

A Therapeutic Index: Measuring Therapeutic Actions in Psychotherapy

Mona S. Weissmark and Daniel A. Giacomo

This article describes a research method that measures a therapist's effectiveness by assigning a composite value to each therapeutic verbal statement during a session. The intrasubject averaging of these values is called the *mean therapeutic index* (Σ). In this study, whether the mean therapeutic index could be used to predict treatment outcome was investigated. A successful case and an unsuccessful case were selected for 15 therapists, and an early session for each case was coded using the mean therapeutic index. The results show that the magnitude of the effect of the mean therapeutic index, as indicated by the correlation coefficient r , was .92 ($r^2 = 0.85$). Thus, the mean therapeutic index accounted for 85% of the variance in the classification of treatment outcome as successful or unsuccessful. The findings point to the method's potential use for clinical practice and supervision of psychotherapy.

Researchers have made important advances in the empirical study of psychotherapy over the past 40 years. Progress in the field has been divided in two developmental phases (Garfield, 1990; Marmar, 1990). During the first phase, researchers conceptualized psychotherapy as a unidirectional process from therapist to patient. Patient variables and therapist variables were thought to be unrelated. Studies included single, discrete variables studied in isolation from the therapy context. Ratings were frequency counts along single variables. Within this framework, psychotherapy process was viewed as a unidirectional and homogeneous phenomenon, uniform across time, and separate from outcome (Greenberg, 1986; Henry, Schacht, & Strupp, 1986). According to several investigators, the search for simple associations between single, discrete variables isolated from their context and from outcome yielded results that had little clinical significance (Greenberg, 1986; Henry et al., 1986; Suh, Strupp, & O'Malley, 1986).

During the second phase there was a conceptual and methodological change. Researchers now consider psychotherapy to be a process of reciprocal influence between patient and therapist (Alexander & Luborsky, 1986; Greenberg & Pinsof, 1986; Marmar, 1990; Orlinsky & Howard, 1986). Patient variables and therapist variables are thought to be interrelated. Process studies have moved beyond frequency counts. Instead, multiple variables are being used that consider the context of the patient-therapist interaction (Greenberg, 1986; Marmar, 1990; Messer, Tishby, & Spillman, 1992). These multiple variables are used

for rating change processes (Canfield, Walker, & Brown, 1991; Rice & Greenberg, 1984). Within this framework, the psychotherapy process is considered to be a reciprocal and heterogeneous phenomenon, varying across time, and directly linked to outcome (Giacomo & Weissmark, 1992a, 1992b; Marmar, Horowitz, Weiss, & Marziali, 1986; Suh et al., 1986).

These new approaches have been useful for furthering the understanding of the psychotherapy process. Many investigators, however, argue that further work is necessary to study the change processes that are related to outcome. Using multiple variables to study the therapeutic process is an important first step, but the change process remains unexplained. Greenberg (1986) stated the following:

7 [the] identification of *patterns* in client and therapist in-session performance is the key strategy in studies aimed at explanation. . . . It is more the occurrence of a particular pattern of variables than their simple presence or frequency of occurrence that indicates the therapeutic significance of what is occurring in therapy. (p. 7).

The strategy of focusing on patterns within and across therapists' behaviors will allow researchers to link specific therapists' behaviors to treatment outcome (Greenberg, 1986; Henry et al., 1986). It will also offer the possibility of addressing the process uniformity myth by looking at what therapist behaviors are most effective for what patient behaviors under which set of circumstances.

The purpose of this study was to develop a method for measuring patterns within a single therapist's performance. Psychotherapy is viewed as a process of reciprocal influence between patient and therapist. Patient behaviors are rated along a set of variables. The patient variables represent contextual cues on which therapists base their interventions. Therapist behaviors are rated along a set of variables that therapists use to change patient variables.

The therapist variables were used to code a therapist's verbal statements. The codings resulted in a multidimensional pattern for each statement. These patterns are formed by the combinations among the multiple therapist variables. The relative therapeutic effectiveness of each statement is obtained by comput-

Mona S. Weissmark and Daniel A. Giacomo, Department of Psychiatry, Cambridge Hospital, Cambridge, Massachusetts.

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Correspondence concerning this article should be addressed to Mona S. Weissmark, 6 Chester Street, Cambridge, Massachusetts 02140.

ing the therapeutic value of the multidimensional pattern of that statement. To compute the relative therapeutic value of the pattern, we first assigned a relative weight to the therapist variables. We then obtained the therapeutic value by adding the weights for each statement. This value, called the *therapeutic index*, quantifies the degree to which a therapist statement evokes changes in a patient. The intrasubject averaging of the values of a therapist's statements during a session is called the *mean therapeutic index* (Σ).

Our study was designed to test the relationship between the mean therapeutic index and treatment outcome. Specifically, we predicted that the mean value of a therapist's therapeutic index early in treatment would be positively correlated with treatment outcome. Plotting the therapeutic index against time allows for tracking the moment-to-moment changes in a therapist's interactions and their relative value for outcome (Greenberg & Pinsof, 1986). Both the value of the mean therapeutic index and the plotting of the index summarizes the performance of a therapist during a session. It also provides information about within-subjects variability. In this article we present a description of the design, methodology, and results of the study. Finally, the findings are examined from a clinical perspective, highlighting aspects of the method that may be useful to the practicing clinician.

Method

Design

The strategy in this design was to provide an estimate of treatment differences by selecting, for each therapist, a successful case and unsuccessful case that were based on patient outcome ratings. A total of 15 therapists and 30 patients were included in this study. The 30 therapeutic dyads were drawn from the Vanderbilt II Psychotherapy Research Project, a 5-year study of time-limited psychotherapy.¹ Dyad selection was structured to produce two equal groups ($n = 15$) on the basis of patient outcome measures used in the Vanderbilt study. The outcome data from the Vanderbilt study consisted of pre-post residual change scores that were calculated on the Global Severity Index (GSI) and the Global Outcome Ratings (GOR) from the revised Symptom Distress Check List (SCL-90-R; Derogatis, 1977), made by the patient after therapy (-5 to +5 direct change rating). These outcome measures are independent of the coding method used in this study. Transcripts of videotaped sessions at the beginning of treatment (third session) were obtained for the 30 cases. Session 3 was selected so that the hypotheses about the therapeutic predictive variables could be tested by an early session in treatment.

Research Materials

The data for this study, which included transcripts of videotapes and outcome scores for 30 psychotherapy cases, as noted before, were drawn from the Vanderbilt Psychotherapy Project. The study has been described in detail elsewhere (Henry, Schacht, Strupp, Butler, & Binder, 1993; Henry, Strupp, Schacht, Binder, & Butler, 1993). Only the aspects of the design and procedures that bear directly on this study are included in this article.

Participating patients were comparable to a general psychiatric outpatient, as indicated by intake scores on the GSI of the SCL-90-R. The two outcome groups were statistically equivalent on the GSI measure at intake. The patient mean GOR score was 3.397 ± 1.718 . The mean pre-

post treatment change on the GSI was 4.84 ± 1.71 . All patients were judged to have significant interpersonal difficulties and qualified for a *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1987) Axis I or Axis II diagnosis, as determined by a clinician, using a computerized rating version of the National Institute of Mental Health Diagnostic Interview Schedule. The mean age of patients was 41.04 (range = 24-64 years), 77.5% were female, 48.8% were married, 17.5% were single, 25% were divorced, 3.7% were separated, and 5% were widowed. The mean level of education was 3 years of college. Patients were assigned on a random basis to participating therapists who were self-described psychodynamically oriented psychiatrists and clinical psychologists in private practice. The 15 therapists in the Vanderbilt study were aged 20-50 years. Of these, 11 were male. Eight were licensed psychologists and 7 were psychiatrists with a minimum of 2 years' full-time postinternship or postresidency experience. Therapies consisted of weekly 50-min meetings for a maximum of 25 sessions and were conducted with no intrusions by the research staff.

Measure

The Harvard Psychotherapy Coding Manual (HPCM) measures the manner in which the participants organize their experiences during therapy (Weissmark & Giacomo, 1988). The variables consist of patient and therapist variables.

Patient variables. People continuously assess their relations with others. Simultaneously, they also act to change these relations. For instance, suppose a woman discovers that her friend has gone into her briefcase. She may react angrily because she feels that her friend's act was intrusive. To change the intrusive relation, she may decide to do something about it. On the other hand, she may feel powerless to change the relationship. Suppose, however, that she discovers that her friend was putting a gift in her briefcase; her angry response may change to one of gratitude because she perceives the relationship to be intimate and not intrusive. If, however, she believes that her friend should never go into her briefcase, she will remain angry.

This illustration shows how people, in their relations, may assess objects ("I like your gift") or relationships. Some examples of relationships are intimacy ("He and I are very close"), intrusiveness ("He is very nosy"), and dominance ("He bosses me around"). Also, it shows how people change these relationships along three crucial dimensions: responsibility, competency, and circumstances. Each dimension has two poles: internal-external, reactive-selective, and conditional-unconditional, respectively.

Internal-external concerns assuming responsibility for a relationship. Statements that show a person feels responsible for a relationship are internal ("I left my briefcase open"). Statements that show a person does not feel responsible are external ("He went into my briefcase").

Reactive-selective describes the ability to change a relationship. Statements that show a person is unable to change a relationship are reactive ("No matter what I do or tell him, he goes into my briefcase"). Statements that show a person believes he or she can change a relationship are selective ("I stop him from going into my briefcase").

Conditional-unconditional refers to the circumstances of a relationship. Statements that show a person believes a relationship depends on circumstances are conditional ("He can go into my briefcase only to leave me a gift"). Statements that show a person believes a relationship is independent of the circumstances are unconditional ("Don't ever go into my briefcase"). Table 1 shows examples of the patient variables.

The coding method of the HPCM provides binary ratings for extracting the relational-material variable embedded in a patient's discourse.

¹ We thank Hans H. Strupp for making available transcripts of therapy sessions and outcome from the Vanderbilt Psychotherapy Project.

Table 1
Patient Variables

Type and pole	Example statement
Relational variables	
Object	
Material	I like your gift.
Relationship	
Relational	You are nosy.
Dimensional variables	
Responsibility	
Internal	I left my briefcase open.
External	He went into my briefcase.
Competency	
Reactive	I can't stop him.
Selective	I can get him to change his mind.
Circumstances	
Conditional	If you ask first, I don't mind if you go into my briefcase.
Unconditional	Don't ever go into my briefcase.

It also provides numerical ratings for identifying 30 relations. In addition, the system provides binary ratings for coding the dimensions internal-external, reactive-selective, and conditional-unconditional.

Therapist variables. The relations and dimensions people use to systematize their experiences are modifiable during ordinary interactions. Assessment changes of relations and dimensions leads to changes in people's emotional states and behaviors. As noted before, a person's anger about feeling intruded on may change to gratitude if that person assesses *intrusion* conditionally (e.g., a friend goes into the person's briefcase to leave a gift). The change from anger to gratitude reflects a change in the assessment of the relation *intrusion* from unconditional ("I expect you never to go into my briefcase") to conditional ("I didn't know you wanted to leave me a gift"). A person's assessment along the three dimensions is bidirectional (from conditional to unconditional or vice versa).

Within the psychotherapy framework, the relations and dimensions that people ordinarily assess become the potential sites for clinical interventions. Psychotherapy is operationally defined as the process of systematically inducing changes in the way patients organize their experiences along relationships and dimensions. The task of a therapist is to facilitate changes in the way patients organize their experiences. These changes are induced by systematically operating on patient variables (relationships and dimensions). For example, a therapist may induce a patient to change his or her assessment from external ("My friends are intrusive") to internal ("I drive them away"), from reactive ("I can't get close to anyone") to selective ("I can distinguish between closeness and intrusion"), and from unconditional ("People are always intrusive") to conditional ("Sometimes people just want to be close to me and are not intrusive").

Therapists induce changes along the patient variables by using three therapist variables: relational-material, inducers-noninducers, and matching-not matching. The relational-material variable refers to the assessment of attributes and relationships. Some examples of therapists' statements that assess attributes are "How old are you?" "Are you depressed?" "When did your problem begin?" Some examples of therapists' statements that assess relations are "Is he nosy?" "Do you feel close to him?" "Do you resent your wife taking charge?"

The inducers-noninducers variable describes the therapist-patient interaction. Therapists' statements that elicit assessments from a pa-

tient are inducers. Some examples of therapists' statements that are inducers are as follows: "What can you do to stop him from being intrusive?" "How would you feel if he moves away?" Therapists' statements that instruct a patient are noninducers. Some examples of therapists' statements that are instructive are as follows: "You have to move out." "You must not tolerate that behavior."

The matching-notmatching variable is about identifying a relationship embedded in a patient's statement. Therapists' statements that identify the same relationship a patient assesses are matched. Therapists' statements that identify another relationship or no relationship are not matched. Table 2 shows examples of the therapist variables. As stated before, therapists can elicit assessments (inducers) from patients along patient variables. The figure includes examples of inducers along each patient dimension.

The coding method of the HPCM provides binary ratings for extracting the relational-material variable embedded in a therapist's discourse. It also provides numerical ratings for identifying 30 relations. These binary and numerical ratings are the same as those used for rating *patient statements*. In addition, the coding method includes binary ratings for coding the inducer-noninducer dimension. Matching is coded by checking whether the relationship extracted from a therapist's statement matches the relationship used by the patient in the prior statement.

Reliability

The HPCM was used by one of us and an additional coder to code all 30 transcripts. The second coder, who was clinically inexperienced, was

Table 2
Therapist Variables

Type and pole	Example statement
Relational variables	
Object	
Material	What kind of gift did you get from him?
Relationship	
Relation	You feel his going into your briefcase is an intrusion, don't you?
Dimensional variables	
Congruence	
Matching	Patient: I hate when he reads my mail or goes into my briefcase. Therapist: Are you saying that you feel intruded on?
Not matching	Patient: I hate when he reads my mail or goes into my briefcase. Therapist: Are you afraid of expressing those feelings to him?
Directiveness	
Noninducer	You should stop him from being intrusive!
Inducer	
Internal	What do you do when someone is intrusive?
External	How does she intrude?
Reactive	Do his intrusions make you feel impotent?
Selective	How do you stop your father when he is intrusive?
Unconditional	Do you feel he will every stop being intrusive?
Conditional	In what areas does he respect your privacy?

trained by reading the HPCM, trying several standard practice cases not used in the study and receiving instructions from us. Ratings on these training cases were discussed to calibrate the judges. After 8 weeks of training, the second coder, unaware of the research hypotheses, independently coded a portion of the transcripts. Random spot reliability checks of both coders were made periodically by having both coders unknowingly code the same transcript. Interrater agreement for all coding categories was moderate to high (kappas ranged from .70 to .81). Both coders were unaware of the classification of successful and unsuccessful treatment outcome and did not know they were coding a reliability transcript. This provides a reasonable demonstration of the absence of bias in our ratings.

Procedure

The procedure for calculating the therapeutic index involved two phases. The first phase consisted of coding each therapist and patient statement (uninterrupted speeches) along the single variables codes of the HPCM. The second phase consisted of calculating the index for each therapist statement by assigning a weight to each single therapeutic variable using a point system.

Phase 1. During the coding procedure, the coders numbered each statement in the transcript. For example, the two statements in the following segment of a transcript were numbered 45 and 46.

45 Patient: I was very upset because I found my friend snooping around in my briefcase. I repeatedly told him never to go into my things. And no matter what I say he keeps doing it.

46 Therapist: How come you allow him to step on your territory? You are able to keep other people from stepping on your "territory." From what you've told me you are able to get, for example, your children to respect your space.

The coder then read through the transcripts and coded every statement made by the patient and therapist. Each statement was coded along the variables just described. In this example, Patient Statement 45 included the evaluation of the relationship *intrusion* (she perceived that her friend was intrusive). Also, the evaluation was unconditional ("I told him never to go into my things"), external ("My friend snoops around in my briefcase"), and reactive ("No matter what I say he keeps doing it"). The results of the codings were entered onto a coding sheet that contained columns for each variable coded. The columns included the statement number, speaker (patient or therapist), and the following dimensions: external-internal (1-0), reactive-selective (1-0), unconditional-conditional (1-0), inducing-instructing (1-0), material and relational (1-0), relationship (01-30), and match-not match (1-0). In this example, Statement 45 made by the patient would be coded as an external (0), reactive (1), and unconditional (0), relational (0) evaluation of the relationship *intrusiveness* (18).

Therapist Statement 46 shows the evaluation of the relationship *intrusiveness* ("stepping on your territory") that matches the relationship evaluated by the patient. The evaluation is internal ("You allow him to step on your territory"), selective ("You can keep other people from stepping on your territory"), and conditional ("You can keep your children from stepping in your territory"). The statement also represents a therapeutic inducer ("How come you . . . ?"). Statement 46 made by the therapist would then be coded as an inducer (1) from external to internal (1), from reactive to selective (0), and from an unconditional to conditional (1). It would also be coded as relational (0), containing the relationship *intrusiveness* (18) that matched (1) the patient. The therapist statement also matched the parameter evaluated by the patient (see Table 3).

The inherent dynamic quality of the therapeutic interaction is preserved by the interactive nature of the coding categories of this system.

Patients' and therapists' actions are coded along the same variables. Each statement made by the therapist is coded in relation to the previous statement of the patient as illustrated in the previous example.

Phase 2. The successive statements coded in Phase 1, as illustrated previously, resulted in a set of sequentially recorded data that consisted of strings of categorical data. As such, the data could be represented in a time frame format (Bakeman & Gottman, 1986). Each "frame" included the codes that co-occurred during that particular therapist statement. For example, the coding of Therapist Statement 46 resulted in a frame that included the string 1 0 1 1 0 1 (see Table 3).

During Phase 2 of the coding procedure, the codes were scaled on a multidimensional index. This index measured the impact of a therapist's statements on the therapeutic process. The index was computed by transforming the strings of categorical data into quantitative data. The transformation was done by using the following weights for each coding category: (a) if the therapist statement contained a relationship and matched the patient's statement, the score was 3; (b) if the therapist statement contained an inducer along a relationship, the score was 2; (c) if the therapist statement contained the dimension internal, selective, or conditional, the score was 1; (d) if the therapist statement contained no evaluation, the score was 0; (e) if the therapist statement contained an external, reactive, or unconditional evaluation, the score was -1; (f) if the therapist statement contained a noninducer, the score was -2; and (g) if the therapist statement contained a material parameter, the score was -3.

Empirical data show that at the beginning of treatment, patients' assessments, on the average, were external, reactive, and unconditional. During treatment, patients who shifted their appraisals from external to internal, from reactive to selective, and from unconditional to conditional were more likely to rate their therapy as successful and improved (Giacomo & Weissmark, 1992a, 1992b; Weissmark & Giacomo, 1993). The data also show that, on the average, therapists of a successful therapy encouraged patients to assess relationships when describing their difficulties. They matched the relationships appraised by the patients. They also induced changes in the patients' appraisal of the three dimensions: from external to internal, from reactive to selective, and from unconditional to conditional (Giacomo & Weissmark, 1992a, 1992b; Weissmark & Giacomo, 1993).

The weights were created by using a scale with zero in the middle, three weight values with positive signs, and three values with negative signs. Thus, the weights had two components: their signs and their absolute values. The selection of the signs was based on the data described earlier. The poles of the therapeutic variables—relational, matching, and inducing—were assigned positive signs, and the nonrelational (material), nonmatching, and instructing were assigned negative signs. Similarly, the poles internal, selective, and conditional were assigned positive signs. The poles external, reactive, and unconditional were assigned negative signs. Following Gottman, Markman, and Notarius (1977), the absolute weight values were arbitrarily selected. Clinical experience and pilot work suggested how the therapist variables could be ordered in increasing order of effectiveness (Giacomo & Weissmark, 1986, 1987). The assessment of relations that matched the patient's had the highest absolute value, followed by inducing and the assessment of dimensions. One strength of the Σ index, however, is that it permits an investigator to test the predictability of other weight systems.

The coders reviewed the coding sheets and assigned the appropriate weights to the strings that co-occurred during each therapist's statement. The therapeutic value of each therapist's statement was then calculated by adding the weights. The therapeutic value of each statement ranged from a maximum of +8 to a minimum of -8. For example, the string 1 0 1 1 0 1 for Statement 46 shows that the therapist statement included 2 (inducer along a relational parameter) + 1 (internal) + 1

Table 3
Coding Sheet

Statement number	Speaker	Internal	Reactive	Conditional	Inducing	Material-relational	Relationship	Match	Index
45	Patient	0	1	0	—	0	18	—	—
46	Therapist	1	0	1	1	0	18	1	8

(selective) + 1 (conditional) + 3 (relational parameter matched) and had a value of 8 (see Table 3).

After calculating the value of every therapist's statement, we entered the data points into a statistical program. Statistical analyses were performed with the computer program FASTAT (developed by Mark Bjerknes), which calculates the mean of the series. The mean of the series is the mean therapeutic index for an individual therapist during one session. Transforming the data in this manner allowed us to test directly and quantitatively the prediction that the value of the multidimensional pattern contained in therapists' verbal statements would be significantly associated with treatment outcome.

The data were smoothed to remove the point-to-point wobbles and jumps that make it hard to see the general shape. The smoothing was done by using a running smoother. For instance, a three-point running smoother takes a three-unit "window" for each value of the series. It calculates the mean of the three values and then records that value as the "smoothed" value for that window. It then moves the window to the next data point and calculates the average, and so on until the end of the series. The smoothed series is then plotted as a graphic with the number of verbal statement represented on the x-axis and the value of the index on the y-axis. The variability of the index across time can be shown by the graphic data display of the series.

Results

To address the prediction that the mean therapeutic index would be higher in the successful cases than in the unsuccessful cases, we conducted a planned paired *t* test. Because the hypotheses and aims of this study were concerned with therapist measures that are predictive of treatment outcome, early scores (Session 3) were selected for comparisons. As predicted, the *t* test yielded significant results for the differences between successful and unsuccessful therapist mean scores on the therapeutic index $t(14) = 8.859, p = .0001$ (two tailed). Thus, the therapeutic index discriminated between successful cases and unsuccessful cases, as shown in Figure 1.

The prediction about treatment outcome is not only significant statistically but also meaningful in magnitude by means of the binomial effect size display (BESD). This procedure, described in detail by Rosenthal and Rubin (1982), gives practical meaning to an effect size index and to research findings in general by showing the improvements in treatment success rates that are attributable to a new predictor variable, in this case showing whether and to what extent a higher therapeutic index indicated a greater likelihood of success. The magnitude of the effect, as indicated by the correlation coefficient *r*, was .92 ($r^2 = .85$) and was equivalent in practical magnitude to increasing the likelihood of treatment success rate from 4% to 96%.² This effect size, which is high in clinical research of this type, may be useful in guiding future therapeutic intervention efforts if its magnitude holds up on replication.

Graphic Data Display

The experimental design and the forms of data analysis used in psychotherapy research have usually isolated practitioners from their clinical performance (Hayes, 1981). In addition, the procedures did not capture variations in the therapeutic performance. The methods used in this project were designed to describe patterns in the therapeutic interaction that are not tapped by unidimensional variables. A way of further expanding the information gathered about the therapists' performance is by using graphic data display. The graphical display attains particular importance as a comprehensive means of interpreting trends over time in a form that permits rapid assimilation and assessment by the reader. The analysis is essentially a visual process. The schematic data plotting is a useful way for "seeing what is going on" in therapy across time (Tukey, 1977). Changes in the ongoing therapeutic effectiveness of the therapist's actions are recorded, providing a visual "topographic" summary of the therapeutic interaction. This summary has clinical utility because it gives behavioral referents to the scale that may be useful for referring to the transcript of the session.

The most common patterns of time series data that were found in the psychotherapy sessions were a change in level and a change in slope (see Figure 2). Changes in the slope of a pattern of data could represent intrasession changes that may not normally be revealed by conventional statistical analysis. For example, the change in slope in Figure 2d represents a decrease in the therapeutic effectiveness during the session. This change in slope during a session may be of applied importance because it is possible to return to the transcript and analyze the nature of the interaction at the point in which the slope shifted.

Discussion

The results of this investigation support the hypothesis that the therapeutic index is strongly predictive of treatment outcome. The study of specific patterns in therapeutic actions, as quantified by the mean therapeutic index early in treatment, differentiated between successful and unsuccessful cases. On the average, the verbal statements of therapists of a successful therapy yielded a higher index than those of an unsuccessful therapy.

The results also show the possibility of tracking the moment-to-moment variability of a single therapist's effectiveness. The graphic data display is a simple graph of index values displayed against time. Graphic data display can be used to represent in-

² $r = \text{The square root of } t^2 \text{ divided by } t^2\text{'s degrees of freedom.}$

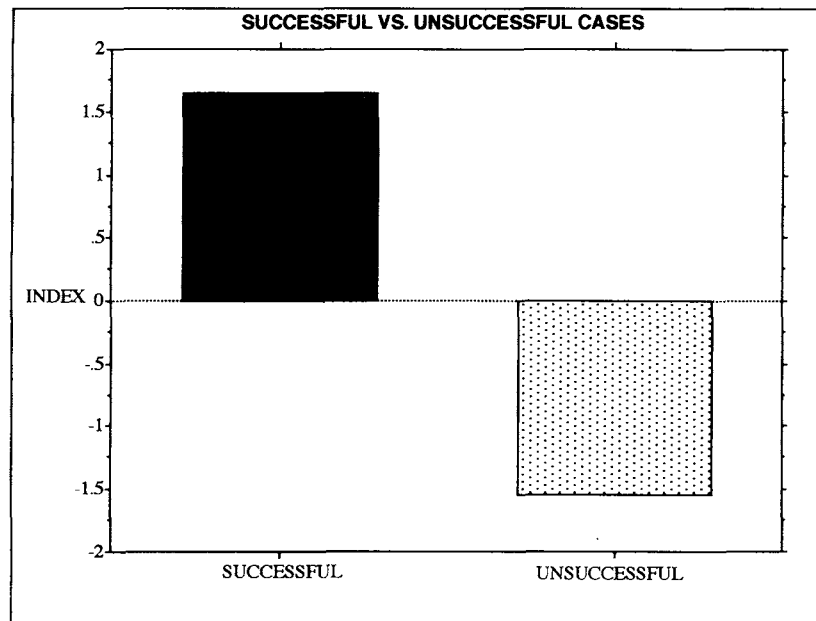


Figure 1. Relationship between treatment outcome and therapists' index.

trasubject variability. It can also be used to represent trends of performance over time.

Although the data provide good evidence for the validation of the proposed hypothesis, they also raise several important issues. The generalizability is limited because the method has been applied to only one database. Because the method was designed to code verbal statements as they are exchanged in the patient-therapist interaction, there is no compelling theoretical reason to expect these findings to be specific to one treatment approach. Yet, it remains an empirical question whether the therapeutic index exhibits discriminant validity across different treatment approaches. There is also the matter of interpretation. The interpretation of the findings is subject to the limitations of all correlational research. Our results provide no information about causality in the relation between outcome and the therapeutic index. First, the direction of the relationship between the index variable and the treatment outcome is not clear. For example, it is possible that patients who are making process in treatment may be more likely to elicit a specific type of interaction from their therapists. Therefore, therapists respond more with therapeutic variables or that patients or therapists of a successful therapy simply articulate more. The fact that the findings were observed early in treatment (third session) provides some support for the opposite pattern, that the therapeutic index leads to a favorable outcome. In addition, no significant differences were found between patients of a successful or unsuccessful therapy or therapists of a successful or unsuccessful therapy on the number of coded statements spoken. However, to prove convincingly the direction of the causal relationships, the hypothesized independent therapeutic index variable must be externally manipulated and its resulting effect on the dependent variable (treatment outcome) closely monitored. Only

when it is shown that treatment outcome can be modified by changing the therapeutic index variable can the direction of causality be considered to be established beyond a reasonable doubt. In addition, a controlled experiment could be potentially helpful for examining how the therapeutic index influences a broader range of treatment results.

These findings have theoretical and practical implications for the field of clinical psychology and psychotherapy. Competing theories have defined psychotherapy in many ways. We agree with Beutler, Arizmendi, Crago, Shanfield, and Hagaman (1984, see p. 231) that it seems consistent with most theories to suggest that it is a process of interpersonal persuasion in which the therapist influences the client in a way that will lead to increased personal adjustment. A major question that researchers continue to grapple with is, What specific therapists' operations influence patient progress?

Most researchers have sought simple associations between single therapist variables and outcome, such as the presence or absence of a specific therapist quality (e.g., whether a therapist is actively involved, empathetic, genuine, or supportive). By contrast, the research method described in this article was designed to take the context of the ongoing therapist-client dialogue into account and the sequential nature of the psychotherapeutic process. Thus, it is in keeping with the recent call for more clinically relevant research that preserves the ecological validity of psychotherapy process. As such, the method involves the detailed analysis of individual cases that is based on complete transcripts.

The therapeutic index is about the system of interactional links created by the patient and the therapist. The index is a transactional, multidimensional measure of therapeutic effectiveness. It quantifies each therapeutic statement in rela-

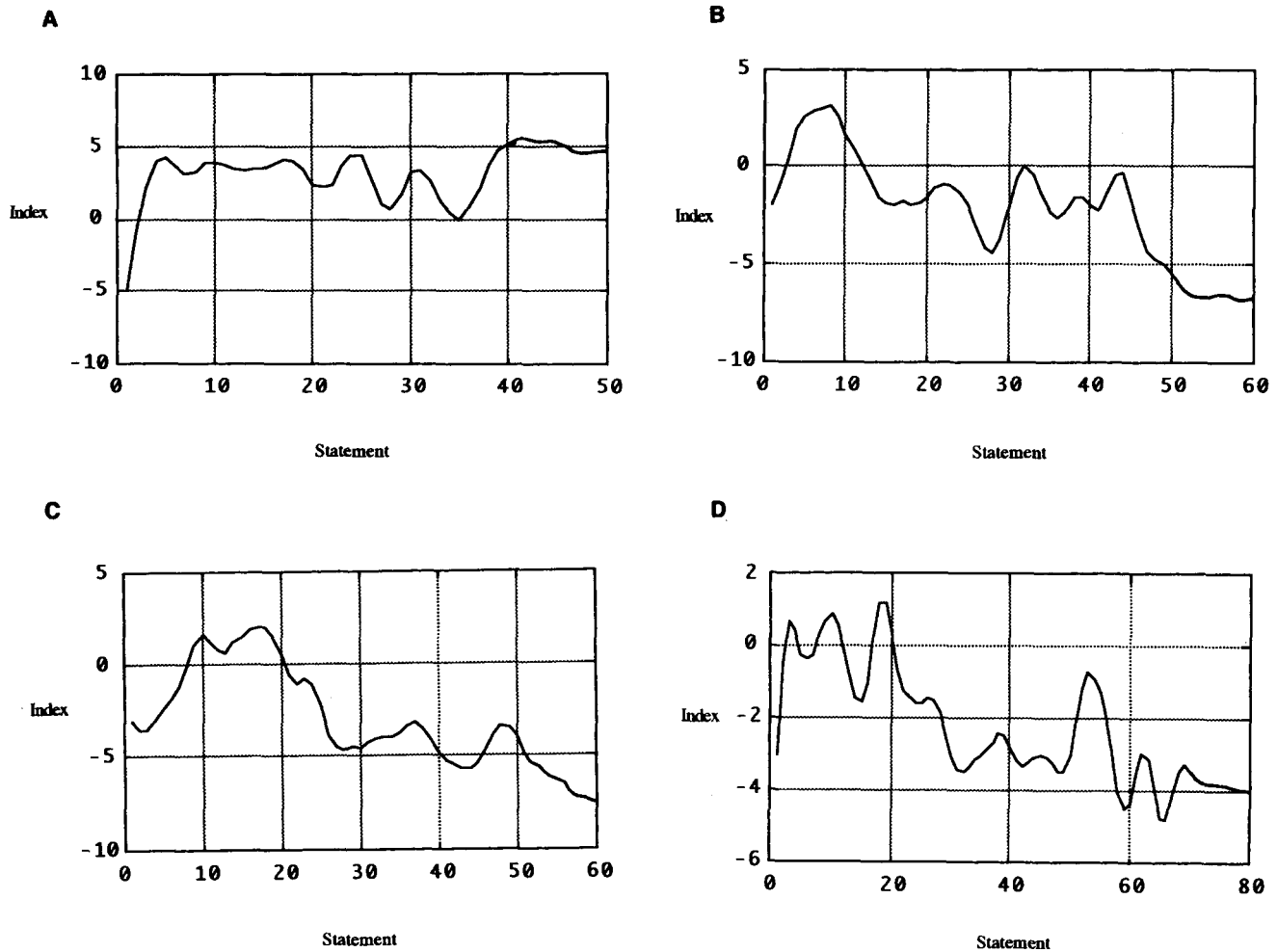


Figure 2. Variability of the therapeutic index as a function of time during a session. Panel 2A shows a pattern with an index that is positive. Panel 2B depicts a pattern that has an initial positive peak and a sudden decline to a negative level after Statement 10. Panel 2C shows a negative index with a positive slope that suddenly changes to a negative slope after Statement 18. Panel 2D represents an index with a negative slope.

tion to the patient's statement that preceded it. Previous research has shown that early in treatment patients statements are, on the average, external, reactive, and unconditional (Giacomo & Weissmark, 1992a, 1992b; Weissmark & Giacomo, 1993). During treatment, therapists continuously assess the multidimensional patterns contained in patients' statements. Therapeutic interventions are directed toward producing shifts in the multidimensional patterns underlying patients' responses. Patients of a successful therapy are more likely to shift their appraisals from external to internal, from reactive to selective, and from unconditional to conditional (Giacomo & Weissmark, 1992a, 1992b).

Therapeutic interventions aimed at producing shifts in the multidimensional patterns underlying patients' responses are seen as being multifaceted. Each facet of a therapist's action is measured by a therapist variable. This dimensional analysis of each therapeutic action allows for the structural analysis of the

patient-therapist interaction. Within this framework, it is possible to classify therapists' actions along a continuum scale of therapeutic effectiveness. The different degrees of effectiveness are related to the types of dimensions evaluated by a therapist. At one extreme of this spectrum of effectiveness there is a high interactive profile, T_1 . It is characterized by a therapist who induces a patient to assess relationships and shift evaluations and is sensitive to the relationships assessed by a patient. At the other extreme of the continuum there is a low interactive profile, T_2 . It is characterized by a therapist who instructs changes in a patient, does not induce a patient to assess relationships or shift evaluations, and is not sensitive to the relationships assessed by the patient. The therapeutic index quantifies these patterns along a continuum.

From the results of our study, one can draw several theoretical inferences about the psychotherapy process. Taken together, our findings lend support to the idea that successful psychotherapy

often increases patients' responsibility (internality), autonomy (selectivity), and adaptation (conditionality). Although different schools of psychotherapy place different emphases on what changes should be called *emotional development*, most schools emphasize that improvement is related to the capacity of patients to take responsibility for their behavior (Basch, 1988; Halleck, 1978). Responsible individuals tend to accept their behavior as their own (internal) rather than seeing themselves as passive victims of their environment (reactive and external). Also, they believe they can make choices (selective) in determining their behavior. Furthermore, responsible individuals feel that they can adapt to changing circumstances (conditional; Langer, 1983; Seligman, 1990).

Our findings converge with earlier findings concerning therapists' directiveness and advice giving. The degree of therapists' directiveness and the degree of comments about the goodness and badness of the patients (both are noninducers) were negatively correlated with outcome (Truax, 1970). Our results also support previous findings that outcome was significantly correlated with the congruence (matching) between the content of the central relationship patterns and the content of interpretations (Luborsky, Crits-Christoph, Mintz, & Auerbach, 1988).

From a practical perspective, the method described here has proved helpful for developing a more consistent way of improving and assessing clinical training. One main issue in clinical training and evaluation is finding an efficient way of improving trainees skills by a structured process. Worthington and Roehlke (1979), for example, found that one important factor in training was the supervisors' feedback. Feedback, however, will not be effective without clear criteria measures. According to Newman, McGovern, Kopta, Howard, & McNeilly (1988), "effective feedback appears to require clearly stated standards and the trainee's understanding of the contingencies effects associated with being right or wrong" (p. 660).

At first, it may seem that a single index may reduce the reconstructivity of the method and therefore lose some of its clinical utility. The possibility of referring from the graphic data display to the coding sheet, and from the coding sheet to the transcript, however, is still possible. This process of referring to the transcript has been proven useful in practice and teaching. It can be used for analyzing similarities in the content of a therapist's speech in the peaks and valleys of the curve. This makes the method a valuable tool for training. It can be used for standardizing, reconstructing, and comparing trainees' interventions within and across sessions. This characteristic makes the method useful as a standard for measuring and comparing trainees' performance. The method is also useful to supervisors for organizing clinical data and structuring feedback to their supervisees.

In conclusion, we point out some additional limitations of this study and suggest some improvements. The plotting of the index is a preliminary analysis of the observed variability in a therapist's effectiveness across time. To move beyond the empirical effectiveness trajectories, however, an important next step is to find a suitable mathematical model to represent the within-therapists variability in effectiveness (Willett, Ayoub, & Robinson, 1991). Another important step is to develop a patient

index that measures involvement in therapy along a continuum. This would make it possible to test the degree of congruence between the patient-therapist interaction indexes. Such efforts would allow for further insight into measuring therapeutic actions leading to patient progress in situ.

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