

Psychiatric Rehabilitation for Schizophrenia

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ABSTRACT

Schizophrenia is a stress-related, neurobiological disorder characterized by disturbances in the form and content of an individual's thought and perceptual processes, affect and social and instrumental role behavior. The pervasive impact of schizophrenia across perceptual, cognitive, emotional and behavioral domains, as well as the heterogeneity within those domains require a multimodal and comprehensive approach to treatment and rehabilitation which involves the individual and his or her environment. A multidimensional and interactive model that includes stress, vulnerability, and protective factors best guides the types of interventions for treating and rehabilitating persons with schizophrenia. The practical significance of the stress-vulnerability-protective factors model of schizophrenia lies in the guidelines it offers to clinicians. Medications buffer the psychobiological vulnerability and underlying biochemical disturbance; training in problem solving and social and independent living skills promotes the development of personal competence and thereby strengthens the individual's protection against stress and vulnerability; supportive services (e.g., case management, housing, social service entitlements, supported employment) compensate for the individual's residual symptoms and deficits in functioning independently. An integrated approach that incorporates early detection and treatment of schizophrenia symptoms, collaboration between patients and caregivers in managing treatment, family and social supports, and training in social, instrumental and coping skills has been documented to improve the course and outcome of schizophrenia as measured by symptom recurrence, social functioning, and quality of life.

Key Words: schizophrenia, psychiatric rehabilitation, social skills training, vocational rehabilitation.

RESUMEN

Sobre la rehabilitación de la esquizofrenia. La esquizofrenia es un trastorno neurobiológico relacionado con el estrés, que se caracteriza por alteraciones en la forma y el contenido del pensamiento y los procesos perceptivos del individuo, afectando sus conductas social e instrumental. El impacto penetrante de la esquizofrenia sobre los campos perceptivo, cognitivo, emocional y de conducta, al igual que la heterogeneidad dentro de estos ámbitos requiere un abordaje multimodal y comprehensivo en el tratamiento y la rehabilitación que involucre al individuo y su medio ambiente. Lo preferible es que los tipos de intervención utilizados para tratar y rehabilitar a las personas con esquizofrenia se guíen por un modelo multidimensional e interactivo que incluya al estrés, a la vulnerabilidad y a los factores protectores. La significación práctica del modelo estrés-vulnerabilidad

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-factores protectores de la esquizofrenia está en la guía que ofrece a los clínicos. Los medicamentos amortiguan la vulnerabilidad psicobiológica y el trastorno bioquímico subyacente; el entrenamiento en la resolución de problemas y en habilidades sociales y de vida independiente promueve el desarrollo de la competencia personal y, de esa manera, fortalece la protección del individuo contra el estrés y la vulnerabilidad; los servicios de sostén (p. ej.: el manejo de caso, la vivienda, los derechos a servicios sociales, el empleo protegido) compensan los síntomas residuales y los déficits en el funcionamiento independiente. Se ha documentado que un tratamiento de abordaje integrado que incluya la detección y el tratamiento precoces de los síntomas esquizofrénicos, la colaboración entre pacientes y cuidadores en el manejo del tratamiento, los soportes familiar y social y el entrenamiento en habilidades sociales e instrumentales mejoran el curso y el pronóstico de la esquizofrenia, en cuanto a la recurrencia de síntomas, el funcionamiento social y la calidad de vida.

Palabras Clave: esquizofrenia, rehabilitación psiquiátrica, entrenamiento en habilidades sociales, rehabilitación professional.

Psychiatric rehabilitation is based on the assumption that adequate social and role functioning is the outcome of three factors; the characteristics of the individual, the community's requirements for adequate functioning, and the supportiveness of the environment. The individual's characteristics –symptoms, cognitive functioning, past experiences, current role skills– limit his/her functioning; the community's requirements are the standards for evaluating that functioning; and the environment may 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 medium and 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 produce functioning.

The assessment 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 individual and the rehabilitation practitioner/team review the results and together they formulate the incremental, short-term goals that are the steps to achieving the individual's medium and long-term goals.

Next, they 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 to the incremental goals and the community requirements. These comparisons quantify the outcomes of rehabilitation and highlight potential areas for new or modified interventions.

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, such as symptoms or level 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 their 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 & Becker, 1999; Kennedy, 1992). One of these, the Client's Assessment of Strength, Interests, and Goals (CASIG; Wallace *et al.*, 2001), 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's results can be supplemented with data from measures of individually relevant variables such as presence of co-morbid disorders, physical health status, and performance on selected cognitive tests.

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/her goals of improved functioning. The environment must provide the opportunities 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. While 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 psychotic symptoms, and participating in basic conversations is neither quick nor easy. Moreover, the instructional techniques must compensate for individuals' cognitive dysfunctions that might interfere with learning.

Lieberman, Wallace, and their 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, Friendship & Intimacy, and Community Re-entry. All of them 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 conduct the modules and individuals learn the skills.

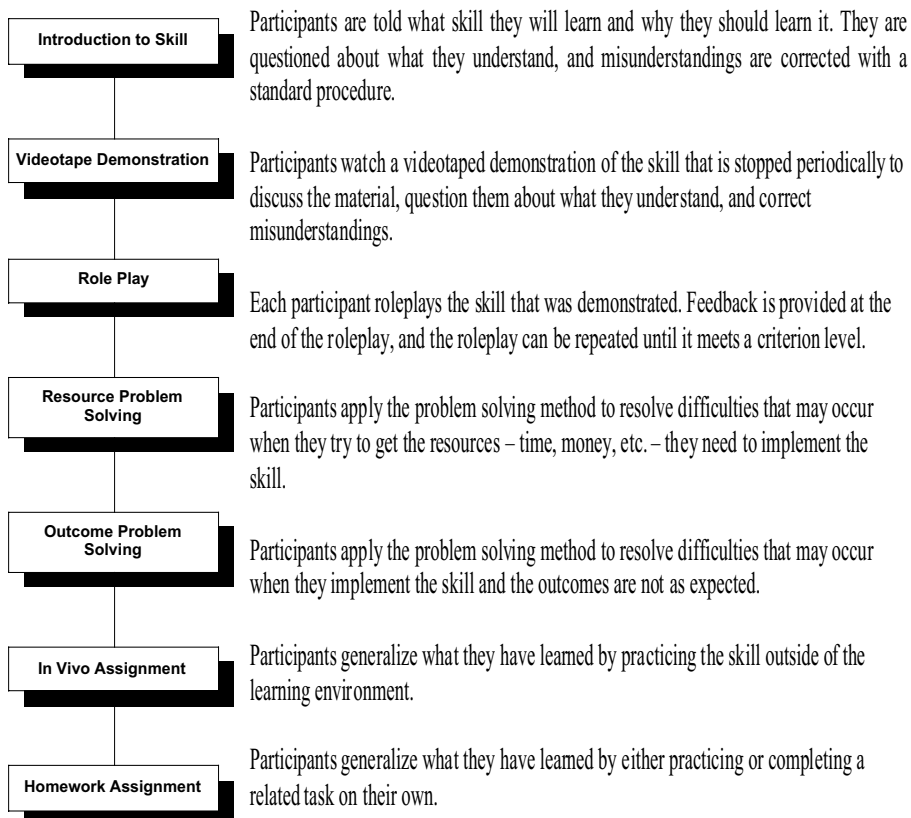


Figure 1. Seven learning activities.

For example, the Workplace Fundamentals Module teaches nine skills; knowing how work changes your life, knowing your workplace, knowing your workplace stressors, solving problems, solving health and substance abuse workplace problems, solving mental health workplace problems, coping with supervisors and improving task performance, coping with peers and informal socializing, and 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 requires 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 1.

The introduction sets the stage for the learning; it tells the learners the "pay off" 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 since learning is not just comprehension; it is ultimately the enactment of a skill. Furthermore, the more often 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 the obstacle of an environment that doesn't respond as it should. The final two activities—in vivo and homework assignments—extend training into the real world. Participants complete the in vivo assignment accompanied by the trainer and the homework assignment 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. One trainer with from one to eight participants can easily conduct a module. More than eight, however, reduces the opportunities for each to answer the questions and practice the skills and the problem solving exercises.

Of course, the teaching must be modified to fit and compensate for the large variations in individuals' functioning, symptoms, and capabilities to benefit from training. 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 such as 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 individuals with schizophrenia (Benton & Schroeder, 1990; Dilk & Bond, 1996; Heinessen, Liberman & Kopelowicz, 2000; Penn & Mueser, 1996; Scott & Dixon, 1995). Their conclusions answer three key questions: (a) Do individuals learn and retain the skills? (b) If so, do individuals transfer their learning and perform the skills in the “real world?” and (c) Do the benefits of training generalize to improvements in other outcomes?

Learn the skills and retain them. The reviews cite numerous studies that document the significant and substantial improvements in participants’ knowledge and behaviors as the result of training (Eckman *et al.*, 1992; Kopelowicz *et al.*, 1998; Liberman *et al.*, 1998; Marder *et al.*, 1996; Wallace *et al.*, 1992). Furthermore, participants retain their improvements for up to two 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—keeping a job, preparation for discharge from inpatient treatment, illness management, smoking cessation, HIV risk reduction, and social response skills.

Transfer of training. The results are far less encouraging for transferring skills to participants’ environments. There is, of course, a transfer gradient—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, there is preliminary evidence that two procedures may increase the transfer. If opportunities are created in the living environment to use the skills and receive the appropriate rewards, transfer is increased. If the behaviors are “automated” through repeated practice in a variety of conditions, the more likely they will be transferred to diverse settings. Although this “overlearning” has not been directly tested with individuals with schizophrenia, studies of “expert” performance (Ericsson & 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 “re-learning” rather than practicing and “overlearning.”

Generalization to other outcomes. Almost all studies have reported that participants in skills training change on measures of psychopathology, rehospitalization, and relapse to the same degree as control participants (Dobson *et al.*, 1995; Eckman *et al.*, 1992; Liberman *et al.*, 1998; Marder *et al.*, 1996). The relative independence among the outcomes of treatment of schizophrenia has been well documented (Carpenter *et al.*, 1976), and it offers one benefit for skills training. Except for conceptual disorganization, skills training can be successfully conducted regardless of symptoms, even with acutely ill inpatients (Kopelowicz *et al.*, 1998; Smith *et al.*, 1996) and those patients with severe negative symptoms (Kopelowicz *et al.*, 1997; Torres *et al.*, 2002). 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 to learn, practice, and adapt one’s skills.

Environmental support

The individual's living environment is the final pathway for his/her functional skills. It 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 upon 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/her functional behaviors to the opportunities and/or increase the environment's support. Most 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.

Family interventions

The family interventions –variously labelled family psychoeducation, behavioral family management/therapy, and multiple family groups– are designed to actively engage families in the rehabilitation process. All share several components including education about the nature of schizophrenia, assistance with using available community resources, stress management, and teaching better methods of communicating and problem-solving (Dixon *et al.*, 2001). 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.*, 1985; Liberman *et al.*, 1984; Hogarty *et al.*, 1986; Leff *et al.*, 1989; McFarlane *et al.*, 1995; Randolph *et al.*, 1994).

In contrast to the global nature of these family interventions, Kopelowicz and his colleagues (Kopelowicz *et al.*, 2003) 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 were conducted concurrently. The family members were taught how to provide opportunities for their ill relatives to implement the behaviors being taught in the modules, encourage their relatives to actually 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 93 Mexican-American families. The modules were translated and culturally adapted, and half of the families were randomly assigned to the combined individual/family training and half to customary outpatient care. The results indicated that the participants learned the skills, transferred them to their living environments, and maintained their use for at least six 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 six month follow up, and fewer hospitalizations during the nine months of the study and one year later than the individuals receiving customary care.

The Community Re-entry Module. The Community Re-entry Module is used to teach individuals how to develop their own comprehensive community aftercare. The

module is another of the Liberman series, modified for use in the rapid-turnover operations of a typical acute, psychiatric inpatient facility. The module consists of 16 45-minute sessions divided into two 8-session sections; planning for discharge and linking with service providers, and understanding schizophrenia. The Module is formatted for continuous implementation, with participants "dropping in" as their schedules permit. An initial quasi-experimental 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 was positively associated with their functioning two months after discharge.

Kopelowicz *et al.* (1998) conducted a rigorous evaluation of the Community Re-entry Module with 59 consecutive admissions to an acute psychiatric inpatient unit of a university-affiliated, county hospital. The participants were randomly assigned to either the Module or equally intensive Occupational Therapy (OT) that used artistic and craft activities. The results again confirmed that the acutely ill participants learned the material, improving from 54.5% correct on a pretest of knowledge and skills to 81.3% at discharge, compared to a change from 50.4% to 54.8% for the OT group. Importantly, 85.2% of the skills training group attended their first aftercare appointments compared to 37% of the OT group. Since continuity of care is one of the key elements in successful long-term outcome, the results indicate that the Module, with its well-focused outcome, has utility for participants, practitioners, and their system of care.

Nonfamilial supporters. 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, labeled "In-Vivo Amplified Skills Training", involves specialized case managers who routinely and frequently conduct additional training sessions in participants' environments. The sessions help them adapt their behaviors to their environments and practice that adaptation. Evaluations of this approach 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 two-year period than participants with the skills training alone (Glynn *et al.*, 2002).

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/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, Wallace & Lecomte (2000) evaluated the procedure with several process and outcome measures. Skills training participants chose primarily residential care staff and friends (89%) as supporters. The pair had either established a long-term relationship (42% more than two years) or met rather recently (40% less than six months). The meetings were frequent (average of 11 per month), lengthy (minimum of 30 minutes), and focused primarily on performance of the newly learned behaviors. Both the supporters

and the participants were quite satisfied with their relationship (averages of 5.89 and 6.03 with a maximum of 7 defined as "delighted"). No characteristic of the participants or the supporters, other than the supporters' satisfaction, was associated with the frequency, length, or focus of the meetings. 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 following training. In contrast, those without support lost some of their improvements during the follow up.

SPECIALIZED INTERVENTIONS

Psychiatric rehabilitation interventions have been developed to address specialized problems. We will review two approaches that have recently been empirically validated: one targeting co-morbid substance abuse disorder and schizophrenia, and the other designed to improve vocational outcomes.

Co-morbid Substance Use Disorders

During the past two decades, the prevalence of "dually diagnosed" individuals with schizophrenia has increased enormously. The combination of the two disorders greatly complicates individuals' treatment. Substance use disorder increases the risk of symptomatic relapse interferes with the effects of antipsychotic medications, decreases compliance with treatment, magnifies the deleterious effects of schizophrenia on cognitive functioning, increases the burden experienced by families and other caregivers, and multiplies the use of other services such as the legal system (Clark *et al.*, 1998; 1999; Sullivan *et al.*, 1995; Swofford *et al.*, 1996).

The reasons that dually diagnosed individuals use alcohol and drugs are the same as those of other substance abusers (Bellack & 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." Use 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 one's appearance and cleaning one's 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 and parcel of psychiatric rehabilitation's goal of improving individuals' social and instrumental functioning. However, until quite 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 substance use disorders and one for mental illness. Each has its own personnel, funds, treatments, and mechanisms of authority and accountability, and dually diagnosed individuals can be easily shuffled between them.

Integration of services has now become the standard of care for dually diagnosed individuals (Drake *et al.*, 2001). Drake and his colleagues define these standards as (a) treatment of both disorders by the "same clinicians who are trained in psychopathology, assessment, and treatment strategies for both;" (b) "emphasis on trust and learning rather than confrontation;" (c) "emphasis on reduction of harm from substance use rather than immediate abstinence;" (d) "slow pace and long term perspective;" (e) "12-step groups available to those who choose and can benefit rather than being mandated for all;" (f) "neuroleptics and other pharmacotherapies indicated according to needs rather than being contraindicated for all;" (g) "some components specifically address substance use reduction;" (h) "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 10, Ridgely & 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 skills training modules. The results indicated that the individuals who participated in training "demonstrated substantially more positive outcomes across several indicators of client and system outcomes" (p. 569) than individuals who received either of the other two services. These indicators included symptoms, alcohol and drug abuse, and community functioning.

To further increase the effectiveness of integrated treatment, a skills module has been produced to train the competencies needed to reduce current and prevent future abuse. The Substance Abuse Management Module (Roberts, Shaner & Eckman, 1999) is based on a relapse prevention strategy that consists of seven tactics including practice damage control, avoid or escape high risk situations, and seek healthy alternatives. These tactics are implemented with nine skills which include quit before a slip becomes a full-blown relapse, report a slip, refuse drugs from a pushy dealer or friend, and ask someone to join you in a healthy alternative.

The module is conducted as on-going training that participants can join and exit at any point. The module has been in clinical use for approximately seven years, and a pilot test of its efficacy has recently been completed (Shaner *et al.*, 2003). 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 pre, post, and at a three-month follow up. Thirty-four (61%) completed the study. The results indicated that days of complete abstinence in the past 30 increased significantly from a mean of 12.76 to 24.26, and remained high at the three-month follow-up ($M=25.82$). 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 and at follow-up, and psychiatric symptoms improved significantly at posttest and remained improved at the three-month

follow-up (M= 43.33).

Supported employment

The supported employment 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 schizophrenia 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.

Recent evaluations of supported employment have confirmed its value when it is fully integrated into the care provided by a multidisciplinary psychiatric rehabilitation team. Drake *et al.* (1996) compared their integrated approach, 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 teams to implement services that would achieve each individual's specific vocational goal.

Three findings of Drake's 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 50% 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. Both were implemented at two sites in two cities, and one of the two sites in each condition was considerably less accurate than the other. As might be expected, the outcomes paralleled their accuracy.

CONCLUSIONS

The results of the numerous clinical trials and field tests summarized above suggest that individuals with schizophrenia can learn and perform the skills needed to live, learn, and work in the community. 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, producing standardized teaching methods in a format that permits wide scale dissemination, adoption, and adaptation is highly desirable. The skills training modules provide these standardized teaching methods. Of course, no highly structured treatment fits perfectly the needs and characteristics of each and every individual with schizophrenia. The modules, however, fit a large proportion of individuals, and they offer accessible and well-defined starting points for building services adapted to each individual. Further evidence of the generalizable value and applicability of the skills

training modules to diverse populations is the fact that they have been translated into 22 different languages and empirically tested in over a dozen different countries (Lieberman, 1998).

In addition to producing the modules, progress has been made in a number of areas. Several assessment instruments have been developed that measure individuals' social and role functioning. They 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 may offer solutions to the problem of generalizing individuals' functional behaviors from training to their natural environment. Considering that schizophrenia is a chronic condition, combining methods may make the most efficacious strategy for maintaining skills. Beginning generalization with a case manager who has competence in skills training would place the process in the hands of a knowledgeable practitioner who could rapidly assess environments 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, multi-level 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, there are numerous directions for future research and clinical efforts. Although psychometrically sound measures of social and role functioning have been developed, there are no methods 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 (Lieberman & Green, 1992). While 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 less disordered people with schizophrenia are unknown (Green *et al.*, 2000). There are also innumerable methods that could be used to improve cognitive functioning, 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 (Twamley *et al.*,

2003). Which ones are more or less efficacious is entirely speculative. 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 substance use disorders and schizophrenia should be the standard of care, and implemented in all treatment facilities. Substance use disorders sabotage rehabilitation, and its prevalence among individuals with schizophrenia, particularly in urban settings, is sufficient that most individuals need treatment for both disorders.

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.

Finally, dissemination of psychiatric rehabilitation and ongoing support of practitioners might be improved by using more advanced communication technologies such as the Internet. Although Practice Guidelines (APA, 1997) have provided a more favorable zeitgeist for dissemination of psychiatric rehabilitation, the specific form, content, and value of its assessment and treatment techniques are still not widely known or used. Making the information easily accessible to practitioners, managers, administrators, individuals with schizophrenia, their families, and advocacy groups could speed their adoption 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 (1997). *American Psychiatric Association Practice Guidelines for the Treatment of Schizophrenia*. Washington, DC.
- Becker, D.R., Drake, R.E., Bond, G.R., Xie, H., Dain, H. & Harrison, K. (1998). Job terminations among persons with severe mental illness participating in supported employment. *Community Mental Health Journal*, 34, 71-82.
- Bellack, A.S. & DiClemente, C.C. (1999). Treating substance abuse among patients with schizophrenia. *Psychiatric Services*, 50, 75-80.
- Benton, M.K. & Schroeder, H. E. (1990). Social skills training with schizophrenics: A meta-analytic evaluation. *Journal of Consulting and Clinical Psychology*, 58, 741-747.
- Carey, K.B., Purine, D.M., Maiso, S.A., Carey, M.P. & Barnes, K.L. (1999). Decisional balance regarding

- substance use among persons with schizophrenia. *Community Mental Health Journal*, 35, 289-299.
- Carpenter, W.T., Bartko, J.J., Carpenter, C.L. & Strauss, J.S. (1976). Another view of schizophrenia subtypes: A report from the International Pilot Study of Schizophrenia. *Archives of General Psychiatry*, 33, 508-516.
- Clark, R.E., Ricketts, S.K. & McHugo, G.J. (1999). Legal system involvement and costs for persons in treatment for severe mental illness and substance use disorders. *Psychiatric Services*, 50, 641-647.
- Clark, R.E., Teague, G.B., Ricketts, S.K., Bush, P.W., Xie, H., McGuire, T.G., Drake, R.E., McHugo, G.J., Keller, A.M. & Zubkoff, M. (1998). Cost-effectiveness of assertive community treatment versus standard case management for persons with severe mental illness and substance use disorders. *Health Services Research*, 33, 1283-1306
- Cuffel, B.J., Heithoff, K.A. & Lawson, W. (1993). Correlates of patterns of substance abuse among patients with schizophrenia. *Hospital and Community Psychiatry*, 44, 247-251.
- Diamond, R.B. & Becker, M. (1999). The Wisconsin Quality of Life Index: A multidimensional model for measuring quality of life. *Journal of Clinical Psychiatry*, 60(Suppl 3), 29-31.
- Dilk, M.N. & Bond, G.R. (1996). Meta-analytic evaluation of skills training research for individuals with severe mental illness. *Journal of Consulting and Clinical Psychology*, 64, 1337-1346.
- Dixon, L., McFarlane, W.R., Lefley, H., Lucksted, A., Cohen, M., Falloon, I., Mueser, K., Miklowitz, D., Solomon, P. & Sondheim, D. (2001). Evidence-based practices for services to families of people with psychiatric disabilities. *Psychiatric Services*, 52, 903-910.
- Dobson, D.J., McDougall, G., Busheikin, J. & Aldous, J. (1995). Effects of social skills training and social milieu treatment on symptoms of schizophrenia. *Psychiatric Services*, 46, 376-380.
- Drake, R.E., Essock, S.M., Shaner, A., Carey, K., Minkoff, K., Kola, L., Lynde, D., Osher, F.C., Clark, R.E. & Rickards, L. (2001). Implementing dual diagnosis services for clients with severe mental illness. *Psychiatric Services*, 52, 469-476.
- Drake, R.E., McHugo, G.J., Becker, D.R., Anthony, W.A. & Clark, R.E. (1996). The New Hampshire study of supported employment for people with severe mental illness. *Journal of Consulting and Clinical Psychology*, 64, 391-399.
- Drake, R.E., Mercer-McFadden, C., Mueser, K.T., McHugo, G.J. & Bond, G.R. (1998). Review of integrated mental health and substance abuse disorders for patients with dual disorders. *Schizophrenia Bulletin*, 24, 589-608.
- Eckman, T.A., Wirshing, W.C., Marder, S.R., Liberman, R.P., Johnston-Cronk, K. & Zimmerman, K., Mintz, J. (1996). Techniques for training patients in illness self-management: A controlled trial. *American Journal of Psychiatry*, 149, 1549-1555.
- Ericsson, K.A. & Charness, N. (1994). Expert performance: Its structure and acquisition. *American Psychologist*, 49, 725-748.
- Falloon, I.R.H., Boyd, J.L., McGill, C.W., Williamson, M., Razzani, J., Moss, H.B., Gilderman, A.M. & Simpson, G.M. (1985). Family management in the prevention of morbidity of schizophrenia. *Archives of General Psychiatry*, 42, 887-896.
- Glynn, S.M., Marder, S.R., Liberman, R.P., Blair, K., Wirshing, W.C., Wirshing, D.A., Ross, D. & Mintz, J. (2002). Supplementing clinic-based skills training with manual-based community support lessons: Effects on social adjustment of patients with schizophrenia. *American Journal of Psychiatry*, 159, 829-837.

- Green, M.F., Kern, R.S., Braff, D.L. & Mintz, J. (2000). Neurocognitive deficits and functional outcome in schizophrenia: Are we measuring the "right stuff"? *Schizophrenia Bulletin*, 26, 119-136.
- Heinssen, R.K., Liberman, R.P. & Kopelowicz, A. (2000). Psychosocial skills training for schizophrenia: Lessons from the laboratory. *Schizophrenia Bulletin*, 26, 21-46.
- Hogarty, G.E., Anderson, C.M. & Reiss, D.J. (1986). Family education, social skills training and maintenance chemotherapy in aftercare treatment of schizophrenia. *Archives of General Psychiatry*, 43, 633-642.
- Kennedy, J.A. (1992). *Fundamentals of Psychiatric Treatment Planning*. American Psychiatric Press, Washington DC.
- Kopelowicz, A., Liberman, R.P., Mintz, J. & Zarate, R. (1997). Efficacy of social skills training for deficit versus nondeficit negative symptoms in schizophrenia. *American Journal of Psychiatry*, 154, 424-425.
- Kopelowicz, A., Wallace, C.J. & Zarate, R. (1998). Teaching psychiatric patients to re-enter the community: A brief method of improving continuity of care. *Psychiatric Services* 49, 1313-1316.
- Kopelowicz, A., Zarate, R., Gonzalez Smith, V., Mintz, J. & Liberman, R.P. (2003). Disease Management in Latinos with schizophrenia: A family-assisted, skills training approach. *Schizophrenia Bulletin*, 29, 211-228.
- Leff, J., Berkowitz, R., Shavit, N., Strachan, A., Glass, I. & Vaughn, C. (1989). A trial of family therapy versus a relatives' group for schizophrenia. *British Journal of Psychiatry*, 154, 58-66.
- Liberman, R.P. (1988). International Perspectives on skills training for the mentally disabled. *International Review of Psychiatry*, 10, 5-9.
- Liberman, R.P., Falloon, I.R.H. & Aitchison, R.A. (1984). Multiple family therapy for schizophrenia: A behavioral, problem-solving approach. *Psychosocial Rehabilitation Journal*, 7, 60-77.
- Liberman, R.P. & Green, M.F. (1992). Whither cognitive therapy for schizophrenia? *Schizophrenia Bulletin*, 18, 27-35.
- Liberman, R.P., Wallace, C.J., Blackwell, G.A., Eckman, T.A., Vaccaro, J.V. & Kuehnle, T.G. (1993). Innovations in skills training for the seriously mentally ill: The UCLA Social and Independent Living Skills Modules. *Innovations & Research*, 2, 43-60.
- Liberman, R.P., Wallace, C.J., Blackwell, G.A., Kopelowicz, A., Vaccaro, J.V. & Mintz, J. (1998). Skills training vs. occupational therapy for persons with persistent schizophrenia. *American Journal of Psychiatry*, 155, 1087-1091.
- Marder, S.R., Wirshing, W.C., Mintz, J. & McKenzie, J. (1996). Two-year outcome of social skills training and group psychotherapy for outpatients with schizophrenia. *American Journal of Psychiatry*, 153, 1585-1592.
- McFarlane, W.R., Lukens, E.P. & Link, B. (1995). Multiple family groups and psychoeducation in the treatment of schizophrenia. *Archives of General Psychiatry*, 52, 679-687.
- Penn, D.L. & Mueser, K.T. (1996). Research update on the psychosocial treatment of schizophrenia. *American Journal of Psychiatry*, 153, 607-617.
- Randolph, E., Eth, S., Glynn, S., Paz, G., Van Vort, W., Shaner, A. (1994). Efficacy of behavioral family management in reducing relapse in veteran schizophrenics. *British Journal of Psychiatry*, 164, 501-506.
- Ridgley, M.S. & Jerrell, J.M. (1996). Analysis of three interventions for substance abuse treatment of severely mentally ill people. *Community Mental Health Journal*, 32, 561-578.

- Roberts, L.J., Shaner, A. & Eckman, T.A. (1999). *Overcoming addictions: Skills training for persons with schizophrenia*. New York, W.W. Norton.
- Scott, J.E. & Dixon, L.B. (1995). Psychological interventions for schizophrenia. *Schizophrenia Bulletin*, 21, 621-630.
- Shaner, A., Eckman, T., Roberts, L.J. & Fuller, T. (2003). Feasibility of a skills training approach to reduce substance dependence among individuals with schizophrenia. *Psychiatric Services*, 54, 1287-1289.
- Smith, T.E., Hull, J.W., MacKain, S.J. & Wallace, C.J. (1996). Training hospitalized patients with schizophrenia in community reintegration skills. *Psychiatric Services*, 47, 1099-1103.
- Stein, L.I., Barry, K.L., VanDien, G., Hollingworth, E.J. & Sweeny, J.K. (1999). Work and social support: A comparison of consumers who have achieved stability in ACT and clubhouse programs. *Community Mental Health Journal*, 35, 193-203.
- Sullivan, G., Wells, K.B., Morgenstern, H. & Leake, B. (1995). Identifying modifiable risk factors for rehospitalization: A case-control study of 1995 seriously mentally ill persons in Mississippi. *American Journal of Psychiatry*, 152, 1749-1756.
- Swofford, C.D., Kasckow, J.W., Scheller-Gilkey, G. & Inderbitzin, L.B. (1996). Substance use: A powerful predictor of relapse in schizophrenia. *Schizophrenia Research*, 20, 145-151.
- Tauber, R., Wallace, C.J. & Lecomte, T.B. (2000). Generalization of skills training for people with severe and persistent mental illness: Enlisting indigenous community supporters. *Psychiatric Services*, 51, 1428-1432.
- Twamley, E.W., Jeste, D.V. & Bellack, A.S. (2003). A review of cognitive training in schizophrenia. *Schizophrenia Bulletin*, 29, 359-382.
- Torres, A., Mendez, L. P., Merino, H., Moran, E. A. (2002). Improving social functioning in schizophrenia by playing the Train Game. *Psychiatric Services*, 53, 799-801.
- Wallace, C.J., Lecomte, T.B., Wilde, M.S. & Liberman, R.P. (2001). CASIG: A consumer-centered assessment for planning individualized treatment and evaluating program outcomes. *Schizophrenia Research*, 50, 105-119.
- Wallace, C.J., Liberman, R.P. & MacKain, S.J. (1992). Effectiveness and replicability of modules to train social and instrumental skills in the severely mentally ill. *American Journal of Psychiatry*, 149, 654-658.

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