, limited conclusions can be drawn from these observations because of methodological limitations such as the lack of an appropriate control group. This is especially the case

given that many of the reported families come from low socioeconomic status (SES) backgrounds, and there is evidence that children raised in such environmental conditions demonstrate cognitive deficits (Zigler & Butterfield, 1968).

When results from better controlled studies are examined, some evidence exists suggesting that deficits occur across several response categories. For example, Sandgrund, Gaines, and Green (1974) reported finding significant differences in verbal and performance scores between abused, neglected, and comparison children. No differences, however, were found between the abused and neglected children in the Sandgrund et al. (1974) study, but both groups scored approximately 10 points lower than the comparison children on a measure of cognitive ability. Although these findings appear to be clinically significant, they can be questioned, as there is indirect evidence that the comparison subjects differed from the experimental groups in terms of income level (Green, Gaines, & Sandgrund, Note 1).

The authors wish to thank Patti Amish and John Lucker who helped collect and Ron Plotkin who helped analyze the data. We also wish to thank John Farie and other members of the Monroe County Department of Social Services for their continuing assistance with the research projects carried out at Mt. Hope Family Center. Reprint requests should be sent to Craig T. Twentyman, Department of Psychology, University of Rochester, River Campus Station, Rochester, New York 14627.

[*Child Development*, 1984, **55**, 794–802. © 1984 by the Society for Research in Child Development, Inc. All rights reserved. 0009-3920/84/5503-0010\$01.00]

In another study, Elmer (1967) conducted a multimodal assessment including cognitive and other measures of 17 abused and 17 accident victims at three points in time: (1) shortly after the trauma, (2) 1 year later, and (3) 8 years later. At the initial assessment the two groups differed only on a few measures, including health difficulties and negative mood states. At the 1-year follow-up, the groups differed only in that the accident children were more active. Very few differences were found between the groups at the 8-year follow-up. Unfortunately, behavioral observations were not included in the assessment battery. Neglected children also were not assessed in this study, and both facts seriously limit this study's generalizability.

Kinard (1980) performed a well-controlled investigation of the emotional development of 30 abused and 30 nonabused children between 5 and 12 years of age. A psychological test battery including several tests of emotional development showed that the abused children differed significantly and in a negative direction from the non-abused children in self-concept, aggression, socialization with a peer group, establishment of trust in people, and separation from the mother.

In a report that included both abused and neglected children as separate groups, Reidy (1977) found that the abused children engaged in more aggressive behavior and fantasy than the neglected and comparison children. Reidy (1977) also reported that both abused and neglected children were judged by their teachers to have more behavior problems in school than the comparison group.

Two studies are available that provide information obtained from direct observations. In the first, George and Main (1979) observed 10 abused toddlers and a well-matched comparison group in a preschool setting and concluded that abused children were more aggressive toward peers and staff members. In addition, the abused children approached the staff less and also avoided their peers more. Unfortunately, observers in this study were aware of the children's status, and observer bias may have occurred. Second, Bousha and Twentyman (in press) examined interactional patterns in 36 mother-child dyads on 3 separate days in their homes. Results indicated that the neglected children had significantly fewer interactions than the abused children, who

also had fewer interactions than the comparison children. Both groups of maltreated children were more aggressive than the comparison children, and the abused children were more noncompliant than either the neglected or comparison children.

The present study was undertaken because so few of the existing studies have employed socioeconomic matched comparison groups, or employed observational techniques. Moreover, in examining developmental differences among maltreated groups of children, a multimodal assessment approach has not been conducted in which parental and teacher perceptions of the children were obtained at the same time as behavioral and cognitive measures of social and intellectual development. Thus, the importance of the present study lies in the fact that multiple measures of social and cognitive functioning were obtained that directly bear on the issue of whether abused and neglected children demonstrate serious psychological disturbances following instances of child maltreatment.

Method

Subjects

Forty-two children with a history of child abuse or neglect or with no history of maltreatment participated in this study ($N = 14$ per group). Group classifications were based on the presence or absence of confirmed reports of child abuse and neglect from the Monroe County Department of Social Services. To be included in the abused group, a child must have received serious physical injury that left, at a minimum, welts or bruises 48 hours after the abusive incident was reported to the Department of Social Services. To be included in the neglect group, a child must have been deprived of adequate parental supervision or care, which, in view of the state social service worker, seriously endangered the child's physical or emotional welfare. Children between the ages of 3 and 6 were recruited from local day-care centers, and informed consent was obtained from parents. The length of time between the last reported substantiated abuse incident and the time of testing was obtained for 13 abused children ($\bar{X} = 38.31$ months, $SD = 13.16$). The length of time between the last substantiated report of neglect and the time of testing was also obtained for nine of the neglected children ($\bar{X} = 33.89$ months, $SD = 15.93$). These figures should be interpreted with caution,

796 Child Development

however, as subsequent abusive or neglectful instances usually did not appear in the Department of Social Service's records. Groups were matched on seven demographic variables that are presented in Table 1. No significant differences were present among the groups on any of the demographic variables.

Procedure

Cognitive assessment.—Each subject was individually administered three tests of cognitive functioning by an experimenter who was unaware of group classification. The tests included the Stanford-Binet Intelligence Scale (Form L-M), the Peabody Picture Vocabulary Test, and the Merrill-Palmer Scale of Mental Tests. The Peabody Picture Vocabulary Test was administered to assess language ability and was employed because it does not require complex verbal or motoric responses in answering test questions. The Merrill-Palmer was utilized as a supplement to the Stanford-Binet. The tests were presented in a random order to the children, who were removed from their classrooms for testing. The tests were standardly administered and scored.

Behavior observation.—Thirty-minute behavioral samples were collected for each of the children from their respective classrooms. Observations were conducted during free-play activity and at similar times for all groups. Two trained observers unobtrusively recorded interactions into small tape recorders. A continuous narration employing a standard vocabulary (the Lanal coding system, see Baldwin & Ward, Note 2) of the behavior of individual subjects was thus achieved. A portion of one of the observation samples is presented to illustrate this measure and is as follows: "N yells at other child. N sits on floor. N whines. N says, 'Shut up' to other child. N picks up a toy and throws it at teacher. Teacher sits N in chair in the corner. N cries."

To minimize potential bias, the two observers were uninformed with regard to the hypothesis of the study and to the group classification of the children. For purposes of calculating reliability, both raters coded approximately 85% of the observations, and a very high mean correlation between the raters across the behavioral categories (mean Pearson $r = .88$, range = .70-.96) of the coding system was achieved. Definitions for the categories are presented in Table 2.

Narrations from the one observer who observed all sessions were transcribed for statistical analysis.

Parent and teacher perceptions.—Teachers and mothers of the subjects were asked to complete the Child Behavior Form (Lorion, Barker, Cahill, Gallagher, Parsons, & Kauski, 1981). This measure reflects adult's perceptions of children's level of aggression, social maturity, and interest in learning. The teachers were aware of the children's history of involvement with social services.

Results

Cognitive Assessments

Analysis of variance for each dependent variable was employed, and when overall significant differences were present, specific comparisons among the three groups were made using Duncan's multiple-range test (Kirk, 1968). As can be seen in Table 3, overall differences were present among groups on all three measures of cognitive functioning, F 's(2,39) = 12.58, 18.79, and 15.47, p 's < .001, for the Stanford-Binet, Peabody Picture Vocabulary Test, and Merrill-Palmer Scale of Mental Tests, respectively. Post hoc comparisons revealed that the abused and neglected children had lower scores than the comparison children on each of these measures but did not differ from each other.

Behavioral Observations

As can be seen in Table 4, significant differences were present in five of the categories that were rated. Specifically, differences were present in the measure of overall interaction with children, F (2,39) = 7.36, $p < .01$, and post hoc analyses revealed that the neglected children displayed fewer interactions than either the abused or comparison children. When prosocial behavior with children was considered, overall differences were present, F (2,39) = 7.89, $p < .01$, but in this case both the abused and neglected children had less prosocial behavior than the comparison children.

The measure of aggression also revealed differences, F (2,39) = 3.43, $p < .05$, and in this case post hoc tests indicated that the abused children were more aggressive than either the neglected or comparison children. Similarly, the abused children displayed fewer prosocial interactions with teaching staff, F (2,39) = 4.00, $p < .05$, but in this case the individual comparisons revealed that the difference was significant only between abused and comparison children.

When the measure of teacher discipline was analyzed, overall differences were present, F (2,39) = 3.08, $p < .05$, indicating that the abused children received more disci-

TABLE 1
SUBJECT DEMOGRAPHIC CHARACTERISTICS

	CHILD'S AGE (Months)		SEX		RACE		FAMILY ANNUAL INCOME		MOTHER'S EDUCATION (Number of Grades Completed)	MARITAL STATUS		NUMBER OF FAMILIES WITH EMPLOYED ADULT	TIME IN DAY CARE PRECEDING TESTING (Months)
	Male	Female	Black	White	0-10,000	10,000-15,000	Married or Significant Person Living in Home	Single					
Abuse:	9	5	5	9	11	3	10.3	9	5	7	2.12		
Mean.....	9.2	9.2	...	...	...	...	...	...	...	...	3.39
SD.....	10	4	6	8	10	4	11.0	4	10	3	5.41		
Neglect:	11.6	11.6	...	...	...	...	...	...	...	...	5.17
Mean.....	9	5	4	10	10	4	11.5	5	9	8	3.52		
SD.....	8.8	8.8	...	...	...	...	...	...	...	...	5.05
Comparison:													
Mean.....													
SD.....													

798 Child Development

pline than the comparison children. No differences were present on the measures of social interaction with the teacher, non-compliance, disruptive behavior, and affection to and from others.

Teacher and Parent Ratings

Data were unavailable from two parents in the neglect group. Analyses of the remaining parents' ratings of the children on measures of aggressiveness, social maturity, and readiness to learn were all significant, $F's(2,37) = 3.45, 6.78, \text{ and } 5.28, p's < .05$, respectively, and in each case subsequent analyses indicated that both the abused and neglected children were rated more negatively than the comparison children.

As can be seen in Table 5, the teacher ratings were similar to the parent ratings in that significant differences were also found for the measures of aggressiveness, social maturity, and readiness to learn, $F's(2,39) = 4.38, 5.27, \text{ and } 8.80, p's < .05$, respectively. In each case, both groups of maltreated children were rated more negatively than the comparison children.

Correlational Data

Correlations between all the measures were obtained for each of the three groups of children separately and for all the groups combined. Because of the rather large number of correlations, caution should be observed in interpreting the results. Nevertheless, in a number of cases, theoretic-

cally interesting correlations do occur and are suggestive. For example, teacher discipline was correlated with disruptive behavior and aggression when all subjects were combined, $r's(40) = .68 \text{ and } .54, p's < .01$. When the abused children were considered alone, disruptive behavior was also highly correlated with aggression and teacher discipline, $r's(12) = .67 \text{ and } .70$, respectively, $p's < .01$. Disruptive behavior also correlated with aggression and teacher discipline for the neglected children, $r's(12) = .72 \text{ and } .97$, respectively, $p's < .01$, but this relationship was not present for the comparison children, $r's(12) = .07 \text{ and } .30, p's > .05$, suggesting that a cluster of negative behaviors occurred in the maltreated groups but not in the comparison group.

Across all subjects, the three measures of cognitive ability were significantly correlated, $r's(40)$ ranging from $.57$ to $.83, p's < .01$, but generally were not correlated with the observed behaviors or parent and teacher ratings.

When parent ratings were considered, it is interesting to note that only small correlations were found for the abusing mothers' ratings of aggression on the Lorion Scale and their children's observed aggression and disruptive behavior in the classroom, $r's(12) = .38 \text{ and } .30, p's > .05$. The comparison mothers' ratings, $r's(12) = .0 \text{ and } -.47, p's > .05$, and the neglectful mothers' ratings, $r's(12) = .16 \text{ and } .19, p's > .05$, also were not

TABLE 2

OPERATIONAL DEFINITIONS OF BEHAVIORAL CATEGORIES

Social interaction.	Any sequence in which the child engages either verbally or nonverbally with another child or adult; a behavioral sequence was defined as beginning when one individual initiated an interaction with another and ended when either a change of behavior occurred or the interactors discontinued the ongoing behavior
Prosocial behavior.	Any helping or sharing behavior, and parallel, associative, or cooperative play behavior
Aggression.	Any kicking, pinching, throwing objects, slapping, grabbing, biting, spitting, scratching, punching, and pushing forcefully that is directed at another person
Noncompliance	Failure to perform or initiate an act as verbally requested within 5 sec after a request is made by a teacher
Disruptive behavior	Any behavior that violates the established rules of the classroom (other than aggression); includes destroying objects, banging on walls and furniture, jumping off tables and chairs, running around classroom or under tables and chairs, drawing on walls and furniture, throwing furniture, and screaming during established teaching periods
Affection	Any caressing, smiling, holding hands, kissing, patting, putting arms around another, verbally complimenting, and giving praise
Discipline from teacher.	Reprimands by a teacher prohibiting an action or requiring a change of behavior or removal from a situation; physical removal of a child is also included in this category

TABLE 3
MEANS, STANDARD DEVIATIONS, AND TESTS OF SIGNIFICANCE FOR MEASURES OF COGNITIVE FUNCTIONING

MEASURE	ABUSE		NEGLECT		COMPARISON		F	p	ABUSED vs. NEGLECTED		ABUSED vs. CONTROL		NEGLECTED vs. CONTROL	
	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD			CONTROL	CONTROL	CONTROL	CONTROL		
Stanford-Binet Intelligence Scale	79.2	9.4	82.9	15.8	102.0	12.7	12.58	<.001	N.S.	S	S	S	S	
Peabody Picture Vocabulary Test	78.4	11.7	76.1	13.3	103.3	14.0	18.79	<.001	N.S.	S	S	S	S	
Merrill Palmer Scale	102.6	11.9	92.6	17.8	122.1	12.5	15.47	<.001	N.S.	S	S	S	S	

NOTE.—N.S. = not significant; S = significant.

TABLE 4
MEANS, STANDARD DEVIATIONS, AND TESTS OF SIGNIFICANCE FOR BEHAVIORAL ASSESSMENT

BEHAVIOR CATEGORY	ABUSE		NEGLECT		COMPARISON		F	p	ABUSED vs. NEGLECTED		ABUSED vs. CONTROL		NEGLECTED vs. CONTROL	
	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD			CONTROL	CONTROL	CONTROL	CONTROL		
Social interaction with children	19.7	13.9	8.2	6.9	26.4	15.5	7.36	<.01	S	N.S.	S	S		
Social interaction with teacher	27.9	20.7	32.4	28.6	42.8	22.9	1.38	N.S.	...	...	...	...
Prosocial behavior with children	11.8	11.1	6.1	6.8	22.0	13.3	7.89	<.01	N.S.	S	S	S		
Prosocial behavior with teachers	17.3	15.1	22.6	19.3	35.7	18.6	4.00	<.05	N.S.	S	S	N.S.		
Aggression	4.57	6.16	.64	1.33	1.50	2.37	3.45	<.05	S	S	S	N.S.		
Noncompliance	.71	1.90	.79	1.53	.29	.61	.49	N.S.	...	...	...	...
Disruptive behavior	11.0	12.6	16.0	26.0	2.5	3.6	2.30	N.S.	...	...	...	...
Affection toward others	3.79	3.56	2.71	2.81	5.50	5.47	1.64	N.S.	...	...	...	...
Affection from others	1.79	1.72	1.93	1.59	2.50	3.72	.31	N.S.	...	...	...	...
Discipline from teachers	5.64	7.10	3.21	4.37	1.57	1.38	3.08	<.05	N.S.	S	S	N.S.		

NOTE.—N.S. = not significant; S = significant.

TABLE 5
 MEANS, STANDARD DEVIATIONS, AND TESTS OF SIGNIFICANCE FOR PARENT AND TEACHER RATINGS

	ABUSE		NEGLECT		COMPARISON		F	p	ABUSED vs. NEGLECTED		ABUSED vs. NEGLECTED	
	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD			CONTROL	CONTROL	CONTROL	CONTROL
Parent ratings:												
Aggressiveness.....	25.7	10.6	25.7	10.0	17.2	9.1	3.45	<.05	N.S.	S	S	S
Readiness to learn.....	30.2	4.4	30.5	6.8	35.6	2.7	5.28	<.01	N.S.	S	S	S
Social maturity.....	32.3	7.6	31.7	5.5	39.4	4.6	6.8	<.01	N.S.	S	S	S
Teacher ratings:												
Aggressiveness.....	22.2	10.2	20.0	8.8	13.2	6.2	4.38	<.05	N.S.	S	S	S
Readiness to learn.....	29.3	3.7	26.0	5.2	32.9	3.8	8.80	<.01	N.S.	S	S	S
Social maturity.....	35.2	4.5	35.1	8.3	41.9	5.3	5.27	<.01	N.S.	S	S	S

NOTE.—N.S. = not significant; S = significant.

related to the observed disruptive or aggressive behaviors in the classroom. Teacher ratings of aggression also were not related to the observed disruptive or aggressive behaviors (r 's ranging from $-.12$ to $.07$ across the groups). Finally, only very low correlations were found between the teacher and parent ratings of the children.

Discussion

The present results indicate that abused and neglected children have significant cognitive deficits when compared to the control children, although the maltreated groups did not differ from each other on these measures. These results are consistent with the findings of Sandgrund et al. (1974), who also found cognitive deficits in abused children. It is important to note that the neglected children, as well as those who are actively abused, demonstrated cognitive deficits, suggesting that differing parental styles may lead to the same deficits.

When the behavioral observation data are considered, different patterns of interactions occurred across the three groups. That is, the abused and comparison children showed higher rates of social interaction with peers than did the neglected children. The neglected children also engaged in less prosocial behavior with peers than did the comparison children, but this was not the case when interactions with the teachers were considered. This suggests that the teachers may have been positive role models and effective in facilitating social interactions with the neglected children.

It is interesting to note that the abused children displayed a different pattern of dysfunctional behavior than did the neglected children. That is, they had a very high rate of aggression rather than a low rate of social interaction with peers. If the data on the abused children are considered in conjunction with those of the neglected children, a reasonable question concerns why the two groups of maltreated children display different dysfunctional behaviors in the classroom. One is tempted to speculate that the abused children have learned to be aggressive at home, while the neglected children learned to be socially avoidant. Such a pattern is certainly consistent with a social learning point of view, which suggests that children acquire important social skills from their parents by observing and participating in interactional sequences with them.

In this regard, it is interesting to note that a recent study from this center (Bousha

& Twentyman, in press) found that abusing mothers were indeed highly aggressive, and that neglectful mothers were withdrawn during home observations. Moreover, the children's behavioral patterns frequently were similar to their mother's. In both the present study and Bousha and Twentyman's (Note 2) home-observation study, the abused children were more aggressive than comparison children. In both studies the neglected children displayed the fewest social interactions of all groups. Unlike the data obtained in the home-observation study, however, data from the present study did not show high levels of aggression in the neglected children. It is possible, of course, that these children may be aggressive at home as a method of obtaining attention from an otherwise unresponsive parent, whereas in the classroom, they may not receive reinforcement for aggressive behavior. However, until data about the antecedents as well as consequences of aggressive behavior are available in both settings, this conjecture remains speculative.

An important feature of the present study is that abused and neglected children were treated as separate groups. In previous research this has not always been the case. Obviously, if both groups had been combined, important differences such as those found in the measure of aggressive behavior would have been obscured. This fact reiterates the need for a careful description of the types of child maltreatment before any investigation of whether developmental effects occur as a sequela to the maltreating activity.

Not only were there cognitive and behavioral differences in the three groups of children, but the teachers also reacted differently to the children by disciplining the abused children more frequently than the comparison children. This suggests that the abused child in particular may frequently lack an adequate repertoire of social skills for successful participation in the classroom setting, and that special programs may be required for these children.

Twentyman, Rohrbeck, and Amish (in press) have recently described a cognitive-behavioral model of child abuse. An important feature of this model is the view that abusing parents hold unrealistic expectations for their children. It is interesting to note that none of the parents' ratings of aggression, social maturity, and readiness to learn were correlated with the teacher ratings of their children, and that generally,

802 Child Development

both the parent and teacher ratings did not correlate with either the cognitive test or behavioral observation data. Both the parents and teachers, however, rated the abused and neglected children as less ready to learn, less mature, and as more aggressive. It is possible, of course, that both groups of maltreating parents as well as the teachers were accurate in their ratings, and, in the present study, both groups of maltreated children did indeed have cognitive and behavioral deficits. There is also the possibility, however, that both parents and teachers displayed biases toward the children, and quite possibly for different reasons. To accurately assess whether an adult has a systematic bias, though, requires either that specific behavioral ratings be obtained from the adult that can be compared to independently obtained and presumably neutral ratings in a test situation, or that the experimenter has independently controlled the outcome of a task (Larrance & Twentyman, 1983) and then obtained ratings of the child in that task. In any case, whether or not parent and teacher biases are present, both groups of maltreated children displayed cognitive and behavioral deficits that may result in school and other problems at a later date.

In summary, this study clearly presents evidence that abused and neglected preschool children display cognitive and behavioral deficits and may be at risk for psychological maladjustment. The fact that behavioral and cognitive deficits were present in both the maltreated groups of children and that these deficits were combined with negative parent and teacher perceptions documents the need for special psychological and educational programs for the neglected as well as the physically abused child.

Reference Notes

1. Green, A. H., Gaines, R. W., & Sandgrund, A. *Psychological sequelae of child abuse and neglect*. Paper presented at 127th annual meeting of the American Psychiatric Association, Detroit, 1974.
2. Baldwin, A. L., & Ward, P. *Computerized coding of observer's narration of interpersonal interaction*. Paper presented at the meetings of the Society for Research in Child Development, Santa Monica, California, March 1973.

References

Bousha, D., & Twentyman, C. Abusing, ne-

- glectful, and comparison mother-child interactional style: Naturalistic observations in the home setting. *Journal of Abnormal Psychology*, in press.
- Elmer, E. *Children in jeopardy: A study of abused minors and their families*. Pittsburgh: University of Pittsburgh Press, 1967.
- Elmer, E., & Gregg, G. S. Developmental characteristics of abused children. *Pediatrics*, 1967, **40**, 596-602.
- George, C., & Main, W. Social interaction of young abused children: Approach, avoidance, and aggression. *Child Development*, 1979, **50**, 306-318.
- Gil, D. G. *Violence against children: Physical child abuse in the United States*. Cambridge, Mass.: Harvard University Press, 1970.
- Kinard, E. M. Emotional development in physically abused children. *American Journal of Orthopsychiatry*, 1980, **50**, 686-695.
- Kirk, R. E. *Experimental design: Procedures for the behavioral sciences*. Belmont, Calif.: Brooks/Cole, 1968.
- Larrance, D., & Twentyman, C. Maternal attributions and child abuse. *Journal of Abnormal Psychology*, 1983, **92**, 449-457.
- Light, R. Abused and neglected children in America: A study of alternative policies. *Harvard Educational Review*, 1973, **43**, 556-598.
- Lorion, R. P., Barker, W. F., Cahill, J., Gallagher, R., Parsons, W. A., & Kauski, M. Scale development, normative, and parametric analyses of a preschool screening measure. *American Journal of Community Psychology*, 1981, **9**, 193-208.
- Martin, H. P., Beezley, P., Conway, E. F., & Kempe, C. H. The development of abused children. *Advances in Pediatrics*, 1974, **21**, 25-73.
- Morse, C. W., Sahler, O. J., & Friedman, S. B. A three-year follow-up study of abused and neglected children. *American Journal of Vistas of Children*, 1970, **120**, 439-446.
- Reidy, T. J. Aggressive characteristics of abused and neglected children. *Journal of Clinical Psychology*, 1977, **33**, 1140-1145.
- Sandgrund, A., Gaines, R. W., & Green, A. H. Child abuse and mental retardation: A problem of cause and effect. *American Journal of Mental Deficiency*, 1974, **79**, 327-330.
- Twentyman, C. T., Rohrbeck, C. A., & Amish, P. L. A cognitive-behavioral model of child abuse. In S. Saunders (Ed.), *Violent individuals and families: A practitioners handbook*. Springfield, Ill.: Thomas, in press.
- Zigler, E., & Butterfield, E. C. Motivational aspects of changes in IQ test performance of culturally deprived nursery school children. *Child Development*, 1968, **39**, 1-14.