

## **Parent Adjustment and Family Stress as Factors in Behavioral Parent Training for Young Autistic Children<sup>1</sup>**

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*One of the most prevalent means of intervention for the multiple disabilities exhibited by children with autism is parent training. Research has shown parent training to be an effective, cost-efficient method for behavior change and maintenance. Still, it is evident that not all parents respond similarly to training curricula and, thus, parent training may not be the most effective service delivery option for all families. A large number of variables undoubtedly contribute to the differential benefits that parents and their children may derive from parent training programs. This article discusses those factors that involve the psychological adjustment and functioning of the children's parents and family unit. In addition to reviewing literature specific to autism, relevant research on parent training with more prevalent childhood disorders is also reviewed. To investigate further the relationship between child, parent, and family variables, a model of a comprehensive assessment methodology is illustrated in the context of evaluating differential outcomes in an ongoing parent training program. In addition to presenting some preliminary trends in these data, sample data on two cases are presented to illustrate child and family profiles. It is suggested that future multivariate research in the areas of child, parent, and family functioning could contribute to clin-*

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*ical decision-making and the more desirable individualization of service delivery.*

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## CONCEPTUALIZATION OF AUTISM AND ISSUES IN PARENT TRAINING

Since Kanner's (1943) first description of the syndrome of autism, a variety of conceptualizations and diagnostic criteria have been advanced and debated (DeMyer *et al.*, 1981). After more than 2 decades of research on etiological factors, core characteristics, and associated features, the following summary conclusions have achieved widespread acceptance in reflecting the dominant perspectives on this frequently debilitating and often enigmatic disorder. Autism is a severely handicapping developmental disorder which affects many significant areas of functioning. As a reflection of the multiple handicapping nature of autism, the Third Edition of the Diagnostic and Statistical Manual of Mental Disorders—Revised (American Psychiatric Association, 1987) maintains the nomenclature of classifying autism as a Pervasive Developmental Disorder, while describing the following core characteristics: (a) qualitative impairment in reciprocal social interaction; (b) qualitative impairment in verbal and nonverbal communication, and in imaginal activity; (c) markedly restricted repertoire of activities and interests; and (d) onset during infancy or childhood. While these broadly stated essential features maintain considerable consistency with the early descriptions by Kanner (1943), the behavioral manifestations as provided by DSM-III-R may more appropriately reflect the currently recognized heterogeneity of this population (cf. Dunlap *et al.*, 1985). The large majority of individuals with autism exhibit mental retardation (DeMyer *et al.*, 1974; Freeman and Ritvo, 1984) and significant signs of neurological dysfunction (cf. DeMyer *et al.*, 1981). Seizure disorders are eventually seen in more than 25% of the population (Rutter *et al.*, 1971). Other research has identified a variety of perceptual and learning anomalies associated with autism, including stimulus overselectivity (Lovaas *et al.*, 1979) and specific memory deficits (Hermelin and O'Connor, 1970). In addition to the characteristic lack of social responsiveness, autism is frequently associated with perplexing and often difficult-to-manage patterns of responding, such as self-stimulatory and self-injurious behavior (Romanczyk *et al.*, 1982).

One of the most important conceptual shifts in the field of autism has been the refutation of psychogenic theories (e.g., Bettelheim, 1967; Kanner,

1949) in light of evidence which has implicated multiple biological substrates and potential organic etiological factors (DeMyer *et al.*, 1981; Ornitz, 1978; Ritvo and Freeman, 1984). Methodological improvements in more recent demographic studies (e.g., Gillberg and Schaumann, 1982; Tsai *et al.*, 1982) have similarly resulted in evidence contrary to early observations of an upwardly mobile social class phenomena associated with autism.

### **Stress Associated with Raising an Autistic Child**

Research more specific to the complex issues of parental adjustment and family stress associated with autism can be currently summarized by two major conclusions. The more rigorous objective group comparisons demonstrate that the psychological adjustment of the parents of autistic children is more similar to the parents of normal children, or (varying by specific samples or measures) to the population of parents seen in child guidance clinics for diverse childhood and family problems, than it is to adults receiving outpatient treatment for known psychiatric disorders or problems in personal adjustment (Cantwell *et al.*, 1978; Koegel *et al.*, 1983; McAdoo and DeMyer, 1978). Therefore, parental maladjustment as a contributory factor specific to the etiology of autism can be confidently ruled out. In addition to the lack of scientific merit in the psychogenic perspectives, many scholars and investigators are deeply concerned with the detrimental folly of blaming parents for their child's autism, finding this position to be "perjorative" (Russo and Newsom, 1982), if not "pernicious" (Rimland, 1964). The authors of this paper share these concerns. The second conclusion which can be drawn from this complex area of research is that, regardless of etiology, the presence of an autistic child is a significant source of stress which may affect some aspects of parent adjustment and family functioning (Bristol and Schopler, 1984; DeMyer and Goldberg, 1983; DeMyer *et al.*, 1981; Holroyd and McArthur, 1976; Koegel *et al.*, 1983; McAdoo and DeMyer, 1978).

According to the retrospective accounts of 23 families of autistic children, DeMyer and Goldberg (1983) report that the stress of the autistic child affected most aspects of family life. The three most severe areas affected were family recreation, finances, and the emotional well-being of the parents. Furthermore, interpersonal relationships within the immediate family, extended family, and community were also noted to be affected by the demands and difficulties in raising an autistic child. Holroyd and McArthur (1976) provide evidence that the severity of stress is specific to autism by conducting comparisons with Down syndrome children and child psychiatric out-

patients in California. A highly similar pattern of these stress-related measures was reported by Bristol (1979) in a sample of autistic children in North Carolina. In combination, these results suggest that the mixture of cognitive impairment and aberrant behaviors places much greater demands on the emotional, temporal, and material resources of the families than either the separate presence of cognitive impairment or aberrant behavior. Therefore, the presence of an autistic child is likely to put parents and families at higher than base rate risk for problems in adjustment and functioning. In their investigation of psychological adjustment in the parents of autistic children, McAdoo and DeMyer (1978) found a trend toward the presence of clinical elevations on parents' MMPI profiles to be associated with evidence of organicity in the autistic child, and, therefore, more severe impairment. This suggests a directional effect in which the severity of child impairment increases the risk for problems in the psychological adjustment of these parents. Such observations raise important questions and difficult issues with regard to patterns of service delivery for these children and families.

### **Parent Training as a Treatment Modality**

While autism is recognized as a pervasive, complex, and typically very severe disorder, research over the past three decades has shown that the behavioral repertoires of afflicted children are vulnerable to treatment (Koegel *et al.*, 1982). In particular, interventions based on behavioral orientations have been demonstrated repeatedly to effectively teach new skills and reduce levels of maladaptive response patterns. In addition, the behavioral approach has been attractive because its procedures and practices can be adopted with relative ease by a wide range of practitioners, thus extending the treatment environment beyond the walls of specialized clinics or other treatment facilities. Thus, classroom teachers and even parents have become principal agents of behavior change through participation in teacher and parent training programs (Dunlap *et al.*, 1985).

Parent training has been recognized as an integral component of programming for children with autism for many years. Early reports (e.g., Nordquist and Wahler, 1973; Wolf *et al.*, 1964) showed that, with training, parents could successfully treat a variety of serious behavior problems in natural home and community settings. Lovaas and his colleagues (Lovaas *et al.*, 1973) then published an influential paper that revealed more clearly the importance of parent training efforts. After a period of intensive behavioral intervention, autistic children were either discharged to institutional settings or to home environments in which their parents had received

behavioral parent training. Follow-up measures showed that only those children who returned to their trained parents maintained their treatment gains or displayed further improvement. These data not only affirmed the importance of habilitative environments but also suggested the longitudinal benefits that may be derived from parent training efforts.

Following the publication of Lovaas *et al.* (1973), increased emphasis was placed on parent training efforts and research continued to develop the content and format of these programs (e.g., Koegel *et al.*, 1978). For example, a long-term group analysis, directed by Robert Koegel and Laura Schreibman, studied various effects of parent training as a treatment modality (e.g., Koegel *et al.*, 1984). Their data showed that about 25 to 50 hr of intensive, practical, and generalized parent training produced as much child progress as about 225 hr of clinic-based behavioral intervention. They also demonstrated that the progress was durable and that it appeared to produce collateral benefits both in regards to child adaptation and in family interactions. For example, the families that received parent training reported increases in the amount of time devoted to family leisure activities and reductions in the time needed for custodial child care (e.g., assisting with feeding, toileting, bathing, etc.). Families that did not participate with the parent training program did not experience these direct or indirect benefits.

Although considerable evidence exists to support the direct and indirect benefits of parent training as a treatment modality for many families, the generalization of these findings to all families of autistic children is still premature. From our clinical experience, we have clearly seen a wide range of responses to training, with some families that do extremely well while others respond less successfully. The data presented on the efficacy of major parent training projects are typically presented in a grouped fashion which can mask a considerable range of individual differences or the presence of subgroup outliers. If we are to advance our knowledge and refine our service delivery technology, parent training will need to be examined on a more individualized basis and with greater attention to the range of observed outcomes.

In one effort to understand individual responses to these interventions, Harris (1982, 1984) recommends incorporating broader clinical perspectives to enhance the effectiveness of the delivery of behavioral parent training services. She provides anecdotal reports on how structural family therapy (Minuchin, 1974) can provide conceptualizations and interventions which can effectively address obstacles to the delivery of behavioral parent training interventions. This approach focuses on dysfunctions in the family system which contribute to the family's resistance to change. It is likely that other experienced parent training interventionists have been cognizant of similar dimensions of family dysfunction. However, Harris may be the first to advocate a largely

alternative conceptual framework for assessing and changing family systems problems while working primarily in a behavioral model of family treatment for autistic children. Incorporating alternative conceptualizations also carries the burden of objectively evaluating their additive contributions to treatment efficacy. Previously, the challenge of empirical validation has not been substantially met by those who work more exclusively within a family systems perspective. Hopefully, the selective merger of behavioral and family systems conceptualizations may lead to more rigorous empirical analysis and evaluation.

In a related vein, Schreibman (1983) advises that more attention be given to the effects of behavioral parent training on the parents. Although she particularly emphasizes issues of consumer satisfaction and the development of the parents' self-confidence as effective treatment agents, the general thrust of this recommendation is the need for additional research on parent and family variables in parent training for autistic children.

### **Relevant Research with Other Childhood Disorders**

Perhaps greater attention has been given to broader clinical dimensions in the area of behavioral parent training for children with behavior problems and conduct disorders who function otherwise in the normative range of development (for reviews, see Griest and Forehand, 1982; Griest and Wells, 1983; Robbins, 1985). Patterson and his colleagues (Patterson, 1976, 1982; Patterson and Fleischman, 1979; Patterson and Reid, 1970) provide evidence that overly aggressive boys not only contribute to, but are also products of, family systems characterized by disproportionate amounts of coercive interactions between family members. Such interactions operate on principles of negative reinforcement and become prepotent modes of attempting immediate changes in behavior while frequently setting the stage for escalations in conflict. Patterson (1982) also reports that such families are characterized by a breakdown in family management practices.

In analyses specific to maternal adjustment and treatment outcome, Patterson (1974) reports significant correlations between several MMPI scales and an index of treatment outcome. In particular, higher scores on the *F* scale (indicating admission of more personal problems in general) and the Mania scales (indicating tendencies toward impulsivity and impatience) were associated with poorer outcome. Predictive analyses of response to a similar social learning theory based parent training program were also conducted by Miller and Gottlieb (1974). A "responsivity to intervention" index was developed from mothers' MMPI scores and they report that this

was highly correlated with a "Therapy Outcome Differential" rating measure. In addition to some methodological criticisms (Jones, 1975), ambiguities about the formulation of the responsivity index prohibit interpretations about specific dimensions of parental adjustment associated with treatment outcome. Pretreatment levels of maternal depression, as measured by the Beck Depression Inventory (Beck, 1978), have been reported to correlate with treatment drop-outs from behavioral parent training (McMahon *et al.*, 1981) and with refusals to participate in follow-up evaluations (Griest *et al.*, 1981). These BDI scores revealed mild levels of depression in these predictive relationships rather than the presence of major depressive episodes. In contrast, in Webster-Stratton's (1985) interpretations of her extensive predictive analyses with conduct disordered children, maternal depression as measured by the BDI was less predictive of unfavorable outcome than the absence of reported positive life experiences and the presence of socioeconomic disadvantage.

The concept of the "insular" (or "multiply entrapped") mother has gained considerable attention in relation to the development and treatment of children's conduct problems (Dumas and Wahler, 1983; Wahler, 1980; Wahler *et al.*, 1979a,b). Such mothers are characterized by entrapment in problematic interpersonal relationships, infrequent positive social contacts with friends, and by most social contacts being initiated by others (often the providers of social services and often viewed as aversive). Although there is some ambiguity across studies, insularity also appears to be largely associated with socioeconomic disadvantage (Dumas and Wahler, 1983). Similar to Patterson's observations on the families of aggressive boys, insular families are characterized by relatively high rates of coercive interaction (Wahler *et al.* 1979b). Negative reinforcement interpretations have also been applied to insular mothers' response to treatment (Wahler, 1980). Treatment recommendations provided by the parent training professional are viewed as aversive demands that are terminated by short term compliance. Subsequently, in the absence of frequent therapist contact, the parent's compliance with treatment procedures is not maintained. They also hypothesize that the low frequency of positive social contact with others contributes to this failure to maintain treatment gains due to a lack of social reinforcement for these changes in parenting behavior. In addition to providing treatment outcome data to support these hypotheses, Wahler (1980) and Wahler and Afton (1980) provide additional data which suggest that the amount of aversive parent child interaction is inversely related to the amount of extrafamilial positive social contact on a day to day basis. These investigators have also speculated about the potential role of depression as a factor in social isolation, insularity, and aversive parenting behaviors.

Predictors of differential treatment outcome have also been investigated in the families of mentally retarded children. Clark and Baker (1983) report the findings of a relatively large scale study involving a parent training program conducted in a small group format for over 100 families having a moderately to severely retarded child. The training program focused on teaching parents to use effective instructional techniques and appropriate behavior management procedures (Baker *et al.*, 1976) over a series of ten group sessions. In examining multiple potential predictors, they found that the following variables were significantly associated with discriminating high versus low proficiency outcome: higher socioeconomic status, higher family income, higher level of educational background, younger parents, previous exposure to behavior modification, previous engagement in teaching their child, and fewer expectations for problems in teaching. In another analysis, most of the same variables were related to follow-up ratings, with the additional finding that single parents were more likely to be rated as low on follow-through. They also reported that treatment drop out families (9% of the sample) which were not included in these analyses tended to be single parents.

The diversity of the particular variables of interest, the specific measures employed, treatment delivery formats, and child populations prohibits any comprehensive synthesis of differential outcome to behaviorally oriented parent training programs. However, certain noteworthy trends do exist. Not surprisingly, demographic variables play a major role as correlates of treatment outcome. Socioeconomic status, along with the specific components of family income, educational level, and marital status, have been substantially related to treatment outcome. Current service delivery formats appear to be inadequate for a large portion of the general population which is underserved, and, thus, further disadvantaged. In addition to the trap of blaming the victim, we also know that it is overly simplistic to attribute all our treatment failures to socioeconomic disadvantage. In this vein, there are a number of encouraging trends in this area. More attention is being given to multidetermined and bidirectional influences. This is leading to the development of conceptual models which not only capture complex interactional patterns, but which also set the stage for further potential refinements or innovations in our intervention strategies and service delivery formats. Furthermore, there is an emerging trend toward utilizing multimethod assessment strategies in addition to attempting to assess and analyze more diverse variables related to prediction, process, and outcome.

### **A MODEL OF A COMPREHENSIVE ASSESSMENT METHODOLOGY: EARLY APPLICATIONS AND FUTURE DIRECTIONS**

The following sections of this paper present an application of a comprehensive assessment methodology to evaluate outcomes in an ongoing par-



ent training project for young children with autism. First, a brief description of the treatment program is provided. Then, a model of a multidimensional, multimodal, and multimethod assessment methodology is described. This assessment strategy is largely based on the issues and trends explicated in the previous sections. A demonstration of the application of the model is illustrated by: (1) the results of some preliminary analyses, and (2) an example comparison of two case profiles. In conclusion, future research directions and implications for service delivery are discussed.

### **The Preschool Training Project**

The Preschool Training Project (PTP) is a federally funded demonstration project located in the College of Education at Marshall University in Huntington, West Virginia. The objective of the PTP is to provide state-of-the-art behaviorally-oriented intervention services for families of young autistic children in a geographic region which is largely rural and greatly underserved (Dunlap *et al.*, 1988). During the 3-month-long intensive phase of intervention, parents receive about 40 to 50 hr of direct contact, which includes modeling and guided practice in the utilization of effective teaching techniques and appropriate behavior management strategies with their autistic children. A combination of home and clinic-based sessions are conducted, and, as the parent demonstrates improved skills, individualized instructional activities and behavior management objectives are assigned to be practiced between sessions. Considerable attention is also given to educating the parents about their child's disability and in providing some guidance in how to effectively accommodate his/her needs in the context of striving for optimal functioning for themselves and their family. If the child is receiving preschool, daycare, or other specialized services (e.g., speech therapy), these other service providers are also enlisted to participate in the training sequence. When a child is not receiving any other services, the PTP staff begin advocacy and referral activities to promote the development and provision of appropriate community-based services. Following this active phase of intervention, the professional staff maintain more limited contact with these families (and other service providers) for which they continue to provide consultation, referral, and advocacy services.

An integrated component of these service delivery objectives is the utilization of a broad range of measures to assess parent, child, and family functioning (see Table I) to not only facilitate the individualization of treatment within the service delivery model, but to also potentially contribute to our knowledge about the variables associated with outcome. Our assessment strategy as illustrated in Table I is multidimensional, multimodal, and multimethod. The multidimensional nature of these assessments is reflected in the multiple aspects of child, parent, and family functioning addressed. The multimodal nature of the approach is reflected in the use of measures

**Table I.** A Model of Multidimensional, Multimodal, and Multimethod Assessment of Child, Parent, and Family Variables

	Typology						Assessment Intervals				
	Standardized	Component scores	Questionnaire	Interview	Direct testing	Observational	Pretraining	Post-training	3-month Fu	6-month Fu	9-month Fu
<b>Child Measures</b>											
Developmental assessments											
Vineland Adaptive Behavior Scales (Sparrow <i>et al.</i> , 1984)	×	×		×			×				×
Slosson Intelligence Test (Slosson, 1985)	×				×		×				×
(Early) Learning Accomplishment Profile (Glover <i>et al.</i> , 1978; Sanford and Zelman, 1981)	×	×			×		×	×	×	×	×
Sequenced Inventory of Communication Development (Hedrick <i>et al.</i> , 1984)	×	×			×		×				×
Child characteristics											
Autism Behavior Checklist (Krug <i>et al.</i> , 1980)	×	×				×	×				×
Parenting Stress Index—Child Domain (Abidin, 1983)	×	×	×				×	×			×
Trainer ratings		×				×	×	×			×

Child behavior																				
Autism Screening Instrument for Education Planning:																				
Interaction Assessment (Almond <i>et al.</i> , 1980)	×	×	×	×	×	×	×	×	×											
Code for the Assessment of Teaching Skills (CATS):																				
Structured task assessments – Child maladaptive behavior <sup>b</sup>	×	×	×	×	×	×	×	×	×											
(Robbins <i>et al.</i> , 1987)																				
Parent Reported Treatment Objectives <sup>b</sup>					×															
Parent and Family Measures					×															
Demographics					×															
Parenting Stress Index (Abidin, 1983)					×															
Parent Domain					×															
Life Stress					×															
Symptom Checklist 90 – Revised (Derogatis, 1977)					×															
Family Environment Scale (Moos and Moos, 1981)					×															
Child Improvement Locus of Control (DeVellis <i>et al.</i> , 1985)					×															
CATS structured task assessments <sup>b</sup>					×															
Parent teaching skills					×															
Trainer ratings <sup>b</sup>					×															

<sup>a</sup>Scored by staff after sufficient contact and familiarity rather than observational scoring of videotaped samples.

<sup>b</sup>Available from authors upon request.

based on parent report (through questionnaires or interviews) in combination with measures which are derived from direct observational procedures. This assessment package is also multimethod in that many aspects of behavior or functioning are assessed by more than one measure, often across the assessment modalities. To illustrate further the diversity of this assessment strategy, Table I provides additional information about each measure, including whether or not a measure is standardized with norms that are relevant to this population. For each measure, Table I also notes whether the primary method of assessment is through self-report questionnaire, interview, direct testing, or observational scoring. The distinction between the latter two categories is that direct testing involves the *in vivo* scoring of responses elicited during the administration of a standardized protocol (e.g., Slosson Intelligence Test) while measures categorized as observational involve the use of an operationally defined code to systematically score videotaped samples of behavior. Table I also provides information about the timing of these assessments, indicating which ones are administered at pretraining, post-training, and at the follow-up assessments at three, six, and nine months subsequent to training. Rather than advocating adherence to any specific measures, this comprehensive assessment strategy is being presented as a framework for investigating variables associated with multiple potential aspects of differential outcome and collateral effects of providing behavioral parent training for young autistic children.

At this time, too few families have received these PTP services to conduct or report statistical analyses with major findings pertaining to treatment outcome or predictive variables. However, some preliminary findings are presented. Future analyses on a larger sample may help identify the relevance and generality of those variables associated with differential outcome with other child disorders, and the interaction of those variables with factors which are more specific to autism and severe developmental disabilities. For now, however, this objective will be pursued by presenting these preliminary data and by an example comparison of two cases which are intended to serve as an illustrative heuristic.

### **Preliminary Analyses and Trends**

In summarizing the data on the first seven families who received the intensive phase of parent training (Dunlap *et al.*, 1987), we developed a Parent Teaching Skill Index which combined the proportions of occurrence of the various parent behaviors assessed by the Code for the Assessment of Teaching Skills on the structured task assessments. Pretraining and posttraining comparisons on the easy, difficult, and generalization task samples provid-

ed for the derivation of a mean change score on this Parent Teaching Skill Index. Although all parents showed improvement in exhibiting the targeted teaching skills, this mean change score allowed us to divide the parents into high improvement ( $n = 4$ ) versus low improvement ( $n = 3$ ) groups based on a mean split. A considerable correspondence was found between group membership and child improvement as measured by the average of the age equivalent scores on the skill domains assessed on the Learning Accomplishment Profile. The children whose parents made the most improvement in teaching skills made considerably more developmental gains ( $\bar{X} = 7.2$  months) during the 3-month intensive phase of training than the children of the low improvement parents ( $\bar{X} < 1$  month). Future analyses on a larger sample will provide the opportunity for further examination of this relationship, including analyses of potential covariates related to other child factors, as well as parent and family functioning.

Although also preliminary and tentative based on the sample size, another interesting relationship was evident between child improvement and the pretraining assessments on the Parenting Stress Index. For both groups, the mean Child Domain Stress Score was above the 95th percentile, suggesting that all of the children exhibited various aspects of behavior that a parent would find to be very distressing and difficult. However, the parents of the high improvement children had a mean pretreatment Parent Domain Score in the normal range (near the 50th percentile), while the parents of the low improvement children had a mean significantly elevated above the 80th percentile. Scores at this level suggest sources of stress related to dimensions of parent functioning: e.g., depression or sense of competence. This preliminary finding is consistent with other reported results based on different measures with different populations which suggest that some characteristics of parent adjustment and family functioning serve to limit the effectiveness of behaviorally oriented parent training interventions (Clark and Baker, 1983; Dumas and Wahler, 1983; McMahon *et al.*, 1981; Miller and Gottlieb, 1974; Patterson, 1974). We hope that future multivariate analyses based on specific subscales and other related measures, and conducted on a larger sample, may help identify more specific contributing factors; such analyses may also allow examination of directionality of relationships between parent and child variables.

### **An Example Comparison of Two Cases**

In the context of the issues previously addressed, we have selected two cases which serve to illustrate the potential relationship between parent and family functioning and treatment outcome. These two cases

are interesting given the number of similarities in child characteristics, prior to intervention, as illustrated in Table II. Prior to and during the intensive phase of training, both children were receiving 1 day per week of preschool services provided by others. Both children were about 2½ years of age at intake while exhibiting very similar overall levels of functioning on a variety of developmental assessments, generally receiving scores below an age equivalent of 1 year. The only notable discrepancy on these developmental measures was that Case A scored 5 months higher than Case B in mental age on the Slosson Intelligence Test, while still only receiving a score of 1 year and 4 months. On the Autism Behavior Checklist, both children scored above 67 which is the cutoff for indicating "a high probability of autism." This measure also indicates that Case A exhibited somewhat more of the behaviors and characteristics associated with autism. Preintervention scores on the Child Domain of the Parenting Stress Index were both at the 90th percentile, indicating high levels of distressing and difficult behavior by both children. Both children also exhibited very similar patterns of behavior on the preintervention ASIEP Interaction Assessment, with the large majority of observational intervals scored for "No Response" (i.e., the absence of appropriate play or interaction). This assessment was consistent with the more general observation that both children rarely sought out adult attention and were content to engage themselves in solitary, repetitive self-stimulatory behavior. The observational scoring of the mother-child structured task assessments, using the CATS, also resulted in similar preintervention levels for child noncompliance to instructional demands and for problematic behaviors. Case A exhibited somewhat higher levels of serious maladaptive behavior at this time than did Case B. Both children appeared to be well-practiced in avoiding or escaping from parent directions.

In contrast to the similarity of the child-based measures, these two cases had many major differences on the measures of parent adjustment and family functioning (see Table III). In addition to these differences, they were also very dissimilar on demographic variables. Case A parents had a middle-level family income; both were college educated and employed. The mother in Case B was an unemployed, single parent with significant socioeconomic disadvantage.

Table III presents other measures on which there are major pretreatment differences between these parents. The mother in Case A achieved a Parent Domain Score at the 20th percentile on the Parenting Stress Index and scored around one standard deviation over the mean for nonpatient adult females on the combined symptom indices of the Symptom Checklist 90-R. The Case B mother scored at the 95th percentile of the PSI Parent Domain, with particularly high elevations on the subscales for depression, parent health, and social isolation. She also scored more than two standard devia-

**Table II.** Case Illustrations: Child Measures at Pretraining, Post-training, and Nine Months Follow-Up

	Case A			Case B		
	Pre	Post	Fu	Pre	Post	Fu
Chronological age	2-6	2-9	3-6	2-7	2-10	3-7
Developmental assessments						
Vineland Adaptive Behavior Composite (age equiv.)	0-10		1-5	0-10		0-11
Slosson MA	1-4		2-4	0-11		1-4
Early Learning Accomplishment Profile (age equiv. mean of subscales)	0-9	0-11	2-1	0-9	0-11	0-12
Sequenced Inventory of Communication Development						
Receptive skills	0-4		2-0	0-4		0-4
Expressive skills	0-4		1-8	<0-4		<0-4
Child characteristics						
Autism Behavior Checklist	82		41	71		67
Parenting Stress Index						
Child Domain Score Percentile	90	90	85	90	85	85
Observational measures						
ASIEP. Interaction Assessment						
%Interaction	8	22	44	15	22	7
%Constructive Independent Play	0	7	22	8	1	3
%No Response	92	68	38	76	75	90
CATS Child Maladaptive Behavior						
%Noncompliance	12	13	3	20	9	12
%Serious Maladaptive	9	30	6	0	1	1
%Problematic Behavior	35	41	19	45	4	39

tions above the mean for nonpatient adult females on the combined symptom indices of the SCL 90-R, including being two standard deviations above the mean on the depression subscale. This mother also reported strained relationships with her extended family and considerable conflict with her neighbors. The combination of these characteristics in Case B appear to be very consistent with an impression of insularity as described by Wahler et al. (1979a, b). The Child Improvement Locus of Control also resulted in some interesting pretreatment contrasts, with Case B putting more emphasis on the child, chance, and divine influence as the sources of improvement and change than did Case A. Selected data on parent teaching skills from the structured task assessments are also presented in Table III. Some of the pretreatment differences between these mothers is a function of the Case B parent being much less active in attempting to engage her child in the teaching situation. Although she generally made fewer active errors than the Case A mother, she was particularly deficient at delivering effective positive consequences for correct child responses.

Indications that both of these children exhibited a similarly positive response to the three month intensive phase of training are provided by both achieving a two month gain on the Early Learning Accomplishment Profile and similar improvements in adaptive behavior on the ASIEP Interaction Assessment (see Post measures in Table I). The summary results of the structured task assessments indicate that the Case B child made even more improvements in behavior than did Case A. However, similarities between the children largely disappeared during the subsequent nine month follow-up period. The Case A child continued to make substantial developmental gains along with improvements in behavior and a decrease in autistic symptomatology. In stark contrast, the Case B child came to a virtual halt in developmental progress and evidenced regression toward pretreatment levels of problematic behavior and social unresponsiveness.

The post-treatment and follow-up measures on parent and family functioning also illustrate divergent patterns in addition to the differential courses of child outcomes. For the Case A mother, the Parent Domain of the PSI came up at post-treatment and then dropped some at follow-up, always remaining below the mean on this index of stress. Successful adjustment at follow-up is further reflected by the reduction of symptoms on the SCL 90-R and improvements in family functioning as measured on the Family Environment Scale. The post- and follow-up measures on Case A's CILC indicate a continued emphasis on the role of the parents and professionals in attaining child improvements, while decreasing beliefs associated with the child being the source of improvement. The follow-up assessments of teaching skills also suggest that these parents continued to improve in the implementation of effective teaching strategies.



**Table III.** Case Illustrations: Parent and Family Measures at Pretraining, Post-training, and 9-Month Follow-Up

	Case A			Case B		
	Pre	Post	Fu	Pre	Post	Fu
Parenting Stress Index	20	45	35	95	95	99 +
Parent Domain Score Percentile						
Symptom Checklist 90 – Revised (T-scores)	62	63	57	78	67	>81
General Symptom Index	59	60	56	>71	71	>71
Positive Symptom Total	64	64	56	71	60	>77
Positive Symptom Distress Index						
Family Environment Scale (standard scores)						
Conflict	48	43	38	59	54	70
Active Recreation Orientation	53	64	64	53	27	27
Organization	53	64	70	48	42	53
Child Improvement Locus of Control						
Child	3.2	3.0	2.8	4.2	4.2	4.3
Parent	5.7	5.7	6.0	5.5	5.0	5.0
Professional	5.2	5.5	5.7	5.5	5.3	5.5
Chance	1.0	1.0	1.0	2.0	2.0	1.8
Divine Influence	1.3	1.3	1.3	5.0	5.5	4.5
Structured Tasks (CATS)						
% Poor tasks commands	32	36	27	12	13	14
% Good positive consequences	26	37	39	3	17	22
% Inappropriate positive consequences	20	5	0	0	2	2
% Corrective feedback errors	3	5	10	15	7	4
% Behavior management errors	20	18	0	5	3	0

At post training, there were some indications of improved parent adjustment in Case B, as seen on the SCL 90-R. These benefits appeared, however, to be short-lived. There were considerable difficulties with scheduling follow-up consultations and assessment sessions. Very little follow-through was evidenced in the area of conducting instructional activities with her handicapped child. Furthermore, the follow-up parent and family measures reflected increased problems in personal adjustment and family functioning. Despite these assessed regressions in parent functioning and child behavior, it is interesting that this parent continued to exhibit the posttreatment improvements in teaching and behavior management skills on the follow-up structured task observational assessments. Still, while this parent appeared to maintain some skills within the structured task context, the weight of the other evidence indicates that the parent training curriculum did not greatly affect her every day interactions or her child's development.

### Implications

Clearly, these two cases are not meant to serve as a controlled experimental comparison. Case A nicely represents the results we strive to achieve in the provision of parent training services, and results which are consistent with the major thrust of the literature (e.g., Koegel *et al.*, 1984). On the other hand, Case B serves to illustrate many of the parent and family factors which have been implicated in poor parent training outcomes with other child populations. Investigations with other populations have identified a number of predictive factors (e.g., socioeconomic disadvantage, maternal depression, and insularity) which probably also serve to moderate the potential effectiveness of behavioral parent training for some children with autism. One of the challenges for future research is the determination of the extent to which these factors serve similar functions in the treatment of autism. A major aspect of this challenge will be to attempt to sort out the directionality of effects in relation to the severity of child impairment.

The presentation of the case examples is not intended to suggest that these aspects of parent adjustment and family functioning were the only, or even primary, explanation for the differential child progress. Certainly, factors such as organicity and severity of impairment may more directly affect rate of progress, if not also determining a functional plateau. Similarly, the quantity and quality of other services provided for a child subsequent to parent training will need to be considered as another important factor in maintenance and continued improvement. We hope that our trainer rating measures will provide some meaningful quantification of these potential influences when future multivariate analyses are conducted on a larger sam-

ple. Nonetheless, this case comparison and the previous preliminary data serve to illustrate the need to give additional investigative attention to objective measures of parent adjustment and family functioning, as well as demographic variables, and their relationship to treatment outcome with behavioral parent training for children with autism.

The implications of such research efforts are also of paramount importance in the development of alternative and supplemental treatment strategies and decision-making models for the provision of educational and clinical services for young children with autism and other severe developmental disabilities. Such models may help guide the provision of more extensive community-based services for children and families destined to receive limited benefits from a lower-cost parent training program. In closing, whatever alternative treatment strategies and decision-making models are developed, comprehensive assessment will continue to be the cornerstone of appropriate individualization and evaluation of treatment services.

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