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The Ecology of Psychotherapy Research

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The ecology of psychotherapy research was examined with patient reports of demand characteristics and awareness of research instrumentation. Patients were part of the Vanderbilt II project that explored the effectiveness of manualized training. A total of 59 patients from the pretraining and posttraining phases of the project were interviewed after termination assessments were made. Patients who were highly aware of their role as a "subject" in an experiment had outcomes that were consistent with the primary hypotheses of the study, although training did not significantly improve outcomes. In the pretraining cohort, patients who were highly aware of their "subject" role had poorer outcomes and engaged less in exploratory processes. In the posttraining cohort, patients who were highly aware had good outcomes and engaged in more exploratory processes. Interestingly, therapists of these patients offered a positive relationship but failed to adhere to the principles taught during training. Demands of the research, especially how the patient defines his or her role, may affect results in significant ways.

To what extent is the process and outcome of psychotherapy conducted in a research setting influenced by (a) the demand characteristics of the situation and (b) the research instrumentation (e.g., tape recorders, questionnaires)? Both sets of variables are part of the ecology of the experimental situation and, thus, in need of careful study.

Orne (1962) demonstrated that the demand characteristics of the traditional human-"subjects" experiment can dramatically influence the results. His research showed that human subjects are not "passive responders" and that they are often highly motivated to identify with "the goals of science in general and the success of the experiment in particular" (1962, p. 778). In essence, Orne suggested that in a research setting, individuals play the role of "subject" to conform with the demands created by the task. Several researchers and methodologists (Gergen, 1973; Mishler, 1986; Rychlak, 1985; Silverman, 1977) have even implied that demand characteristics are analogous to Heisenberg's uncertainty principle in physics, because in psychological research it is equally impossible to study patients without the context of the experimental situation influencing the results.

Although patients in psychotherapy research are equally susceptible to the foregoing influences, their response may well be different. A major difference is that research patients typically receive bona fide treatment, as opposed to being "subjects" in a typical social science experiment, and they are actively seeking professional services that are typically provided for a fee. At the same time, however, patients in a research project are also experimental "subjects" who are asked to comply with procedures that are often presented separately from the therapeutic context (e.g., patients are being asked to complete questionnaires or tests).

The confounds created by specific research instrumentation may be more benign and less pervasive than responses attributable to demand characteristics. However, Lambert and Hill (1994) found some evidence that tape recording significantly alters important psychotherapy processes of both patients and therapists. Furthermore, awareness of instrumentation may contribute to a heightened awareness of the study's demand characteristics. Kazdin (1992), for example, observed that a battery of tests given to patients before treatment may sensitize them to the objectives of the research.

Given the potential importance of these confounding effects, the lack of research on the ecology of the psychotherapy research setting is difficult to understand. A rare exception is the work of Horvath (1984), who designed an analogue psychotherapy task where patients imagined various treatment scenarios. Scenarios and outcomes were similar among treatment groups except for patients in a "demand characteristics" group who were presented with subtle cues about behaviors that might be observable in cases of positive outcomes (e.g., increased confidence). Patients who were given these cues showed the greatest improvements. Horvath suggested that the influence of demand characteristics on the patients' report of outcome may constitute evidence of a "common-factors" explanation of the effectiveness of psychotherapy. He argued that demands may be an important component of psychotherapeutic treatment itself.

Our interest in ecological variables stems from previous research from the Vanderbilt I study (Strupp & Hadley, 1979), which found that so-called common factors could not be separated as easily from so-called specific factors as previously believed. Strupp (1986) later noted that the inherently interper-

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sonal nature of psychotherapy and its techniques makes the conceptual distinction between "technical" and "common" factors moot. One implication of this position is that the patient's involvement in the psychotherapy experiment and the research staff is also of an interpersonal nature, which necessarily influences the therapeutic process.

The present study was designed to explore the ecological influences that may have played a part in the Vanderbilt II project (Strupp, 1993b), which was designed to explore the effects of therapists' training in a manual-guided form of time-limited dynamic psychotherapy (TLDP; Strupp & Binder, 1984). Specifically, we examine (a) the demand characteristics based on the patients' perception of their role as "subjects" and (b) ecological influences created by research instrumentation such as tape recording and questionnaires. We hypothesize that patients who respond to demand characteristics have outcomes that are more in accordance with the primary hypotheses of the study than is true of other patients. On the other hand, patients who exhibit high awareness of research instrumentation should not necessarily have outcomes that are more in accordance with the foregoing hypothesis. This is because the effects caused by research instrumentation are more likely to be equally distributed across groups (Kazdin, 1992) and do not necessarily enhance the patient's awareness of the researcher's expectations. However, awareness of instrumentation should systematically affect some therapeutic processess such as exploration and involvement (e.g., patients who are aware of tape equipment may appear more tentative and less involved). On the other hand, patients who are high on demand characteristic variables should appear more involved in therapeutic processes since they are likely to feel a need to "perform" for the researchers. Finally, because therapists were also "subjects," we examine whether therapists' adherence to the specified treatment (TLDP) was influenced by their interactions with patients who were sensitive to the research ecology. We expect that therapists faced with patients who are responding more strongly to the demands of the research will also exhibit greater compliance to TLDP-specific interventions.

Method

Participants

A total of 449 adults applied for low-cost psychotherapy with experienced psychologists and psychiatrists. Only patients (a) who manifested significant distress (T score > 40 with outpatient norms) on the Global Severity Index (GSI) of the *Symptom Checklist—90—Revised (SCL–90–R*, Derogatis, 1983) and (b) who were experiencing problems that had an interpersonal component were included in the study. Eighty-four patients received short-term psychotherapy (77% female). Four patients left treatment after fewer than five sessions and were replaced. Thus, 80 patients were included in the final sample of the project; 32 patients (2 patients per therapist) received treatment before the therapist's training in TLDP, 32 patients after training, and 16 (1 patient per therapist) during training. The present study followed the procedures of previous work (see Henry, Strupp, Butler, Schacht, & Binder, 1993) and included only patients in the pre- and posttraining cohorts. Five patients did not complete the ecology interview and were, therefore, not included resulting in a final sample of 59 patients in the present study.

A total of 16 psychotherapists participated (8 psychologists, 8 psychiatrists: 10 male, 6 female) who were all in private practice. Therapists had at least 2 years of full-time professional (posttraining) experience and most described themselves as psychodynamic in orientation.

Procedure

Once patients were accepted into the project (having completed phone, questionnaire, and interview screenings), they underwent an extensive Interpersonal Assessment Interview (IAI), which was conducted by a clinical psychologist who was a member of the project staff. The IAI was designed to resemble a therapy situation and was used by the clinician to make (a) ratings of the patient's capacity for dynamic process and (b) a global assessment of the patient's functioning. These ratings were used to assign to each therapist an equal number of patients with low and high levels of capacity for dynamic process in all phases of the project (see Henry, Strupp, et al., 1993, for details). Patients and therapists agreed in advance to a 25-session time limit for psychotherapy. Patients received another assessment interview at termination (typically by the same clinician) to determine progress during treatment and to enable us to judge the overall level of functioning (discussed later).

After completing treatment and assessment procedures, patients were interviewed by one of five clinical psychology graduate students. The purpose of these interviews was to gather information about the ecological influences that were experienced by the patient during the study. A standard set of questions was asked concerning the patient's role as "subject," pressure to succeed in therapy as a function of being in a study, reactions to taping, and usefulness of the questionnaires. Additional questions were asked about the patients' perceived relationship of their therapist to the project staff, concerns about the setting and time limits, and feelings about the assessment interview. However, because these additional questions were asked either inconsistently or irregularly, they were not included in the analyses.

Measures

Global Assessment Scale (GAS). The GAS is a general measure of current functioning on a scale ranging from 0 (*poor functioning*) to 100 (*high functioning*). GAS ratings were made independently by the clinician, therapist, and patient at pretreatment, termination, and follow-up (therapists did not make follow-up ratings).

Global Outcome Rating (GOR). The GOR is a general measure of the amount of improvement made by the patient since the beginning of treatment. GOR ratings were made at termination by the clinician, therapist, and patient on a scale ranging from −5 (*very much worse*) to 5 (*very greatly improved*).

SCL–90–R. The *SCL–90–R* (Derogatis, 1983) is a self-report symptom measure composed of 90 items. The GSI was used in this study as a general measure of symptomatology (rated from 0 to 4). The *SCL–90–R* was administered at screening, pretreatment, posttreatment, and follow-up.

Interpersonal Dependency Inventory (IDI). The IDI (Hirschfeld et al., 1977) is a 48-item self-report measure of maladaptive interdependence. Patients rated items on a 1 to 4 scale, and the weighted sum of all items was used.

Outcome composite measures. Given the large number of outcome measures, the standardized difference scores for these measures (except for the GOR, which was a single rating of outcome made at termination) were summed to create four separate aggregate measures of outcome based on patient, therapist, clinician, and total sources. For patients, the outcome composite included their standardized GOR ratings and their standardized difference scores on the *SCL–90–R* and the IDI; for therapists and clinicians, the composite consisted of GAS and GOR ratings. Outcome was calculated for pretreatment to termination, but follow-up outcome scores were not used because some of the levels

from the ecology variables fell below acceptable levels for statistical analysis ($n < 5$).

Vanderbilt Psychotherapy Process Scale (VPPS). The VPPS (O'Malley, Suh, & Strupp, 1983; Suh, O'Malley, Strupp, & Johnson, 1989) was designed to measure global behaviors and attitudes of the therapeutic interaction. It is composed of 80 items (each rated on a 5-point scale). Factor analysis has found the scale to have seven subscales (all subscales had internal consistencies greater than .80). Following earlier work by members of the Vanderbilt research team (Gomes-Schwartz, 1978; O'Malley et al., 1983), we combined the VPPS subscales to form three broad conceptual dimensions of process: patient involvement (Patient Participation, Patient Hostility), therapist-offered relationship (Therapist Warmth and Friendliness, Negative Therapist Attitude), and exploratory processes (Therapist Exploration, Patient Exploration, Patient Psychic Distress). Two teams of clinical psychology graduate students rated the middle 15 min from the third sessions of all pretraining and posttraining cases. Raters had not been informed of the training status of each case, and the intraclass R between the two rating groups was above .80 (as previously reported by Henry, Strupp, et al., 1993). We used the VPPS to better understand those therapeutic processes that might be related to the various ecological factors examined in this study.

Vanderbilt Therapeutic Strategies Scale (VTSS). The VTSS (Butler, Henry, & Strupp, 1995) is a 21-item rating scale that was developed for the purpose of the Vanderbilt II study. As described by Henry, Strupp, et al. (1993), we made VTSS ratings using the entire third session and the middle 15 min of the 16th session. Items from VTSS ratings form two measures of therapeutic interventions. The Interviewing Style subscale is a general measure of positive interviewing behaviors that are not restricted to TLDP. The Specific Strategies subscale is a measure of technical adherence to specific TLDP principles that were stressed during training. Ratings on the VTSS, based on the 3rd and 16th sessions, were made by independent raters who had not been informed of the training status of the cases. Interrater reliability of the VTSS was high (intraclass $R = .74$ for interviewing style, and $R = .91$ for TLDP-specific strategies; Henry, Strupp, et al., 1993). Additional information on the psychometric properties of the VTSS may be found in Butler, Henry, and Strupp (1992). We used the VTSS in this study to assess whether the specific strategies of the researchers were related to the ecology status of the patients.

Ecology ratings. Two undergraduate psychology students used criteria that we developed to identify patients with low, medium, or high levels on two "demand characteristic" variables and two "instrumentation" variables. The two "demand characteristic" variables were designed to measure the patient's subjective experience of the research project. These were defined as (a) subject role, which refers to the patient's awareness of the role of being a "subject" in a psychological experiment and (b) pressure, which refers to the experience of pressure to succeed in therapy or remain in treatment because of being in a research project. The two instrumentation variables reflected the patients' experiences with environmental factors that were not necessarily related to their being in an experiment (i.e., tape recorders and questionnaires are also used with patients in clinical settings where research is not taking place). These variables were defined as (c) tape, which is a reported awareness of the video and audio equipment used in the study and (d) question, which refers to the patient's positive or negative feelings about filling out research questionnaires.

Audiotapes and transcripts of the ecology interviews were used to make ratings on the four ecology variables. Both raters had not been informed of the outcome, training status, as well as other important aspects of the cases. Forty-three (73%) of the ecology interviews consisted of ratings made by both raters and the remainder were ratings by one rater. Reliability, as measured by Cohen's kappa, was .76 for subject role, .71 for pressure, .51 for tape, and .80 for question. To reduce the number of cells for the analyses of interaction effects, we combined the low and moderate levels for all ecology variables for all analyses.

We performed a qualitative analysis of the ecology interviews after the initial statistical analysis and focused on the subject role. The qualitative method used was an extension of Strupp's (1980a, 1980b, 1980c, 1980d) "research-informed" method (Soldz, 1990) for multiple-case comparisons, and it adheres to recent guidelines for qualitative clinical research (Elliott, 1993). The two raters identified excerpts that reflected differing "stylistic" and attitudinal differences that the patients might have had in regard to their role as a "subject." We then analyzed the differences identified by the raters (who remained unaware of the patient's status), and we reached similar conclusions. We then generalized these differences based on the patient's training and outcome status and identified a coherent theme from these excerpts. Furthermore, we searched for counterexamples from our initial analysis to present as fair and balanced a picture as possible.

Results

Outcome

We performed analyses using the cohort (pre- and posttraining) and the ecology variables (low and high) as independent measures. Thus, we performed a series of 2×2 between-subjects analyses of variance (ANOVAs) for each source of outcome on the four ecology variables. Decisions about hypotheses were based on the results of test performed on the aggregate of outcome sources.

Table 1 displays the results of these analyses for the two demand characteristic variables, subject role and pressure. Significant Cohort × Subject Role interactions were found for outcome attributed to patient, therapist, and aggregate sources but not for the clinician. This might suggest that clinician ratings have been more objective because they were not associated with subject role or pressure. Results were not significant for outcome on pressure and the two instrumentation variables, tape and question.

Planned comparisons of the significant interactions were performed for the patient, therapist, and aggregate sources of outcome. These analyses all indicated that there were no outcome differences between the pre- and posttraining cohorts for patients who reported a low awareness of their role as "subjects," $F(1, 53) = 1.04$, *ns* for aggregate outcome. However, those patients who were highly aware of their role as "subjects" in an experiment had positive outcomes in the posttraining cohort and poorer outcomes in the pretraining cohort, $F(1, 53) = 15.80$, $p < .001$, for patient outcome and $F(1, 53) = 4.71$, $p < .05$, for aggregate outcome. Thus, high-subject-role patients performed in a manner that was highly consistent with the primary hypothesis of the Vanderbilt II project that patients would show greater improvement after therapists' training in TLDP.

Therapeutic Processes and Therapist Interventions

Ecological variables were primarily associated with the exploratory processes dimension on the VPPS. Patients who were uncomfortable with video- and audiotaping procedures scored lower on VPPS exploratory processes ($M = 325.8$, $SD = 58.8$) than did patients who reported being comfortable with taping ($M = 373.1$, $SD = 81.6$), $F(1, 57) = 4.91$, $p < .05$ (effect size,

Table 1
Standardized Outcome for Demand Characteristic Variables at Pre- and Posttraining

Variable	Pretraining		Posttraining		Effect size[a]	$F(1, 55)$[b]	α
	M	*SD*	*M*	*SD*			
Patient sum							
Low participant role	0.71	2.15	−0.58	1.85	0.62	13.27	.001
High participant role	−1.85	2.37	1.99	1.91	1.34		
Low pressure	−0.01	2.17	−0.38	2.19	0.18	0.11	*ns*
High pressure	0.31	2.60	0.35	1.87	0.02		
Therapist sum							
Low participant role	1.03	1.37	−0.39	1.88	0.80	4.13	.05
High participant role	−0.65	1.76	0.24	0.84	1.08		
Low pressure	1.31	1.47	−0.53	1.63	1.03	3.58	*ns*
High pressure	0.17	1.49	−0.01	1.87	0.11		
Clinician sum							
Low participant role	−0.02	1.52	0.25	2.22	0.14	0.88	*ns*
High participant role	−0.73	2.41	−0.79	0.95	0.03		
Low pressure	−0.18	1.74	0.17	2.24	0.17	0.13	*ns*
High pressure	−0.13	1.73	0.61	1.66	0.43		
Total outcome							
Low participant role	1.71	4.18	−0.72	4.89	0.52	7.73	.01
High participant role	−3.23	4.92	3.01	2.85	1.24		
Low pressure	1.13	4.50	−0.74	5.13	0.38	0.88	*ns*
High pressure	0.29	4.96	0.96	3.63	0.28		

[a] Effect size is for pretraining–posttraining differences at each level divided by the pooled standard deviation.
[b] Only interaction effects were statistically significant for all ecology variables. *F* values are for Subject Role × Cohort and Pressure × Cohort interactions.

0.61). There were no other effects involving the instrumentation variables of tape and question.

There was a significant interaction between training cohort and subject role on VPPS exploratory processes, $F(1, 55) = 5.84$, $p < .01$. This interaction closely resembled the subject role interactions for outcome, with the high-subject-role group exhibiting greater exploratory processes in the posttraining cohort ($M = 397.50$, $SD = 322.50$), compared with the high-subject-role group from the first cohort ($M = 322.50$, $SD = 68.37$), $F(1, 55) = 4.17$, $p < .05$ (effect size, 1.07). In addition, training cohort interacted with subject role on VPPS therapist-offered relationship, $F(1, 55) = 4.22$, $p < .05$. Patient involvement was unrelated to training cohort and demand characteristics.

In terms of therapeutic strategies from the VTSS, there were no differences in the general interviewing style of therapists. However, there was a Participant Role × Cohort interaction in the use of specific strategies of TLDP, $F(1, 55) = 3.98$, $p < .05$. As seen in Figure 1, the therapists of patients in the high-subject-role group adhered less to TLDP-specific strategies that were emphasized during training. Thus, although patients with a high awareness of their role as a "participant" had results that were consistent with the primary hypothesis of the study (i.e., in terms of outcomes), the therapists of these patients performed inconsistently with the hypothesis (i.e., in terms of specific therapeutic strategies).

Qualitative Analysis

The foregoing findings lend support to the argument that demand characteristics are present in psychotherapy research, even when precautions are taken to minimize such effects. Because patients were not given any details about the nature of the study, it was unclear why those patients who were highly aware of their role as "subject" would have relatively poor outcomes in the first cohort and positive outcomes in the second cohort. To address this question, we subjected the ecology interviews to further qualitative analysis.

We found that patients' experiences in the two cohorts were markedly different. In the first cohort, patients who felt highly aware of their status described feeling "used" and manipulated in order to produce data for the experiment. For example, a 48-year-old, slightly paranoid, male patient reported,

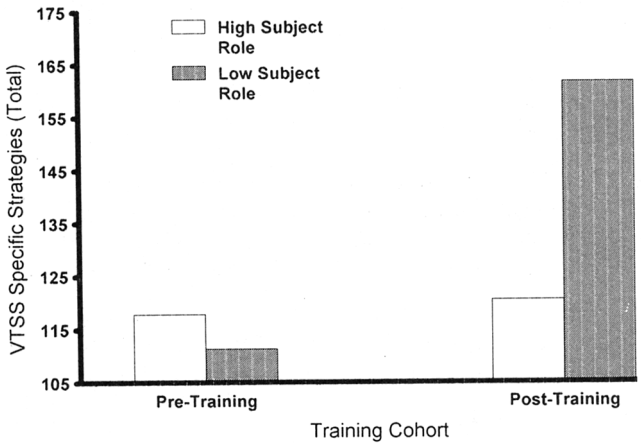

Figure 1. Mean specific strategies from the Vanderbilt Therapeutic Strategies Scale (VTSS) for subject role and treatment cohort.

> I got to the point where I felt like a guinea pig. I think you'll find a lot of people who are thinking that they're used just for the project, you know, for guinea pig use. I'm *sure* of that. Lot of them like me won't say it.

Other high-subject-role patients in the pretraining phase of the project did not express as much anger about being a "subject" in an experiment, but nonetheless felt manipulated. A 33-year-old woman said,

> As real as it is, I always think it's not real because I'm just a number in a program . . . I always wonder how much he (the therapist) needs to get out of this study.

These patients also used their role as participant to explain their poor outcomes, as illustrated by this 24-year-old waitress with a diagnosis of borderline personality disorder:

> I was told that these people were randomly assigned. I understand that technique, that method of experimentation, but I think that if I had been matched with my interests [sic] then I would have gotten more out of it.

Some specific complaints about being a participant would remain even if the patients had been receiving treatment in a nonresearch context. For example, patients are also randomly assigned in many clinics. In a clinic setting, however, struggles with the "patient" role are perhaps more readily integrated within the treatment. Many psychodynamic theories, including TLDP, incorporate these "frame" issues (i.e., the parameters that structure and define the therapy) as an important aspect of the developing therapeutic alliance. Exploration of the "subject" role in a research setting may not receive the same attention. Therapists may have similar struggles with the "subject" role; thus, directing attention to the topic may also be uncomfortable for the therapist. Nonetheless, addressing the patient's role as a "subject" may be just as therapeutically crucial within the research setting as addressing missed sessions, patient discomfort with time limits, or payment of fees within any therapy.

In the posttraining phase of the project, patients with a high awareness of their "subject" role did not report feeling manipulated. Their heightened awareness of their "subject" status appeared to be more highly related to the limitations that research placed on their self-discovery. A 38-year-old woman with a diagnosis of major depression explained,

> . . . it was like I was under a microscope . . . I really do think you are aware that you are in a project. I want to say that it doesn't necessarily change your behavior, but just that awareness. In the back of my mind I was wondering, you know, wanting more information, thinking there was more information about me out there than they were sharing with me. And that's frustrating. There is some more information that I could have about myself and I guess I feel resentful that that information was not available to me.

Furthermore, high-subject-role patients in the posttraining phase of the project wished for greater involvement in the study and its results. For example, a 33-year-old woman reported,

> . . . And when I realized that I didn't have access to what was being researched, that made me feel like a subject. . . . I was just real disappointed that the test results weren't for my own personal knowledge of myself, but for the research project.

Many of the high-subject-role patients in the posttraining cohort attributed some of their positive outcome to the benefits of having been in an experiment. For example, a 37-year-old man who came for treatment because of panic attacks found advantages in the "subject" role.

> I felt like a test subject, which is fine. I don't object to feeling like a test subject, because that's what I said I'd do. . . . My experiences at the Center were better and more effective than my actual therapy, because being part of a program was helping me realize that I wasn't crazy and I was getting information by being involved. . . . A lack of knowledge is really what upset me the most. And that's why the sessions with the different psychiatrists (were helpful), because I could compare different people . . . I didn't feel as nuts.

For patients of this kind, the structure provided by the research center was reassuring and helpful. This highlighted the fact that many research procedures that are assumed to be neutral may be construed by patients as therapeutic.

Discussion

The results showed that the ecology of psychotherapy research was related to treatment outcome and therapeutic processes. Specifically, patients in the posttraining group who were highly aware of their role as "subject" showed greater improvements than patients in the pretraining group. There were no such differences for patients who had low-subject-role awareness. However, findings were mixed in regard to our prediction that patient processes would relate to demand characteristics. In contrast to our expectations, there were no differences among groups in VPPS patient involvement. Nonetheless, VPPS exploratory processes were greater for high-subject-role patients in the posttraining group, a relationship that was similar to the relationship of subject role and outcome. In sum, demand characteristics appear to be related in some way to patient processes, but this relationship is not as simple or straightforward as we had anticipated.

We believe the results suggest that demand characteristics are the result of a complex set of interpersonal interactions and expectancies among patients, therapists, and the research team. Expectancies about the study may have been apprehended by patients through their therapists (because therapists saw patients before and after training). However, therapists were less likely to comply with the researchers' instructions (i.e., using TLDP-specific strategies) when faced with patients who were highly sensitive to demand characteristics. We believe that high-subject-role patients may have felt reassured and supported when their therapists did not make extensive use of the interventions encouraged by the research training, thereby drawing attention away from the study and its procedures. Previously published ad hoc observations of the Vanderbilt II study suggest that therapists had not become fully comfortable with TLDP-specific strategies and frequently implemented them in a somewhat rote and mechanical manner (Strupp, 1993a). It is likely that awkwardly implemented interventions like this would tend to exacerbate anxieties about research with those patients who displayed a high awareness to the demands of research. When faced with such patients, therapists apparently reverted to previously learned therapeutic strategies in which they were more

comfortable and confident. Although returning to previously learned modes of intervening would, in this situation, seem to suggest an interpersonal sensitivity and responsiveness to the patient's needs, such appropriate behaviors may wreak havoc with research findings! Crits-Christoph et al. (1991) also suggested that training manuals may neglect other complex therapeutic processes and warned of the danger of rigid adherence without concern for the needs of the individual patient. The present study demonstrates that adherence to a training manual may depend, in part, on patient characteristics just as previous study (Henry, Schacht, Strupp, Butler, & Binder, 1993) indicated that adherence may also depend on qualities of the therapist's supervisor.

Alternatively, the research team may have became more skilled through time in addressing patient's concerns about being in a study. During the pretraining phase of the project, patients may not have felt reassured about being in an experiment, leading to negative reactions by some of these patients. As the qualitative findings reveal, some of these patients felt manipulated by the research and attributed any negative feelings about therapy to the research situation. After training, the research team may have developed more effective procedures to address these concerns, resulting in less negative feelings about the demands of research. Many of these posttraining patients reported the belief that the research staff could have enhanced their therapeutic experiences and their personal lives by providing them with "results." It is also possible that experimenter effects may have led members of the research team and staff to unknowingly treat patients in the two cohorts differently, producing the foregoing effects.

These findings point to the potential advantages of studies that conceptualize patients as "participant-observers" who not only engage in experimental procedures but also in a relationship with the investigator. Helping patients to explore their role in the experiment may thus serve to decrease their anxieties and dispel preconceived fantasies surrounding their participation in research. Exploration of ecology issues might easily be incorporated into assessment interviews, providing investigators with valuable information about the patient's desire to perform for the experimenter, and it may facilitate the establishment of a positive "ecological alliance."

Patients may have a wide range of reactions to being in an experiment—they may fear that they are not "correctly performing" the experimenter's task, angry if they feel manipulated, awed by and curious about scientific procedures and questionnaires, interested in reaping the personal benefits that scientific study promises, or perhaps taking delight in the attention they receive as "subjects" in a study. One cannot be certain whether these specific positive and negative experiences to psychotherapy research ecology are solely a reaction to the behavior of the research staff, the relationship with the therapist, a dissonance response to true positive–negative outcome, or the result of preexisting personality dispositions. Nonetheless, increased attention to the nature of these ecological influences has the potential to benefit both researchers and the participants, advancing both statistical and interpersonal power.

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