

Studies on the Efficacy of Child Psychoanalysis

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This article summarizes 3 studies that evaluated the psychoanalytic psychotherapeutic treatment of diabetic children and adolescents with grossly abnormal blood glucose profiles necessitating repeated admissions to hospital. Study 1 used time series analysis to demonstrate that improvements in control were predicted by unconscious themes emerging in the analytic material. Study 2 compared the effect of psychotherapeutic treatment with that of minimal psychological intervention in two well-matched groups ($n = 11$). Patients in the treatment group were offered psychoanalytic psychotherapy 3-4 times per week on the hospital ward. The intervention was highly effective in improving the diabetic control of the children, and this improvement was maintained at 1-year follow-up. Study 3 used single-case experimental design to demonstrate the marked effect of psychotherapeutic help on growth in diabetic children with short stature.

Large-scale and extensive assessments of adult psychotherapy abound, but child psychotherapy has received little attention from evaluation researchers (Institute of Medicine, 1989). Systematic studies of psychoanalysis are few (e.g., Wallerstein, 1986). Empirical studies are urgently needed to demonstrate the degree of efficacy of psychoanalytic interventions, to show the hypothesized unique quality of their effects, and to make progress toward identifying those patients who may derive greatest benefit from this type of therapy. Child analysis, the most intensive of the child psychotherapies, has not, until recently, been subjected to systematic evaluation. Yet a large proportion of currently available psychotherapies for children derive from, and owe their conceptual framework to, the understanding of child development, normal and abnormal, evolved on the basis of psychoanalytic work with children.

The reasons for the absence of vital research in this area are complex and cannot be understood without taking into consideration the social and economic context of therapeutic research. Briefly, psychoanalytic treatments tend to be intensive, five-times weekly, and relatively long-term, lasting an average of 2 years. They also require great expertise, and lengthy training

is required before an individual may be considered proficient in applying this method of treatment. Normally, child psychoanalytic training represents an additional 4 years of study following 6 years of training as an adult psychoanalyst. One consequence of this arduous preparation has been the worldwide scarcity of fully trained child psychoanalysts. The International Association of Child Psychoanalysis lists fewer than 500 members, few of whom are prepared to invest time in empirical research. Furthermore, researchers and those funding them tend to explore the effectiveness of short-term treatments of the type that can be performed by relatively inexperienced therapists. It is doubtful if findings from such studies are generalizable to child psychoanalytic treatments.

The goals of child psychoanalysis are radical and ambitious compared with less intensive alternatives, and they are usually formulated in terms of the return of a disturbed child to the path of normal development (Anna Freud, 1965). The elusive nature of the goals of child analysis (Kennedy & Moran, in press), combined with the disinclination of analytically oriented researchers to pursue systematic evaluation research, must thus be mentioned among the reasons for the lack of work in this area.

Before the imbalance in child psychotherapy research can be redressed through controlled outcome investigations, major methodological developments are required in at least two areas: (a) A comprehensive manual of the nature of child analytic interventions is required, and (b) a psychometrically sound instrument that measures the changes in psychological capacities thought to arise from psychoanalytic treatment must be developed. A developmental timetable of psychological capacity will be required to provide age-appropriate contexts for manualization and measurement. Changes in the scientific climate within and outside psychoanalysis and greater attention to principles of cost-effectiveness in both government and health administration have made it imperative that more limited evaluative studies of the efficacy of child psychoanalysis be undertaken (Institute of Medicine, 1989; Fonagy & Higgitt, 1989). We are skeptical about the power of currently available measures of

The studies described in this article are part of The Anna Freud Centre's program of research on the effects of child psychoanalysis. The Anna Freud Centre, formerly known as the Hampstead Child Therapy Course and Clinic, is the largest institution in the world devoted to the outpatient psychoanalytic treatment of children. The Centre had its roots in the Hampstead War Nurseries founded by Anna Freud and is now devoted to the training of child analysts and research on psychoanalysis and child development.

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symptomatology or psychological capacities, especially with reference to their relevance to changes in psychic structure that we believe can be achieved in psychoanalytic treatment. We remain concerned that the relatively large therapeutic effects observed in various short-term therapies arise, in part, from the contamination of outcome measures by the treatment process. In order to circumvent the vulnerability of many dependent variables to these effects, we have used physiological measures of long-term psychological adjustment to chronic illness as measures of therapeutic outcome.

Grünbaum's (1984, 1986) recent epistemological criticisms of psychoanalysis sought to demonstrate that psychoanalytic data were irretrievably contaminated by persuasive suggestions to a patient under the influence of positive transference. He showed that data generated in the clinical psychoanalytic setting bears the dual epistemic burden of (a) confirming the analyst's understanding of the patient and (b) supporting general psychoanalytic hypotheses concerning the nature of human development, psychological abnormality, and the existence and manner of functioning of numerous psychic mechanisms. Many investigators have accepted Grünbaum's view that psychoanalytic data are not capable of providing evidential support for psychoanalytic hypotheses according to the generally accepted criteria of modern science.

Freud's conviction that what will ultimately benefit the patient is the discovery of the truth led him to place perhaps undue emphasis on the patient's response to interpretation as an indicator of the validity of the psychoanalytic enterprise. "After all, his conflicts will only be successfully solved and his resistances overcome if the anticipatory ideas he is given tally with what is real in him" (Freud, 1917/1963, p.452). Grünbaum (1984, 1986), Farrell (1981), and other philosophers examined this argument in detail and found it critically flawed. Clinicians rely on their patients' responses to interpretations to validate their views. This is a permissive strategy whether their criterion for confirmatory responses is symptomatic improvement (as in cognitive and behavior therapy) or a more sophisticated search for confirmation in the patients' free associations (Freud, 1937/1964, p.363). The consequence of this approach has been an accumulation of successful case reports, all of which appear to support an array of psychotherapeutic methods (flatteringly termed *schools*) of bewildering heterogeneity. Kazdin (1988) estimates that over 230 distinct psychotherapy techniques are currently in use for treating children and adolescents with mental disorder and probably over 400 if psychological treatments for adult patients are included as well.

A number of psychoanalysts have decided to take up Grünbaum's challenge (Bucci, 1989; Edelson, 1984, 1988; Meissner, 1989; Wallerstein, 1986; Wurmser, 1989). Edelson (1986), for example, argues that, through the tightening of its investigative procedures, psychoanalytic researchers will become able to meet the methodological requirements of eliminative inductivism. Edelson's suggestions include the use of quasi-experimental designs derived from single-subject research, the use of causal modeling and statistical controls, suggestion-resistant measures of the analysand's response, the use of explicit operational criteria for the classification of the analysand's material, and the use of reliable rating scales that permit the assessment of the probable presence of specific clinical themes.

A number of commentators have called for extraclinical data for the validation of psychoanalytic contentions. There are, however, major epistemological problems to be overcome before we can import empirical findings from neuroscience or cognitive science laboratories into psychoanalysis (Fonagy, 1982). In particular, the psychoanalytic setting provides access to unique data that may not be available except in a long-term, confidential relationship. It provides a relatively standardized observational framework with an observer trained to disrupt minimally the flow of the emerging material while remaining attuned to his/her own as well as the patient's emotional reactions. It seems to us that, in addition to undertaking extraclinical empirical work, we should attempt to enhance the internal validity of data gathered in the clinical setting to standards capable of meeting the canons of objective scientific method while preserving the subtlety and complexity of subjective clinical phenomena.

Time Series Analysis

In this section we will summarize some recent process record-based individual case studies carried out at The Anna Freud Centre. These go some of the way toward achieving, for the psychoanalytic study of the individual case, the requirement of a logic of proof. Simultaneously, they strive to preserve the integrity, complexity, and depth of clinical inference.

In a broad sense, two techniques have been developed by psychoanalytic researchers to study relationships between patients' clinical material and other variables of importance in psychoanalysis. One relies on the segmentation of psychoanalytic observations into comparable epochs. In this method an aspect of the psychoanalytic process, normally the conjunction of two purportedly causally related events, is repeatedly extracted from segments of a treatment transcript (e.g., a symptom and its unconscious determinant). This method can identify the likelihood of the co-occurrence of two phenomena and, if one of the phenomena has a sufficiently specific point of onset, the epoch preceding the event may be contrasted with randomly selected epochs to strengthen the causal argument by demonstrating a time-bound relationship (see Luborsky, 1967; Peterson, Luborsky, & Seligman, 1983; Rice & Greenberg, 1984; Weiss & Sampson, 1986).

The second method, which had its origin at The Anna Freud Centre, aims at providing a mathematical model of the fluctuations observed throughout the entire period of the analysis. In contrast with the method that involves replication by segmentation and thereby artificially removes processes changing at a slow rate (Fonagy & Moran, in press), our approach, which is based on time series analysis, preserves all sequential dependencies in the therapeutic process. Time series analysis is a flexible statistical procedure adapted from econometrics to the behavioral sciences by McCleary and Hay (1980) and Gottman (1981). A time series is any form of measurement taken at roughly equal intervals over a large number of occasions. Independent expert ratings of clinical material derived from lengthy treatments thus constitute suitable series. As the number of observations required for a time series is large (at least 100 points), psychoanalytic treatments lend themselves well to

study using this technique, whether sessions or weeks of treatment are adopted as data points.

Our interest in studying the efficacy of psychoanalysis grew out of our clinical work with diabetic children and adolescents with life-threatening brittle diabetes (Tattersall, 1977). A few patients with insulin dependent diabetes mellitus (IDDM) experience serious difficulties in maintaining blood glucose levels close to the range for nondiabetics. The proportion of such patients varies from center to center but has been estimated at 1% of the juvenile IDDM population (Tattersall & Walford, 1985). Some organic factors that may play a part in bringing about brittle diabetes are well recognized. But even when all of these mechanisms have been excluded, there remain numerous patients whose inability to manage their diabetes is unexplained. Our clinical experience (Moran, 1984, 1987) brought us to the conclusion that the long-term efficacy of the treatment of brittle diabetes entails the exploration of the conscious and unconscious psychological functions of mismanagement and its consequences within an individual psychoanalytically oriented framework. Initially our work sought to develop a technique with which to test our understanding of the psychopathology of brittle diabetes and the manner in which psychoanalysis was helpful in restoring metabolic equilibrium in youngsters with this condition. We assumed that, if our hypothesis was correct, the clinical material over the course of a child's treatment would be found to bear a systematic relationship to the day-to-day fluctuations in blood glucose regulation.

We (Moran & Fonagy, 1987) used time series analysis to study the 184 weeks of the psychoanalysis of a diabetic teenager. Sally was referred for treatment in connection with her brittle diabetes, which had proved intractable to other medical and psychological treatments. Her life was continuously disrupted by recurrent episodes of hypoglycemia and ketoacidosis. Her diabetic control was monitored daily and was extremely poor for at least 2 years before her referral and during the initial phase of her psychoanalysis. Weekly estimates of the quality of her blood glucose regulation were obtained by averaging the daily records over a 6-year period. The weekly reports of the psychoanalysis were used as the basis of clinical ratings. The progress of her analysis was detailed in weekly reports presented by her therapist and was based on daily records written following every session. The weekly reports (approximately three pages each) contained summaries of the major themes of the week, illustrations of the patient's difficulties and anxieties, the therapist's understanding and interpretation of these, and the patient's responses.

These weekly reports were condensed in a clinical paper that was studied with a view to extracting the major analytical themes, defining these, and judging their presence or absence in any particular weekly report over the course of the analysis. Although we succeeded in devising operational definitions for 10 out of the 18 clinical dimensions, crucial aspects of Sally's psychopathology and the analytic process defied our attempts at systematic definition. On the basis of this clinical report, we identified five analytic themes to be part of the pathological structures (intrapsychic conflicts) underlying diabetic mismanagement. These concerned (a) Sally's feeling unloved by her father, angry with him for his lack of responsiveness, and frustrated in her wish to be loved, admired, and valued by him; (b)

rivalry with her mother for father's love and attention; (c) ambivalence toward her mother deriving from the experience of mother's psychiatric illness when Sally was age 6; (d) anxiety and guilt feelings over death wishes toward her parents and other family members who disappointed her; and (e) conflicts concerning the threats associated with diabetes, both reality-based and distorted by defensive processes.

A second set of analytic themes of comparable prominence in the treatment referred to material regarding Sally's symptoms. These included (a) her imitation of boys and related fantasies, (b) phobic anxiety in connection with attending school, (c) her imagined or actual intention to punish herself, (d) fantasies concerning a view of herself as damaged, and (e) manifestations of resistance to therapeutic progress in the analysis.

Operational definitions were formulated for each of the conflict and symptom categories to facilitate the rating of the presence or absence of each in weekly reports. To give an example, the definition of oedipal material was as follows: "heterosexual drive derivatives in relation to father and derivatives of death wishes in relation to mother, based upon triadic object relationships." The operational criteria used to identify conflicts were categorized and exemplified in a set of instructions for use by raters.

Ratings of the weekly reports were then carried out by two independent raters, both child analysts, and the treating analyst on a 5-point scale from *definitely present* to *definitely not present*. The correlations among the three raters were below .60 for three of the analytic themes (conflicts over murderous wishes and the symptoms of a damaged self-representation and resistance to the analysis) and were excluded from further analysis. The average interrater correlations for the seven remaining themes ranged from .78 to .62, with a mean of 0.70.

The association between diabetic control and the therapist's ratings of the seven reliable psychoanalytic themes was calculated, and six of the seven correlations reached statistical significance. This of course was of limited interest, inasmuch as the correlation may be totally accounted for by the general tendency in the data to show gradual improvements in diabetic control concurrent with an increased appearance of psychic conflict in the material and a general decrease in symptomatology. To remove the associations due to common trends, the series were differenced. In this way the covariation of week-to-week changes could be examined. To strengthen causal arguments, cross-lagged correlations were computed that gave an indication of the extent to which analytic themes could be predicted by, or indeed could predict, changes in diabetic control. (See Table 1.)

The finding of greatest interest was that although the presence of themes of conflict in the analytic material tended to foreshadow improvements in diabetic control, improved diabetic control appeared to increase the likelihood of manifest psychological symptomatology 1-3 weeks later. To this point, the pattern of data provided strong support for our psychoanalytic explanation of brittle diabetes (i.e., the transgressions of the diabetic regimen that cause brittle diabetes are neurotic adaptations to the anxiety and guilt aroused by unconscious conflict). The interpretation of these conflicts in the analysis tended to bring about an improvement in diabetic control, presumably by reducing the need for transgressions, but the conse-

Table 1
Cross-Correlation Coefficients (and Standardized Estimates) Between Analytic Themes and Index of Diabetic Control^a at Lags of -4 to +4 Weeks

Analytic themes	Association with direction of diabetic control								
	-4	-3	-2	-1	0	1	2	3	4
Conflict									
Feeling unloved and angry with father									
<i>R</i>	0.01	0.03	0.12	0.17 ^b	0.19 ^b	0.09	0.04	0.08	0.11
<i>SE</i>	0.13	0.39	1.55	2.20	2.46	1.17	0.04	1.03	1.40
Oedipal conflict									
<i>R</i>	0.15	0.27 ^b	0.19 ^b	0.19 ^b	0.13	0.04	-0.02	-0.05	-0.10
<i>SE</i>	1.91	3.48	2.45	2.45	1.69	0.52	0.25	0.64	1.28
Diabetes as an expression of psychic conflict									
<i>R</i>	0.10	0.03	0.04	0.09	0.07	0.10	0.10	0.06	0.07
<i>SE</i>	1.28	0.39	0.52	1.17	0.91	1.30	1.29	0.77	0.89
Conflicts associated with mother's breakdown									
<i>R</i>	0.00	0.05	0.02	-0.06	-0.12	-0.15	0.00	0.08	0.01
<i>SE</i>	0.0	0.64	0.20	0.78	1.56	1.94	0.00	1.03	0.13
Symptom									
Imitation of boys and related fantasies									
<i>R</i>	0.04	-0.08	0.01	0.09	0.13	-0.03	-0.07	-0.03	-0.06
<i>SE</i>	0.50	1.03	0.13	1.17	1.69	0.39	0.90	0.39	0.77
Phobic anxiety									
<i>R</i>	0.10	0.07	0.03	0.01	-0.05	0.02	0.17 ^b	0.23 ^b	0.25 ^b
<i>SE</i>	1.28	0.90	0.39	0.13	0.65	0.25	1.42	2.97	3.19
Deliberate self-punishment									
<i>R</i>	0.08	0.09	0.11	0.10	0.10	0.13	0.25 ^b	0.24 ^b	0.24 ^b
<i>SE</i>	1.02	1.16	1.42	1.30	1.30	1.68	3.23	3.09	3.06

Note. From "Psychoanalysis and diabetic control: A single-case study" by G. S. Moran and P. Fonagy, 1987, *British Journal of Medical Psychology*, 60, p. 368. Copyright 1987 by British Journal of Medical Psychology. Reprinted by permission.

^a The index of diabetic control was reflexed in transformation so that increased values represent improvements in blood glucose regulation.

^b Statistically significantly different from zero.

quent improved control at times led to temporary increases in anxiety and guilt.

Time series analysis is an exceptionally powerful technique. A threat to internal validity using lag correlations is that a common frequency of fluctuation of psychological variables and diabetic control may account for the correlations observed. The patient's menstrual cycle could, for example, have caused common cyclical trends between physiological measures and psychological ratings. This and other similar sources of bias may be overcome by time series analysis. The method of time series analysis we found most useful for the examination of psychoanalytic treatment data is the method of autoregressive integrated moving average (ARIMA) modeling devised by Box and Jenkins (1976).

Our analysis of the data was in three stages, beginning with the examination of the nature of the fluctuations and trends within each time series. In the second stage we used cross-lagged correlations to investigate whether the presence of one of the analytic themes (e.g., oedipal conflict) predicted an increase in the outcome variable in the following weeks. Using these results, in the third stage we were able to create transfer functions to determine the proportion of the variability of dia-

betic control that could be determined by our measures of psychic conflict. A transfer function is a linear equation that relates the past of one time series to the present and future of another.

We created several transfer functions. There were no significant transfer functions in which symptoms could be used as lead variables. Three out of the four series of conflict ratings produced significant transfer functions accounting for diabetic control. The most robust model was for diabetic control and oedipal conflict (see Table 2). The first two components of the model refer to the variability in diabetic control, which may be predicted on the basis of past observations of diabetic control 1 and 2 weeks previously. The third component represents the rating of oedipal conflict in the psychoanalytic material, which is shown independently to predict diabetic control over the 3 weeks following its rating in the analysis. The entire transfer function accounted for 46% of the variance in diabetic control (see Table 2).

Time series analysis supports causal inference to the extent that it may be assumed that a cause can be observed to precede an effect in time. Establishing the facts of chronology, even if it does not remove the need for a more direct experimental test,

Table 2
Transfer Functions for Oedipal Conflict (as Causer Variable) and the Index of Diabetic Control (Effector Variable)

Variable	Lag (weeks)	Estimate	Standard error of the estimates (<i>df</i> = 160)	<i>t</i> ratio	<i>p</i> <
Model ^a					
Oedipal conflict	3	4.14	1.3	3.2	.005
Diabetic control	1	0.67	0.07	8.9	.001
Diabetic control	2	0.21	0.07	2.8	.01

Note. From "Psychoanalysis and diabetic control: A single-case study" by G. S. Moran and P. Fonagy, 1987, *British Journal of Medical Psychology*, 60, p. 369. Copyright 1987 by British Journal of Medical Psychology. Reprinted by permission.

^a Total percentage of variance accounted for by the model = 46%.

does provide persuasive indirect evidence of at least the possibility of a causal link. The suggestion is strengthened if the measurements taken can in no way be biased by the expectation of a causal link, as was diabetic control in the present case. Establishing a relationship between two variables in time is of itself, however, of little interest. Concomitant variation does not imply causation. To be of interest, such a demonstration has to be part of a broader causal story.

This individual case study showed that the presence and interpretation of psychic conflict predicted an improvement in diabetic control. The findings lend some support to the psychoanalytic model of therapeutic change (e.g., Arlow, 1988). The support, however, is limited. It could be argued that emotional responses associated with insight rather than insight per se were primarily responsible for changes in blood glucose control associated with analytic themes. A number of workers (e.g., Barglow, Berndt, Burns, & Hatcher, 1986) have demonstrated that metabolic balance may be adversely affected by the physiological concomitants of emotional arousal, particularly anxiety. It is plausible that a relative reduction in manifest anxiety associated with the interpretation of unconscious conflict, rather than the interpretation of unconscious conflict per se, accounts for the temporal association of psychic conflict and diabetic control. Further studies will be needed to examine this possibility. Even if emotional reaction to interpretation rather than the mitigating effect of interpretation on maladaptive behavior is shown to be the critical variable mediating the short-term effects of psychoanalysis on diabetic control, the long-term trend for such reactions to decrease as a result of psychoanalytic treatment could not be denied.

The Controlled Outcome Study

In our second study, more fully reported in Moran, Fonagy, Kurtz, Bolton, and Brook (1989), we aimed to evaluate the effectiveness of our inpatient program, combining psychoanalytic psychotherapy and medical management, which was informed by the understanding gained in the psychotherapeutic process. The role of emotional factors in the disruption of glycemic regulation has received considerable attention (see Fonagy, Moran, & Higgitt, 1989, for a review). The most common way

that emotional difficulties find metabolic expression in patients with IDDM is through "wilful mismanagement." Tattersall and Walford (1985) contend that "brittle diabetics engage in dangerous behavior . . . often because it 'pays' in the sense of fulfilling other needs whether for love, shelter, approval or escape from an otherwise insoluble conflict" (p. 76). From a psychoanalytic standpoint, we construe extreme transgressions of the regimen as neurotic adaptations to anxiety and guilt aroused by unconscious conflict. Psychotherapy sought to help brittle diabetic patients arrive at an understanding of the pre-conscious antecedents of transgressions by the provision of insight into their conflicts, anxieties, and maladaptive defenses (Moran & Fonagy, in press). It was our thesis that psychological treatment would bring about favorable changes in the quality of adherence to the regimen and that this would be reflected in measures of the child's metabolic control.

Our sample consisted of 22 child and adolescent patients under the care of the endocrinologists covering two London hospitals serving distinct catchment areas. The treated group consisted of 11 patients admitted to a central London teaching hospital for prolonged periods. All these children and their parents were offered psychotherapy in conjunction with medical supervision. They were consecutive admissions for brittle diabetes to a pediatric ward over a 3-year period.

Children in the comparison group were admitted during the same time period to other pediatric wards in the same hospital group. They were seen routinely for psychological assessment, but psychotherapy was not offered to this group. No routine treatment was withheld from the comparison group. The criteria for inclusion in the study were (a) age range 6–18 years, (b) IDDM of at least 2 years' duration, (c) diagnosis of brittle diabetes according to specific criteria, and (d) the absence of psychotic disorder or severe learning difficulties. The operational criteria for the diagnosis were (a) at least two severe episodes of hypoglycemia or hyperglycemia in the previous 3 months, (b) clear indication of significant interruption to the child's life at home or at school, (c) the brittle condition was chronic and was retrospectively identifiable at least 6 months prior to referral, and (d) at least two diabetes-related admissions to hospital in the preceding year.

Children were treated by two child analysts trained in the psychoanalytic tradition of The Anna Freud Centre. Although the treatment did not follow a treatment manual, the techniques in which the therapists were trained are comprehensively described in Sandler, Kennedy, and Tyson (1980). Treatment integrity (Yeaton & Sechrest, 1981) was ensured by regular case supervision from senior analysts and by reports to Centre staff for all the patients in treatment. The children's psychotherapy was carried out according to the principles embodied in the descriptions of Bergmann and Freud (1965), Solnit (1960), Yorke (1980), and Moran (1984) for psychoanalytically informed work with children and adolescents with chronic illness. The treatment approach specific to brittle diabetes is more fully described in Fonagy et al. (1989).

The psychoanalytically informed treatment began with a detailed description of the child's condition from an endocrinological and psychological perspective. On the basis of information obtained at the time of assessment, dynamic hypotheses were formulated for each child as to the probable cause of his or

her mismanagement of the diabetic regimen. These involved both intrapsychic and interpersonal constructs.

The parents were then informed of the inpatient treatment recommendation, its intensity (45-min sessions 3–5 times a week), and its likely duration (actual range 5–28 weeks). Parental involvement with the treatment varied according to the child's age and the hypotheses that had been formulated regarding the underlying reasons for the condition. With two exceptions, parents were assigned a professional worker who would help them to understand and to cope with their child's problem, as well as to explore their own inadvertent contributions to their child's condition.

The interviews were initially unstructured and focused on the child's interests and emotional concerns and were conducted to help the child feel that he or she had an ally in the therapist. The therapist avoided direct questioning of the child concerning the causes for episodes of metabolic derangement.

With both children and adolescents, discussions of matters related to diabetes and the regimen were approached in noninterrogative form to indicate the therapist's recognition of the child's difficulties and frustrations in adhering to the regimen. The cardinal principle in this respect was for the therapist to take cognizance of the fact that although many of these children might appear to manifest little anxiety about their condition, this stance merely represented an effort on the part of the child to ward off anticipated criticism and to avoid the anxiety aroused by serious contemplation of the gravity of the situation.

The findings from the separate interviews with the parents and the child were continuously reviewed in an effort to further refine the hypotheses concerning the factors underlying nonadherence to the diabetic regimen. On the basis of this understanding, therapists tried to identify and verbalize the child's conflicts and attempted to clarify the ways in which diabetic mismanagement expressed or served to distract the child's attention away from repudiated wishes. Similarly, therapeutically derived insight was fostered to enable the child to improve his or her capacity to deal with the unconscious thoughts and feelings that created the need for self-punishment by purposefully induced diabetic imbalance. More generally, the links between the nature of psychological disturbance and diabetic mismanagement were explored to help the child stop actualizing his or her conflicts in behaviors that bring about metabolic derangement.

Those involved with the child's treatment, including the therapist, the professional working with the parents, and the medical and nursing staff, met regularly to discuss management of the child on the ward. As part of the therapy, nursing and medical staff were encouraged to confront the patients with their transgressions of the diabetic regimen. These confrontations were not to appear rejecting or critical. Rather they aimed at recognizing the need for the child to be in hospital to safeguard the child from his or her own destructive behavior. It was predicted that the anxieties aroused in the patient by such confrontations would intensify the working alliance with the therapist and facilitate therapeutic work.

Children in the comparison group also received systematic assessment, although this was less intensive than for the psychotherapeutically treated group. Most of the children were seen for from one to three assessment interviews and were of-

fered routine medical care equivalent to that provided for the treatment group. In 5 of the 11 cases, routine medical treatment included the involvement of a psychologist or psychiatrist, but none of the children were offered or received psychotherapeutic help.

Brittle diabetes involves a complex interactive sequence of changes in interdependent systems, including the physical properties of body fluids (blood glucose, metabolites, pH, electrolytes, etc.); symptoms (hypoglycemia, hyperglycemia, dehydration, acidosis, etc.); cognitive and emotional reactions (worry, anxiety, anger, disappointment, etc.), and behavioral reactions (attempts to control blood glucose levels, wilful mismanagement). Growth may be regarded as a common pathway through which a number of indices of diabetic mismanagement may have their effect. It is, however, no easier to identify a single indicator of metabolic derangement than it is to establish a single measure of outcome of psychological intervention for mental disorders.

The glycosylated hemoglobin (HbA₁) concentration was used to assess changes in diabetic control. HbA₁ is derived from a single assay and reflects average blood glucose levels over the preceding 4 weeks. Glycosylated hemoglobin measurements were performed by electrophoresis (Menard et al., 1980). The groups were assayed at irregular (approximately 3-month) intervals for HbA₁, and the values were averaged when more than one value was available for the period 6 months prior to admission (admission), on terminating hospital treatment and for the subsequent 4 months (short follow-up), and for the subsequent 8–10 months of up to six measures (1-year follow-up). Insulin doses (units/kg) were also recorded to ensure that possible excessive insulin treatment before admission did not confound the group differences (Rosenbloom & Clarke, 1985).

Table 3 shows mean HbA₁ values averaged at the time of admission, at short follow-up, and at 1 year for the children in both groups. Blood glucose levels were substantially reduced relative to levels on initial admission in the treated group, and these reductions were maintained at follow-up. The data were subjected to analysis of variance (ANOVA), which yielded a significant Group \times Time of Assessment interaction ($F = 5.08$, $df = 2, 15$, $p < .01$). In order to control for the slight differences between the groups in mean HbA₁ levels at admission, two analyses of covariance (ANCOVA) were performed to test the differences between the groups at short and at 1-year follow-ups controlling for HbA₁ levels at admission. The ANCOVAs yielded significant F ratios for both comparisons ($F = 5.11$, $df = 1, 19$, $p < .004$, and $F = 4.47$, $df = 1, 19$, $p < .05$ for the short and 1-year follow-ups, respectively).

More detailed examinations of the distribution of changes of HbA₁ values revealed that all but one subject in the treated group showed a reduction in HbA₁ over the course of the treatment, whereas only 4 out of the 11 patients in the comparison group showed an improvement in this period. Fisher's exact test reveals that this distribution is significantly different from chance at the 0.01 level. At 1-year follow-up, 9 of the treated patients remained below their pre-admission average HbA₁ levels for the year subsequent to their treatment, whereas only 3 of the comparison group members did so ($p < .025$). Clinically more relevant was the reduction of HbA₁ to within the acceptable range for diabetes ($<10\%$) in 6 of the treated subjects,

Table 3
HbA₁ Values (Means and Standard Deviations) of 22 Brittle Diabetic Children and Adolescents at the Time of Admission and Over Follow-Up Periods of 3 Months and 1 Year

Occasion	HbA ₁ value	
	Treated group (n = 11)	Comparison group (n = 11)
Admission		
M	14.3	13.6
SD	2.5	2.3
Short follow-up		
M	11.1	13.5
SD	2.6	3.0
1-year follow-up		
M	11.5	13.7
SD	2.4	2.7

whereas none of the untreated group showed such an improvement ($p < .025$). Sex, age, age at onset of diabetes, and length of brittle diabetes were all examined as possible determinants of change scores for the groups pooled together as well as separately by using Pearson product-moment correlation coefficients, but none of the associations proved to be statistically significant.

Daily dosages of insulin were reduced in both groups over the period of hospitalization, but not significantly. The data indicate that although some of the improvement in metabolic control may be accounted for by more appropriate insulin treatment, this represents a relatively small proportion of the observed effects. When insulin dose was introduced as a covariate in the analysis of HbA₁ levels, pretreatment and posttreatment differences as well as the Group \times Time of Assessment interaction remained statistically significant and little changed in terms of effect size (ω^2).

In some cases, improvement in diabetic control was seen to occur in the absence of substantial improvement in the child's psychological problems. Our measure of the success of the intervention was the quality of blood glucose control rather than psychological changes consequent upon the psychoanalytic intervention. Our finding is consistent with the view that brittle diabetes is caused by the investment with unconscious emotional significance of the disease or its treatment regimen leading to a life-threatening disregard for normal diabetic care. The primary aim of psychotherapy is to make conscious the specific conflicts and anxieties that have become interwoven with the regimen and thereby to free the management of diabetes from the maladaptive effects of neurotic compromise formation. Nevertheless, the improvements in the treated group extended beyond the diabetes. For example, 8 of the 11 children in this group were able to improve their family relationships.

It should be noted that about 35% of the treated children were left with unacceptably high HbA₁ levels at the time of the 1-year follow-up. Similar observations of the failure to achieve diabetic stabilization in a significant minority of patients following treatment was reported by Gill, Walford, and Alberti (1985). These authors argue that continued poor blood glucose regulation, despite improved adherence to the regimen, is the

result of physiological changes brought about by the antecedent period of hyperglycemic instability. In other words, a period of hyperglycemic deregulation caused by *cheating and manipulation* for primarily emotional reasons leads to a state of chronic instability maintained by physical factors. This theory, unifying organic and functional explanations for brittle diabetes, cannot, however, explain the relatively common pattern of spontaneous remission observed in this group of patients in their later 20s and 30s (Keen, 1985). Thus the physiological disequilibrium that may prolong brittle diabetes beyond the point where so-called cheating and manipulation are given up must be of limited duration. It is also likely that the involvement of hormonal mechanisms associated with emotional arousal (Barglow et al., 1986) accounts for the continued disruption of diabetic control in patients whose adherence to the regimen is improved through psychotherapeutic help.

The study has several critical limitations. The patients in the comparison group, although matched for severity of illness and medical management, were not comparable in terms of the amount of professional attention they received. A control group matched for expectancy and therapist time would not have been practical at the initial stage of testing the efficacy of our technique (Kazdin, 1988). Having validated our approach, we believe that further work is required to establish that insight rather than *attention placebo* is the effective therapeutic component (Prioleau, Murdock, & Brody, 1983). However, the severity and chronicity of the group of patients studied, combined with the fact that such patients tend to receive an inordinate amount of attention from their physicians and nurses, argue strongly against the notion that our patients could have improved as a result of simple attention. The systematic single-case investigation reported above demonstrated a close temporal relationship between the fluctuations of blood glucose levels and insight gained during the course of treatment. Although it may be tempting to extrapolate from the single case to the group intervention, we need to implement comprehensive improvements in our experimental method to ensure that the psychotherapeutic techniques used relate causally to the improvements observed.

Notwithstanding the issue of a nonspecific treatment effect, our study cannot reveal to us which components of this complex treatment program were particularly effective. As the groups were not matched for length of stay in hospital, nor for the provision of psychoanalytically informed ward management, it is possible that these rather than the psychotherapeutic components were critical in achieving the clinical gains.

A Single-Case Experimental Design

The individual case design we examined above represents an improvement on the traditional methods of data collection in psychoanalysis, namely by introducing increased rigor into data collection and data analysis. The information that was examined with more systematic methods was, of course, present in the data in the first place. Causal accounts are undoubtedly strengthened by careful attention to the reliability of categorization provided by good qualitative analysis, by a focus on chronological associations ensured by quantitative designs, and by the strengthening of external validity, which quasi-experi-

mental interpretations can provide. A major step toward improving internal validity is taken if the psychoanalytic researcher is able to manipulate particular aspects of the conditions to which the patient is exposed, and it is this type of manipulation that is assumed by experimental individual case studies.

Common to all experimental studies is the general principle of holding constant all factors except the independent variable under study. Applied behavioral analysis researchers to whom we owe single-case experimental designs tend to investigate patient treatments that produce rapid, clearly observable changes in behavior in the context of carefully delimited problems. Because of these basic differences in technique and the worldview within which pathology is seen (Fonagy, 1989), the methods are of necessarily limited direct applicability to psychoanalysis. It is difficult to envisage, in the context of psychoanalytic treatment, a comparable degree of control over the environment. It is unlikely that psychoanalysts would ever find themselves able to artificially manipulate the treatment condition. We may then have to accept that most psychoanalytic individual case studies will depend on the post hoc examination of naturally elicited treatment records and the random allocation of the point at which treatment is instigated.

Traditional psychoanalytic designs are B designs, where observations begin at the start of treatment. In the A-B design (Barlow & Hersen, 1984; Morley, 1987, 1989; Peck, 1985), a period of time is set aside for observing one or more aspects of the individual's problem (their frequency of occurrence, their intensity, etc.) before the treatment is started. A range of factors may cause changes in the patient's problem that are independent of the treatment effects (e.g., history, maturation, carry-over effects). In studies where the magnitude of the patient's problem is longitudinally monitored, instrument decay (i.e., the decreasing sensitivity of an instrument with use) should be mentioned as an additional possibility. Factors such as these can be readily identified and controlled for if baseline measures of the problem are taken.

Kazdin (1982) defines a good baseline as one in which (a) observations are frequent enough to identify random fluctuations; (b) there is no stable trend toward improvement or deterioration (but admittedly these may be unavoidable and can be partialled out statistically); (c) observations are long enough for variations to be reduced to within approximately 50% of the range; and (d) observations are not so long as to raise ethical objections. On the whole, causal inference is strengthened by increasing the number of measures during the baseline and in the therapy period. Similarly, showing that with more therapy more benefit is obtained strengthens the credibility of the case.

Because we took such a baseline and then repeated our measurement at comparable frequency throughout the treatment, we are able to claim that it was factors related to our treatment rather than the confounding factors independent of it that brought about the favorable change. Measures of outcome vary in the extent to which they are susceptible to confounding by historical events, maturational trends, the effects of previous treatments, regression to the mean, and other factors that threaten the internal validity of inadequately controlled studies. Traditional dependent variables in child psychotherapy research are particularly vulnerable, as changes achieved tend to

be small relative to the inherent variability of the measure across the population, and little is known about the natural course of change with time in the absence of therapeutic intervention. There are some measures, such as those pertaining to pervasive developmental disorders, in which any improvement would be significant in view of the natural course of the disorder. There are few aspects of development, however, in which sufficient information about normal variation is available to permit the appraisal of the statistical significance of changes associated with psychotherapy in the individual case. In this regard, however, growth is an exception.

Short stature in childhood can usually be explained by familial, social, or organic factors (Smail, 1984). Moreover, early diagnosis and treatment is essential if the child is to reach a final adult height within the normal range. In some cases, such as with children with chronically poorly controlled diabetes, the cause of short stature may be associated with metabolic and endocrine changes, psychosocial disadvantage, or both (Lacey & Parkin, 1974). Whether mismanagement of the diabetes over a long time period or the psychosocial precipitants of such mismanagement are the direct cause of the growth retardation, psychotherapeutic treatment may be justified. Furthermore, because the course of changes in height may be predicted with reasonable accuracy for both normal (Tanner, Whitehouse, Marshall, & Carter, 1975) and growth-disordered populations (Tanner, Landt, Cameron, Carter, & Patel, 1983), it should be possible to assess the effect of psychological intervention in terms of the deviation from this predicted course.

In our program of psychoanalytic psychotherapeutic treatment for brittle diabetic children, we treated 3 children with significant growth retardation (all below the third percentile in height). Psychological treatment was independent of ongoing medical intervention, which had proved to be of limited value for these children. Baseline data on their height for 2-3 years prior to their treatment provided ample evidence of this. Standard assessment of growth was performed at intervals of 3 months (Brook, 1982). Bone age was also assessed at yearly intervals from the beginning of the treatment of each child (Tanner, Whitehouse, et al., 1983). All growth measures were expressed as standard deviation scores for chronological age. In order to illustrate the contingency between the psychoanalytic therapy offered to these children and their growth measures, we computed three indicators for each patient for 6-month periods before, during, and after treatment: (a) height standard deviation scores for chronological age, (b) height velocity standard deviation scores for chronological age, and (c) predicted adult height from height and bone age before and 6 months after treatment (see Table 4).

The first patient, in treatment between the ages of 8 and 9½, showed growth retardation from the age of 5. Although his height velocity remained constant (-2.2), he was growing at a slower rate than his peers. Thus his height standard score declined from the age of 5½. During treatment his height velocity standard scores improved markedly. Most of the improvement occurred during the 1st year of treatment. His annual growth (height velocity) changed from 3.5 to 8.2, and correspondingly his height standard scores began to show an upward trend. Most important, over the follow-up period of 2 years he maintained the relatively high rate of growth and managed to reach

Table 4
*Median (and Range) of Growth Variables 2 to 3 Years Before, During, and 2 Years After
 Psychoanalytic Psychotherapy in 3 Children With Growth Failure*

Variable	Before treatment	During treatment	Following treatment
Child 1 (boy)			
Age (years)	6 to 8	8.1 to 9.1	10 to 12
Height standard deviation score			
<i>Mdn</i>	-1.86	-1.49	-0.70
Range	-2.04 to -1.46	-2.02 to -1.33	-1.01 to -0.43
Height velocity standard deviation score			
<i>Mdn</i>	-2.21	+3.52	+2.65
Range	-2.59 to -1.80	+3.26 to +4.8	+2.08 to +4.12
Predicted adult height (cm)	161.3	165.6	169.1
Child 2 (girl)			
Age (years)	11.5 to 13.5	13.6 to 14.5	14.6 to 16.5
Height standard deviation score			
<i>Mdn</i>	-2.28	-2.00	-1.37
Range	-2.62 to -1.89	-2.05 to -1.95	-1.91 to -1.52
Height velocity standard deviation score			
<i>Mdn</i>	-3.85	+3.75	+2.81
Range	-4.52 to -2.24	+2.47 to +4.79	+1.53 to +3.70
Predicted adult height (cm)	150.4	155.6	155.6
Child 3 (boy)			
Age (years)	10 to 12.4	12.5 to 13.9	14 to 16
Height standard deviation score			
<i>Mdn</i>	-2.99	-2.80	-2.75
Range	-3.0 to -2.8	-3.0 to -2.7	-2.9 to -2.4
Height velocity standard deviation score			
<i>Mdn</i>	-1.55	-0.71	+4.48
Range	-2.02 to -0.46	-2.2 to -0.67	+2.56 to +6.48
Predicted adult height (cm)	159.2	168.6	170.6

the 35th percentile in height. His predicted adult height before treatment was almost 8 centimeters less than his predicted adult height at follow-up at the age of 10. In a 5-year follow-up, this prediction has been found to be remarkably accurate, and the current height of this patient is 167.8 cm.

The second patient, a girl 13½ at the start of her treatment, had already passed her pubertal growth spurt. Her rate of growth before treatment was severely below normal. Between 10 and 13 she grew only 6 cm when one could have expected her to grow 18 cm. During the psychotherapeutic intervention her height velocity increased markedly, and it remained above average throughout the 2-year follow-up period. The intervention came too late to make a substantial impact on her predicted adult height, although the latter increased by over 5 cm (approximately 1 *SD*).

The third patient, a boy 12½ at the start of treatment, was 125.6 cm in height. His treatment initiated the establishment of a trend toward improved height velocity. His predicted adult height at the beginning of his treatment was over 10 cm below the prediction based on measurements following his treatment.

Catch-up growth in the three patients was associated with substantial improvement in HbA₁ levels, for example, from 16 to 7.8 in the 12-year-old boy from the time of admission to 1-year follow-up. The younger boy, who had frequent admissions to hospital for ketoacidosis before treatment, had no admissions over the 6 years of follow-up. M-values, a measure of how far a given glucose level deviates above or below a given standard derived from an individual patient (Schlichtkrull, Munck, & Jersild, 1965), were computed for this group of patients. The results indicated a drastic reduction in the variability of blood glucose levels as measured before treatment and following its conclusion. For example, the girl referred to in this study reduced her M-value from 136 to 34.

In interpreting these data, one need bear in mind the relative accuracy with which height is predicted for both pathological and normal children. The improvements in the above cases are highly statistically significant relative to the error in prediction in normal and abnormal children. The measure is particularly interesting from a psychological standpoint because, similar to HbA₁, it reflects long-term behavioral and emotional adjust-

ment. Most psychological measures are based on time sampling rather than on cumulative indicators. From a clinical standpoint, the achievement of a more normal height by these children is obviously in itself of great importance.

Discussion

We offer three illustrations evaluating the efficacy of psychoanalytic psychotherapy with children and adolescents. The findings suggest that psychoanalytic psychotherapy may be helpful to young individuals chronically incapacitated by their failure to adjust to a metabolic disorder. Each of the studies has major limitations in terms of the methodological compromises forced on us by a clinic-based research design. Ethical and practical constraints imposed on us by the gravity of the children's illness prevented us from making truly random assignments. Small sample sizes limit the generalizability of the findings. Inadequate as they are, the studies are of significance because they add data to a field that contains few systematic investigations (Casey & Berman, 1985; Weisz, Weiss, Alicke, & Klotz, 1987). Clinic-based investigations tend, on the whole, to produce smaller treatment effects than do strictly controlled studies (Weisz & Weiss, 1989). The results are noteworthy because the condition responds poorly to routine psychological or physical treatment (Shillitoe, 1988); and even when psychological treatment is offered, it is frequently rejected by the patient (Orr, Eccles, Lawlor, & Golden, 1986). Santiago (1986) quotes the famous Scottish physician, R. D. Lawrence: "in brittle diabetes nothing is broken except the heart of the physician caring for the patient" (p. 3263).

We have chosen physical measures of the impact of our treatment because these related most directly to the presenting problems. When assessing the value of psychoanalytic intervention, we feel that biochemical and growth measures of adjustment may be preferable to more commonly used psychometric indicators of mood or behavioral disturbances. The reason for this lies in the nature of psychological change, which psychoanalytic psychotherapy effects. All psychoanalytic approaches share an assumption that an important distinction must be made between transient behavioral or cognitive changes related to psychiatric symptomatology and more stable long-term alterations in psychic structure. It is assumed that such "structural changes" will be loosely coupled with cognitive and behavioral manifestations in the sense that the former may increase or decrease the probability of the emergence of the latter. Furthermore, it is assumed that structural modifications are unconscious and thus not amenable to self-report. In our view, endocrine and growth measures provide a more reliable indication of behavior than self-report or informant-based measures. In other words, we offer the measures as indicators of changes to psychological structure in preference to commonly used cognitive or behavioral measures.

Nevertheless we see a clear need for a measure of psychotherapeutic outcome that reflects stable pervasive underlying changes to psychic structure posited by psychoanalysts. A major step toward this goal has been taken by a research group organized by Wallerstein and colleagues (DeWitt, Hartley, Rosenberg, Zilberg, & Wallerstein, in press; Wallerstein, 1988a, 1988b; Zilberg, Wallerstein, DeWitt, Hartley, & Rosenberg, in

press). These workers formulated 38 rating scales pertaining to 17 psychological capacities that appear to reflect the basic changes in psychological structure of the kind regarded as important by psychoanalysts. Each rating scale has 4 points to reflect increasing deviation from a healthy state. The capacities include affect regulation, commitment to standards and values, self-coherence, empathy, and commitment in relationships. It remains to be seen whether this measure will live up to its promise in further investigations of its validity. If one were to devise such a measure for child analysts, many of the capacities would have to be rethought. Each capacity needs to be developmentally anchored (e.g., what is normal for a 3-year-old is often no longer healthy at 7). Frequently, childhood abnormality manifests in regressive shifts along particular developmental lines (A. Freud, 1965). Deviation from normal development is a second dimension that is specific for each capacity and developmental stage. With children, a third dimension is necessary. This measures their developmental status relative to the environmental conditions under which they live. Less can be expected in terms of developmental stages and psychological capacities from a 6-year-old who regularly sleeps with his single-parent mother and has his most personal physical needs attended to by her than from a child who is granted more independence. Thus the task of constructing an adequate measure of outcome to give an accurate reflection of alterations to stable, pervasive mental structures is exceedingly difficult.

We are also mindful of the urgent need to provide a systematic description of child analytic intervention. The manualization of child analysis is far more complex than for less intensive therapies (e.g., Luborsky, 1984). Without concrete guidelines for assessing the extent to which those delivering treatment adhere to the specifications of the technique, we will not be able to pinpoint the components of treatment likely to bring about therapeutic change. An adequate outcome measure and a comprehensive treatment manual will have to be developed before the genuine value of child psychoanalysis can be demonstrated.

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Butcher, Geen, Hulse, and Salthouse Appointed New Editors, 1992-1997

The Publications and Communications Board of the American Psychological Association announces the appointments of James N. Butcher, University of Minnesota; Russell G. Geen, University of Missouri; Stewart H. Hulse, Johns Hopkins University; and Timothy Salthouse, Georgia Institute of Technology as editors of *Psychological Assessment: A Journal of Consulting and Clinical Psychology*, the Personality Processes and Individual Differences section of the *Journal of Personality and Social Psychology*, the *Journal of Experimental Psychology: Animal Behavior Processes*, and *Psychology and Aging*, respectively. As of January 1, 1991, manuscripts should be directed as follows:

- For *Psychological Assessment* send manuscripts to James N. Butcher, Department of Psychology, Elliott Hall, University of Minnesota, 75 East River Road, Minneapolis, Minnesota 55455.
- For *JPSP: Personality* send manuscripts to Russell G. Geen, Department of Psychology, University of Missouri, Columbia, Missouri 65211.
- For *JEP: Animal* send manuscripts to Stewart H. Hulse, Johns Hopkins University, Department of Psychology, Ames Hall, Baltimore, Maryland 21218.
- For *Psychology and Aging* send manuscripts to Timothy Salthouse, Georgia Institute of Technology, School of Psychology, Atlanta, Georgia 30332.

Manuscript submission patterns make the precise date of completion of 1991 volumes uncertain. Current editors will receive and consider manuscripts through December 1990. Should any 1991 volume be completed before that date, manuscripts will be redirected to the newly appointed editor-elect for consideration in the 1992 volume.