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# Assessing Treatment and Treatment Processes

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Glaser (1980) noted that assessing treatment and treatment processes had not been a high priority in the alcohol treatment field. Subsequent to his observation, however, a surge of interest in treatment assessment has taken place among administrators, researchers, and clinicians. Indeed, a recent issue of *Substance Use & Misuse* (Magura 2000) contained several articles on substance abuse treatment assessment. That interest has been spurred by several developments. One is an expanding focus on systems analysis and between-program differences, prompted by efforts toward health care reform. In order to describe programs and examine interrelationships among program characteristics and quality of care indices, policymakers, administrators, and researchers recognized the need for instruments to assess program-level variables.

A second reason for rising interest in treatment assessment has been increasing recognition of the complex nature of predominantly psychosocial interventions, such as those often used to treat alcohol use disorders even when pharmacologic agents also are provided. One example of this complexity is “therapist effects” in the delivery of treatment (Najavits and Weiss 1994; Najavits et al. 2000), that is, the way in which the “same” treatment can be delivered quite differently by different therapists. Treatment researchers have become aware of the need to not only facilitate the provision of standardized treatment through the use of therapist training, supervision, and treatment manuals (e.g., K.M. Carroll 1997) but also to assess the implementation of the complex, multifaceted treatments they are studying. For

example, it is important to document that distinctive treatments have been applied in comparative evaluations, especially in studies of patient-treatment matching, and to conduct treatment process analyses to identify “active ingredients of treatment” and “mechanisms of change.”

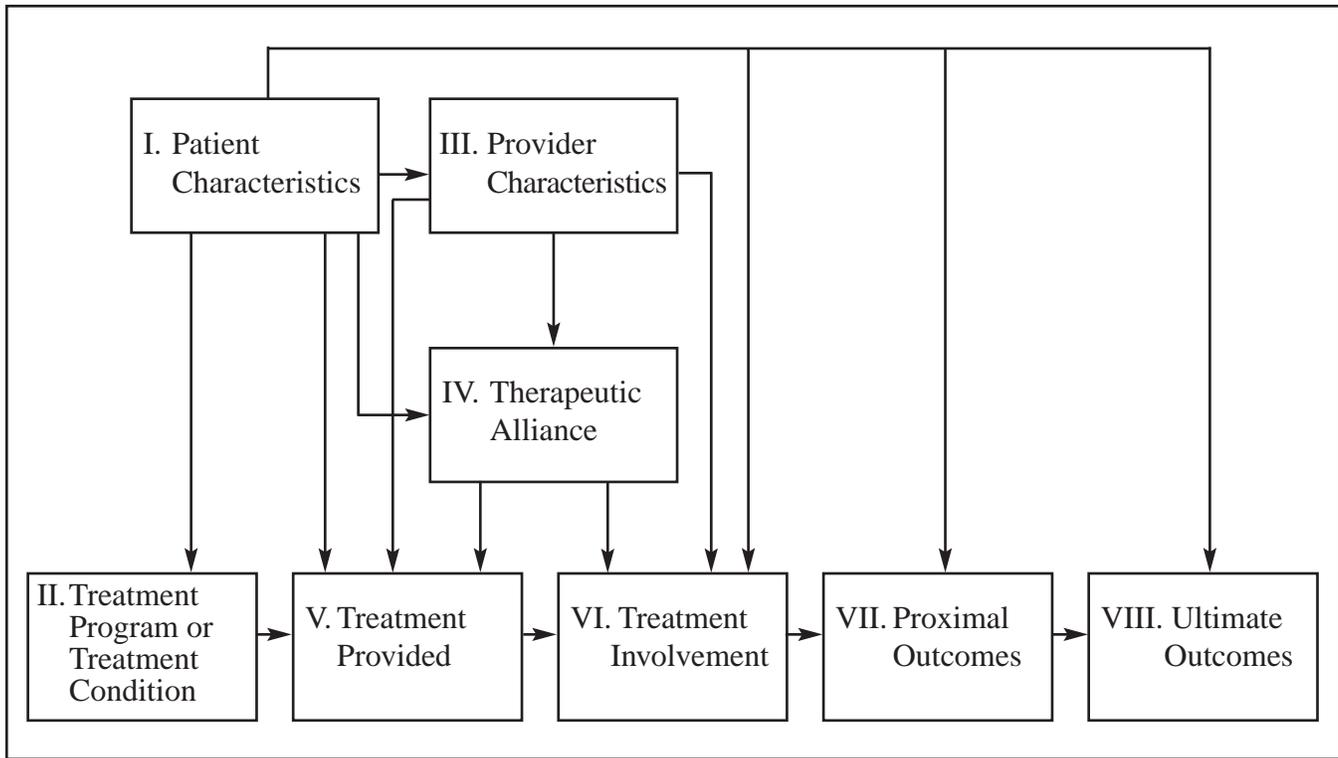
On the clinical side, treatment providers need instruments with which to assess the quality of treatment provision, as well as the progress of their clients during treatment. Their motivation is the same as that among researchers: Such instruments are seen as essential elements in the effort to improve clinical care.

This chapter first presents a broad, multilevel model of the treatment processes. Then, measures of the different domains of treatment variables addressed by the model are reviewed. The predominantly recent interest in the assessment of treatment continues to be reflected in the availability of only a few established measures. A number of promising instruments are reviewed, however. When multiple measures assess a particular domain, descriptive and psychometric data for them are presented in tabular form. The final section considers additional work needed to develop high-quality measures of treatment and treatment processes.

## CONCEPTUAL MODEL OF THE TREATMENT PROCESS

To provide a guide for the review of available instruments and to highlight their uses, it is helpful to have a conceptual model of the treatment process. The model presented in figure 1, although

**FIGURE 1.—A conceptual model of the treatment process**



simplified, captures most of the major domains involved in the treatment process. It depicts patient, program, and provider determinants of treatment provided to patients, the therapist-patient relationship or therapeutic alliance, and patients' involvement in treatment, as well as the mediating variables (proximal outcomes) that link treatment provided and patient involvement in treatment to ultimate outcomes, such as abstinence or reduced alcohol consumption.

**Patient Characteristics**

Although patient characteristics (panel I in figure 1) are not components of the treatment process, they can affect access to treatment, treatment selection and treatment planning, involvement in treatment, and treatment outcomes. In addition to these direct effects, patient variables can influence or moderate the relationship between treatment and outcomes, by affecting links in the causal chain connecting treatment provision/patient involvement in treatment to proximal and ultimate

outcomes (not illustrated in figure 1; see Finney 1995). For example, Smith and McCrady (1991) found that patients who scored higher on abstract reasoning ability were better able to learn coping skills during treatment than were patients with lower neuropsychological functioning. In another type of treatment, cognitive functioning might not affect what is acquired during the course of treatment. Although the treatment process cannot be considered apart from treatment recipients, the assessment of patient characteristics is not covered here, where the focus is on the assessment of treatment-related variables.

**Program-Level Characteristics**

Program-level characteristics (panel II in figure 1) are general factors related to the program's organization and structure, policies, services, treatment orientation, social environment, and readiness for organizational change. Relevant organizational or structural variables include ownership, physical design features (e.g., number of buildings), size

(number of patients), aggregate patient characteristics, types of staff, program policies, and desired length or amount of treatment. Policies are the structured procedures that programs use to address different situations (e.g., problem behaviors among patients). Program services include those activities oriented toward treating alcohol use disorders, as well as problems in other areas of patients' lives. Treatment orientation refers to the treatment modality or modalities applied at the program (or in treatment research, in the treatment condition). Environmental characteristics refer here to the social climate of a program (e.g., Moos 1997). Finally, one new measure focuses on substance abuse programs' readiness for change to implement evidence-based treatment practices.

### **Provider Characteristics**

The quality of alcohol treatment is determined, not only by the therapeutic techniques applied, but also by the characteristics of individual treatment providers (panel III in figure 1). In particular, this domain of variables refers to within-program variation in provider characteristics (aggregate, program-level staff characteristics are considered in panel II). Gerstein (1991) argued that "the competence, quality, and continuity of individual caregivers are likely to be critical elements in explaining the differential effectiveness of [substance abuse] treatment programs" (p. 139). In the alcohol treatment field, the few studies that have been conducted (e.g., W.R. Miller et al. 1980; Valle 1981; McLellan et al. 1988; Sanchez-Craig et al. 1991; Project MATCH Research Group 1998; for reviews, see Najavits and Weiss 1994; Najavits et al. 2000) indicate that therapist characteristics play an important role in determining clients' treatment retention and outcomes.

### **Therapeutic Alliance**

One of the key factors affecting the impact of alcohol treatment, especially psychosocial treatments, is the quality of the alliance or relationship that is developed between the therapist and client

(panel IV in figure 1). A positive therapeutic alliance can be viewed as a necessary but insufficient condition for patients' becoming involved in treatment, making treatment-specified intermediate changes on proximal outcomes (see below), and experiencing positive ultimate outcomes. The quality of the therapeutic alliance affects and is affected by the treatment provided, and moderates the impact of treatment provided on patients' involvement in treatment. The most direct influences on the therapeutic alliance, however, are patients' characteristics and providers' characteristics. In the Project MATCH outpatient sample, more positive ratings of the therapeutic alliance by both patients and therapists were associated with greater attendance at treatment sessions and a higher percentage of days abstinent during treatment and over the 12 months following treatment (K.M. Carroll et al. 1997; Connors et al. 1997; K.M. Carroll et al. 1998*b*; Connors et al. 2000; for other studies, see Belding et al. 1997; Ojehagen et al. 1997; De Weert-Van Oene et al. 1999; Petry and Bickel 1999; Raytek et al. 1999; Fenton et al. 2001).

The measures used to assess therapeutic alliances in alcohol and other drug abuse treatment research are general measures developed for the psychotherapy field. For example, De Weert-Van Oene et al. (1999) used the Helping Alliance Questionnaire to assess the therapeutic relationship as perceived by 340 substance abuse patients (six coding instruments were used by Fenton et al. 2001). Because no measures have been developed specifically for alcohol treatment, they are not reviewed here.

### **Treatment Provided/Treatment Involvement**

Alcohol treatment programs typically provide psychosocial and/or pharmacologic interventions to patients. To the extent that it is constant across all patients, treatment provided is a program-level characteristic (panel II in figure 1). In most programs, however, the treatment provided varies across patients (panel V). For example, it may be thought that some patients require only a brief intervention, whereas others need longer term treatment.

In addition to determining what has been provided to patients, it is also possible to ascertain to what extent patients have been involved in treatment (panel VI). For example, instead of simply determining the number of group therapy sessions a patient attended, it is possible to assess such constructs as the patient's contributions to group discussions. Presumably, patient involvement in treatment would be more strongly associated with proximal and ultimate outcomes (see figure 1) than the treatment offered to individual patients.

### **Proximal Outcomes**

Proximal outcome variables (Rosen and Proctor 1981; panel VII in figure 1) refer to cognitions, attitudes, personality variables, or behaviors that, according to the treatment theory under investigation, should be affected by the treatment provided, and should, in turn, lead to positive ultimate outcomes (e.g., abstinence or reduced alcohol consumption). An Institute of Medicine (1989) panel found that "little research has been devoted to the short-term impact of specific [alcoholism treatment] program components" (p. 159), and suggested that such short-term gains could be studied quite readily. Proximal outcome variables can be assessed at any point between treatment entry and the assessment of ultimate outcomes. When assessed during treatment, proximal outcomes constitute an important method that clinicians can use to assess patients' treatment progress. For researchers, proximal outcomes, assessed during or after treatment, are key components in treatment process analyses.

### **Ultimate Outcomes**

Ultimate outcomes (panel VIII in figure 1) refer to the end points that the treatment is supposed to effect. All treatment programs for alcohol use disorders attempt to impact drinking behavior, with many seeking to eliminate it entirely and others seeking to limit it to levels that do not cause adverse consequences. Some programs also seek to have a broader impact on patient functioning

by effecting improvements in such life areas as employment, social functioning, physical health, and/or psychological functioning (for an in-depth discussion of outcome assessment, see Tonigan's chapter in this *Guide*). Treatment process models may specify different dimensions of treatment that should impact different areas of patients' functioning.

## **MEASURES OF TREATMENT AND TREATMENT PROCESSES**

In this section, measures are reviewed that tap the different treatment domains (panels II–VII) in the conceptual model outlined above, except for therapeutic alliance.

### **Program-Level Characteristics**

Several instruments have been developed to gather information on program-level characteristics. Most assess a mixture of variables pertaining to program structure (setting, aggregate staff characteristics, aggregate patient characteristics), policies (e.g., disciplinary procedures), and services. In addition, a few instruments focus on assessing program treatment orientation; others assess program social climate. Finally, a recently developed instrument assesses the readiness of a treatment program to implement evidence-based treatment practices.

#### *General Measures*

Five general program-level instruments are described in table 1: the National Drug and Alcoholism Treatment Unit Survey (NDATUS) (Office of Applied Studies 1991), the National Drug Abuse Treatment System Survey (NDATSS) (McCaughrin and Price 1992; Price and D'Aunno 1992), the Drug and Alcohol Program Structure Inventory (DAPSI) (Peterson et al. 1993, 1994a, 1994b), the Residential Substance Abuse and Psychiatric Programs Inventory (RESPPI) (Timko 1994, 1995, 1996), and the Addiction Treatment Inventory (ATI) (Carise et al. 2000).

**TABLE 1.—Measures of general program-level characteristics**

**Measure:** National Drug and Alcoholism Treatment Unit Survey (NDATUS)

**Citation:** Office of Applied Studies 1991

**Description:** The NDATUS is a brief questionnaire (five pages) that covers (a) the overall organization and structure of programs (ownership, funding sources and levels, organizational setting, capacity in different treatment settings using different treatment modalities, hours of operation, etc.), (b) staffing and staff characteristics, (c) services (e.g., methadone dosages), (d) policies, and (e) clients and client characteristics. The 1989 NDATUS was augmented in 1990 by the Drug Services Research Survey (DSRS) (Office of Applied Studies 1992a, 1992b) to obtain additional data in the areas of facility organization and staff, client data, services, and costs and charges. Using data from the 1991 NDATUS, Rodgers and Barnett (2000) found that private, for-profit substance abuse treatment programs tended to be smaller and more likely to provide treatment in only one setting. Public programs and nonprofit programs generally had more treatment staff; Federal and for-profit programs had more psychologists and physicians. In 1992, the NDATUS evolved into the Uniform Facility Data Set (UFDS), sponsored by the Office of Applied Studies.

**Measure:** National Drug Abuse Treatment System Survey (NDATSS)

**Citations:** McCaughrin and Price 1992; Price and D’Aunno 1992

**Description:** The NDATSS was used to assess 575 outpatient drug abuse treatment units in 1988 and to follow up on 481 of those programs in 1990. The survey consists of two separate telephone interviews. The *Director’s Interview* assesses the unit’s funding, licensing, and accreditation; client information; evaluation and monitoring of clients; relationships with other treatment organizations; relationship with parent organization (if any); changes in the unit over time; and demographic information about the respondent. The *Clinical Supervisor’s Interview* focuses on the delivery of treatment services and estimated treatment outcomes. Each interview takes about 90 minutes to complete. NDATSS data have been extensively analyzed. For example, McCaughrin and Price (1992) examined program characteristics associated with two measures of treatment outcome: the proportion of clients who met goals set in treatment (a proximal outcome) and the proportion of clients who continued to misuse alcohol or drugs (an ultimate outcome). They found that aftercare services and smaller client-staff ratios were linked with more positive outcomes of both types.

**Measure:** Drug and Alcohol Program Structure Inventory (DAPSI)

**Citations:** Peterson et al. 1993, 1994a, 1994b

**Description:** The DAPSI obtains data on program structure (size, intended duration, staffing, and other resources), aggregate patient characteristics, policies (e.g., admission, disciplinary, and discharge policies), and services (assessment, treatment, supportive, and aftercare activities). The resulting data were used to develop a typology of inpatient programs (Peterson et al. 1993). In addition, Peterson et al. (1994b) found lower-than-expected case mix–adjusted readmission rates in programs that had a longer intended duration of treatment, more assessment interviews with family and friends, and more patients who were referred from the criminal justice system.

**TABLE 1.—Measures of general program-level characteristics (continued)**

**Measure:** Residential Substance Abuse and Psychiatric Programs Inventory (RESPPI)

**Citations:** Timko 1994, 1995, 1996

**Description:** Adapted from the Multiphasic Environmental Assessment Procedure (Moos and Lemke 1994), the RESPPI consists of a rating scale and three instruments that tap separate domains of program characteristics: (a) policies and services, (b) physical features, and (c) aggregate patient characteristics (the Community-Oriented Programs Environment Scale [Moos 1989] is used to tap treatment climate). The *Rating Scale for Observers* consists of 27 items that cover four dimensions: physical attractiveness, environmental diversity (extent of stimulation and variety), resident functioning, and staff functioning. The 140-item *Policy and Service Characteristics Inventory* (PASCI) taps nine dimensions: expectations for functioning, acceptance of problem behavior, policy choice, resident control, policy clarity, provision for privacy, health and treatment services, availability of daily living assistance, and social-recreational activities. The PASCI also includes a preliminary measure of substance use regulations. The *Physical and Architectural Characteristics Inventory* consists of 117 items that assess seven dimensions: community accessibility, physical amenities, social-recreational aids, prosthetic aids, safety features, staff facilities, and space availability. The *Resident Characteristics Inventory* (RESCI) is a 95-item interview for the program administrator or other staff member. In addition to information on residents' demographic characteristics, diagnoses, length of stay, and in-program outcomes, the RESCI assesses seven dimensions: social resources, mental functioning, activity level in the program, activities in the community, use of health and treatment services, use of daily living assistance, and use of social-recreational activities. Internal consistency reliability estimates (Cronbach alphas) for most of the RESPPI subscales are moderate to high, and most subscales exhibit high test-retest or interobserver correlations. Comparing substance abuse and psychiatric programs, hospital- and community-based programs, and public, nonprofit, and for-profit programs, Timko (1995) found differences in each RESPPI domain. With respect to policies and services, for example, substance abuse programs had more restrictive admission policies, were less tolerant of problem behaviors, and provided less individual choice and privacy, more formal structures, and less daily living assistance than did psychiatric programs (see also Timko and Moos 1998; Timko et al. 2000a, 2000b). Initial data with the RESPPI are promising. The instrument provides a comprehensive profile of a program, including extensive coverage of physical design features.

**Measure:** Addiction Treatment Inventory (ATI)

**Citation:** Carise et al. 2000

**Description:** The ATI is a six-page questionnaire that can be completed by a program director or senior administrator in 30–45 minutes. The ATI assesses a program's organizational structure (ownership and affiliation, setting, capacity, length of treatment, patient assessments); patient profile (age range, gender, substances used, and residential, medical, and legal characteristics); service profile (drug, alcohol, medical, employment, social, family, and psychological/psychiatric services); staffing mix (full- and part-time staff in various categories); and financing (insurance payments, grants, self-pay, charitable contributions). Given that the ATI is being used in the Drug Evaluation Network System (DENS) (Carise et al. 1999), a large-scale treatment assessment effort, substantial ATI data should be available on a wide-range of substance abuse treatment programs.

Table 1 is not a comprehensive list of general program-level instruments. For example, Carise et al. (2000) reviewed the Service Delivery Unit Questionnaire from the National Evaluation of Substance Abuse Treatment conducted by the National Center on Addiction and Substance Abuse (CASA), administrative interviews used in the National Treatment Improvement Evaluation Study, the Alcohol and Drug Services Survey conducted by Brandeis University with funding from the Substance Abuse and Mental Health Services Administration, and program administrator and director interviews from the National Treatment Center Study sponsored by the National Institute on Alcohol Abuse and Alcoholism (NIAAA). Other instruments for assessing general program characteristics were included in the Treatment Outcome Prospective Study (Hubbard et al. 1989), the Drug Abuse Treatment Outcome Study (Etheridge et al. 1995; Broome et al. 1999), a study of then Veterans Administration substance abuse programs (Nirenberg and Maisto, 1990), and the Program Identification and Description Form used by the Institute of Behavioral Research at Texas Christian University.

Many of these instruments are lengthy and cover a variety of topics. Potential users should review them carefully to determine which best applies in a particular situation. In some cases, a combination of items from different instruments may provide the most appropriate fit. Most of these measures rely on a key informant, such as the program or the clinical director, who is invested in the program being assessed. More research is needed to establish the reliability and validity of data gathered in this manner.

### *Measures of Treatment Orientation*

Treatment orientation refers to the treatment approach or modality. Treatment orientation can be conceptualized as the immediate goals emphasized in treatment and the specific therapeutic techniques used to bring about those goals. Two basic methods are considered here for assessing

treatment orientation at the program or treatment condition level: coding therapy sessions and administering questionnaires.

*Coding Tapes.*—The more common approach is to audio- or videotape treatment sessions and then to code them, or transcriptions of them, regarding the extent to which a treatment protocol, usually embodied in a treatment manual, has been followed. For example, in an effort to determine the distinctiveness of coping skills and interaction therapy aftercare sessions, Getter et al. (1992) had raters code each 1-minute segment of 15-minute recordings of therapy session audiotapes with respect to the presence or absence of (a) education/skill training, (b) problem solving, (c) role-playing, (d) identifying high-risk situations, (e) interpersonal learning, (f) expression/exploration of feelings, and (g) here-and-now focus. Significant differences were found between coping skills and interactional groups on all dimensions, except for identifying high-risk situations. For other examples of this approach, see DiClemente et al. (1994b), Barber et al. (1996), and K.M. Carroll et al. (1998a, 2000).

Waltz et al. (1993) reviewed methods of assessing adherence to and competence in (quality of) applying treatment protocols. Videotapes are the preferred source of data because they provide more information than do audiotapes. Assessment methods range from checklists for the presence or absence of specific techniques and behaviors, to frequency ratings, to inferences about the quality of treatment or therapist competence in applying the therapy. Waltz et al. noted that the expertise and therapeutic experience needed by raters/coders increase with complexity of the treatment provided and of the inferences made.

Waltz et al. made several recommendations for using this treatment assessment approach. Perhaps the most important was to use adherence-to-protocol measures that include four types of treatment features: those essential and unique to a particular treatment approach, those essential but not unique to an approach, those acceptable but not necessary in a particular approach, and those that are not to be used in applying the treatment. Clearly, the first

and, to a lesser extent, the last categories are the most useful in distinguishing different treatments applied in a comparative treatment trial.

*Questionnaire Measures.*—An alternative approach to coding tapes or transcripts of treatment sessions is to use questionnaires to gather data on treatment orientation. Four such questionnaires are described in table 2. Two assess multiple treatment orientations: the Drug and Alcohol Program Treatment Inventory (DAPTI) (Peterson et al. 1994a; Swindle et al. 1995) and a measure for assessing treatment orientation as perceived by counselors (Kasarabada et al. 2001). The other two assess individual treatment orientations; specifically, therapeutic community treatment environments (the Survey of Essential Elements Questionnaire [SEEQ] [Melnick and De Leon 1999; Melnick et al. 2000]) and social model treatment programs (Social Model Philosophy Scale [SMPS] [Kaskutas et al. 1998]).

The advantages of the questionnaire approach relative to coding tapes or transcripts are that questionnaires (a) are less expensive and time-consuming to administer and score and (b) provide overall assessments of treatment orientation (rather than samples of specific treatment sessions) as perceived by multiple respondents. For example, an expanded version of the DAPTI was included in a survey of program directors and used to classify programs as having a 12-step, cognitive-behavioral, or eclectic treatment orientation in an evaluation of Department of Veterans Affairs (VA) substance abuse treatment (Ouimette et al. 1997). Program orientation was verified by examining staff responses to the DAPTI.

### *Measures of Social Climate*

Rudolf Moos and his colleagues developed two measures—the Ward Atmosphere Scale (WAS) (Moos 1989, 1997) and the Community-Oriented Programs Environment Scale (COPEs) (Moos 1988b, 1997)—to tap the social climates of hospital- and community-based residential psychiatric and substance abuse treatment programs. Three domains of variables are assessed. The *relationship* subscales

are Involvement, Support, and Spontaneity. The *personal growth or treatment goal* subscales are Autonomy, Practical Orientation, Personal Problem Orientation, and Anger and Aggression. The *system maintenance* subscales are Order and Organization, Program Clarity, and Staff Control. Each of the 10 WAS and COPEs subscales consists of 10 items with a true/false response format. Item content is similar on the two measures, with some wording differences reflecting the different settings and staffing patterns of inpatient versus community-based programs.

Extensive psychometric data indicate that the WAS and COPEs subscales have adequate internal consistency, have high test-retest reliability, and are sufficiently independent (Moos 1988b, 1989, 1997). Normative data are available for the WAS based on a U.S. sample of 160 programs located in 44 hospitals in 16 States; COPEs normative data are available based on 54 programs. The construct validity of the WAS (and, by extension, the COPEs) was supported by expected correlations between WAS subscales and subscales on Ellsworth and Maroney's (1972) Perception of Ward subscales and by results from a number of research projects (for overviews, see Moos 1988b, 1989, 1997).

The WAS and COPEs have been used in various ways in substance abuse treatment evaluations (Finney and Moos 1984; Moos and Finney 1986; Moos 1988a). One is to assess treatment implementation by comparing program environments to normative data (Moffett 1984; Moos et al. 1990), concepts of an ideal program using Form I of the instruments (Bliss et al. 1976; Moffett and Flagg 1993), or theoretical specifications and/or expert judgments (Price and Moos 1975; Steiner et al. 1982; Moffett 1984). In addition, aggregate social climate scores have been linked to program-level outcomes (Bale et al. 1984), and individual perceptions have been linked to retention in substance abuse treatment (Harris et al. 1980; Bell 1985) and to patient posttreatment functioning (Fischer 1979; Moos et al. 1990). Finally, the WAS and COPEs have been used in a feedback process to assist treatment providers in changing treatment environments toward more ideal conditions or those specified by a treatment theory (e.g., Herrera and Lawson 1987).

**TABLE 2.—Measures of treatment orientation**

**Measure:** Drug and Alcohol Program Treatment Inventory (DAPTI)

**Citation:** Peterson et al. 1994a, Swindle et al. 1995

**Description:** The DAPTI assesses the distinctive goals and activities of Alcoholics Anonymous/12-step treatment, the therapeutic community approach, cognitive-behavioral treatment, insight/psychodynamic treatment, rehabilitation, dual diagnosis treatment, medical model treatment, and marital/family systems therapy. The current DAPTI consists of four goal and four activity items to assess each of the eight orientations; the eight subscales had moderate to high internal consistency reliability estimates. Swindle and his colleagues (1995) provided validity data in the form of DAPTI subscale scores for programs with independently established treatment orientations and correlations with treatment services as assessed by the DAPSI (see table 1). The DAPTI also has been used to assess community residential facilities for substance abuse patients (Moos et al. 1995). More generally, treatment providers can use the DAPTI to determine the extent to which the treatment staff of a program have similar views about what the program is trying to accomplish and about the therapeutic activities to be used to accomplish the program's treatment objectives.

**Measure:** Counselor Treatment Approaches

**Citation:** Kasarabada et al. 2001

**Description:** This multidimensional instrument assesses five treatment approaches: psychodynamic or interpersonal, cognitive-behavioral, family systems or dynamics, 12-step, and case management. For each of the first four modalities, items assess beliefs underlying the approach, practices appropriate in individual therapy, and practices appropriate in group therapy. Case management is an individual approach, so no group practices items were included. In addition, items were developed to tap general "group techniques" (e.g., "encouraging peer social support") and "practical counseling" (e.g., "developing rapport and trust"). The instrument consists of 48 items that assess 14 subscales. Construct validity was supported by the results of a confirmatory factor analysis in which subscale items loaded on the factor they were intended to assess, but not on other factors. Corresponding belief and practice subscales correlated highly, except for case management. Cronbach alphas for all subscales except psychodynamic and family systems beliefs were above 0.50 and most were over 0.70 (Kasarabada et al. 2001, p. 287). The fact that some of the subscales consist of only three items contributed to low internal consistency estimates.

**Measure:** Survey of Essential Elements Questionnaire (SEEQ)

**Citations:** Melnick and De Leon 1999; Melnick et al. 2000

**Description:** The SEEQ, which takes 20–30 minutes to complete, consists of 139 items that tap 27 domains related to therapeutic community (TC) treatment. The domains fall into one of six general dimensions: TC perspective on addiction and recovery (e.g., "Right living, including self-reliance and positive social and work-related attitudes is crucial to recovery from substance abuse"); agency treatment approach and structure (e.g., "The treatment approach centers on members' participation in the community"); community as therapeutic agent (e.g., "Status and privileges are related to progress in the program"); educational and work activities (e.g., "Work is used as part of the therapeutic program [i.e., to build self-esteem and social responsibility]"); formal therapeutic elements (e.g., "The members are reinforced for acting in a positive manner while negative behavior

**TABLE 2.—Measures of treatment orientation** (continued)

is met with confrontation”); and process (e.g., “The major goal of the primary treatment stage is the development of a set of values consistent with those of the community”). Respondents rate the items on 5-point Likert-type scales, from “extremely important” to “very little importance.” Based on data from directors of 59 of the 69 member programs in the Therapeutic Communities of America organization, internal consistency reliability estimates (coefficient alphas) for the six general dimensions ranged from 0.76 (TC perspective) to 0.94 (community as therapeutic agent) (Melnick and De Leon 1999). Alphas for the 27 domains generally were acceptable, with the exception of 8 domains that had coefficients below 0.70. A cluster analysis based on the 6 SEEQ dimensions classified 45 programs as either traditional TCs ( $n = 37$ ) or modified TCs ( $n = 8$ ) (Melnick and De Leon 1999; see also Melnick et al. 2000). Melnick et al. (2000) noted that although the SEEQ assesses important aspects of TC treatment, it does not assess the quality of those components.

**Measure:** Social Model Philosophy Scale (SMPS)

**Citation:** Kaskutas et al. 1998

**Description:** The SMPS assesses the extent to which substance abuse treatment programs embody the social model approach (Borkman 1990). The 33 items of the SMPS assess six subscales: physical environment, staff role, authority base, view of substance abuse problems, governance, and community orientation. In a sample of 27 residential programs, the Cronbach alpha for the overall scale was 0.92; subscale alphas ranged from 0.57 to 0.79. Some evidence of overall scale validity was provided by a correlation of 0.66 between SMPS overall scale scores and rankings by experts of the conformity of 15 programs to the social model.

Of all the program-level instruments reviewed here, the WAS and COPES have been the most widely used and have the most extensive psychometric data.

#### *Measure of Readiness To Implement Evidence-Based Practices*

Substantial interest has arisen in “translating” substance abuse treatment research into practice. The assumption is that implementing evidence-based treatment practices will improve quality of care and, consequently, patients’ outcomes. The Institute of Behavioral Research (IBR) at Texas Christian University has developed the Organizational Readiness for Change (ORC) instrument to assess this aspect of substance abuse programs. The ORC is a 115-item, self-administered questionnaire that takes approximately 25 minutes to complete. Separate forms are available for program directors/supervisors and counseling staff. The ORC assesses motivational factors

(program needs, training needs, and pressure to change), program resources (office facilities, staffing, training, computer equipment and electronic communications), and organizational dynamics (staff characteristics related to growth, efficacy, influence, adaptability, and clinical orientation; program climate related to mission, cohesion, autonomy, communication, stress, and flexibility). Copies of the ORC are available at [www.ibr.tcu.edu/pubs/datacoll/coresetforms.html#Form-ORC](http://www.ibr.tcu.edu/pubs/datacoll/coresetforms.html#Form-ORC). Although the ORC is sufficiently new that psychometric data are not available, it breaks important new ground in the assessment of substance abuse programs.

#### **Provider Characteristics**

The general program-level instruments reviewed above and in table 1 assess staff characteristics at the aggregate level. Some studies, however, have focused on variation in the characteristics of indi-

vidual staff members. Najavits and Weiss (1994) proposed six classes of relevant variables: knowledge of therapeutic techniques and substance use disorders; emotional attitudes, such as liking patients and helping orientation; general personality variables; relational style with patients; sociodemographic characteristics, such as experience and gender; and job characteristics, such as salary and perceived responsibilities. Beutler et al. (1986) provided an excellent review of therapist variables in the psychotherapeutic process. Given that review and space limitations, only one measure specific to alcohol treatment is reviewed here, a measure of staff members' "knowledge" or beliefs about alcohol abuse.

The Understanding of Alcoholism Scale (UAS), developed by Moyers and Miller (1993), initially consisted of 50 items. A factor analysis yielded three factors that were labeled Disease Model Beliefs (21 items), Psychosocial Beliefs (12 items), and Heterogeneity of Alcoholic Clients (8 items). Humphreys et al. (1996a) developed a short form of the UAS. Moyers and Miller found that treatment providers who were in recovery were more likely to endorse disease model beliefs (see also Humphreys et al. 1996b). Therapists who more strongly endorsed disease model beliefs were more likely to say they would impose a treatment goal on patients and would not offer treatment oriented toward non-problem drinking. Therapists endorsing psychosocial beliefs more strongly indicated they would be more likely to reach out to patients who had left treatment. Given its low internal consistency, Moyers and Miller (1993) recommended against using the client heterogeneity subscale of the UAS.

### **Treatment Provided/Patient Involvement in Treatment**

In pharmacologic studies, treatment provided and patients' compliance with treatment are assessed in terms of medications taken. Developments such as Medication Event Monitoring System (MEMS) vials that record the dates and times they are opened (e.g., Namkoong et al. 1999; Krystal et al.

2001) can yield more accurate compliance data than patient reports or pill counts. A more direct assessment of not only medication compliance but achievement of therapeutic doses can be obtained with chemical assays (e.g., Fuller et al. 1986; Helander 1998).

For psychosocial interventions, the simplest index of treatment provided/client involvement in treatment is time spent in treatment or the number of sessions attended. In treatment settings, program records can be used to determine sessions attended, or staff can record attendance. For assessing attendance at mutual-help groups, such as Alcoholics Anonymous (AA), individuals' retrospective reports can be unreliable. Yeaton (1994) assessed attendance at Manic-Depressive and Depressive Association (MDDA) self-help group meetings by asking attendees to complete a short assessment form and to include only the last seven digits of their social security numbers. Given that anonymity is stressed at MDDA meetings, Yeaton's methodology could be applied to assess attendance at AA meetings.

A 10-item checklist was developed by K.M. Carroll and colleagues (1998b) on which therapists could indicate whether or not they had provided selected aspects of cognitive-behavioral substance abuse treatment in a therapy session. For example, one item was: "Did you plan for high risk situations that may be encountered by the patient before the next session?" Unfortunately, low levels of agreement were found between therapists' responses and observer codings of videotapes of the same sessions. Therapists tended to record greater use of techniques than did observers.

A general measure of treatment provided is the Treatment Services Review (TSR) (McLellan et al. 1992; Zanis et al. 1997). The TSR is a 5-minute patient interview administered by a technician. It assesses the quantity and breadth of services targeted toward each of seven functioning areas that the patient feels he or she has been provided in the past week. The seven target areas are the same areas tapped by the Addiction Severity Index (ASI) (McLellan et al. 1985):

medical status, employment and support, drug use, alcohol use, legal status, family/social status, and psychiatric status. For each area, the TSR yields two summary scores reflecting the number of professional or specialist services and the number of significant group or individual discussions, including discussions in such groups as AA and Narcotics Anonymous (NA). A Teen-Treatment Services Review for use with adolescents in substance abuse treatment has been developed by Kaminer et al. (1998)

Test-retest reliabilities in the form of exact agreement in responses with a 1-day interval were high (McLellan et al. 1992). Initial validity data in the form of agreement with clinic records were acceptable. In addition, significant relationships were found between scores on the medical, drug, and psychiatric areas of need, as assessed by the ASI, and the corresponding TSR subscales (McLellan et al. 1992). Other validity data come from three studies that yielded TSR score variation that was commensurate with the different levels of services offered across programs (Alterman et al. 1993; McLellan et al. 1993a, 1993b). Overall, the TSR has shown that substance abuse treatment often focuses on patients' substance use disorders, while ignoring other problem areas in patients' lives (Alterman et al. 2000).

### **Proximal Outcomes**

Treatment providers sometimes assess clients during the course of treatment to determine to what extent deficits or dysfunction identified in the treatment planning process (see Donovan's chapter in this *Guide*) have been reduced or eliminated, and to identify therapeutic gains. For researchers, proximal outcome variables constitute mediating variables of interest in treatment process analyses. Thus, two important research bases for choosing among measures of relevant proximal outcome variables are (a) the extent to which they have been shown to be responsive to differences in treatment provided and (b) the extent to which they have been linked with such ultimate outcomes as abstinence or reduced

alcohol consumption. Theoretically guided sets of proximal outcome instruments are available for at least three prominent treatment approaches: therapeutic community treatment, cognitive-behavioral approaches, and traditional 12-step treatment.

### *Measures for Therapeutic Community Treatment*

Kressel and his colleagues (2000) developed a 98-item Client Assessment Inventory (CAI) and two summary measures, a 14-item Client Assessment Summary and similar 14-item Staff Assessment Summary. These instruments measure clients' progress in therapeutic community treatment with respect to 14 dimensions falling in one of four domains. The domain of "individual development" encompasses maturity (self-regulation and social management), responsibility (accountability, meeting obligations), and values (integrity and "right living"). "Socialization to the larger society" assesses drug/criminal lifestyle, images (social vs. antisocial lifestyle), work attitude, and social skills. "Psychological development" focuses on cognitive skills (awareness, judgment, insight, reality testing, decisionmaking, and problem-solving skills), emotional skills (communication and management of feeling states), and self-esteem/self-efficacy. Finally, the "community member" domain encompasses understanding of program rules, philosophy and structure, community engagement and participation; attachment, investment and stake in the community; and being a role model.

Internal consistency reliability estimates (Cronbach alphas) based on data from 346 therapeutic community residents ranged from 0.65 to 0.86 across the 14 dimensions assessed by the CAI. Clients who had been in treatment longer had more favorable proximal outcomes than clients with less tenure. The predictive validity of these indices is to be the focus of a future report. It is hoped that future studies will link therapeutic community orientation, as assessed by the SEEQ (see table 2), to client progress, as assessed by the CAI, across different therapeutic community programs.

### *Measures for Cognitive-Behavioral Treatment*

The behavioral focus in most cognitive-behavioral programs is on imparting coping skills that clients can use to avoid drinking or drinking excessively in situations that previously had been associated with heavy drinking. Primary cognitive proximal outcomes stressed in cognitive-behavioral treatment are an enhanced sense of self-efficacy (Annis and Graham 1988; Ito et al. 1988; Mayer and Koeningsmark 1992; McKay et al. 1993; DiClemente et al. 1994a; Goldbeck et al. 1997; Sklar et al. 1997; Brown et al. 1998; Coon et al. 1998; Long et al. 1998; Sklar and Turner 1999; Breslin et al. 2000; Greenfield et al. 2000; Long et al. 2000) and decreased positive and increased negative anticipated consequences of drinking (drinking expectancies) (e.g., Connors et al. 1993; B.T. Jones and McMahon 1996; Cunningham et al. 1997; Brown et al. 1998; Vik et al. 1999). Assessment of self-efficacy and drinking expectancies is discussed in the chapter by Donovan in this *Guide*.

*Role-Play Measures of Coping Skills.*— Behavioral measures of coping responses have been developed that involve obtaining patients' video- or audiotaped role-play responses to vignettes or situations. Table 3 provides descriptions of four role-play measures: the Situational Competency Test (SCT) (Chaney et al. 1978); the Adaptive Skills Battery (ASB) (S.L. Jones and Lanyon 1981; Nixon et al. 1992); the Problem Situation Inventory (PSI) (Hawkins et al. 1986; Wells et al. 1989); and the Alcohol-Specific Role Play Test (ASRPT) (Abrams et al. 1991; Monti et al. 1993). A fifth measure, the Interpersonal Situations Test (IST), was only used in one study (Twentyman et al. 1982), and no attempt was made to determine if the IST was responsive to treatment variations or linked with ultimate outcomes.

Although sharing a behavioral (role-play) approach to assessment, the four role-play measures in table 3 differ in their scoring procedures. All of the instruments assess "skill" in some sense, but they vary in other aspects of

responses that are coded. In the case of the SCT, the rapidity with which responses (at whatever skill level) are provided and the duration of responses are coded. The ASRPT assesses "anxiety" and also asks the respondent to assess his or her "urge to drink" in each situation. These latter two variables are not skills or aspects of skills. Other measures of "anxiety" or "social anxiety" (Heimberg et al. 1992), though not of anxiety in drinking-related situations, or of "temptation" (DiClemente and Hughes 1990), may provide a less time-consuming assessment format.

Reliability data in terms of rates of interrater agreement and internal consistency estimates are available for all four of the behavioral coping skills assessment procedures. Although they vary in amount (the data for the ASRPT are the most extensive), they do not provide a strong basis for choosing among measures. Other critical standards for evaluating these measures as proximal outcomes are the extent to which they have indicated more coping skills acquisition among patients exposed to skills-oriented than to other treatments, and the extent to which they have been linked to positive ultimate outcomes.

With respect to the first type of evidence, some dimensions of the SCT (Chaney et al. 1978; but see Smith and McCrady 1991), the PSI (Hawkins et al. 1986; but see Wells et al. 1994), and the ASRPT (Monti et al. 1990; Kadden et al. 1992) have been shown to be differentially responsive to treatment in at least one study, whereas this has not been demonstrated for the ASB (S.L. Jones et al. 1982). Overall, the evidence is mixed and the number of relevant studies is small, allowing no firm conclusions to be drawn. For studies with negative results, it is not clear whether such findings reflect inadequacies in the measures or in the interventions.

With respect to linkages between assessed coping skills and ultimate outcomes, again the evidence is mixed. Some dimensions of the SCT (Chaney et al. 1978), the PSI (Wells et al. 1989), and the ASRPT (Monti et al. 1990; Kadden et al. 1992), assessed during or at the end of treatment,

**Table 3.—Measures of coping responses**

**Role-Play Measures**

**Measure:** Situational Competency Test (SCT)

**Citation:** Chaney et al. 1978

**Description:** The SCT consists of 16 audiotape-recorded situations that are presented to patients who are asked to respond to each as they would in actual situations. Four situations assess responses in four of the likeliest relapse situations identified by Marlatt (1978): frustration and anger, interpersonal temptation, negative emotional states, and intrapersonal temptation. Responses are rated on response latency, duration of response, compliance versus assertiveness, and specification of problem-solving behavior.

**Measure:** Adaptive Skills Battery (ASB)

**Citations:** S.L. Jones and Lanyon 1981; Nixon et al. 1992

**Description:** The ASB is another early measure that taps coping skills in five types of situations identified by Miller (1976) as precipitants of drinking: social, such as peer pressure; situational, such as liquor advertisements; cognitive, such as self-derogation; physiological, such as pain; and emotional, such as anger. Patients are asked to describe either their usual or their best conceivable response to each of 30 situations as it is presented in a tape-recorded format. Responses are scored on a 3-point competency scale.

**Measure:** Problem Situation Inventory (PSI)

**Citations:** Hawkins et al. 1986; Wells et al. 1989

**Description:** The PSI consists of 47 situations presented by audiotape. Each situation taps one of five skills: avoiding drug use (5 items), avoiding alcohol use (7 items), coping with relapse (4 items), thinking about consequences (2 items), and general social problem-solving and stress coping (29 items). Responses to the situations are coded in terms of the presence of 21 components (e.g., “provides a reason”). For each situation, the total number of components identified in the response is scored. Bonus points are given for responses that contain additional behavioral components (e.g., “avoids drug-oriented settings” and “changes topic from drugs to safe subject”). Scores are reduced if the patient provides an aggressive, passive, or poorly executed response.

**Measure:** Alcohol-Specific Role Play Test (ASRPT)

**Citations:** Abrams et al. 1991; Monti et al. 1993

**Description:** With the ASRPT, a patient role-plays responses to 10 situations—5 interpersonal and 5 intrapersonal in nature. In contrast to the other measures, the ASRPT situations are presented live by a technician speaking from behind a screen. A male and a female confederate are used for the interpersonal situations. Subjects are instructed to respond to each situation as if they were in it and trying not to drink. After each role-play, the respondent rates his or her reactions on 11-point anchored Likert scales with respect to urge to drink, difficulty in dealing with the situation in real life, nervousness or anxiety, and skill. Responses are videotaped and rated for either social skill (for interpersonal situations) or coping skill (for intrapersonal situations), as well as for anxiety. In the study by Monti et al. (1990), responses also were rated for latency and for their effectiveness in preventing a person from drinking (see also Abrams et al. 1991).

**Table 3.—Measures of coping responses** (*continued*)**Pencil-and-Paper Measures**

**Measure:** Coping Behaviours Inventory (CBI)

**Citation:** Litman et al. 1979, Litman and Stapleton 1983; Litman et al. 1984; Maisto et al. 2000

**Description:** The CBI initially was a 60-item questionnaire (Litman et al. 1979). In later work (Litman and Stapleton 1983; Litman et al. 1984), a modified version of the CBI was employed, made up of 36 items. A principal components analysis yielded four factors: positive thinking, negative thinking, avoidance/distraction, and seeking social supports. Increases in patients' positive thinking and decreases in avoidance between intake and 6 weeks postdischarge were associated with avoiding relapse at followup 6–15 months later.

**Measure:** Processes of Change Questionnaire (POC)

**Citation:** Snow et al. 1994

**Description:** Building on previous work in the areas of smoking cessation and psychotherapy, the POC assesses process of change with respect to drinking problems. Processes of change “are covert and overt activities and experiences that individuals engage in when they attempt to modify problem behaviors” (Prochaska et al. 1992, p. 1107). As such, they can be conceptualized as coping responses. Initially, 6 items were used to tap each of 11 processes of change (e.g., self-liberation, counter-conditioning, environmental reevaluation). Eight of the 11 POC scales (stimulus control, helping relationships, behavioral management, evaluation, consciousness raising, social liberation, dramatic relief, and substance [medication] usage) were retained after a principal components analysis (30 items, overall). The 4-item substance (medication) usage subscale was unrelated to the other processes and exhibited a high level of kurtosis, so it was dropped in later analyses. Higher order, cognitive (consciousness raising, dramatic relief, evaluation, and social liberation) and behavioral (behavioral management, helping relationships, and stimulus control) processes of change indices were derived using confirmatory factor analysis.

**Measure:** Adolescent Relapse Coping Questionnaire (ARCQ)

**Citation:** Myers et al. 1993; Myers and Brown 1996

**Description:** The ARCQ consists of a description of a hypothetical situation that represents high risk for relapse (drugs and alcohol offered at a small social gathering at a friend's house), followed by appraisal questions that ask about self-efficacy for abstinence, perceived difficulty in coping, and importance of remaining abstinent. Coping strategies are assessed by 33 items; 21 are from the Ways of Coping Questionnaire (Folkman and Lazarus 1980), and 12 items were developed based on teenagers' responses to high-risk situations. A components analysis extended (Myers and Brown 1996) indicated three factors: a general cognitive/behavioral problem-solving coping strategies factor on which 12 items loaded, a “self-critical thinking” factor on which 7 items loaded, and an abstinence-focused factor on which 9 items loaded. Coefficient alphas for the three scales ranged from 0.78 to 0.82.

have been linked with drinking behavior at followup. On the ASB, both usual and best responses were rated as more skillful among persons who were seen as having better outcomes at a 1-year followup (S.L. Jones and Lanyon 1981). Unfortunately, the ASB was administered at followup, rather than during or at the end of treatment, so the relationships of ASB scores to outcome may reflect common method variance. In any event, they do not indicate *predictive* validity (see also Rosenberg's [1983] analyses of SCT responses).

The role-play measures combine situations that, although thought to be relapse-inducing, do not directly mention alcohol, with situations that directly involve alcohol use. For example, only 6 of the 10 ASRPT situations directly involve alcohol; 4 of the SCT situations directly assess drink refusal (Smith and McCrady 1991). Responses to ASB situations that mentioned drinking ( $n = 8$ ), as well as those that did not ( $n = 22$ ), were related to outcome. The correlation for the drinking-related situations was stronger, but not significantly so (S.L. Jones and Lanyon 1981). On the PSI, Wells et al. (1989) found that whereas general social/problem-solving skills among residents soon to be released from a therapeutic community program showed no relationship, specific alcohol-related skills were linked to reduced substance use 9 months later. However, among patients who had experienced a lapse, general skills appeared to "assist subjects to arrest lapses through problem solving or seeking support before they become extensive relapses" (Wells et al. 1989, p. 18). Thus, although general skills may play a role in limiting lapses, it appears that specific alcohol-related skills play a more important role in lowering the risk of any drinking. To reduce assessment time, some researchers/clinicians may wish to limit role-plays to only those situations involving alcohol.

*Pencil-and-Paper Measures of Coping Skills.*—Role-play measures of coping responses are relatively inconvenient to administer, time-consuming, and somewhat expensive to score. Pencil-and-paper measures of coping skills, although presumably not having the same level of ecological validity as role-

play measures, are convenient (they can be administered in a followup interview or as part of a self-administered questionnaire), are relatively inexpensive, and can tap both cognitive and behavioral coping methods. Three such measures are described in table 3: the Coping Behaviours Inventory (CBI) (Litman et al. 1979; Litman and Stapleton 1983; Litman et al. 1984; Maisto et al. 2000); the Processes of Change Questionnaire (POC) (Snow et al. 1994); and the Adolescent Relapse Coping Questionnaire (ARCQ) (Myers et al. 1993; Myers and Brown 1996).

Ito et al. (1988) administered the CBI at pretreatment, posttreatment, and followup to patients exposed to either interpersonal therapy or relapse prevention training. Cognitive coping scores (positive and negative thinking) increased from pre- to posttreatment significantly in each of the two treatment groups. Behavioral coping (avoidance and distraction/substitution) increased pre- to posttreatment for the overall sample; the increase was significant for the interpersonal therapy group, but not for the relapse prevention group. When the two treatment groups were combined, cognitive coping methods were associated with abstinence at a 6-month followup, but not with three other drinking-related outcome variables (Ito and Donovan 1990). (For another study using the CBI, see Shaw et al. 1990.)

With the POC, Snow et al. (1994) found that the use of more cognitive and behavioral approaches was correlated with a greater length of sobriety among former problem drinkers. Persons currently involved in AA indicated greater use of helping relationships, stimulus control, and behavior management in comparison with persons who had never been in AA or had only been involved in the past. Current and past AA members reported greater use of consciousness-raising than did persons who had never attended AA meetings. The POC is a promising instrument in need of further investigation. In particular, its validity should be examined by determining the responsiveness of particular processes to specific forms of treatment and by linking changes in processes to drinking behavior at followup.

Myers and Brown (1996) related scores on the ARCQ to the 1-year outcomes of 136 adolescents who had received inpatient substance abuse treatment. The ARCQ abstinence-focused coping factor was linked to reduced alcohol and other drug use during the followup year. In an earlier study (Myers et al. 1993), somewhat different ARCQ subscales predicted adolescents' outcome following inpatient substance abuse treatment. On the other hand, although Kelly et al. (2000) observed a significant relationship between adolescents' AA attendance during the first 3 months after inpatient substance abuse treatment and abstinence-focused coping assessed at the 3-month followup, they found no significant relationship between 3-month abstinence-focused coping and substance use assessed at a 6-month followup. As with the POC, more research is needed to determine the extent to which the ARCQ taps differential treatment response and is a predictor of treatment outcome.

Overall, although considerable research has been conducted on coping skills as proximal outcomes of cognitive-behavioral treatment, Morgenstern and Longabaugh (2000; see also Longabaugh and Morgenstern 1999) noted that there is relatively little research linking coping skills acquisition during treatment to posttreatment alcohol consumption, regardless of whether role-play or questionnaire measures are used. Whether these results reflect the conceptual inadequacy of the cognitive-behavioral treatment model or the psychometric inadequacy of current measures of coping skills remains to be determined.

#### *Measures for Disease Model/12-Step Treatment*

To the extent that traditional treatment programs encourage patients to become involved in 12-step groups in their communities, involvement in AA, NA, and Cocaine Anonymous can be considered a proximal outcome of traditional treatment (for studies of 12-step groups, portions of these same measures would be conceptualized as measures of treatment involvement [panel VI in figure 1]).

Most of these instruments have been developed for research purposes, but they also can be used to track patients' clinical progress. One measure, the Questionnaire of Twelve-Step Completion (Gorski 1990) was developed solely to allow 12-step group members or clinicians to track 12-step involvement; it is not reviewed here. An overview of many of these measures was provided by Allen (2000).

Table 4 describes seven measures of 12-step/AA treatment involvement: the Alcoholics Anonymous Involvement (AAI) Scale (Tonigan et al. 1996); the Steps Questionnaire (Gilbert 1991); the Spirituality Questionnaire (S. Carroll 1993); the Brown-Peterson Recovery Progress Inventory (B-PRPI) (Brown and Peterson 1991); the Self-Help Group Participation Scale and the Adoption of Self-Help Group Beliefs Scale (McKay et al. 1994); and the Alcoholics Anonymous Affiliation Scale (AAAS) (Humphreys et al. 1998). For the most part, no data are available indicating that the measures reviewed in table 4 are *differentially* responsive to 12-step-oriented treatment (although such a differential response seems likely given the 12-step specificity of these measures). Likewise, few findings are available that link scores on these measures to positive ultimate outcomes.

The measures have several problems that should be addressed. The AAI Scale, Spirituality Questionnaire, B-PRPI, and Self-Help Group Participation and Adoption of Self-Help Group Beliefs measures have only positively worded (or frequency of attendance) items and are thus vulnerable to an acquiescence response set. Some of the Steps Questionnaire items (e.g., "I am at the end of my rope because of my drinking," "My life has become unmanageable because of alcohol," "I cannot control my use of alcohol") are appropriate for an initial assessment of deficits, but, given the 12-step orientation toward surrender, seem ambiguous with respect to the assessment of improvement. Would an individual who has experienced 12 months of abstinence be expected to respond "yes" or "no" to such items? The Spirituality Questionnaire and B-PRPI mix items that tap behaviors (e.g., "read AA literature or other spiritual literature") or beliefs (e.g., "I

**TABLE 4.—Measures of 12-step/Alcoholics Anonymous (AA) involvement**

**Measure:** Alcoholics Anonymous Involvement (AAI) Scale

**Citation:** Tonigan et al. 1996

**Description:** The AAI is a 13-item self-administered questionnaire that assesses the respondent's commitment to AA and the extent of his or her "working" the program. Items tap attending AA meetings (including "90 meetings in 90 days"), having a sponsor, being a sponsor, celebrating an AA sobriety birthday, working each of the 12 steps, and having had a spiritual awakening. Two of the items are not used in calculating the overall AAI score, but assess 12-step exposure during treatment. Psychometric analyses were conducted using data from a sample of 1,726 participants in Project MATCH. A factor analysis yielded two factors that accounted for 49% of item variance: Attendance (accounting for 40% of the variance) and Involvement (accounting for 9% of the variance). Scores on the two factors correlated 0.64. The Cronbach alpha was 0.85 for the total AAI scale; it also was 0.85 for the Attendance subscale and 0.77 for the Involvement subscale. Test-retest correlations for the AAI and its subscales in a subsample of 76 persons who completed the AAI twice, 2 days apart, were 0.98 or 0.99.

**Measure:** Steps Questionnaire

**Citation:** Gilbert 1991

**Description:** The Steps Questionnaire consists of 42 items that measure attitudes and beliefs related to the first 3 of AA's 12 steps. A principal components analysis identified 23 items loading on three factors: Powerlessness, Higher Power, and Surrender. These three factors accounted for 59% of the total item variance. Only during-treatment Powerlessness predicted days sober at a 3-month followup (the only one out of 12 correlations that was significant). Gilbert (1991) also developed a second approach to scoring the Steps Questionnaire. To examine steps as a linear, hierarchical process, a Rasch analysis (similar to a Guttman scaling procedure) was conducted. Based on the results, 5 items were selected for each step. The 15-item Rasch analysis scale had a Cronbach alpha of 0.64.

**Measure:** Spirituality Questionnaire

**Citation:** S. Carroll 1993

**Description:** The 38 items in the Spirituality Questionnaire focus on involvement in Steps 11 (prayer and meditation) and 12 (helping other alcoholics). Coefficient alphas were 0.78 for the Step 11 subscale, 0.59 for the Step 12 subscale, and 0.78 for overall scores. Given the large number of items in each subscale, the low alphas suggest more than one construct is assessed by each. The Step 11 measure was significantly correlated with an increased sense of purpose in life and with length of sobriety in a sample of 100 AA members whose length of sobriety ranged from 7 days to 33 years (median of 3 years).

**Measure:** Brown-Peterson Recovery Progress Inventory (B-PRPI)

**Citation:** Brown and Peterson 1991

**Description:** The B-PRPI is a 53-item measure of behaviors, beliefs, and attitudes that is intended to assess a person's progress in a 12-step recovery program. Internal consistency reliabilities were 0.85 or higher. Length of sobriety was not related to total scores in an initial sample of 25 persons involved in the item development process. However, in a sample of 15 persons in outpatient treatment from

**TABLE 4.—Measures of 12-step/Alcoholics Anonymous (AA) involvement** (*continued*)

several 12-step-oriented programs, B-PRPI scores increased substantially pre- to posttreatment. Changes on the B-PRPI also were associated with changes in depression, hopelessness, self-concept, and other personality variables in directions that the authors report as supporting the criterion validity of the B-PRPI. In a more recent study, Carter (1998) compared 33 persons with alcohol/drug use disorders who had been in recovery for more than a year (mean 6.04 years) with 30 individuals who had a history of relapses and less than 1 year of recovery (mean 45 days). The former group scored significantly higher on the B-PRPI than the latter. Results are clouded, however, by differences between the groups on demographic characteristics and psychiatric diagnoses.

**Measure:** Self-Help Group Participation Scale; Adoption of Self-Help Group Beliefs Scale

**Citation:** McKay et al. 1994

**Description:** The 8-item Self-Help Group Participation Scale and the 4-item Adoption of Self-Help Group Beliefs Scale were used by McKay et al. (1994) to assess self-help group involvement. The internal consistency reliability estimates for the participation measure were 0.87 or higher at posttreatment and two followup points; coefficient alphas for the beliefs measure were 0.72–0.75. Endorsement of self-help group beliefs at the end of treatment was not associated with self-help participation following treatment. However, self-help group participation while in treatment was positively related to posttreatment participation in AA and Narcotics Anonymous. Neither measure assessed at treatment termination was associated with alcohol or cocaine use at followup, but posttreatment self-help participation was linked to positive outcomes (McKay et al. 1994).

**Measure:** Alcoholics Anonymous Affiliation Scale (AAAS)

**Citation:** Humphreys et al. 1998

**Description:** The AAAS is a 9-item scale that assesses attendance at AA meetings, having a sponsor, and reading AA literature. A factor analysis indicated a unidimensional scale, and internal consistency estimates of reliability were high (0.85 and 0.84 in treatment and community samples, respectively). Validity of the scale was suggested by higher scores for persons in treatment relative to individuals with alcohol problems in the community, and by persons in inpatient alcohol treatment scoring higher on it than persons in outpatient treatment (Humphreys et al. 1998).

believe in a power greater than myself”) with possible outcomes (e.g., “peace of mind” and even “abstinence or freedom from dependency”). The AAI Scale includes two items that refer to outcomes—having celebrated an AA sobriety birthday and having experienced a spiritual awakening. The utility of these scales for clinical monitoring and process analyses would be enhanced if their conceptual content was purified and separate subscales developed to assess actions, beliefs, and outcomes.

#### *Broader Assessment of Traditional Treatment Processes*

Morgenstern and his colleagues (1996) developed a self-report inventory to assess seven proximal outcomes in programs using a “traditional chemical dependency treatment” (TCDT) approach. Measures of proximal outcomes specific to TCDT include acknowledgment of powerlessness over substance use (Powerlessness—6 items) and Belief in a Higher Power (7 items), using items

from the Steps Questionnaire (Gilbert 1991). Other specific TCDT subscales assess commitment to affiliate with AA or NA (6 items), acknowledgment of having a disease of alcoholism or addiction (Disease Attribution—5 items), and beliefs that slips will inevitably lead to a full-blown relapse (Abstinence Violation Effect—5 items). The final two subscales assess commitment to lifetime abstinence (5 items) and intentions to avoid substance-related cues and situations that might lead to relapse (4 items), proximal outcomes viewed as common to TCDT and other treatment approaches. Coefficient alphas for the seven subscales ranged from 0.77 (Powerlessness and Abstinence Violation Effect) to 0.91 (Belief in a Higher Power). Validity data were presented in the form of correlations with counselor ratings. In addition, having had prior treatment was significantly associated with stronger Disease Attribution and Intention To Avoid High-Risk Situations.

Scores on the proximal outcome measures conceptualized as specific to TCDT increased significantly but moderately during treatment. However, scores on the common proximal outcomes (Commitment to Abstinence and Intention To Avoid High-Risk Situations) did not change significantly during treatment. Length of stay in treatment was unrelated to changes in either TCDT-specific or the general measures. Common, but not TCDT-specific, proximal outcomes were associated with avoiding relapse during the first month following treatment. However, among relapsers, commitment to affiliate with AA/NA and belief in a higher power were negatively related to the total number of days drinking (Morgenstern et al. 1996).

Finney et al. (1998) examined during-treatment change on traditional 12-step proximal outcomes (proximal outcomes associated with cognitive-behavioral treatment also were assessed). Patients received treatment in 12-step, cognitive-behavioral, or eclectic VA inpatient substance abuse programs. Patients in all three types of programs significantly improved on most of the proximal outcomes (disease model beliefs,

acceptance of an alcoholic or addict identity, commitment to an abstinence treatment goal, attendance at 12-step group meetings, number of 12-step group friends, reading 12-step materials, and number of steps taken). Patients who stayed in inpatient treatment longer tended to make more change on at least some proximal outcomes, although in most cases those relationships were only modest in magnitude. As expected, 12-step patients improved more than cognitive-behavioral patients on all of the 12-step proximal outcomes, except in number of steps taken. With respect to the proximal outcomes focused on in cognitive-behavioral treatment, however, cognitive-behavioral patients made no greater change, and on three proximal outcomes, made less change, than did 12-step patients.

As a next step, Finney et al. (1999) examined the predictive and cross-sectional relationships of proximal to 1-year outcomes. To be able to focus on more general proximal outcome indices and reduce the number of analyses, they developed composites that combined cognitive or behavioral proximal outcomes associated with 12-step or cognitive-behavioral treatment. The relationships of greatest interest in testing the adequacy of these two treatment models were those between proximal outcomes assessed at treatment discharge and substance use outcomes at 1-year followup. None of the correlations for the 12-step cognition or behavior composites, assessed at discharge, accounted for more than 1 percent of the variance in 1-year abstinence. Overall, the findings were similar to those of prior studies that generally have found weak to modest predictive relationships with substance use outcomes for such proximal outcomes as 12-step involvement.

## **SUMMARY AND CONCLUSION**

This review is not exhaustive. For example, it does not address general group processes in alcoholism treatment (for a review of instruments, see Beutler et al. 1993; see also Moos 1986a; Moos et al. 1993), instruments to assess the quality of work

environments for treatment staff (e.g., Moos 1986b), or treatment costs. Nevertheless, the review points to a few established and a number of promising instruments for assessing treatment and treatment processes in the alcohol field.

Overall, many of the measures reviewed have only minimal psychometric data available and have been used in only a limited number of studies (in some cases, only one). Additional research is needed to more accurately gauge their reliability and validity. For the proximal outcome variable measures that were reviewed, more research is needed to establish their responsiveness to different treatment approaches and their linkage to ultimate outcome variables.

New measures of treatment and treatment processes also should be developed. Better conceptualization of treatment processes should be a precursor to the development of those instruments, so that variables of the greatest relevance are focused upon. For example, disulfiram implants, although not used in the United States, are a treatment modality with more evidence of effectiveness than oral disulfiram (Holder et al. 1991; Finney and Monahan 1996). Disulfiram implants have proved effective even though it has been shown repeatedly in serum assays that an “active ingredient” is not present and they do not produce an effective dosage level (Johnsen et al. 1987). However, the most relevant proximal outcome variable in disulfiram treatment, as well as other antidipsotropics, is a psychological “mechanism of change”—anticipation or expectancy of a negative reaction if alcohol is consumed. Such expectancies (in addition to assays) should be examined to evaluate the full implementation of disulfiram treatment and to explore the process through which disulfiram may exert its effects. Treatment researchers and providers can use various “conceptual heuristics” (McClintock 1990) to develop better models of the treatment processes they are assessing or attempting to influence.

Additional efforts to improve the assessment of alcohol treatment and treatment processes would be well placed. They can help improve the provision

and monitoring of patient care, as well as enhance the ability of research to identify more effective forms of treatment, how they work, and for whom particular types of treatment are indicated.

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#### REFERENCES

- Abrams, D.B.; Binkoff, J.A.; Zwick, W.R.; Liepman, M.R.; Nirenberg, T.D.; Munroe, S.M.; and Monti, P.M. Alcohol abusers' and social drinkers' responses to alcohol-relevant and general situations. *J Stud Alcohol* 52: 409–414, 1991.
- Allen, J.P. Measuring treatment process variables in Alcoholics Anonymous. *J Subst Abuse Treat* 18:227–230, 2000.
- Alterman, A.I.; McLellan, A.T.; and Shiffman R.B. Do substance abuse patients with more psychopathology receive more treatment? *J Nerv Ment Dis* 181:576–582, 1993.
- Alterman, A.I.; Shen, Q.; Merrill, J.C.; McLellan, A.T.; Durell, J.; and McKay, J.R. Treatment services received by Supplemental Security Income drug and alcoholic clients. *J Subst Abuse Treat* 18:209–215, 2000.
- Annis, H.M., and Graham, J.M. *Situational Confidence Questionnaire (SCQ-39) User's Guide*. Toronto: Addiction Research Foundation, 1988.
- Bale, R.N.; Zarccone, V.P.; Van Stone, W.W.; Kuldau, J.M.; Engelsing, T.M.J.; and Elashoff,

- R.M. Three therapeutic communities: A prospective controlled study of narcotic addiction treatment: Process and two year follow-up results. *Arch Gen Psychiatry* 41:185–191, 1984.
- Barber, J.P.; Mercer, D.; Krakauer, I.; and Calvo, N. Development of an adherence/competence rating scale for individual drug counseling. *Drug Alcohol Depend* 43:125–132, 1996.
- Belding, M.A.; Iguchi, M.Y.; Morral, A.R.; and McLellan, A.T. Assessing the helping alliance and its impact in the treatment of opiate dependence. *Drug Alcohol Depend* 48(1):51–59, 1997.
- Bell, M.D. Three therapeutic communities for drug abusers: Differences in treatment environments. *Int J Addict* 20:1523–1531, 1985.
- Beutler, L.E.; Crago, M.; and Arizmendi, T.G. Therapist variables in psychotherapy process and outcome. In: Garfield, S.L., and Bergin, A.E., eds. *Handbook of Psychotherapy and Behavior Change*. 3d ed. New York: John Wiley & Sons, 1986. pp. 257–310.
- Beutler, L.E.; Jovanovic, J.; and Williams, R.E. Process research perspectives in Alcoholics Anonymous: Measurement of process variables. In: McCrady, B.S., and Miller, W.R., eds. *Research on Alcoholics Anonymous: Opportunities and Alternatives*. New Brunswick, NJ: Rutgers Center of Alcohol Studies, 1993. pp. 357–377.
- Bliss, F. H.; Moos, R.H.; and Bromet, E.J. Monitoring change in community-oriented treatment programs. *J Community Psychol* 4:315–326, 1976.
- Borkman, T. A comparison of social model and clinical model services. In: Shaw, S., and Borkman, T., eds. *Social Model Recovery: An Environmental Approach*. Burbank, CA: Bridge Focus, 1990. pp. 45–52.
- Breslin, F.C.; Sobell, L.C.; Sobell, M.B.; and Agrawal, S. A comparison of a brief and long version of the Situational Confidence Questionnaire. *Behav Res Ther* 38(12):1211–1220, 2000.
- Broome, K.M.; Simpson, D.D.; and Joe, G.W. Patient and program attributes related to treatment process indicators in DATOS. *Drug Alcohol Depend* 57(2):127–137, 1999.
- Brown, H.P., and Peterson, J.H. Assessing spirituality in addiction treatment and follow-up: Development of the Brown-Peterson Recovery Process Inventory (B-PRPI). *Alcohol Treat Q* 8:21–50, 1991.
- Brown, S.A.; Carrello, P.D.; Vik, P.W.; and Porter, R.J. Change in alcohol effect and self-efficacy expectancies during addiction treatment. *Subst Abuse* 19:155–167, 1998.
- Carise, D.; McLellan, A.T.; Gifford, L.S.; and Kleber, H. Developing a national addiction treatment information system. An introduction to the Drug Evaluation Network System. *J Subst Abuse Treat* 17:67–77, 1999.
- Carise, D.; McLellan, A.T.; Gifford, L.S.; and Kleber, H. Development of a “treatment program” descriptor: The Addiction Treatment Inventory. *Subst Use Misuse* 35:1797–1818, 2000.
- Carroll, K.M. Manual-guided psychosocial treatment: A new virtual requirement for pharmacotherapy trials? *Arch Gen Psychiatry* 54:923–928, 1997.
- Carroll, K.M.; Nich, C.; and Rounsaville, B.J. Contribution of the therapeutic alliance to outcome in active versus control psychotherapies. *J Consult Clin Psychol* 65:510–514, 1997.
- Carroll, K.M.; Connors, G.J.; Cooney, N.L.; DiClemente, C.C.; Donovan, D.M.; Kadden, R.R.; Longabaugh, R.L.; Rounsaville, B.J.; Wirtz, P.W.; and Zweben, A. Internal validity of Project MATCH treatments: Discriminability and integrity. *J Consult Clin Psychol* 66:290–303, 1998a.
- Carroll, K.M.; Nich, C.; and Rounsaville, B.J. Utility of therapist session checklists to monitor delivery of coping skills treatment for cocaine abusers. *Psychother Res* 8:307–320, 1998b.
- Carroll, K.M.; Nich, C.; Sifry, R.L.; Nuro, K.F.; Frankforter, T.L.; Ball, S.A.; Fenton, L.; and

- Rounsaville, B.J. A general system for evaluating therapist adherence and competence in psychotherapy research in the addictions. *Drug Alcohol Depend* 57(3):225–238, 2000.
- Carroll, S. Spirituality and purpose in life in alcoholism recovery. *J Stud Alcohol* 54:297–301, 1993.
- Carter, T.M. The effects of spiritual practices on recovery from substance abuse. *J Psychiatr Ment Health Nurs* 5:409–413, 1998.
- Chaney, E.F.; O’Leary, M.R.; and Marlatt, G.A. Skill training with alcoholics. *J Consult Clin Psychol* 46:1092–1104, 1978.
- Connors, G.J.; Tarbox, A.R.; and Faillace, L.A. Changes in alcohol expectancies and drinking behavior among treated problem drinkers. *J Stud Alcohol* 54:676–683, 1993.
- Connors, G.J.; Carroll, K.M.; DiClemente, C.C.; Longabaugh, R.; and Donovan, D.M. The therapeutic alliance and its relationship to alcohol treatment participation and outcome. *J Consult Clin Psychol* 69:588–598, 1997.
- Connors, G.J.; DiClemente, C.C.; Dermen, K.H.; Kadden, R.; Carroll, K.M.; and Frone, M.R. Predicting therapeutic alliance in alcoholism treatment. *J Stud Alcohol* 61:139–149, 2000.
- Coon, G.M.; Pena, D.; and Illich, P. A. Self-efficacy and substance abuse: Assessment using a brief phone interview. *J Subst Abuse Treat* 15:385–391, 1998.
- Cunningham, J.A.; Sobell, L.C.; Gavin, D.R.; Sobell, M.B.; and Breslin, F.C. Assessing motivation for change: Preliminary development and evaluation of a scale measuring the costs and benefits of changing alcohol or drug use. *Psychol Addict Behav* 11:107–114, 1997.
- De Weert-Van Oene, G.H.; De Jong, C.A.; Jorg, F.; and Schrijvers, G.J. The Helping Alliance Questionnaire: Psychometric properties in patients with substance dependence. *Subst Use Misuse* 34(11):1549–1569, 1999.
- DiClemente, C.C., and Hughes, S.O. Stages of change profiles in outpatient alcoholism treatment. *J Subst Abuse* 2:217–235, 1990.
- DiClemente, C.C.; Carbonari, J.P.; Montgomery, R.P.G.; and Hughes, S.O. The Alcohol Abstinence Self-Efficacy Scale. *J Stud Alcohol* 55:141–148, 1994a.
- DiClemente, C.C.; Carroll, K.M.; Connors, G.J.; and Kadden, R.M. Process assessment in treatment matching research. *J Stud Alcohol Suppl* 12:156–162, 1994b.
- Ellsworth, R., and Maroney, R. Characteristics of psychiatric programs and their effects on patients’ adjustment. *J Consult Clin Psychol* 39:436–447, 1972.
- Etheridge, R.M.; Craddock, S.G.; Dunteman, G.H.; and Hubbard, R.L. Treatment services in two national studies of community-based drug abuse treatment programs. *J Subst Abuse* 7:9–26, 1995.
- Fenton, L.R.; Cecero, J.J.; Nich, C.; Frankforter, T.L.; and Carroll, K.M. Perspective is everything: The predictive validity of six working alliance instruments. *J Psychother Pract Res* 10:262–268, 2001.
- Finney, J.W. Enhancing substance abuse treatment evaluations: Examining mediators and moderators of treatment effects. *J Subst Abuse* 7:135–150, 1995.
- Finney, J.W., and Monahan, S.C. The cost-effectiveness of treatment for alcoholism: A second approximation. *J Stud Alcohol* 57:229–243, 1996.
- Finney, J.W., and Moos, R.H. Environmental assessment and evaluation research: Examples from mental health and substance abuse programs. *Eval Program Plann* 7:151–167, 1984.
- Finney, J.W.; Noyes, C.A.; Coutts, A.I.; and Moos, R.H. Evaluating substance abuse treatment process models: I. Changes on proximal outcome variables during 12-step and cognitive-behavioral treatment. *J Stud Alcohol* 59(4):371–380, 1998.
- Finney, J.W.; Moos, R.H.; and Humphreys, K. A comparative evaluation of substance abuse treatment: II. Linking proximal outcomes of 12-step and cognitive-behavioral treatment to substance use. *Alcohol Clin Exp Res* 23(3):537–544, 1999.

- Fischer, J. The relationship between alcoholic patients' milieu perception and measures of their drinking during a brief follow-up period. *Int J Addict* 14:1151–1156, 1979.
- Folkman, S., and Lazarus, R.S. An analysis of coping in a middle-aged community sample. *J Health Soc Behav* 21:219–239, 1980.
- Fuller, R.K.; Branchey, L.; Brightwell, D.R.; Derman, R.M.; Emrick, C.D.; Iber, F.L.; James, K.; Lacoursiere, R.B.; Lee, K.K.; Lowenstam, I.; Maany, I.; Neiderhiser, D.; Nocks, J.J.; and Shaw, S. Disulfiram treatment of alcoholism: A Veterans Administration cooperative study. *JAMA* 256(11):1449–1455, 1986.
- Gerstein, D.R. Policy-relevant research on drug treatment. In: Cartwright, W.S., and Kaple, J.M., eds. *Economic Costs, Cost-Effectiveness, Financing, and Community-Based Drug Treatment*. Research Monograph No. 113. Rockville, MD: National Institute on Drug Abuse, 1991. pp. 129–147.
- Getter, H.; Litt, M.D.; Kadden, R.M.; and Cooney, N.L. Measuring treatment process in coping skills and interactional group therapies for alcoholism. *Int J Group Psychother* 42(3): 419–430, 1992.
- Gilbert, F.S. The development of a "Steps Questionnaire." *J Stud Alcohol* 52:353–360, 1991.
- Glaser, F.B. Anybody got a match? Treatment research and the matching hypothesis. In: Edwards, G., and Grant, M., eds. *Alcoholism Treatment in Transition*. Baltimore, MD: University Park Press, 1980. pp. 178–196.
- Goldbeck, R.; Myatt, P.; and Atchison, T. End-of-treatment self-efficacy: A predictor of abstinence. *Addiction* 92:313–324, 1997.
- Gorski, T.T. *Questionnaire of Twelve-Step Completion*. Independence, MO: Herald House/Independence Press, 1990.
- Greenfield, S.F.; Hufford, M.R.; Vagge, L.M.; Muenz, L.R.; Costello, M.E.; and Weiss, R.D. Relationship of self-efficacy expectancies to relapse among alcohol dependent men and women: A prospective study. *J Stud Alcohol* 61:345–351, 2000.
- Harris, R.; Linn, M.; and Pratt, T. A comparison of dropouts and disciplinary discharges from a therapeutic community. *Int J Addict* 15: 749–756, 1980.
- Hawkins, J.D.; Catalano, R.F.; and Wells, E.A. Measuring effects of a skills training intervention for drug abusers. *J Consult Clin Psychol* 54:661–664, 1986.
- Heimberg, R.G.; Mueller, G.P.; Holt, C.S.; Hope, D.A.; and Libowitz, M.R. Assessment of anxiety in social interaction and being observed by others: The Social Interaction Anxiety Scale and the Social Phobia Scale. *Behav Ther* 23:53–73, 1992.
- Helander, A. Monitoring relapse drinking during disulfiram therapy by assay of urinary 5-hydroxytryptophol. *Alcohol Clin Exp Res* 22(1):111–114, 1998.
- Herrera, J.M., and Lawson, W.B. Effects of consultation on the ward atmosphere in a state psychiatric hospital. *Psychol Rep* 60:423–428, 1987.
- Holder, H.; Longabaugh, R.; Miller, W.R.; and Rubonis, A.V. The cost-effectiveness of treatment for alcoholism: A first approximation. *J Stud Alcohol* 52:517–540, 1991.
- Hubbard, R.L.; Marsden, M.E.; Cavanaugh, J.V.; and Ginzburg, H.M. *Drug Abuse Treatment: A National Study of Effectiveness*. Chapel Hill: University of North Carolina Press, 1989.
- Humphreys, K.; Greenbaum, M.A.; Noke, J.M.; and Finney, J.W. Reliability, validity, and normative data for a short version of the Understanding of Alcoholism Scale. *Psychol Addict Behav* 10:38–44, 1996a.
- Humphreys, K.; Noke, J.; and Moos, R. Recovering substance abuse staff members' beliefs about addiction. *J Subst Abuse Treat* 13:75–78, 1996b.
- Humphreys, K.; Kaskutas, L.A.; and Weisner, C. The Alcoholics Anonymous Affiliation Scale: Development, reliability, and norms for diverse treated and untreated populations. *Alcohol Clin Exp Res* 22:974–978, 1998.
- Institute of Medicine. *Prevention and Treatment of Alcohol Problems: Research Opportunities*. Washington, DC: National Academy Press, 1989.

- Ito, J.R., and Donovan, D.M. Predicting drinking outcome: Demography, chronicity, coping, and aftercare. *Addict Behav* 15:553–559, 1990.
- Ito, J.R.; Donovan, D.M.; and Hall, J.J. Relapse prevention in alcohol aftercare: Effects on drinking outcome, change process, and aftercare attendance. *Br J Addict* 83:171–181, 1988.
- Johnsen, J.A.S.; Bache-Wiig, J.E.; Stensrud, T.; Ripel, A.; and Morland, J. A double-blind placebo-controlled study of healthy volunteers given a subcutaneous disulfiram implantation. *Br J Addict* 82:607–613, 1987.
- Jones, B.T., and McMahon, J. Changes in alcohol expectancies during treatment relate to subsequent abstinence survivorship. *Br J Clin Psychol* 35:221–234, 1996.
- Jones, S.L., and Lanyon, R.I. Relationship between adaptive skills and outcome of alcoholism treatment. *J Stud Alcohol* 42:521–525, 1981.
- Jones, S.L.; Kanfer, R.; and Lanyon, R.I. Skill training with alcoholics: A clinical extension. *Addict Behav* 7:285–290, 1982.
- Kadden, R.M.; Litt, M.D.; Cooney, N.L.; and Busher, D.A. Relationship between role-play measures of coping skills and alcoholism treatment outcome. *Addict Behav* 17:425–437, 1992.
- Kaminer, Y.; Blitz, C.; Burleson, J.A.; and Sussman, J. The Teen Treatment Services Review (T-TSR). *J Subst Abuse Treat* 15:291–300, 1998.
- Kasarabada, N.D.; Hser, Y.-I.; Parker, L.; Hall, E.; Anglin, M.D.; and Chang, E. A self-administered instrument for assessing therapeutic approaches of drug-user treatment counselors. *Subst Use Misuse* 36:273–299, 2001.
- Kaskutas, L.A.; Greenfield, T.K.; Borkman, T.J.; and Room, J.A. Measuring treatment philosophy: A scale for substance abuse recovery programs. *J Subst Abuse Treat* 15:27–36, 1998.
- Kelly, J.F.; Myers, M.G.; and Brown, S.A. A multivariate process model of adolescent 12-step attendance and substance use outcome following inpatient treatment. *Psychol Addict Behav* 14:376–389, 2000.
- Kressel, D.; De Leon, G.; Palij, M.; and Rubin, G. Measuring client clinical progress in therapeutic community treatment. The therapeutic community Client Assessment Inventory, Client Assessment Summary, and Staff Assessment Summary. *J Subst Abuse Treat* 19:267–272, 2000.
- Krystal, J.H.; Cramer, J.A.; Krol, W.F.; Kirk, G.F.; and Rosenheck, R.A. Naltrexone in the treatment of alcohol dependence. *N Engl J Med* 345(24):1734–1739, 2001.
- Litman, G.K., and Stapleton, J. An instrument for measuring coping behaviors in hospitalized alcoholics: Implications for relapse prevention treatment. *Br J Addict* 78:269–276, 1983.
- Litman, G.K.; Eiser, J.R.; Rawson, N.S.B.; and Oppenheim, A.N. Differences in relapse precipitants and coping behaviour between alcohol relapsers and survivors. *Behav Res Ther* 17:89–94, 1979.
- Litman, G.K.; Stapleton, J.; Oppenheim, A.N.; Peleg, M.; and Jackson, P. The relationship between coping behaviours, their effectiveness and alcoholism relapse and survival. *Br J Addict* 79:283–291, 1984.
- Long, C.G.; Hollin, C.R.; and Williams, M.J. Self-efficacy, outcome expectations, and fantasies as predictors of alcoholics' posttreatment drinking. *Subst Use Misuse* 33:2383–2402, 1998.
- Long, C.G.; Williams, M.; Midgley, M.; and Hollin, C.R. Within-program factors as predictors of drinking outcome following cognitive-behavioral treatment. *Addict Behav* 25:573–578, 2000.
- Longabaugh, R., and Morgenstern, J. Cognitive-behavioral coping-skills therapy for alcohol dependence: Current status and future directions. *Alcohol Res Health* 23:78–85, 1999.
- Magura, S. Introduction: Program quality in substance dependency treatment. *Subst Use Misuse* 35:1617–1627, 2000.
- Maisto, S.A.; Connors, G.J.; and Zywiak, W.H. Alcohol treatment, changes in coping skills, self-efficacy, and levels of alcohol use and related

- problems 1 year following treatment initiation. *Psychol Addict Behav* 14:257–266, 2000.
- Marlatt, G.A. Craving for alcohol, loss of control, and relapse: A cognitive behavioral analysis. In: Nathan, P.E.; Marlatt, G.A.; and Loberg, T., eds. *Alcoholism: New Directions in Behavioral Research and Treatment*. New York: Plenum, 1978.
- Mayer, J.E., and Koeningsmark, C.P.S. Self-efficacy, relapse and the possibility of posttreatment denial as a stage in alcoholism. *Alcohol Treat Q* 8(4):1–17, 1992.
- McCaughrin, W.C., and Price, R.H. Effective outpatient drug misuse treatment organizations: Program features and selection effects. *Int J Addict* 27:1335–1358, 1992.
- McClintock, C. Evaluators as applied theorists. *Eval Pract* 11:1–12, 1990.
- McKay, J.R.; Maisto, S.A.; and O’Farrell, T.J. End-of-treatment self-efficacy, aftercare, and drinking outcomes of alcoholic men. *Alcohol Clin Exp Res* 17:1078–1083, 1993.
- McKay, J.R.; Alterman, A.I.; McLellan, A.T.; and Snider, E.C. Treatment goals, continuity of care, and outcome in a day hospital substance abuse rehabilitation program. *Am J Psychiatry* 151:254–259, 1994.
- McLellan, A.T.; Luborsky, L.; Cacciola, J.; Griffith, J.; Evans, F.; Barr, H.; and O’Brien, C.P. New data from the Addiction Severity Index: Reliability and validity in three centers. *J Nerv Ment Dis* 173:412–423, 1985.
- McLellan, A.T.; Woody, G.E.; Luborsky, L.; and Goehl, L. Is the counselor an “active ingredient” in substance abuse rehabilitation? An examination of treatment success among four counselors. *J Nerv Ment Dis* 176:423–430, 1988.
- McLellan, A.T.; Alterman, A.I.; Cacciola, J.; Metzger, D.; and O’Brien, C.P. A new measure of substance abuse treatment: Initial studies of the Treatment Services Review. *J Nerv Ment Dis* 180:101–110, 1992.
- McLellan, A.T.; Arndt, I.O.; Metzger, D.S.; Woody, G.E.; and O’Brien, C.P. The effects of psychosocial services in substance abuse treatment. *JAMA* 269:1953–1959, 1993a.
- McLellan, A.T.; Grissom, G.R.; Brill, P.; Metzger, D.S.; and O’Brien, C.P. Substance abuse treatment in the private setting: Are some programs more effective than others? *J Subst Abuse Treat* 10:243–254, 1993b.
- Melnick, G., and De Leon, G. Clarifying the nature of therapeutic community treatment. *J Subst Abuse Treat* 16:307–313, 1999.
- Melnick, G.; De Leon, G.; Hiller, M.L.; and Knight, K. Therapeutic communities: Diversity in treatment elements. *Subst Use Misuse* 35(12–14):1819–1847, 2000.
- Miller, W.R.; Taylor, C.A.; and West, J.C. Focused versus broad-spectrum behavior therapy for problem drinkers. *J Consult Clin Psychol* 48:590–601, 1980.
- Moffett, L.A. Assessing the social system of a therapeutic community: Interpersonal orientations, social climate, and norms. *International Journal of Therapeutic Communities* 5:110–119, 1984.
- Moffett, L.A., and Flagg, C. Real and ideal social climate perceptions of residents, staff, and visitors in a therapeutic community for substance-dependent patients. *Therapeutic Communities* 14:103–118, 1993.
- Monti, P.M.; Abrams, D.B.; Binkoff, J.A.; Zwick, W.R.; Liepman, M.R.; Nirenberg, T.D.; and Rohsenow, D.J. Communication skills training, communication skills training with family and cognitive behavioral mood management training for alcoholics. *J Stud Alcohol* 51:263–270, 1990.
- Monti, P.M.; Rohsenow, D.J.; Abrams, D.B.; Zwick, W.R.; Binkoff, J.A.; Munroe, S.M.; Fingeret, A.L.; Nirenberg, T.D.; Liepman, M.R.; Pedraza, M.; Kadden, R.M.; and Cooney, N.L. Development of a behavior-analytically derived alcohol-specific role-play assessment instrument. *J Stud Alcohol* 54:710–721, 1993.
- Moos, R.H. *Group Environment Scale Manual: Second Edition*. Palo Alto, CA: Consulting Psychologists Press, 1986a.
- Moos, R.H. *Work Environment Scale Manual: Second Edition*. Palo Alto, CA: Consulting Psychologists Press, 1986b.

- Moos, R.H. Assessing the program environment: Implications for program evaluation and design. In: Conrad, K.J., and Roberts-Gray, C., eds. *Evaluating Program Environments*. San Francisco: Jossey-Bass, 1988a.
- Moos, R.H. *Community-Oriented Programs Environment Scale Manual: Second Edition*. Palo Alto, CA: Consulting Psychologists Press, 1988b.
- Moos, R.H. *Ward Atmosphere Scale Manual: Second Edition*. Palo Alto, CA: Consulting Psychologists Press, 1989.
- Moos, R.H. *Evaluating Treatment Environments: The Quality of Psychiatric and Substance Abuse Programs*. 2d ed. New Brunswick, NJ: Transaction Publishers, 1997.
- Moos, R.H., and Finney, J.W. The treatment setting in alcoholism program evaluations. *Ann Behav Med* 8:33–39, 1986.
- Moos, R.H., and Lemke, S. *Group Residences for Older Adults*. New York: Oxford University Press, 1994.
- Moos, R.H.; Finney, J.W.; and Cronkite, R.C. *Alcoholism Treatment: Context, Process, and Outcome*. New York: Oxford University Press, 1990.
- Moos, R.H.; Finney, J.; and Maude-Griffin, P. The social climate of self-help and mutual support groups: Assessing group implementation, process, and outcome. In: McCrady, B.S., and Miller, W.R., eds. *Research on Alcoholics Anonymous: Opportunities and Alternatives*. New Brunswick, NJ: Rutgers Center of Alcohol Studies, 1993. pp. 251–274.
- Moos, R.H.; Pettit, E.; and Gruber, V. Characteristics and outcomes of three models of community residential care for substance abuse patients. *J Subst Abuse* 7:99–116, 1995.
- Morgenstern, J., and Longabaugh, R. Cognitive-behavioral treatment for alcohol dependence: A review of evidence for its hypothesized mechanisms of action. *Addiction* 95:1475–1490, 2000.
- Morgenstern, J.; Frey, R.M.; McCrady, B.S.; Labouvie, E.; and Neighbors, C. Examining mediators of change in traditional chemical dependency treatment. *J Stud Alcohol* 57:53–64, 1996.
- Moyers, T.B., and Miller, W.R. Therapists' conceptualizations of alcoholism: Measurement and implications for treatment decisions. *Psychol Addict Behav* 7:238–245, 1993.
- Myers, M.G., and Brown, S.A. The Adolescent Relapse Coping Questionnaire: Psychometric validation. *J Stud Alcohol* 57:40–46, 1996.
- Myers, M.G.; Brown, S.A.; and Mott, M.A. Coping as a predictor of adolescent substance abuse treatment outcome. *J Subst Abuse* 5:15–29, 1993.
- Najavits, L.M., and Weiss, R.D. Variations in therapist effectiveness in the treatment of patients with substance use disorders: An empirical review. *Addiction* 89:679–688, 1994.
- Najavits, L.M.; Crits-Christoph, P.; and Dierberger, A. Clinicians' impact on the quality of substance use disorder treatment. *Subst Use Misuse* 35:2161–2190, 2000.
- Namkoong, K.; Farren, C.K.; O'Connor, P.G.; and O'Malley, S.S. Measurement of compliance with naltrexone in the treatment of alcohol dependence: Research and clinical implications. *J Clin Psychiatry* 60(7):449–453, 1999.
- Nirenberg, T.D., and Maisto, S.A. The relationship between assessment and alcohol treatment. *Int J Addict* 25:1275–1285, 1990.
- Nixon, S.J.; Tivis, R.; and Parsons, O.A. Interpersonal problem-solving in male and female alcoholics. *Alcohol Clin Exp Res* 16:684–687, 1992.
- Office of Applied Studies. *National Drug and Alcoholism Treatment Unit Survey (NDATUS): 1991 Main Findings Report*. Rockville, MD: Substance Abuse and Mental Health Services Administration, 1991.
- Office of Applied Studies. *Drug Services Research Survey. Final Report: Phase I (Revised)*. Rockville, MD: Substance Abuse and Mental Health Services Administration, 1992a.
- Office of Applied Studies. *Drug Services Research Survey. Final Report: Phase II*. Rockville, MD: Substance Abuse and Mental Health Services Administration, 1992b.

- Ojehagen, A.; Berglund, M.; and Hansson, L. The relationship between helping alliance and outcome in outpatient treatment of alcoholics: A comparative study of psychiatric treatment and multimodal behavioural therapy. *Alcohol Alcohol* 32(3):241–249, 1997.
- Ouimette, P.C.; Finney, J.W.; and Moos, R.H. Twelve-step and cognitive-behavioral treatment for substance abuse: A comparison of treatment effectiveness. *J Consult Clin Psychol* 65:230–240, 1997.
- Peterson, K.A.; Swindle, R.W.; Paradise, M.A.; and Moos, R.H. *Substance Abuse Treatment Programming in the VA: Staffing, Patients, Policies, and Services*. Palo Alto, CA: Program Evaluation and Resource Center, 1993.
- Peterson, K.A.; Swindle, R.W.; Paradise, M.A.; and Moos, R.H. *Substance Abuse Treatment Programming in the VA: Program Structure and Treatment Processes*. Palo Alto, CA: Program Evaluation and Resource Center, 1994a.
- Peterson, K.A.; Swindle, R.W.; Phibbs, C.S.; Recine, B.; and Moos, R.H. Determinants of readmission following inpatient substance abuse treatment: A national study of VA programs. *Med Care* 32:535–550, 1994b.
- Petry, N.M., and Bickel, W.K. Therapeutic alliance and psychiatric severity as predictors of completion of treatment for opioid dependence. *Psychiatr Serv* 50(2):219–227, 1999.
- Price, R.H., and D'Aunno, T.A. The organization and impact of outpatient drug abuse treatment services. In: Watson, R.R., ed. *Drug and Alcohol Reviews, Vol. 3: Treatment of Drug and Alcohol Abuse*. Totowa, NJ: Humana Press, 1992.
- Price, R.H., and Moos, R.H. Toward a taxonomy of inpatient treatment environments. *J Abnorm Psychol* 84:181–188, 1975.
- Prochaska, J.O.; DiClemente, C.C.; and Norcross, J.C. In search of how people change: Applications to addictive behaviors. *Am Psychol* 47:1102–1114, 1992.
- Project MATCH Research Group. Therapist effects in three treatments for alcohol problems. *Psychother Res* 8(4):455–474, 1998.
- Raytek, H.S.; McCrady, B.S.; Epstein, E.E.; and Hirsch, L.S. Therapeutic alliance and the retention of couples in conjoint alcoholism treatment. *Addict Behav* 24(3):317–330, 1999.
- Rodgers, J.H., and Barnett, P.G. Two separate tracks? A national multivariate analysis of differences between public and private substance abuse treatment programs. *Am J Drug Alcohol Abuse* 26:429–442, 2000.
- Rosen, A., and Proctor, E.K. Distinctions between treatment outcomes and their implications for treatment evaluation. *J Consult Clin Psychol* 49:418–425, 1981.
- Rosenberg, H. Relapsed versus non-relapsed alcohol abusers: Coping skills, life events, and social support. *Addict Behav* 8:183–186, 1983.
- Sanchez-Craig, M.; Spivak, K.; and Davila, R. Superior outcome of females over males after brief treatment for the reduction of heavy drinking: Replication and report of therapist effects. *Drug Alcohol Depend* 86:867–876, 1991.
- Shaw, G.K.; Waller, S.; McDougall, S.; MacGarvie, J.; and Dunn, G. Alcoholism: A follow-up study of participants in an alcohol treatment program. *Br J Psychiatry* 157:190–196, 1990.
- Sklar, S.M., and Turner, N.E. Brief measure for the assessment of coping self-efficacy among alcohol and other drug users. *Addiction* 94:723–729, 1999.
- Sklar, S.M.; Annis, H.M.; and Turner, N.E. Development and validation of the Drug-Taking Confidence Questionnaire: A measure of coping self-efficacy. *Addict Behav* 22:655–670, 1997.
- Smith, D.E., and McCrady, B.S. Cognitive impairment among alcoholics: Impact on drink refusal skill acquisition and treatment outcome. *Addict Behav* 16:265–274, 1991.
- Snow, M.G.; Prochaska, J.O.; and Rossi, J. Processes of change in Alcoholics Anonymous: Maintenance factors in long-term sobriety. *J Stud Alcohol* 55:362–371, 1994.
- Steiner, H.; Haldipur, C.; and Stack, L. The acute admission ward as a therapeutic community. *Am J Psychiatry* 139:897–901, 1982.

- Swindle, R.W.; Peterson, K.A.; Paradise, M.J.; and Moos, R.H. Measuring substance abuse program treatment orientations: The Drug and Alcohol Program Treatment Inventory. *J Subst Abuse* 7:61–78, 1995.
- Timko, C. *The Quality of Psychiatric Treatment Programs*. Palo Alto, CA: Center for Health Care Evaluation, Department of Veterans Affairs Medical Center, 1994.
- Timko, C. Policies and services in residential substance abuse programs: Comparisons with psychiatric programs. *J Subst Abuse* 7:43–59, 1995.
- Timko, C. Physical characteristics of residential psychiatric and substance abuse programs: Organizational determinants and patients outcomes. *Am J Community Psychol* 24(1): 173–192, 1996.
- Timko, C., and Moos, R.H. Outcomes of the treatment climate in psychiatric and substance abuse programs. *J Clin Psychol* 54:1137–1150, 1998.
- Timko, C.; Lesar, M.; Engelbrekt, M.; and Moos, R.H. Changes in services and structure in community residential treatment facilities for substance abuse patients. *Psychiatr Serv* 51(4):494–498, 2000a.
- Timko, C.; Yu, K.; and Moos, R.H. Demand characteristics of residential substance abuse treatment programs. *J Subst Abuse* 12(4):387–403, 2000b.
- Tonigan, J.S.; Miller, W.R.; and Connors, G.J. Alcoholics Anonymous Involvement (AAI) Scale: Reliability and norms. *Psychol Addict Behav* 10:75–80, 1996.
- Twentyman, C.T.; Greenwald, D.P.; Greenwald, M.A.; Kloss, J.D.; Kovalski, M.E.; and Zibung-Hoffman, P. An assessment of social skill deficits in alcoholics. *Behav Assess* 4:314–326, 1982.
- Valle, S.K. Interpersonal functioning of alcoholism counselors and treatment outcome. *J Stud Alcohol* 42:783–790, 1981.
- Vik, P.W.; Carrello, P.D.; and Nathan, P.E. Hypothesized simple factor structure for the Alcohol Expectancy Questionnaire: Confirmatory factor analysis. *Exp Clin Psychopharmacol* 7:294–303, 1999.
- Waltz, J.; Addis, M.E.; Koerner, K.; and Jacobson, N.S. Testing the integrity of a psychotherapy protocol: Assessment of adherence and competence. *J Consult Clin Psychol* 61:620–630, 1993.
- Wells, E.A.; Catalano, R.F.; Plotnick, R.; Hawkins, J.D.; and Brattesani, K.A. General versus drug-specific coping skills and post-treatment drug use among adults. *Psychol Addict Behav* 3:8–21, 1989.
- Wells, E.A.; Peterson, P.L.; Gainey, R.R.; Hawkins, J.D.; and Catalano, R.F. Outpatient treatment for cocaine abuse: A controlled comparison of relapse prevention and twelve-step approaches. *Am J Drug Alcohol Abuse* 20:1–17, 1994.
- Yeaton, W.H. The development and assessment of valid measures of service delivery to enhance inference in outcome-based research: Measuring attendance at self-help group meetings. *J Consult Clin Psychol* 62:686–694, 1994.
- Zanis, D.A.; McLellan, A.T.; Belding, M.A.; and Moyer, G. A comparison of three methods of measuring the type and quantity of services provided during substance abuse treatment. *Drug Alcohol Depend* 49:25–32, 1997.

