Structural Analysis of Social Behavior: Application to a Study of Interpersonal Process in Differential Psychotherapeutic Outcome

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Research strategies employing Structural Analysis of Social Behavior (SASB) were demonstrated in a study comparing 4 therapists, each of whom saw a good and a poor outcome case (N = 8), on interpersonal process variables in the third session. SASB represents complex interactive processes in a manner that is both theoretically cogent and empirically sound. Good versus poor therapeutic outcome was differentiated on the basis of the following interpersonal process variables: greater levels of "helping and protecting" and "affirming and understanding" and significantly lower levels of "blaming and belittling" were associated with high-change cases. Patient behaviors of "disclosing and expressing" were significantly more frequent in high-change cases, whereas "wallowing off and avoiding" and "trusting and relying" were significantly more frequent in low-change cases. Additionally, negative complementarity was greater in poor outcome cases. Implications for research methodology and interpersonal theory are discussed.

Psychotherapy process and outcome factors are often split into three categories: (a) patient antecedents; (b) therapist techniques; and (c) relationship (so-called "nonspecific") variables. Research to date has emphasized antecedent patient and relationship variables, although generally failing to demonstrate unique effects of therapist technique, leading to unsettling speculations that perhaps therapist techniques are unimportant (e.g., Parloff, Waskow, & Wolfe, 1978).

Traditional research methods foster this view of therapy as composed of discrete patient, therapist, and relationship variables. However, alternate approaches are possible. For example, Kiesler (1982) argued against considering patient and therapist variables isolated from their reciprocal dyadic context. Kiesler elaborated how problems in living appear as the sequelae of rigid, self-defeating communication patterns that collectively compose an interpersonal evoking style. The central antecedent patient variable is the client's interpersonal evoking style, and the main therapist technique variable is the therapist's manner of responding to this style. Thus conceived, patient and therapist variables join in a final irreducible pathway: the therapeutic relationship.

In this view, interpersonal transactions in the therapy dyad should become the fundamental unit of psychotherapy process analysis. Accordingly, technique is not distinct from patient and relationship variables; instead, maintaining and exploring the relationship is therapy's central technical task (not simply an analysis. Accordingly, technique is not distinct from patient and relationship variables; instead, maintaining and exploring the relationship is therapy's central technical task (not simply an analysis.

Unfortunately, most studies of patient-therapist interaction rely on crude measures of unilateral behaviors that neglect the exact nature of the dyadic transactions while also failing to articulate with any particular interpersonal theory. The present study reports a methodological demonstration designed to increase precision and/or ties to interpersonal theory in the study of psychotherapy transactions.

Circumplex models, from a psychometric standpoint, are the most sophisticated and theoretically coherent models of interpersonal behavior (cf. Wiggins, 1982, for review). Structural Analysis of Social Behavior (SASB; Benjamin, 1974, 1982) is the most detailed, conceptually rigorous, and empirically validated of current models. SASB was selected for the present study in accordance with Schaffer's (1982) guidelines for therapy process research. Specific advantages of SASB along these lines include the following: (a) It provides a research method congruent with theoretical premises about interpersonal process in psychotherapy; (b) it permits extremely fine-grained analysis of virtually any interpersonal event, and (c) it uses small rating units judged by methods requiring relatively low inference and permitting high specificity.

In the present demonstration, the SASB model was applied to 15-min segments of early therapy sessions drawn from four pairs of cases, each pair containing a high-change case and a low-change (i.e., good and poor outcome) case, treated by the same therapist under controlled conditions (described in Strupp, 1980a, 1980b, 1980c, 1980d). The following four hypotheses were designed to illustrate the kinds of clinically and theoretically meaningful questions addressable via the SASB model.

1. Communications should fall into different categories of interpersonal action (represented by SASB clusters) in high-change as compared to low-change cases.
2. Hostile and controlling therapist behavior (SASB Cluster 6, Surface 1) should predict poor outcome, consistent with Truax's (1970) observation that therapist's criticism was related to poor outcome and with Strupp's (1980a) finding that negative
therapist reactions to patients' hostility were associated with low patient change.

3. Patients' evoking styles that fall into Cluster 6 of SASB Surfaces 1 or 2 (i.e., hostile controlling of others and hostile submission, respectively) should predict poor outcome. Previous studies (e.g., Crowder, 1972) using simpler methodology have correlated passive-resistant and passive-hostile patient behaviors with poor outcome.

4. As compared with high-change cases, low-change cases should be characterized by more negative (i.e., hostile and controlling) complementarity. Complementary interactions occur when a respondent acts in a manner that is prototypically pulled for by the other's evoking style.

Method

Subjects

Four psychotherapists (3 psychodynamic psychiatrists and 1 lay counselor) were each represented by both a high- and low-change case (N = 8). The actual interpersonal transactions, not the type of therapy, are of prime importance to the present research. Outcomes were measured by pre-post Minnesota Multiphasic Personality Inventory (MMPI) profiles, ratings of target complaints and global change by patients, therapists, and independent clinicians (Strupp, 1980a, 1980b, 1980c, 1980d). Patients were single men, aged 18–25 years old, with symptoms of anxiety, depression, and social withdrawal (elevated 2-70 MMPI profile). Each received individual psychotherapy twice weekly up to a 25-session limit (cf. Strupp & Hadley, 1979).

SASB Analysis

SASB is a system of three interrelated circumplex surfaces. Each surface presents, in a two-dimensional space, 36 interpersonal behaviors that represent unique combinations of the theoretically primitive interpersonal vectors of affiliation–disaffiliation and independence–interdependence. The 36 behaviors of each circumplex surface may be collapsed into eight psychometrically validated clusters or four quadrants (Benjamin, 1974, 1982; see Figure 1). Because of superior psychometric properties and ease of interpretation, the cluster level of the SASB model rather than the 36-point version was employed in the present study.

Each SASB surface defines a particular perspective, or focus, on interpersonal transactions. Surface 1 involves focus on another person (transitive action), and Surface 2 involves focus on the self (intransitive states). 1 SASB Surfaces 1 and 2 are structurally homologous (see Figure 1); furthermore, interpersonally complementary behaviors are represented at homologous points across the surfaces. Complementarity is defined as reciprocity on the interdependence (control) dimension and correspondence on the affiliation dimension. For example, “watching and managing” on Surface 1 is the interpersonal complement of “deferring and submitting” on Surface 2 (i.e., the former pulls for the latter). 2

Procedure

Transcripts of third sessions were selected because prior research had indicated that the nature of the working alliance in time-limited therapy is well-established by this time and that this alliance predicts eventual therapeutic outcome (Suh, O’Malley, & Strupp, in press). Coding of the transcripts into the SASB model followed Benjamin, Giat, and Estroff's (1981) procedure manual. Initially, each transcription is broken into thought units, which are any portion of speech expressing one complete thought (independent judges usually have little disagreement when unitizing transcripts in this manner). Coding itself requires a series of three decisions. First, the focus (Surface 1 vs. Surface 2) of the thought unit is established. Normally the therapist focuses on other and the patient focuses on self (although this is not invariably the case). Second, the thought unit is rated on a 5-point scale representing the primitive affiliation–disaffiliation vector. Third, the thought unit is rated on a 5-point scale representing the primitive independence–interdependence vector. Finally, the affiliation and autonomy ratings are used as Cartesian coordinate points to place the thought unit in its proper place. This position is subjected to a global judgment check (what Benjamin et al., 1981, called the “final clinical

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1 Surface 3 represents intrapsychic actions resulting when focus on the other (Surface 1) is directed inward on the self (introjection). Surface 3 is normally used in content analysis rather than process analysis and, accordingly, is not incorporated into the present interpersonal process analysis.

2 Because of the concept of focus, which gives rise to three separate circumplex surfaces, complementarity in the SASB system is more differentiated than in traditional one-surface circumplex models. In these traditional models (cf. Wiggins, 1982), the power dimension is represented by a single continuum ranging from dominance to submission. Thus a complementary interchange is one in which one party dominates and the other submits. In the SASB system, the meaning of the power dimension varies according to the interpersonal focus. On Surface 1 (focus on other), the continuum ranges from the traditional concept of dominance to autonomy-giving (freeing the other), whereas on Surface 2 (focus on self) the continuum moves from the traditional submission to autonomy-taking (asserting and separating from the other). In the SASB system then, the traditional dominance–submission definition of complementarity is supplemented by an additional complementary pattern in which one person is autonomy-giving (which differs from submission) and the other person is autonomy-taking (which differs from dominance). Further elaboration of this important advance in circumplex theory is given in studies by Benjamin (1974, 1982).
test”), which ratifies the interpersonal cluster into which the unit has been coded.

Raters who were blind to the outcome status of each case analyzed the first 150 thought units of each session (the first 15–20 min of the session). This segment was chosen arbitrarily, following the lead of Gomes-Schwartz (1978), who found no systematic difference in process scores attributable to the time sequence of rated segments. Transcripts and the original audio recordings were both used in the rating process. Independent interjudge agreement in SASB cluster assignment was high (Cohen’s kappa = .91, based on 150 judgments). Instances of disagreement were resolved through discussion and mutual consent.

Results

Prior to statistical analysis, observed frequencies in each SASB cluster for both patient and therapist were weighted to adjust for the fact that the proportion of thought units for the therapist versus the patient varied from case to case. Two $2 \times 2 \times 8$ (Change $\times$ Focus $\times$ SASB Cluster) analyses of variance (ANOVAs) were performed, one for data from patient utterances and one for therapist data. A within-subjects design was used, treating the dependent variables as repeated measures on the 4 therapists. This design removes the main effect of high versus low change due to the weighting procedure.

As expected, there was a main effect for focus for both the therapists, $F(1,3) = 52.93, p < .004$; and the patients, $F(1,3) = 94.88, p < .002$, indicating that therapists spent more time focusing on the other (i.e., the patient) and that patients devoted more time focusing on the self. Also as expected, therapists, $F(7,21) = 20.41, p < .001$; and patients, $F(7,21) = 10.36, p < .001$, did not equally utilize the eight available interpersonal clusters of the SASB.

The Outcome Status $\times$ Focus $\times$ Cluster interaction reveals that as predicted, therapists exhibited different interpersonal communication patterns in the high-change versus low-change cases, $F(7,21) = 3.01, p < .02$. However, the corresponding interaction for the patients failed to reach significance, $F(7,21) = 1.55, p < .20$ (see Discussion section).

Cluster Comparisons

Tukey’s HSD statistic was used in a series of individual SASB cluster comparisons to establish the exact differences in evoking styles between patients and therapists in the high-change versus low-change conditions. As predicted (Hypotheses 2 and 3), differences between high and low cases ($p < .05$) appeared for both the patients and therapists on SASB Clusters 2 and 4, appeared for therapists on Cluster 6, and appeared for patients on Cluster 8 (see Table 1), indicating that in high-change cases the therapists were significantly more affirming and understanding (Cluster 2, Surface 1), more helping and protecting (Cluster 4, Surface 1), and less belittling and blaming (Cluster 6, Surface 1). Patients in the low-change cases were significantly less disclosing and expressing (Cluster 2, Surface 2), more trusting and relying (in a passive, deferent sense; Cluster 4, Surface 2), and more walling off and avoiding (Cluster 8, Surface 2).

Complementarity

Following Dietzel and Abeles (1975), the procedure for measuring interpersonal complementarity allowed assessment of degrees of complementarity. In addition, we separated positive complementarity (i.e., affiliative and autonomy-enhancing reciprocal interchanges) from negative complementarity (i.e., hostile or controlling reciprocal interchanges).

The eight cluster ratings were first collapsed into four quadrant ratings. Then a $4 \times 4$ matrix was established, with each row and column representing one of the four SASB quadrants. Each interchange between patient and therapist could be represented in 1 of the 16 matrix cells.

For each pair of turns at talk, the last thought unit of the speaker and the first thought unit of the respondent were selected for complementarity evaluation. The raw frequencies in each cell were weighted to remove the effect of differing numbers of turns at talk across cases. Because the circumplex surfaces have two dimensions, it is possible to have degrees of complementarity. The highest degree of complementarity occurs when an interaction is complementary on both the affiliation-disaffiliation and independence–interdependence dimensions. A smaller degree of complementarity is expressed when an interaction is complementary on only one of these dimensions (cf. Kiesler, 1983). Following this logic, each cell was assigned a complementarity weight (3, 2, or 1), and the weighted frequencies in each cell were then multiplied by the complementarity weights to produce the data for the complementarity analysis. Finally, each cell was assigned either a positive or negative valence. Cells in which both interactants were in an affiliative quadrant (i.e., Quadrants 1 or 2) were deemed to represent positive interpersonal events, whereas cells in which at least one of the participants was in a disaffiliative quadrant (Quadrants 2 or 3) were deemed negative.

For each case, weighted complementarity frequencies were summed separately across the positive and negative cells to produce Table 1.

Table 1
Comparison of Structural Analysis of Social Behavior Cluster Means

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Therapist</th>
<th>Patient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Focus on other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Freeing/forgetting</td>
<td>0.0</td>
<td>0.9</td>
</tr>
<tr>
<td>2. Affirming/understanding</td>
<td>14.2</td>
<td>7.8*</td>
</tr>
<tr>
<td>3. Nurturing/comforting</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>4. Helping/protecting</td>
<td>31.9</td>
<td>26.0*</td>
</tr>
<tr>
<td>5. Watching/monitoring</td>
<td>2.3</td>
<td>3.5</td>
</tr>
<tr>
<td>6. Belittling/blaming</td>
<td>0.3</td>
<td>5.2*</td>
</tr>
<tr>
<td>7. Attacking/rejecting</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>8. Ignoring/neglecting</td>
<td>0.0</td>
<td>1.7</td>
</tr>
<tr>
<td>Focus on self</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Asserting/separating</td>
<td>0.0</td>
<td>0.3</td>
</tr>
<tr>
<td>2. Disclosing/expressing</td>
<td>2.7</td>
<td>4.9</td>
</tr>
<tr>
<td>3. Approaching/enjoying</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>4. Trusting/relying</td>
<td>0.5</td>
<td>0.2</td>
</tr>
<tr>
<td>5. Deferring/submitting</td>
<td>0.0</td>
<td>0.5</td>
</tr>
<tr>
<td>6. Sulking/appeasing</td>
<td>0.0</td>
<td>0.4</td>
</tr>
<tr>
<td>7. Protesting/recoiling</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>8. Walling off/avoiding</td>
<td>0.0</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Note: Scores represent weighted mean number of thought units per cluster. * $p < .05$. 

degrees of complementarity. In addition, we separated positive complementarity (i.e., affiliative and autonomy-enhancing reciprocal interchanges) from negative complementarity (i.e., hostile or controlling reciprocal interchanges).

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For each case, weighted complementarity frequencies were summed separately across the positive and negative cells to pro-
duce positive and negative complementarity indexes and were summed together to produce a total complementarity index. Differences in complementarity for the high-change versus low-change conditions were evaluated via t tests (n = 4).

Results support Hypothesis 4. When analyzed from the perspective of the therapist speaking first (and the patient responding), all analyses were significant. High-change cases showed greater positive complementarity, t(3) = 4.59, p < .01; less negative complementarity, t(3) = 2.66, p < .05; and greater total complementarity, t(3) = 7.30, p < .001. Similar results obtained for the analysis in which the patient spoke first and the therapist responded. High-change cases showed greater positive complementarity, t(3) = 3.0, p < .05; and less negative complementarity, t(3) = 3.0, p < .05. There were no differences on total complementarity in this condition, t(3) = 2.07, ns.

Multiple Communications

A multiple communication is one in which a single thought unit communicates more than one interpersonal message (e.g., a message that simultaneously communicates acceptance and rejection). Although the pattern is overwhelmingly clear (multiple communications were far greater in the low-change cases), the intercase variability produced a variance that precluded significance testing because of the small sample size. It is worth noting, however, that in the low-change cases 22% of the therapists' and 17% of the patients' thought units conveyed a multiple interpersonal process, compared with 0% of the patients and 2% of the therapists in the high-change cases.

Discussion

There are crucial differences between measuring categorical behaviors (such as specific types of interpretations) or global therapeutic climate (such as warmth) and studying small, specific units of interpersonal process. This study illustrates the potential value of fine-grained analysis of the interpersonal process between patient and therapist. High-change and low-change cases were differentiated via study of the interpersonal process early in treatment. Clear-cut patterns emerged, suggesting that a therapy might become infused with a pervasive interpersonal process rather early in treatment. The SASB-based research strategies permitted demonstration that as predicted, the same therapist, although using similar techniques with similar patients, nonetheless might exhibit markedly different interpersonal behaviors in low-change cases as compared to high-change cases. In the high-change cases none of the patients' communications and only 1% of the therapists' communications were judged to be hostile, whereas in the low-change cases the corresponding averages were 19% and 20%. However, because these conclusions are based on small segments from a limited number of cases, the generalizability of the current findings is unknown.

Interpersonal complementarity appears in the predictable patterns of dyadic elicitation—response sequences. Although the validity of complementarity as an organizing principle has been demonstrated repeatedly (cf. Dietzel & Abeles, 1975; Kiesler, 1982), the role of complementarity in psychotherapy remains controversial. One position proposed that treatment success requires therapists to respond in a noncomplementary or discom-
would benefit, in our view, from efforts, such as the present study, Benjamin, L. S. (1974). Structural analysis of social behavior. Psycho-


References