



Psychiatric Rehabilitation

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Treatment of individuals with serious and persistent mental illness (SPMI) is a challenging, long-term endeavor. SPMI, particularly schizophrenia, has adverse effects on almost every area of an individual's functioning, and reversing or attenuating these impairments and disabilities requires comprehensive, continuous, coordinated, and consumer-oriented services. Individuals with schizophrenia have "difficulties in interpersonal relationships and in achieving and maintaining competitive employment. They are often shy, awkward, passive, dependent, unmotivated, socially ill at ease, and occasionally aggressive in ways that are embarrassing or frightening to other people ... they tend to suffer from the negative effects of long-term psychotropic drug treatment, and they resist proper medical care. They also lack the basic survival skills necessary for coping in society" (Bachrach 1983, p. 165).

Improving this bleak picture has been a major aim of stakeholder groups in their efforts to establish a comprehensive standard of care for individuals with SPMI. The National Institute of Mental Health's *Caring for People With Severe Mental Disorders* (National Institute of Mental Health 1991) exemplifies this standard particularly well: "[F]our domains encompass the important areas to be [treated]: 1) clinical, reduction or elimination of symp-

toms; 2) rehabilitative, improvement or restoration of social and vocational functioning; 3) humanitarian, increase in a sense of well-being and personal fulfillment; and 4) public welfare, prevention of harm." The field of psychiatric rehabilitation has arisen specifically to help individuals restore and improve their social, instrumental, and vocational functioning. In this chapter we review the field's current procedures and summarize the evidence for their efficacy. Before beginning the review, however, we provide a general orientation by briefly discussing the rationale for psychiatric rehabilitation.

■ Rationale

Psychiatric rehabilitation is based on the assumption that adequate social and role functioning is the outcome of three factors: 1) the characteristics of the individual, 2) the community's requirements for adequate functioning, and 3) the supportiveness of the environment. The individual's characteristics—symptoms, cognitive functioning, past experiences, current role skills—limit his or her functioning; the community's requirements are the standards for evaluating that functioning, and the environment might be either responsive or indifferent to the individual's attempts to function.

The interaction among these three factors defines the process, form, and content of psychiatric rehabilitation's assessment and intervention procedures. The rehabilitation process begins with a comprehensive elicitation of the individual's personally relevant long-term goals for improved social and instrumental role functioning. These goals anchor the process and provide the specific foci for the next step: assessment of the three factors that influence functioning.

During the assessment, the clinician measures the individual's characteristics, particularly past and current functioning, and gathers information about the community's requirements for adequate role functioning and the environment's resources and support. The results are reviewed by the individual and the rehabilitation practitioner/team, and together they formulate the incremental short-term goals that are the steps to achieving the individual's personal long-term goals.

Next, the individual and the rehabilitation practitioner/team collaboratively design a rehabilitation plan that specifies the services needed for each incremental goal. Typically, the services include a flexible combination of teaching the individual the behavioral skills that comprise improved functioning, reducing the community's requirements for adequate functioning, and/or increasing environmental support. Once the services have been implemented, the individual's functioning is periodically assessed and compared with the incremental goals and the community requirements. These comparisons quantify the outcomes of rehabilitation and highlight potential areas for new or modified interventions.

In the remainder of this chapter, we review the field's assessment and intervention techniques, ending with summary conclusions and suggested directions for future research and clinical efforts.

■ Assessment

Rehabilitation Planning

Until recently, obtaining the comprehensive information needed to plan rehabilitation was a haphazard process. Practitioners typically administered either idiosyncratic measures or

a battery of standardized tests, each of which assessed a relevant individual characteristic (e.g., symptoms, measures of functioning). Unfortunately, the psychometric soundness of practitioners' measures is usually unknown, and the different administrative and scoring procedures of standardized tests make it difficult to integrate the results. In the last several years, however, several tests, checklists, and computer programs have been developed to collect the comprehensive information needed to plan and evaluate psychiatric treatment (Diamond and Becker 1999; Kennedy 1992; Weaver 1994; Weiss and Chapman 1993). One of these, the Client's Assessment of Strengths, Interests, and Goals (CASIG; Wallace et al., in press), is specifically designed for psychiatric rehabilitation.

CASIG is administered as a structured interview that begins by eliciting the individual's medium-term goals in five areas of community living: housing, money/work, interpersonal relationships, health, and spiritual activities. Additional questions are asked to clarify these goals and obtain the individual's estimate of the services needed to achieve them. The interview continues with thoroughly specified questions that assess the individual's current and past community functioning, medication compliance and side effects, quality of life, quality of treatment, symptoms, and performance of intolerable community behaviors. The yes-no responses are summarized either manually or with the aid of a computer program that also produces a suggested rehabilitation plan. CASIG is sufficiently well structured that it can be administered accurately by SPMI inpatients and outpatients (Lecomte et al. 1999). CASIG's results can be supplemented with data from measures of individually relevant variables such as presence of comorbid disorders, physical health status, and performance on selected cognitive tests.

Functional Behaviors

A number of measures have been developed that focus specifically on assessing the individual's functional behaviors (see review articles by Dickerson 1997, Goldman et al. 1992, and Wallace 1986). Some are brief measures of the global outcomes of programs and providers (e.g., Role Functioning Scale; [McPheeters 1984]); others are thoroughly detailed measures that collect data from several sources (e.g., Independent Living Skills Survey [Wallace et al. 2000]). The cost for the greater detail is the time required to administer and score the data and interpret the results; the benefit is the greater precision of the information for pinpointing needed services and detecting changes in functioning.

■ Interventions

The core intervention of psychiatric rehabilitation is training the individual to perform the behavioral skills that comprise improved functioning. As necessary as it is, though, training is insufficient to guarantee that the individual will achieve his or her goals of improved functioning. The environment must provide the opportunities and encouragement to perform the skills and consistently deliver well-timed rewards. Hence, the rehabilitation plan includes services to train the individual and increase the environment's support.

Skills Training

Training closes the gap between the individual's current skills and those needed for improved functioning. Although its methods are straightforward (i.e., describe what will be trained, demonstrate it, practice it), its content is far from straightforward. Developing the

curricula to teach skills such as managing one's money, maintaining employment, coping with SPMI symptoms, and participating in basic conversations is neither quick nor easy. Moreover, the instructional techniques must bypass or compensate for individuals' symptoms and cognitive dysfunctions that might interfere with learning.

Lieberman and his colleagues have addressed this difficulty by producing modules that teach community living skills with thoroughly specified curricula and highly structured methodology (Lieberman et al. 1993). Eight modules have been produced: medication self-management, symptom self-management, substance abuse management, recreation for leisure, basic conversation, workplace fundamentals, community reentry, and friendship and intimacy. All of them, as well as those under development, use the same methodology to train each skill in each module. Only the content varies from module to module, and the repetition of the methodology provides a predictable teaching/learning environment that helps trainers to conduct the modules and individuals to learn the skills.

For example, the workplace fundamentals module teaches nine skills: 1) knowing how work changes your life, 2) knowing your workplace, 3) knowing your workplace stressors, 4) solving problems, 5) solving health and substance abuse workplace problems, 6) solving mental health workplace problems, 7) coping with supervisors and improving task performance, 8) coping with peers and informal socializing, and 9) getting support and maintaining enthusiasm. Each skill is defined in terms of the specific behaviors required for successful performance. For example, coping with peers and informal socializing require identifying the workplace "rules" for social relationships, initiating and ending brief and friendly conversations, and solving relationship problems. These behaviors are the targets of training.

The training methodology consists of seven learning activities detailed in Figure 37-1. The introduction sets the stage for the learning; it tells the learners the "payoff" that they can expect from their investment of time and energy. The demonstration videotape provides a clear presentation of the skills that can be easily and consistently presented across diverse staff and settings. The videotape's periodic stops and the questions to assess viewers' comprehension are essential for ensuring that the training is achieving its instructional objectives. The role-play practice is similarly critical because learning is not just comprehension; it is ultimately the enactment of a skill. Furthermore, the more often that participants practice enacting the skill, the more polished their performances when the actual opportunities arise.

The problem-solving activities are the first steps in helping participants transfer their skills to their living environments. Two types of problems are considered: how to obtain the resources required to perform a skill and how to overcome obstacles in environments that do not respond as they should (Wallace and Boone 1984). The final two activities—exercises accompanied by a support person and homework assignments—extend training into the real world. Participants first complete real-life assignments accompanied by the trainer or case manager and then complete homework assignments on their own.

Each module is packaged with a trainer's manual, participant's workbook, and demonstration videotape. The manual specifies exactly what the trainer is to say and do to teach all of a module's skills; the videotape demonstrates the skills; and the workbook provides written material, forms, and exercises that help the individual learn the skills. A module can be easily conducted by one trainer with from one to eight participants. Having more than eight participants, however, reduces the opportunities for each to answer the questions and practice the skills and the problem-solving exercises.

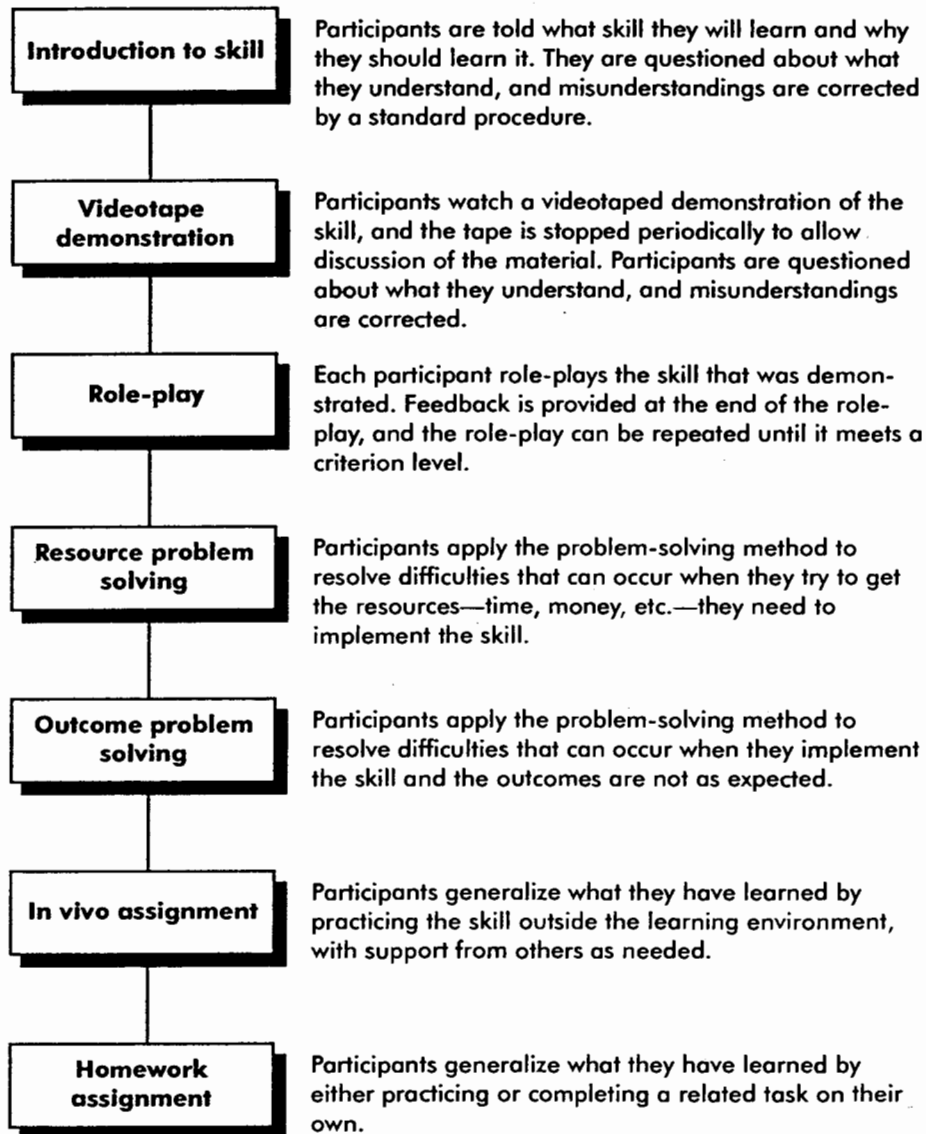


FIGURE 37-1. Seven learning activities.

Of course, the teaching must be modified to fit and compensate for the large variations in SPMI individuals' functioning, symptoms, and capabilities to benefit from training. Adaptations also should be made to fit the module into the particular characteristics of the clinical setting. The modules' repetitive, tight structure provides a completely reproducible starting point for these modifications. Experienced trainers can experiment with a variety of alterations, and inexperienced trainers can return to the structure should their modifications prove ineffective. The repetitive structure compensates for most symptomatic and cognitive limitations (Eckman et al. 1992) and forms a constant background of psychosocial treatment against which the effects of other treatments (e.g., medications) can be determined.

Empirical Evaluation of Skills Training

Over the past decade, a number of review articles have critically evaluated the evidence of the effects of skills training with SPMI individuals (e.g., Benton and Schroeder 1990; Dilk and Bond 1996; Heinssen et al. 2000; Penn and Mueser 1996; Scott and Dixon 1995). Their conclusions answer three key questions: 1) Do individuals learn and retain the skills? 2) If so, do individuals transfer their learning and perform the skills in the real world? and 3) Do the benefits of training generalize to improvements in other outcomes?

Learning the Skills and Retaining Them

Numerous studies have documented the significant and substantial improvements in participants' knowledge and behaviors as the result of training (e.g., Eckman et al. 1992; Kopelowicz et al. 1998; Liberman et al. 1998; Marder et al. 1996; Wallace et al. 1992, 1999). Furthermore, participants retain their improvements for up to 2 years, the maximum duration measured. These studies have been conducted in diverse treatment settings (inpatient, outpatient, partial/day hospitals, residential care of all types) by diverse practitioners (nursing staff, recreational therapists, mental health counselors, residential managers, and paraprofessional staff) covering a broad range of skills (steady employment, preparation for discharge from inpatient treatment, illness management, smoking cessation, human immunodeficiency virus (HIV) risk reduction, and conversation skills) (Heinssen et al. 2000).

Transfer of Training

The results are less conclusive for transferring skills to participants' environments. There is, of course, a transfer gradient, that is, the more alike the training and living environments, the more likely the behaviors will be transferred. But the gradient is steep, and the transfer falls off with even small differences between settings. However, encouragement and reinforcement evidence indicates that two procedures can increase the transfer. If opportunities are created in the living environment to use the skills, transfer is increased.

If the skills are automated through repeated practice in a variety of conditions, it is more likely that they will be transferred to diverse settings. Although this "overlearning" has not been directly tested with individuals with SPMI, studies of "expert" performance (Ericsson and Charness 1994) suggest that lengthy training and repeated practice are essential for producing stable, highly polished performances. These findings also suggest that infrequent training sessions are of limited value; too much time is spent reviewing and relearning rather than practicing and overlearning. The accumulated research and clinical experience indicates that skills training must be offered on at least a weekly basis for not less than 6 months to achieve substantial gains in persons with SPMI (Heinssen et al. 2000).

Generalization to Other Outcomes

Most, but not all, studies have reported few significant differences between participants in skills training and participants in control interventions in changes on measures of psychopathology, rehospitalization, and relapse (Dobson et al. 1995; Eckman et al. 1992; Liberman et al. 1998, 1999; Marder et al. 1996). The relative independence among the outcomes of treatment of persons with SPMI has been well documented (Carpenter et al. 1976), and outcomes tend to be specifically linked to particular treatments. For example, symptoms and relapse rates are more closely related to the quality and efficacy of psychopharmacotherapy, while psychosocial and community functioning are more responsive to behavioral treatments such as social skills training and supported employment (Heinssen et al. 2000; Marder et al. 1996).

Studies show one benefit unique to skills training: except for conceptual disorganization, skills training can be successfully conducted regardless of symptoms, even with inpatients with acute illness (Kopelowicz et al. 1998; Smith et al. 1996). The results also indicate that even during the acute phase of the illness individuals can profit from skills training. Indeed, the earlier one starts the rehabilitation process, the more opportunities become available to learn, practice, and adapt one's skills (Kopelowicz et al. 1998; MacKain et al. 1998; Smith et al. 1996).

Environmental Support

The individual's living environment is the ultimate test for his or her functional skills and provides both the opportunities to perform the skills and the rewards for doing so. The opportunities set the specific requirements for a successful performance; the regularity with which the success is actually rewarded depends on the recognition by people in the environment that a performance is successful and their willingness to then reward it.

A number of interventions have been developed to help an individual adapt his or her functional behaviors to the opportunities and/or to increase the environment's support. Most interventions have focused on increasing the family's general support; only a few have focused on improving residential care support or helping the individual adapt to the environment (DeRisi et al. 1975; Liberman et al. 2000).

Family Interventions

The family interventions—variously labeled family psychoeducation, behavioral family management/therapy, family-aided assertive community treatment, and multiple-family therapy—are designed to actively engage families in the rehabilitation process. All share several components, including educating about the nature of SPMI; assisting with using available community resources; and teaching better methods of managing stress, communicating, and problem solving (Mueser et al. 1994; Strachan 1992). Evaluations of these interventions have reported that adding them to a regimen of medication and customary case management produces substantially better outcomes than the latter two alone (Falloon et al. 1999; Hogarty et al. 1986; Leff et al. 1989; Liberman et al. 1984; MacFarlane et al. 1992; Randolph et al. 1994).

In contrast to the global nature of these family interventions, Kopelowicz and colleagues (1998) focused on improving families' support for the specific behaviors taught in two of the skills training modules, symptom management and medication management. The family intervention and skills training with patients in groups were conducted concurrently. Family members were taught how to provide opportunities for their SPMI relatives to implement the behaviors being taught in the modules, encourage their relatives to implement the behaviors, and reward them with positive feedback when they did so.

The effects of the intervention were evaluated in a rigorous experimental design with a total of 86 Latino families. The modules were translated into Spanish and culturally adapted, and half of the families were randomly assigned to the combined individual/family training and half were assigned to customary outpatient care. The results indicated that the participants with SPMI learned the skills, transferred them to their living environments, and maintained their use for at least 6 months after training, the duration of the follow-up in this study. Moreover, participants in skills training had lower rates of positive and negative symptoms at the end of training and at the 6-month follow-up as well as fewer hos-

pitalizations during the 9 months of the study and 1 year later than did the individuals receiving customary care.

Community Reentry Module

The community reentry module (CRM) teaches individuals how to develop their own comprehensive community aftercare. The module is another of the Liberman et al. series, modified for use in the rapid-turnover operations of a typical, short-term-care, psychiatric inpatient facility. The module consists of sixteen 45-minute sessions divided into two 8-session sections: 1) planning for discharge and linking with service providers, and 2) understanding and managing mental illness. The CRM is formatted for continuous implementation, with participants “dropping in” and completing as many of the sessions as the cycling schedule and their schedules permit. An initial evaluation (Smith et al. 1996) found that participants not only learned the material, despite their acute illnesses, but their discharge level of knowledge and performance on the CRM skills was positively associated with their functioning 2 months after discharge.

Kopelowicz et al. (1998) conducted a rigorous evaluation of the CRM with 59 consecutive admissions to a short-term-care, psychiatric inpatient unit of a university-affiliated county hospital. The participants were randomly assigned either to the CRM or to equally intensive occupational therapy (OT) that used artistic and craft activities. Patients in both conditions received customary discharge planning services from social workers, including referrals to specific aftercare programs and housing.

The results again confirmed that the CRM participants with acute illness learned the material, improving from 54.5% correct on a pretest of knowledge and skills to 81.3% at discharge compared with a change from 50.4% to 54.8% for the OT group. Importantly, 85.2% of the CRM group attended their first aftercare appointments compared with 37% of the OT group. Because continuity of care is one of the key elements in successful long-term outcome, the results indicated that the CRM, with its well-focused and clear-cut outcome, had utility for participants, practitioners, and the system of care.

Nonfamilial Supporters

More common than training individuals to craft their own continuing care is increasing their nonfamilial environmental support. One approach is to teach patients to become their own advocates and case managers, using social skills training techniques that instigate and reinforce completion of assignments in the community that enable participants to attain their own personal goals (Hierholzer and Liberman 1986; Liberman et al. 1989). Another approach, described by Dobson (1996), is to create an ongoing support group of individuals who have participated in a common psychoeducational program. Periodic meetings provide opportunities for participants to refresh their skills, discuss problems, and encourage other participants' attempts to improve their lifestyle. Dobson conducted a randomized evaluation of this approach and reported that its costs were low, the participants were satisfied with its effects, and it may have reduced subsequent hospital use.

Alternatively, self-directed groups may be formed regardless of participants' common treatment experience. These groups create opportunities for social contact, recreation, and advocacy. Lane (1998), for example, described the establishment of a telephone peer counseling service staffed by individuals with SPMI. The service was a “win-win situation that resulted from an effective collaboration between clients, both as colleagues and consumers, and mental health professionals” (Lane 1998, p. 312).

Two other support procedures have been developed and evaluated, both explicitly designed to help participants in the skills training modules transfer their newly learned behaviors from training to their living environments. One, *in vivo* amplified skills training (IVAST), involves specialized case managers who routinely conduct additional training sessions in participants' environments. The sessions help participants adapt their behaviors to their environments and practice that adaptation. In addition, case managers "run interference" for individuals with SPMI so that opportunities and encouragement are provided for them to use their skills in everyday life. Evaluations of IVAST have reported that participants with the extra support achieved higher levels of interpersonal problem-solving skills, significantly greater social adjustment, and better quality of life over a 2-year period than did participants with the skills training alone (Lieberman et al., *in press*).

The second procedure involves indigenous supporters—residential care staff, peers, and relatives—who similarly help participants in skills training adapt their newly learned behaviors to their living environments. Supporters are selected by participants based on the criteria of cooperativeness, accessibility, and familiarity with the specifics of their environments. Support consists of structured meetings between a participant and his or her supporter to review the participant's use of the newly learned behaviors, explore the causes of a less-than-satisfactory use, and generate a method to improve that use. No constraints are placed on the frequency or duration of a pair's meetings.

Tauber et al. (*in press*) evaluated the procedure with several process and outcome measures. Skills training participants chose primarily residential care staff and friends (89%) as supporters. The pairs had either established a long-term relationship (42% had known each other for more than 2 years) or met rather recently (40% had been acquainted for less than 6 months). The meetings between clients and supporters were frequent (average of 11 per month), lengthy (minimum of 30 minutes), and focused primarily on performance of the clients' newly learned behaviors. Both the supporters and the participants were highly satisfied with their relationship. Participants who received both the skills training and the added support improved their interpersonal and community functioning during training and continued to improve during the 18 months after training. In contrast, those without support lost some of their improvements during the follow-up.

■ Specialized Interventions

To address specialized problems, several psychiatric rehabilitation interventions have been developed: comorbid substance use disorder (SUD) and SPMI treatment, vocational rehabilitation, and cognitive rehabilitation.

Comorbid Substance Use Disorder Treatment

During the past two decades, the prevalence of dually diagnosed SPMI individuals—those with concurrent SPMI and SUD—has increased enormously. The combination of the two disorders greatly complicates individuals' treatment. SUD increases the risk of symptomatic relapse (Roberts et al. 1992; Sullivan et al. 1995; Swofford et al. 1996), interferes with the effects of antipsychotic medications, decreases compliance with treatment, increases the burden experienced by families and other caregivers (Clark et al. 1998), and multiplies the use of other services such as the legal system (Clark et al. 1999).

The reasons that dually diagnosed individuals use alcohol and drugs are the same as

those of non-SPMI abusers (Bellack and DiClemente 1999; Carey et al. 1999; Cuffel et al. 1993). Dually diagnosed individuals report that alcohol and drug use makes them feel “euphoric, high, relaxed, or comfortable, and increases [their] ability to mix socially.” They also report that it provides an opportunity to “be part of a crowd” and be with “others who were doing the same thing.” Substance abuse also “fills [their] time and occupies [their] minds.” Abstaining would “allow them to get more accomplished and be more productive..., go to educational programs,” and be “attentive to [their] appearance and cleaning [their] home” (Carey et al. 1999, p. 291).

These responses suggest that psychiatric rehabilitation should be a major component of dually diagnosed individuals’ treatment. Developing social networks, engaging in alternate activities, and participating in work or other productive pursuits are all part of psychiatric rehabilitation’s goal of improving individuals’ social and instrumental functioning. However, until recently, it has been difficult to introduce psychiatric rehabilitation even as a minor component in these individuals’ care. The difficulty is that individuals have straddled two systems of care, one for SUD and one for SPMI. Each has its own personnel, funds, treatments, and mechanisms of authority and accountability, and dually diagnosed individuals have been shuffled between them.

Integration of SPMI and SUD services has now become the standard of care for dually diagnosed individuals (Center for Substance Abuse Treatment 1994). Drake and his colleagues define the standards of care as 1) treatment of both disorders by the “same clinicians who are trained in psychopathology, assessment, and treatment strategies for both”; 2) “emphasis on trust and learning rather than confrontation”; 3) “emphasis on reduction of harm from substance use rather than immediate abstinence”; 4) “slow pace and long-term perspective”; 5) “12-step groups available to those who choose and can benefit rather than being mandated for all”; 6) “neuroleptics and other pharmacotherapies indicated according to needs rather than being contraindicated for all”; 7) “some components specifically address substance use reduction”; and 8) “components focus on integrated treatment including substance abuse group interventions ... case management ... medications and medication management ... [and] psychosocial rehabilitation” (Drake et al. 1998).

Reviews and evaluations of integrated treatment have concluded that its effects are modest, with the most encouraging evidence coming from 10 studies “that included an array of components and followed participants for more than a year” (Drake et al. 1998, p. 601). One of these studies, Ridgely and Jerrell (1996), compared psychiatric rehabilitation services—specifically, training in social and instrumental role skills—with participation in either Alcoholics Anonymous groups or intensive case management. The training consisted of four of the Liberman and colleagues’ (1993) skills training modules. The results indicated that the individuals who participated in the training “demonstrated substantially more positive outcomes across several indicators of client and system outcomes” (Ridgely and Jerrell 1996, p. 569) than did individuals who received either of the other two services. These indicators included symptoms, alcohol abuse, drug abuse, and community functioning.

To further increase the effectiveness of integrated treatment, a skills module has been produced to train the participants in the competencies needed to reduce current substance abuse and prevent it in the future. The module (Roberts et al. 1999) is based on a relapse prevention strategy that consists of seven tactics (e.g., practice damage control, avoid or escape high-risk situations, seek healthy alternatives) implemented with nine skills (e.g., quit before a slip becomes a full-blown relapse, report a slip, refuse drugs from a pushy dealer

or friend, ask someone to join you in a healthy alternative). As with all other modules of the UCLA Social and Independent Living Skills Program, this module is available from its progenitors (Psychiatric Rehabilitation Consultants 2000).

The module is conducted as ongoing training that participants can join and exit at any point. The module has been in clinical use for approximately 4 years, and a pilot test of its efficacy was recently completed. A total of 56 individuals participated. All had extensive histories of SUD, and 75% had cocaine in their urine at the time of admission. Several outcome measures (e.g., Addiction Severity Index, urine toxicology, Brief Psychiatric Rating Scale) were administered pretest, posttest, and at a 3-month follow-up. Thirty-four individuals (61%) completed the study. The results indicated that days of complete abstinence in the past 30 days increased significantly from a mean of 12.76 to 24.26 and remained high at the 3-month follow-up (mean = 25.82). Moreover, there were significant and substantial reductions in all of the main drugs of abuse (cocaine, alcohol, and marijuana). Compliance with antipsychotic medication was significantly higher at the completion of treatment with the Substance Abuse Management Module and at follow-up, and psychiatric symptoms improved significantly at posttest and remained improved at the 3-month follow-up.

Vocational Rehabilitation

Helping physically disabled individuals find and keep competitive employment has long been the purview of a specialized system of care, the vocational rehabilitation system. Its services are generally time-limited, with a strong pressure on practitioners to successfully close cases as rapidly as possible with little, if any, follow-up. Unfortunately, such services are ill-suited to the majority of SPMI individuals. A number of treatments, separate from the vocational rehabilitation system, have been developed to help SPMI individuals enter and stay in the workforce.

Transitional Employment

The first treatments were based on a train-place model that offered individuals time-limited work experiences and taught them vocational skills as they worked in these accommodating environments. Presumably, the workers would acquire the skills needed to get and keep competitive employment (Mastboom 1992).

Quasi-experimental evaluations of this model produced mixed results, and no well-controlled study found consistently higher rates of competitive employment than those under control conditions. A very different treatment, supported employment, had achieved superior rates of competitive employment with developmentally delayed individuals, and it was soon adapted for use with individuals with SPMI (Becker and Drake 1994).

Supported Employment

The supported employment (SE) model is based on a place-train sequence of services. Individuals are quickly placed in competitive employment and receive any and all services needed to keep them employed. Given the unpredictable course of SPMI and the changing nature of most jobs, the services are delivered as often as needed at the actual job site, consistent with employers' and individuals' preferences.

Evaluations of SE have confirmed its value when it is fully integrated into the care provided by a multidisciplinary psychiatric rehabilitation team. Drake and colleagues (1996) compared their integrated SE, individual placement and support (IPS), with traditional,

brokered services conducted by a separate vocational rehabilitation agency. IPS was conducted by "employment specialists," each of whom served up to 25 individuals. The specialists collaborated with the individuals and their treatment teams to implement services that would achieve each individual's specific vocational goal.

Three findings of the Drake et al. (1996) study are applicable to the psychiatric rehabilitation procedures. First, IPS was significantly and substantially superior to the brokered services for helping individuals find jobs. Approximately one-half of the IPS participants obtained a competitive job; neither diagnosis nor symptoms were correlated with employment. Second, IPS and the brokered services did not differ on several measures of job retention. Both groups terminated their jobs at the same rates and for the same reasons: interpersonal problems, difficulty managing symptoms, dissatisfaction with the job, and poor work quality (Becker et al. 1998). Third, variations in the implementation of both IPS and the brokered services resulted in large differences in outcomes. As might be expected, the outcomes paralleled their accuracy or fidelity of utilization (Drake et al. 1999).

To help SPMI workers keep their jobs, Liberman and his colleagues (1993) produced another module in their series, the workplace fundamentals module, described previously. The skills it teaches explicitly address the reasons for job turnover by the SPMI, such as how to cope with stressors and how to socialize with co-workers. The thoroughly specified techniques it uses ensure its replication across a wide range of practitioners and treatment sites. Results from a quasi-experimental pilot implementation of the module were encouraging (Wallace et al. 1999), and a randomized clinical trial is now being conducted evaluating the effects of combining IPS and the module.

Cognitive Rehabilitation

A good deal of evidence indicates that individuals with SPMI, particularly those with schizophrenia, have enduring deficits in cognitive functions such as vigilance, working memory, secondary verbal memory, and executive functioning (Green and Nuechterlein 1999). A possible link between these deficits and social and instrumental role functioning seems obvious. Roles such as worker, spouse, and parent usually require processing complex information to make decisions and enact behaviors with uncertain and unknown outcomes. Hence, any deficiency in cognitive processing may lead to poor role functioning.

The treatment link seems just as obvious: improve cognitive functioning and role functioning will improve. These links, however, are not at all straightforward, and their thorny conceptual and methodological issues have been the subject of a decade's worth of reviews, opinions, and experiments (e.g., Bellack 1992; Bellack et al. 1999; Liberman and Green 1992; Spaulding et al. 1999).

Fueling the optimism that cognitive rehabilitation can be a valuable treatment strategy are two sets of findings: cognitive functioning is correlated with social and role functioning, and cognitive functioning can be modified. A number of studies have found that laboratory measures of cognitive functions such as vigilance, distractibility, and semantic memory are correlated with role-play and interview measures of social competence and social problem solving (e.g., Bellack et al. 1994, 1999; Bowen et al. 1994; Corrigan et al. 1994; Green 1996; Wykes et al. 1999). These cognitive measures are correlated with the outcomes of treatment designed to improve role functioning (Bowen et al. 1994; Corrigan et al. 1994; Kern et al. 1992; Mueser et al. 1991).

These results, however, must be interpreted cautiously. The measures of social compe-

tence and social problem solving are so narrowly operationalized that their results may not generalize to everyday social and role functioning. Performance in brief role-played interactions, for example, may have little relationship with performance in the ongoing complexities of spouse, parent, friend, and worker interactions.

A variation of this approach is to assess social and role functioning with broad measures and determine if these are related to cognitive functioning. Bellack et al. (1999) reported good vocational treatment outcomes (broadly defined as 1 year or more of full-time employment) that were associated with scores on two subtests of the Wechsler Adult Intelligence Scale-Revised (WAIS-R; Wechsler 1981), the Stroop Test (Stroop 1935), the Wisconsin Card Sorting Test (WCST; Heaton 1985), and the Trails B tests (Reitan and Wolfson 1993). Dickerson et al. (1996) found that spatial organization, aphasia, and visual spatial functioning were correlated with activities of daily living skills, social activities, and total social functioning. The functioning variables were assessed with a measure that was intermediate in breadth to the narrowness of the role-played interactions and the broad definition of vocational outcome used by Bellack et al. (1999). In a 2-year follow-up, Dickerson et al. (1999) reported that initial cognitive functioning predicted the 2-year changes on the three social functioning scales that did change (four did not change).

These results too must be interpreted cautiously. Functioning on broad measures may be affected by a host of variables that cannot be disentangled, and the findings cannot be unequivocally attributed to cognitive differences. Furthermore, the construct validity of the cognitive measures, which is typically difficult to establish, is the key to interpreting the results. What, for example, is (are) the construct(s) underlying the results reported in the study by Bellack et al. (1999)?

The evidence that cognitive functioning can be modified comes from studies of changing performance on specific cognitive tasks such as the WCST. Several much earlier studies changed performance with manipulations intended to explore the nature of the cognitive function and not treat it. For example, although individuals with SPMI recall information less accurately than individuals who are not mentally ill (e.g., Koh 1978), presenting the information in a manner that emphasizes its semantic organization substantially improves recall memory. Asking individuals to actively encode information into categories based on some characteristic, even a completely idiosyncratic one, improves memory (Koh et al. 1980, 1981; Larsen and Fromholt 1976). Rehearsal alone does not improve recall.

More recent studies have reported that cognitive functioning can be modified with manipulations relevant for treatment such as incentives and detailed instructions administered repeatedly. The cognitive tasks have included the Span of Apprehension Test and the WCST (Bellack et al. 1999; Green et al. 1992; Hellman et al. 1992; Kern et al. 1996). Changes on the WCST, at first so short-lived that their being labeled "learning" was questionable (Bellack et al. 1990), have been relatively durable when the manipulation involves detailed instructions (Bellack et al. 1999; Kern et al. 1996).

Again these results must be interpreted cautiously. Although the changes may be durable, only limited evidence exists showing that they generalize to other putative measures of the same cognitive function or to other functions. Bellack et al. (1999), for example, found no changes on the Vygotsky Category Test after WCST training, whereas Young and Freyslinger (1995) reported improvements on the Short Category Test after training on the WCST with scaffolded instruction. The construct validity of the cognitive measures is again the major problem in understanding these results. A lack of generalization can reflect insufficient shared common variance in the measures despite their purportedly measuring

the same function, whereas generalization might reflect only shared method variance, not shared trait variance. A pattern of changes must be demonstrated that mirrors both convergent and discriminant validity.

Only a few clinical applications of cognitive rehabilitation techniques have been tried, and their results have been modest at best. One application (Spaulding et al. 1999) has carefully investigated the effects of Brenner's integrated psychological therapy (IPT) (Brenner et al. 1992, 1994). IPT is a series of training activities that systematically progress from visual and verbal memory to social and emotional perception to complex interpersonal problem solving. Brenner designed IPT based on somewhat arbitrary and theoretically derived conceptions of cognitive deficits in schizophrenia; thus, its tasks and measures are difficult to interpret.

Spaulding et al.'s (1999) positive results were limited to a subset of their outcome measures; their participants were long-term inpatients, and generalization of the findings to the larger population of community residents with less severe disorders is unknown. The durability of the results is similarly unknown. Hence, despite a decade of debate and research, efficacious and effective cognitive rehabilitation is still a promise waiting to be fulfilled.

■ Conclusions

The results of the numerous clinical trials and field tests summarized above reinforce the conclusions stated in this chapter in the second edition of the book (Wallace and Liberman 1995); individuals with SPMI can learn and "perform the...skills needed to live, learn, and work in the community" (Anthony 1979). Furthermore, these skills are retained without substantial degradation over a considerable period of time. Importantly, these results were produced with instructional tools whose thoroughly specified methodology makes them replicable across widely divergent practitioners and treatment settings.

Indeed, one of the conclusions drawn in this chapter in the previous edition was the desirability of producing standardized teaching methods "in a format that permits their wide-scale dissemination, adoption, and adaptation" (Wallace and Liberman 1995, p. 1037). The skills training modules provide these standardized teaching methods. Of course, no highly structured treatment fits perfectly the needs and characteristics of every individual with SPMI. The modules, however, fit a large proportion of individuals and offer accessible and well-defined starting points for building services adapted to each individual.

In addition to producing the modules, progress has been made toward fulfilling a number of other suggestions made in the second edition. Several assessment instruments have been developed that measure individuals' social and role functioning. The assessment instruments vary from a single item per major area of functioning to multiple items per basic area of independent living. Practitioners and managers can choose the instrument that balances the costs of collecting the data with the specificity of the results.

Methods of increasing the support of individuals' environments can offer solutions to the problem of generalizing individuals' functional behaviors from training to the real world. Considering that SPMI is a chronic condition, combining methods might make the most efficacious strategy for maintaining skills. Beginning generalization with a case manager who has competence in IVAST would place the process in the hands of a knowledgeable practitioner who could rapidly assess the environment and help individuals adapt their skills and/or alter the environment. Quickly shifting the process to indigenous supporters would add on-site assistants who could be routinely consulted by practitioners to assess

generalization and modify the process accordingly. Enrolling individuals in a support group and/or a self-directed, self-help group would add peer social support and help with solving various problems. The practitioner's interventions at this later point would likely consist of periodic monitoring and occasional assistance. This flexible, multilevel approach to rehabilitation has been shown to have promise when tailored to severity of individuals' illnesses (Stein et al. 1999).

■ New Directions

As befits any area of mental health services with a growing base of empirical evidence and new techniques, numerous directions for future research and clinical efforts present themselves. Although psychometrically sound measures of social and role functioning have been developed, no methods have been developed for interpreting their results and integrating them into individualized treatment planning. A method based on practice guidelines, experts' rules, local norms, and individual resources and constraints could help practitioners implement more efficacious treatment. The interpretations and resulting treatment plans would document practitioners' standards of care; monitoring the treatment plans and observing the actual services would document the quality of that care.

The promise of cognitive rehabilitation has yet to be fully realized. Although the results of recent clinical trials are modestly encouraging, they are limited to a subset of outcome measures, and their durability and generalization to the much larger population of individuals with SPMI with less severe disorders are unknown. To improve cognitive functioning, innumerable methods could be used, such as thinking-skills programs developed for a wide range of children, self-help memory enhancement techniques, and computer-delivered exercises typically administered to individuals with traumatic brain injuries. It is entirely speculative as to which ones are more or less efficacious. Indeed, participation in skills training per se may improve general cognitive functioning, particularly if participation includes a regimen of overlearning mimicking the repeated trials of computer-delivered exercises for cognitive improvements in traumatic brain injuries. Even if participation did not generalize to improved cognitive functions, the repeated practice—conducted with planned variations that mirrored variations in participants' environments—could improve the skills' durability and generalizability and obviate the need for cognitive rehabilitation.

Integrated treatment of comorbid SUD and SPMI should be the standard of care and should be implemented in all treatment facilities. SUD sabotages rehabilitation, and its prevalence among individuals with SPMI is high enough that most individuals need treatment for both disorders.

Although the skills training modules are convenient and replicable, each encompasses a large block of material that is difficult to adapt to different settings and participants. Developing methods to assemble custom modules consisting of skills selected for particular sites or participants could increase the training's efficiency.

Furthermore, the modules' efficacy and effectiveness might be improved by adopting more sophisticated instructional methods such as Brown's (1997) flexible learning environment. Brown's method is based on reciprocal teaching: trainees systematically teach and quiz each other, summarizing the material as they present it, answering other trainees' questions, and clarifying the material as needed. The teaching and Socratic dialogues, always conducted cooperatively and never competitively, help trainees form a finely differentiated, conditional model of the causal connections among the elements of the subject

matter. Trainees respond to test items and discussions with answers that extend beyond simple repetition to include complex analogies and multiply justified conclusions.

The potential value for psychiatric rehabilitation is participants' development of a differentiated, conditional causal model that guides their functioning and helps them generalize their skills. Each participant lives in a unique environment with its specific set of complex conditional connections that can vary considerably over time. Additionally, the social context of the technology might enhance the supportiveness of the training group during and after individuals' participation.

Participants' generalization might also be increased by bringing the living environment into training, the converse of IVAST and the use of indigenous supporters. Altering the modules' videotape to incorporate snapshots, sounds, and other aspects of participants' living environments would increase the reality of training. Of course, these alterations could profitably be combined with the other support procedures to diminish the differences between training and the real world.

Finally, dissemination of the methods of psychiatric rehabilitation and ongoing support of practitioners might be improved by using more advanced communication technologies such as the Internet. Although publications such as the American Psychiatric Association practice guidelines (e.g., American Psychiatric Association 1997) have contributed toward providing more favorable conditions for dissemination of psychiatric rehabilitation, the specific form, content, and value of psychiatric rehabilitation's assessment and treatment techniques are still not widely known or used. Making the information easily accessible to practitioners, managers, administrators, individuals with SPMI and their families, and advocacy groups could speed the adoption of psychiatric rehabilitation's techniques by the systems of care. Furthermore, the same communication technologies could be used to connect participants and practitioners across settings and times, offering support that is delivered when and where it is needed.

References

- American Psychiatric Association: Practice guideline for the treatment of patients with schizophrenia. *Am J Psychiatry* 154 (4 suppl):1-63, 1997
- Anthony WA: Principles of Psychiatric Rehabilitation. Baltimore, MD, University Park Press, 1979
- Bachrach LL: Planning services for chronically mentally ill patients. *Bull Menninger Clin* 47:163-188, 1983
- Becker DR, Drake RE: Individual placement and support: a community mental health center approach to vocational rehabilitation. *Community Ment Health J* 30:193-206, 1994
- Becker DR, Drake RE, Bond GR, et al: Job terminations among persons with severe mental illness participating in supported employment. *Community Ment Health J* 34:71-82, 1998
- Bellack AS: Cognitive rehabilitation for schizophrenia: is it possible? Is it necessary? *Schizophr Bull* 18:43-50, 1992
- Bellack AS, DiClemente CC: Treating substance abuse among patients with schizophrenia. *Psychiatr Serv* 50:75-80, 1999
- Bellack AS, Mueser KT, Morrison RL, et al: Remediation of cognitive deficits in schizophrenia. *Am J Psychiatry* 147:1650-1655, 1990
- Bellack AS, Sayers M, Mueser KT, et al: An evaluation of social problem solving in schizophrenia. *J Abnorm Psychol* 103:371-378, 1994

- Bellack AS, Gold JM, Buchanan RW: Cognitive rehabilitation for schizophrenia: problems, prospects, and strategies. *Schizophr Bull* 25:257-275, 1999
- Benton MK, Schroeder HE: Social skills training with schizophrenics: a meta-analytic evaluation. *J Consult Clin Psychol* 58:741-747, 1990
- Bowen L, Wallace CJ, Glynn SM, et al: Schizophrenics' cognitive functioning and performance in interpersonal interactions and skills training procedures. *J Psychiatr Res* 28:289-301, 1994
- Brenner HD, Hodel B, Roder V, et al: Treatment of cognitive dysfunctions and behavioral deficits in schizophrenia. *Schizophr Bull* 18:21-26, 1992
- Brenner HD, Roder V, Hodel B, et al: *Integrated Psychological Therapy for Schizophrenic Patients*. Toronto, ON, Hogrefe & Huber, 1994
- Brown AL: Transforming schools into communities of thinking and learning about serious matters. *Am Psychol* 52:399-413, 1997
- Carey KB, Purine DM, Maiso SA, et al: Decisional balance regarding substance use among persons with schizophrenia. *Community Ment Health J* 35:289-299, 1999
- Carpenter WT, Bartko JJ, Carpenter CL, et al: Another view of schizophrenia subtypes: a report from the International Pilot Study of Schizophrenia. *Arch Gen Psychiatry* 33:508-516, 1976
- Center for Substance Abuse Treatment: *Assessment and Treatment of Patients With Coexisting Mental Illness and Alcohol and Other Drug Abuse* (SAMHSA Publ No 94-2078). TIP series. Rockville, MD, U.S. Department of Health and Human Services, 1994
- Clark RE, Teague GB, Ricketts SK, et al: Cost-effectiveness of assertive community treatment versus standard case management for persons with severe mental illness and substance use disorders. *Health Serv Res* 33:1283-1306, 1998
- Clark RE, Ricketts SK, McHugo GJ: Legal system involvement and costs for persons in treatment for severe mental illness and substance use disorders. *Psychiatr Serv* 50:641-647, 1999
- Corrigan PW, Wallace CJ, Schade ML, et al: Learning medication self-management skills in schizophrenia: relationships with cognitive deficits and psychiatric symptoms. *Behaviour Therapy* 25:5-15, 1994
- Cuffel BJ, Heithoff KA, Lawson W: Correlates of patterns of substance abuse among patients with schizophrenia. *Hospital and Community Psychiatry* 44:247-251, 1993
- DeRisi WJ, Myron M, Goding M: Building the behavioral bridge to continuity of care: training staff of community care facilities. *Hospital and Community Psychiatry* 26:472-475, 1975
- Diamond RB, Becker M: The Wisconsin Quality of Life Index: a multidimensional model for measuring quality of life. *J Clin Psychiatry* 60 (suppl 3):29-31, 1999
- Dickerson FB: Assessing clinical outcomes: the community functioning of persons with serious mental illness. *Psychiatr Serv* 48:897-902, 1997
- Dickerson FB, Boronow JJ, Ringel N, et al: Neurocognitive deficits and social functioning in outpatients with schizophrenia. *Schizophr Res* 21:75-83, 1996
- Dickerson FB, Boronow JJ, Ringel N, et al: Social functioning and neurocognitive deficits in outpatients with schizophrenia: a 2-year outcome. *Schizophr Res* 37:13-20, 1999
- Dilk MN, Bond GR: Meta-analytic evaluation of skills training research for individuals with severe mental illness. *J Consult Clin Psychol* 64:1337-1346, 1996
- Dobson D: Long-term support and social skills training for patients with schizophrenia. *Psychiatr Serv* 47:1195-1196, 1996
- Dobson DJG, McDougall G, Busheikin J, et al: Effects of social skills training and social milieu treatment on symptoms of schizophrenia. *Psychiatr Serv* 46:376-380, 1995
- Drake RE, McHugo GJ, Becker DR, et al: The New Hampshire study of supported employment for people with severe mental illness. *J Consult Clin Psychol* 64:391-399, 1996
- Drake RE, Mercer-McFadden C, Mueser KT, et al: Review of integrated mental health and substance abuse disorders for patients with dual disorders. *Schizophr Bull* 24:589-608, 1998

- Drake RE, Becker D, McHugo GJ, et al: A randomized clinical trial of supported employment for inner-city patients with severe mental disorders. *Arch Gen Psychiatry* 56:627-633, 1999
- Eckman TA, Wirshing WC, Marder SR, et al: Techniques for training patients in illness self-management: a controlled trial. *Am J Psychiatry* 149:1549-1555, 1992
- Ericsson KA, Charness N: Expert performance: its structure and acquisition. *Am Psychol* 49:725-748, 1994
- Falloon IRH, Held T, Coverdale JH, et al: Family interventions for schizophrenia: a review of long-term benefits of international studies. *Psychiatric Rehabilitation Skills* 3:268-290, 1999
- Goldman HH, Skodol AE, Lave TR: Revising Axis V for DSM-IV: a review of measures of social functioning. *Am J Psychiatry* 149:1148-1156, 1992
- Green MF: What are the functional consequences of neurocognitive deficits in schizophrenia? *Am J Psychiatry* 153:321-330, 1996
- Green MF, Nuechterlein KN: Should schizophrenia be treated as a neurocognitive disorder? *Schizophr Bull* 25:309-321, 1999
- Green MF, Satz P, Ganzell S, et al: Wisconsin Card Sorting Test performance in schizophrenia: remediation of a stubborn deficit. *Am J Psychiatry* 149:62-67, 1992
- Heaton R: Wisconsin Card Sorting Test. Odessa, FL, Psychological Assessment Resources, 1985
- Heinssen RK, Liberman RP, Kopelowicz A: Psychosocial skills training for schizophrenia: lessons from the laboratory. *Schizophr Bull* 26:21-46, 2000
- Hellman SH, Green MF, Kern RS, et al: The effects of instruction versus reinforcement on the Wisconsin Card Sorting Test. *J Clin Exp Neuropsychol* 14:63-67, 1992
- Hierholzer RW, Liberman RP: Successful living: a social skills and problem-solving group for the chronic mentally ill. *Hospital and Community Psychiatry* 37:913-918, 1986
- Hogarty GE, Anderson CM, Reiss DJ: Family education, social skills training and maintenance chemotherapy in aftercare treatment of schizophrenia. *Arch Gen Psychiatry* 43:633-642, 1986
- Kennedy JA: Fundamentals of Psychiatric Treatment Planning. Washington, DC, American Psychiatric Press, 1992
- Kern RS, Green MF, Satz P: Neuropsychological predictors of skills training for chronic psychiatric patients. *Psychiatry Res* 43:223-230, 1992
- Kern RS, Wallace CJ, Hellman SG, et al: A training procedure for remediating WCST deficits in chronic psychotic patients: an adaptation of errorless learning principles. *J Psychiatr Res* 30:283-294, 1996
- Koh SD: Remembering of verbal materials by schizophrenic young adults, in *Language and Cognition in Schizophrenia*. Edited by Schwartz S. Hillsdale, NJ, Erlbaum, 1978, pp 175-189
- Koh SD, Marusz TW, Rosen AJ: Remembering of sentences by schizophrenic young adults. *J Abnorm Psychol* 89:291-294, 1980
- Koh SD, Grinker RR, Marusz TW: Affective memory and schizophrenic anhedonia. *Schizophr Bull* 7:292-303, 1981
- Kopelowicz A, Wallace CJ, Zarate R: Teaching psychiatric patients to re-enter the community: a brief method of improving continuity of care. *Psychiatr Serv* 49:1313-1316, 1998
- Lane AB: Combining telephone peer counseling and professional services for clients in intensive psychiatric rehabilitation. *Psychiatr Serv* 49:312-314, 1998
- Larsen SF, Fromholt P: Mnemonic organization and free recall in schizophrenia. *J Abnorm Psychol* 85:61-65, 1976
- Lecomte TB, Wilde MS, Wallace CJ: Interviewing one's peers: mental health consumers as mental health workers. *Psychiatr Serv* 50:693-695, 1999
- Leff J, Berkowitz R, Shavit N, et al: A trial of family therapy versus a relatives' group for schizophrenia. *Br J Psychiatry* 154:58-66, 1989
- Liberman RP, Green MF: Whither cognitive therapy for schizophrenia? *Schizophr Bull* 18:27-35, 1992

- Lieberman RP, Falloon IRH, Aitchison RA: Multiple family therapy for schizophrenia: a behavioral, problem-solving approach. *Psychosocial Rehabilitation Journal* 7:60-77, 1984
- Lieberman RP, DeRisi WJ, Mueser KT: *Social Skills Training for Psychiatric Patients*. New York, Pergamon, 1989
- Lieberman RP, Wallace CJ, Blackwell GA, et al: Innovations in skills training for the seriously mentally ill: the UCLA Social and Independent Living Skills Modules. *Innovations and Research* 2:43-60, 1993
- Lieberman RP, Wallace CJ, Blackwell GA, et al: Skills training vs occupational therapy for persons with persistent schizophrenia. *Am J Psychiatry* 155:1087-1091, 1998
- Lieberman RP, Kopelowicz A, Smith TE: Psychiatric rehabilitation, in *Comprehensive Textbook of Psychiatry*, 7th Edition. Baltimore, MD, Lippincott Williams & Wilkins, 1999, pp 3218-3245
- Lieberman RP, Blair KE, Glynn SM, et al: Generalization of skills training to the natural environment, in *Current Status of Schizophrenia Treatment*. Edited by Brenner HD, Boker W, Genner R. Toronto, ON, Hogrefe & Huber, 2000, pp 175-192
- Lieberman RP, Glynn SM, Marder SR: In vivo amplified skills training for promoting social adjustment in schizophrenia. *Psychiatry* (in press)
- MacKain SJ, Smith TH, Wallace CJ, et al: Evaluation of a community re-entry program. *Int Rev Psychiatry* 10:76-83, 1998
- Marder SR, Wirshing WC, Mintz J, et al: Two-year outcome of social skills training and group psychotherapy for outpatients with schizophrenia. *Am J Psychiatry* 153:1585-1592, 1996
- Mastboom J: Forty clubhouses: model and practices. *Psychosocial Rehabilitation Journal* 16:9-23, 1992
- McFarlane WR, Stastny P, Deakins S: Family-aided assertive community treatment: a comprehensive rehabilitation and intensive case management approach for persons with schizophrenic disorders, in *Effective Psychiatric Rehabilitation: New Directions for Mental Health Services* (No 53). Edited by Lieberman RP. San Francisco, CA, Jossey-Bass, 1992, pp 43-54
- McPheeters HL: Statewide mental health outcome evaluation: a perspective of two southern states. *Community Ment Health J* 20:44-55, 1984
- Mueser KT, Bellack AS, Douglas MS, et al: Predictions of social skill acquisition in schizophrenic and major affective disorder patients from memory and symptomatology. *Psychiatry Res* 37:281-296, 1991
- Mueser KT, Glynn SM, Lieberman RP: Behavior family management for serious psychiatric illness, in *Family Interventions for the Mentally Ill Relatives: New Directions for Mental Health Services*. Edited by Hatfield AB. San Francisco, CA, Jossey-Bass, 1994, pp 37-50
- National Institute of Mental Health: *Caring for people with severe mental disorders: a national plan of research to improve services* (DHHS Publ No ADM 91-1762). Washington, DC, U.S. Government Printing Office, 1991
- Penn DL, Mueser KT: Research update on the psychosocial treatment of schizophrenia. *Am J Psychiatry* 153:607-617, 1996
- Psychiatric Rehabilitation Consultants: *Modules of the UCLA Social and Independent Living Skills Program*. Camarillo CA, Psychiatric Rehabilitation Consultants (P.O. Box 2867, Camarillo, CA 93011), 2000
- Randolph E, Eth S, Glynn S, et al: Efficacy of behavioral family management in reducing relapse in veteran schizophrenics. *Br J Psychiatry* 164:501-506, 1994
- Reitan RM, Wolfson D: *The Halstead-Reitan Neuropsychological Test Battery: Theory and Clinical Interpretation*, 2nd Edition. Tucson, AZ, Neuropsychology Press, 1993
- Ridgley MS, Jerrell JM: Analysis of three interventions for substance abuse treatment of severely mentally ill people. *Community Ment Health J* 32:561-578, 1996

- Roberts LJ, Shaner A, Eckman TA, et al: Effectively treating stimulant-abusing schizophrenics: mission impossible? In *Effective Psychiatric Rehabilitation: New Directions for Mental Health Service* (No 53). Edited by Liberman RP. San Francisco, CA, Jossey-Bass, 1992, pp 55-66
- Roberts LJ, Shaner A, Eckman TA: *Overcoming Addictions: Skills Training for Persons With Schizophrenia*. New York, WW Norton, 1999
- Scott JE, Dixon LB: Psychological interventions for schizophrenia. *Schizophr Bull* 21:621-630, 1995
- Smith TE, Hull JW, MacKain SJ, et al: Training hospitalized patients with schizophrenia in community reintegration skills. *Psychiatr Serv* 47:1099-1103, 1996
- Spaulding W, Flemming K, Reed D, et al: Cognitive functioning in schizophrenia: implications for psychiatric rehabilitation. *Schizophr Bull* 25:275-291, 1999
- Stein LI, Barry KL, VanDien G, et al: Work and social support: a comparison of consumers who have achieved stability in ACT and clubhouse programs. *Community Ment Health J* 35:193-203, 1999
- Strachan A: Family management, in *Handbook of Psychiatric Rehabilitation*. Edited by Liberman RP. New York, Macmillan, 1992, pp 183-212
- Stroop JR: Studies of interference in serial verbal reactions. *J Exp Psychol* 18:643-662, 1935
- Sullivan G, Wells KB, Morgenstern H, et al: Identifying modifiable risk factors for rehospitalization: a case-control study of 1995 seriously mentally ill persons in Mississippi. *Am J Psychiatry* 152:1749-1756, 1995
- Swofford CD, Kasckow JW, Scheller-Gilkey G, et al: Substance use: a powerful predictor of relapse in schizophrenia. *Schizophr Res* 20:145-151, 1996
- Tauber R, Wallace CJ, Lecomte TB: Generalization of skills training for people with severe and persistent mental illness: enlisting indigenous community supporters. *Psychiatr Serv* (in press)
- Wallace CJ: Functional assessment. *Schizophr Bull* 12:604-630, 1986
- Wallace CJ, Boone SE: Cognitive factors in the social skills of schizophrenic patients: implications for treatment, in *The Nebraska Symposium on Motivation: Theories of Schizophrenia and Psychosis*, Vol 31. Edited by Spaulding W, Cole J. Lincoln, NE, University of Nebraska Press, 1984, pp 215-257
- Wallace CJ, Liberman RP: Psychiatric rehabilitation, in *Treatments of Psychiatric Disorders*, 2nd Edition. Edited by Gabbard GO. Washington, DC, American Psychiatric Press, 1995, pp 1019-1038
- Wallace CJ, Liberman RP, MacKain SJ: Effectiveness and replicability of modules to train social and instrumental skills in the severely mentally ill. *Am J Psychiatry* 149:654-658, 1992
- Wallace CJ, Tauber R, Wilde MS: Teaching fundamental workplace skills to persons with serious mental illness. *Psychiatr Serv* 50:1147-1153, 1999
- Wallace CJ, Liberman RP, Tauber R, et al: The Independent Living Skills Survey: a comprehensive measure of the community functioning of severely and persistently mentally ill individuals. *Schizophr Bull* 26:631-658, 2000
- Wallace CJ, Lecomte TB, Wilde MS, et al: CASIG: a consumer-centered assessment for planning individualized treatment and evaluating program outcomes. *Schizophr Res* (in press)
- Weaver RA: Computerized treatment planning. *Psychiatr Serv* 45:825-827, 1994
- Weiss KM, Chapman HA: A computer-assisted inpatient psychiatric assessment and treatment planning system. *Psychiatr Serv* 44:1097-1100, 1993
- Wechsler D: *Wechsler Adult Intelligence Scale-Revised*. San Antonio, TX, Psychological Corporation, 1981
- Wykes T, Reeder JC, Williams C, et al: The effects of neurocognitive remediation on executive functioning in patients with schizophrenia. *Schizophr Bull* 25:291-309, 1999
- Young DA, Freyslinger MG: Scaffolded instructions and the remediation of the WCST deficits in schizophrenia. *Schizophr Res* 16:199-207, 1995