

Recent Advances in Social Skills Training for Schizophrenia

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Social skills training consists of learning activities utilizing behavioral techniques that enable persons with schizophrenia and other disabling mental disorders to acquire interpersonal disease management and independent living skills for improved functioning in their communities. A large and growing body of research supports the efficacy and effectiveness of social skills training for schizophrenia. When the type and frequency of training is linked to the phase of the disorder, patients can learn and retain a wide variety of social and independent living skills. Generalization of the skills for use in everyday life occurs when patients are provided with opportunities, encouragement, and reinforcement for practicing the skills in relevant situations. Recent advances in skills training include special adaptations and applications for improved generalization of training into the community, short-term stays in psychiatric inpatient units, dually diagnosed substance abusing mentally ill, minority groups, amplifying supported employment, treatment refractory schizophrenia, older adults, overcoming cognitive deficits, and negative symptoms as well as the inclusion of social skills training as part of multidimensional treatment and rehabilitation programs.

Key words: social skills training/psychiatric rehabilitation/psychosocial treatment/behavior therapy/cognitive remediation/generalization

Introduction

Given the key role of effective communication in obtaining one's needs for normal community functioning, social competence is essential for a satisfactory quality of life. "Social competence" can be defined as the "ability to achieve legitimate, personally relevant goals" through interacting with others in all situations: work, school,

home and neighborhood, recreation, shopping and consumer services, medical and mental care, and social and legal agencies.¹ In contrast, "social skills" represent the "constituent behaviors" which, when combined in appropriate sequences and used with others in appropriate ways and places, enable an individual to have the success in daily living reflected by social competence.²

Skills are the raw material of social competence and comprise the full range of human social performance: verbal, nonverbal, and paralinguistic behaviors; accurate social perception; effective processing of social information to make decisions and responses that conform to the normative, reasonable expectations of situations, and rules of society; assertiveness; conversational skills; skills related to management and stabilization of one's mental disorder and expressions of empathy, affection, sadness, and other emotions that are appropriate to the context and expectations of others. In summary, social skills represent the topography of social interaction, whereas social competence reflects the accumulation of self-efficacy and real-world success through experiencing the favorable consequences of interactions.

What Is Social Skills Training?

The term "skills"—in contrast to the term "abilities"—implies that they are predominantly based on learning experiences. Thus, social skills training utilizes behavior therapy principles and techniques for teaching individuals to communicate their emotions and requests so that they are more likely to achieve their goals and meet their needs for affiliative relationships and roles required for independent living. This modality of treatment and rehabilitation has been empirically validated for a broad range of mental disorders and other psychological problems. Because of its protean and generic applications to such disparate functions as family psychoeducation,³ behavioral marital therapy,⁴ and dialectical behavior therapy,⁵ social skills training can be best defined by its operational components. The main features of social skills training are described in table 1.

The components of the social skills training procedure are derived from basic principles of human learning and represent translations from laboratory to clinic. The basic sciences relevant to social skills training include operant conditioning, experimental analysis of behavior,

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Table 1. Learning-Based Procedures Used in Social Skills Training

“Problem identification” is made in collaboration with the patient in terms of obstacles that are barriers to a patient’s personal goals in his/her current life

“Goal setting” generates short-term approximations to the patient’s personal goals with specification of the social behavior that is required for successful attainment of the short-term, incremental goals. The goal-setting endeavor requires the therapist or trainer to elicit from the patient detailed descriptions of what communication skills are to be learned, with whom are they to be used, where, and when

Through “role plays” or “behavioral rehearsal,” the patient demonstrates the verbal, nonverbal, and paralinguistic skills required for successful social interaction in the interpersonal situation set as the goal

“Positive” and “corrective feedback” is given to the patient focused on the quality of the behaviors exhibited in the role play

“Social modeling” is provided with a therapist or a peer demonstrating the desired interpersonal behaviors in a form that can be vicariously learned by the observing patient

“Behavioral practice” by the patient is repeated until the communication reaches a level of quality tantamount to success in the real-life situation

“Positive social reinforcement” is given contingent on those behavioral skills that showed improvement

“Homework assignments” are given to motivate the patient to implement the communication in real-life situations

“Positive reinforcement” and “problem solving” is provided at the next session based on the patient’s experience using the skills

social learning theory, social psychology, and social cognition. Examples of the translation from basic operant conditioning to the clinical arena include discriminative stimuli, contingent positive and negative reinforcements, extinction, reinforcement schedules, errorless learning, and rule-governed behavior. For instance, discriminative stimuli in the laboratory are signals or events that indicate the availability of positive reinforcement if particular behavioral responses are made by the organism. Transformed in the social skills training venue, discriminative stimuli encompass the therapist’s prompting, cueing, instructing, and coaching the patient, while the latter is practicing improved social behaviors. Because these instructional ploys increase the likelihood of more skillful social performance, they are associated with positive reinforcement contingent upon improved communication. Applications of social learning theory to the acquisition of instrumental skills include the use of modeling and other modes of observational learning. Whether directly trained or through vicarious approaches, when individuals are reinforced by achieving interpersonal goals, their likelihood of initiating future social communications is increased.

Learning theory posits that observable behaviors are more accessible to therapeutic intervention and therefore more readily acquired and modified than covert cognitions and emotions. Thoughts and feelings are subjectively experienced behavioral responses that constantly interact in a reciprocal manner with overt behaviors such as verbal and nonverbal communications. Because social competence is strengthened through the successful application of social skills in community life, cognitions and emotions also shift in positive ways with improvements in self-efficacy, self-esteem, self-confidence, empowerment, optimism, and mood. In other words, the direct training of social skills has a salutary, indirect impact on how patients think and feel about themselves.

Because social skills are used in everyday life with favorable responses from a person’s social network, desired changes occur at the subjective level of experience. Neuroscientists have extended the interrelationships of social behavior, cognition, and emotions to the detection of changes in the brain associated with success in interpersonal relations.^{6,7} We do not communicate effectively because we feel good, we feel good because we communicate effectively.

Rationale for Social Skills Training in Schizophrenia

The rationale for the use of social skills training in schizophrenia is based on multiple conceptual and empirical sources. Social skills and social competence can be viewed as protective factors in the vulnerability-stress-protective factors model of schizophrenia.⁸ Strengthening the social skills and competence of individuals with schizophrenia can, along with other evidence-based services, attenuate and compensate for the noxious effects of cognitive deficits, neurobiological vulnerability, stressful events, and social maladjustment. Coping skills and social competence confer not only protection against stress-induced relapse but also resilience, interpersonal supports, social affiliation, and improved quality of life. It is not surprising that among a large sample of over 2000 patients with schizophrenia, there was a significant correlation between attributes that reflected social competence—good psychosocial functioning and having confidants—and subjective reports of high levels of life satisfaction.⁹

When individuals have been equipped with skills to deal with stressful life events and daily hassles, they are more proficient in solving problems and challenges that arise in their lives; consequently, stressors are less likely to trigger exacerbations or social decompensations of schizophrenia.¹⁰ Moreover, the protective effects of social skills training also help individuals stabilize their illnesses, improve adherence to medication and psychosocial treatment, and promote progress toward recovery.¹¹

Many children and adolescents who subsequently develop schizophrenia have shown deficits in social skills

from an early age, presumably a result of genetic and neurobiological vulnerability.¹² Youngsters with impoverished social skills tend to gravitate to social environments that are not conducive to remediate these deficits; in fact, parental overprotectiveness and social withdrawal from peers accentuate their low social competence. Social skills training, when carried out with high fidelity, intensity, and sufficient duration, has been shown to improve the capacities for personal effectiveness among persons with schizophrenia, thereby attenuating their premorbid paucity of social skills. Individuals with higher levels of social skill have greater impacts on their social environments, and reciprocally, positive responses from the environment serve to reinforce patients' resurgence of social skills.

There are a raft of other reasons for employing social skills training as one psychosocial intervention in comprehensive programs of treatment and rehabilitation for schizophrenia. Listed in table 2, these reasons range from the malleability of negative symptoms to the likeability of patients who can converse pleasantly¹³ and the salutary impact of communication skills on overheated family emotional climates. In line with the current zeitgeist of self-help, empowerment, and prospects for recovery from schizophrenia, social skills training serves as a common denominator for becoming an active participant in controlling one's illness, overcoming obstacles to achieving personal goals, and mobilizing social support. One example of the way skills training expands a patient's participation as a partner in making informed treatment decisions is through its demonstrable effectiveness in teaching medication self-management skills.¹⁴⁻¹⁷ When patients learn how to reliably use medication, they are more in control of their illness, experience greater responsibility for their treatment, and achieve greater insight into their illness.¹⁸

Techniques for Training Social Skills

Because learning is impaired in most persons with schizophrenia,¹⁹ skills training takes the form of special education and precision teaching. Repeated practice or overlearning is essential to ensure assimilation and durability of interpersonal skills. Assessment of any one person's desired social behaviors requires a task analysis, breaking down each situational goal to tiny components that increases the likelihood of success during the training sessions and in applying the skills to everyday life. Learning is facilitated when errors are minimized, and correct responses are strengthened with abundant positive reinforcement.

Because the onset of illness in persons with schizophrenia typically occurs before adult social skills are learned through natural processes, teaching the requisite skills for independent functioning and personal effectiveness includes a host of target behaviors. The enormous array

Table 2. Rationale for Use of Social Skills Training in Schizophrenia

Personal Problems or Needs	Utility of Skills Training for Learning
Persistent positive symptoms	Coping skills to manage symptoms and interpersonal communication to challenge psychotic symptoms in cognitive behavior therapy
Negative symptoms	Verbal and nonverbal communication and emotional expressiveness
Side effects of antipsychotic drugs	Nonverbal and motor skills to counter akinesia and parkinsonism
Erosion of skills from understimulating environments	Countering effects of institutionalism
Social anxiety and avoidance	Incremental steps for communicating with others in varied situations; modeling and role plays in training situation desensitize anxiety
Stressful emotional climate in family or group home or at work	Verbal and nonverbal de-escalation skills, assertiveness rather than passivity or aggressiveness; social problem-solving skills
Cognitive deficits	Work or social problem-solving skills through procedural and active teaching
Acceptance and stabilization of illness; partner in treatment; achieving insight	Disease management skills; reliable use of medication; negotiation skills with psychiatrist and other service providers; empowerment and hope through self-management skills in "getting a life"
Stigma	Assertiveness in dealing with discrimination; judicious self-disclosure, advocacy through peer support and self-help organizations
Social isolation	Pleasantness of conversation increases likeability. Friendship, intimacy and dating skills displaces social withdrawal
Employment	Job-finding skills, communicating with employers and coworkers
Independent living	Skills in obtaining housing; social problem solving with roommates

Table 3. Types of Social Skills That Are Target Behaviors for Social Skills Training

Type of Skills	Examples of Skills
Social perception	Accurate evaluation of emotional expressions from others
Processing of social information	Appropriate interpretation of the meaning of expressions
Responding or sending skills	Effective use of verbal and nonverbal communication
Affiliative skills	Expressing affection to family and friends and using self-disclosure judiciously
Instrumental role skills	Purchasing food, renting an apartment, working on a job
Interactional skills	Starting, maintaining and terminating a conversation
Behavior governed by social norms	Speaking politely to a policeman who has stopped you for a traffic violation

of social skills that are deficient in most persons with schizophrenia also derives from the cognitive and learning disabilities that long precede the onset of illness, stunting the social abilities of these individuals during the prodromal period and earlier. To build up the social repertoire of a person with schizophrenia to a level of proficiency, practitioners must focus on a broad spectrum of skills that are summarized in table 3.

Skills training can be done with individuals, families, and groups. There are advantages of each of these modalities; eg, the training process and acquisition of skills by individuals is more rapid. Conducting skills training with family members present can directly influence family communication and problem solving that, in turn, results in reductions in the stress-inducing “emotional temperature” of the family. When family members understand the value of the skills being learned by their mentally ill relative, they can encourage and reinforce those skills when they are exhibited in the home setting.

For many reasons, however, group therapy is the principal modality for doing social skills training. Training patients in a group is more cost effective, enhanced by the cohesion established among the participants, augmented by having peers serve as models and reinforcers for each other, providing an opportunity for self-help and peer support, and a context for participants to learn from each other’s real-life experiences and efforts at problem solving. Training is often defined in a nonstigmatizing fashion as education, with the patients being able to tell their friends and families that they are attending a class in human relations or community life. In this vein, patients can list their training experiences on their resumes as an educational accomplishment with the academic or social agency listed as the sponsor.

Groups usually involve 4–12 patients and are characteristically led by 1–2 therapists. Patients who complete a skills training program can be enlisted as training aides, sharing their know-how with neophyte trainees while conferring motivation and social modeling on the learning process. Sessions are conducted from 45 to 90 minutes, depending on the patients’ levels of concentration and symptom control, and meet 1–5 times per week. Because most patients with schizophrenia have pervasive disabilities, skills training may be delivered over lengthy periods of time as each of the patients’ personal goals are achieved in sequence.

Evaluation of Social Skills Training

The evidence and value of social skills training for treatment of schizophrenia can be judged by its “efficacy” with restricted patient populations, “effectiveness” with unselected patients and therapists working in varied types of mental health facilities, and “emerging practices” with unique problems and facilities. Starting with efficacy and effectiveness, recent reviews have critically evaluated the evidence of the effects of skills training on individuals with serious mental disorders.^{8,20–24} Their conclusions answer 2 key questions: “Do individuals learn and retain the skills?” and if so, “Do individuals transfer their learning and perform the skills in their natural environments?” In terms of the former, the reviews cite over 50 studies that document the significant and substantial improvements in participants’ knowledge and behaviors as the result of training. 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, and community-based, social and vocational programs;
- by diverse practitioners—psychiatrists, psychologists, social workers, nursing staff, occupational and recreational therapists, mental health counselors, residential managers, and paraprofessional staff;
- covering a broad range of skills—community living, getting and keeping a job, preparation for discharge from inpatient treatment, illness management, smoking cessation, HIV risk reduction, recreational activities, conversation, social assertiveness, and relationship skills.

For over 3 decades, studies measured generalization of acquired skills, although no intervention was used to facilitate it. Consequently, the results have been mostly discouraging for transferring skills to participants’ environments. What has been learned is that the stimulus gradient must be low; the more alike the training and natural environments, the more likely the behaviors will be used in everyday life. Recent studies suggest

that incorporating generalization techniques into the skills training enterprise, ie, creating opportunities in the living environment to use the skills and receive the appropriate rewards, increases the likelihood of skill transfer to everyday life settings.

Because the individual's living environment is the final common pathway for the utilization of his/her functional skills, a number of interventions have been developed to help people apply the skills learned during training. Emerging practices that aid generalization are mediated by techniques that provide community supports of various types to offer opportunities, encouragement, and reinforcement for using in the community those skills learned in training.

Community Supporters

Community supports have been explicitly designed to help participants transfer newly learned skills from training to the community. One, termed "In Vivo Amplified Skills Training" (IVAST), involves specialized case managers who create opportunities in the community for patients to use skills learned in a clinic setting and then offer encouragement and reinforcement for following through. The community-based, informal interactions help them adapt their behaviors to their unique and specific environments and practice and implement the skills that they have adapted. Patients view the assistance as an example of their case managers "running interference" for them, softening up the obstacles that must be overcome for using their skills. 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 participants with the skills training alone.^{25,26}

Indigenous supporters can fulfill some of the responsibilities of case managers to spur generalization in the community. Friends, operators of board-and-care homes, peers from self-help groups who have recovered from their illness, and relatives can help participants employ in their everyday life what they have learned in social skills training. Supporters are selected by participants based on the criteria of cooperativeness, accessibility, and familiarity with the specifics of their environments. Support consists of planned and scheduled 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.

The naturalistic supporters are given brief training and weekly supervision by a case manager for their work with the patients. An evaluation of this procedure demonstrated that participants who received both the skills training and the added support improved their interper-

sonal and community functioning during training and continued to improve for 18 months after training. In contrast, those without support for generalization lost some of their improvements during the follow-up period.²⁷

Still another technique found to be effective in generalizing the benefits of skills training to the home environment is to involve family members. Kopelowicz and colleagues²⁸ engaged Latino families to facilitate the learning and application of illness management skills by their relatives with schizophrenia. In addition to directly training patients on the requisite skills, family members were taught how to provide opportunities and encouragement for their ill relatives to implement behavioral assignments related to the skills learned in the clinic. The leaders of the social skills training groups for the patients taught the family members ways to encourage and reward generalization during home visits and multifamily sessions at the clinic.

Participants 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, there were fewer hospitalizations for individuals in the disease management program during the 9 months of the study and 1 year later than for those receiving customary care only. A similar intervention that adapted this technique for application in the patient's home and in an outpatient setting in Spain demonstrated greater symptom improvement compared with conventional treatment.²⁹

Social Skills Training Potentiated by Cognitive Remediation

It should come as no surprise that the efficacy of social skills training, requiring as it does a functional brain capable of assimilating and retaining information and skills, is attenuated by cognitive impairments that are enduring traits in most individuals with schizophrenia.³⁰ With the appreciation of the role of neurocognition in determining the social and vocational functioning of patients with schizophrenia,³¹ the past decade has witnessed the growth of cognitive rehabilitation for direct training or compensation of sustained attention, speed of information processing, executive functions, verbal learning, working memory, and social cognition.

As this mode of treatment developed, studies focused primarily on laboratory demonstrations of the efficacy of instructions, coaching, and contingent reinforcement on remediating discrete cognitive capacities that are impaired in schizophrenia. Thus, more than 20 randomized controlled trials demonstrated that behavioral interventions could produce significant improvements in memory, attention, and executive functions. In fact, some studies revealed normalization of selected impairments in cognitive functioning.^{32,33}

Although the following sections will describe a variety of methods for potentiating social skills training through cognitive rehabilitation approaches, it would be a mistake to assume that the correlations being regularly reported between cognitive functioning and the learning and performing of social skills are causal in one direction only. While some researchers have suggested that cognitive capacities are “rate limiting” for what an individual with schizophrenia can learn or perform,³¹ there is some evidence that this relationship is more complex. For one, cognition accounts for only a modest portion of the variance in the relationship with social functioning.³⁴ In addition, there is evidence that successful training of social skills can improve cognitive functioning.³⁵ Training of skills for increasingly complex problem-solving tasks resulted in significant improvements in both success in solving problems and neurocognitive functioning. Finally, the prediction of social or vocational performance by cognitive functioning is almost completely explained by the mediation of knowledge related to the social or vocational tasks and the patients’ functioning on the tasks.³⁶ These findings suggest that training methods that are successful in imparting knowledge and skills for instrumental role performance may be prepotent over cognitive capacities in determining social role performance.

Training Attentional Capacity Improves Learning of Conversation Skills

Treatment refractory patients with thought disorder and high levels of distractibility have been viewed as poor candidates for social skills training. However, recent advances in training sustained attention have made these hitherto untreatable patients accessible to social skills training and with it improved conversational ability. In one approach, basic conversation skills were taught through repetition in discrete trials wherein behavioral learning techniques were used to gain correct responses. The second approach used tokens and praise to reinforce gradually increasing durations of attention while the patients were learning the skills.

In the discrete trials technique, the goals were to teach patients to ask questions of their conversational partner, make positive comments about their partner, use appropriate self-disclosure linked to the topic of the conversation and acknowledge with interest through paraphrasing, and reflecting what their partner was saying. Training sessions of 30 min were provided 4 days per week for 3 months, with tokens and praise used to reinforce improvements in skills that were displayed. Substantial increases in each of the 4 conversational skills were observed during the training with homework assignments and in vivo prompts yielding evidence of generalization when patients were talking naturalistically with nursing staff or total strangers.³⁷

A different approach to improving sustained attention utilizing a shaping procedure had even greater success in

achieving normal social conversation.³⁸ Very low-functioning patients who were so distractible that they could not participate productively in social skills training groups were given token and social reinforcement for very brief intervals of paying attention and constructively participating in the learning of conversational skills. The duration of attentiveness set as the target behavior for subsequent reinforcement was gradually raised, usually by 2–5 minutes increments. After 16 sessions, patients who received attention shaping had 20 minutes of engagement in the module process vs 2 minutes for those who simply participated in the module. Attention shaping also had significant effects on improving patients’ scores on neuropsychological measures of sustained attention, verbal learning, and distractibility. As attentiveness increased, the knowledge and skills acquired from the module also significantly increased, suggesting that cognitive disability, as measured by attentive participation in a social skills training group, can be remediated by a behavioral training procedure without direct training of neurocognitive deficits.³⁹

Integrated Psychological Therapy

Once the successful training of specific cognitive functions was well documented in laboratory studies, the technique was translated into applied, clinical programs. Early work in this area was conducted by Brenner and colleagues.⁴⁰ Termed as Integrated Psychological Therapy, this approach emphasized that cognitive interventions should take place within a meaningful social context, ensuring that the cognitive deficits selected for training would lead to improvements in attention, learning, memory, and social perception as precursors for acquiring social and independent living skills. Integrated Psychological Therapy is implemented in a sequential format with remediation of attentional, perceptual, and cognitive deficits followed by training in social and problem-solving skills. A comprehensive review of the principles of Integrated Psychological Therapy and evidence of its efficacy is presented in a companion article in this issue.⁴¹

Cognitive Enhancement Therapy

Since the pioneering research of Brenner et al, there have been several randomized controlled studies providing evidence that cognitive training was instrumental in improving social and vocational functioning.^{35,42–46} Cognitive remediation strategies have also been targeted directly at the deficits in social perception that have been posited to underlie social dysfunction in schizophrenia. The rationale for these interventions is that if patients are unable to correctly interpret interpersonal cues, they will have significant difficulty interacting effectively in these situations. Typically, patients are first taught to accurately perceive various parameters associated with

selected social cues, such as facial affect, verbal tone, and body language. This procedure is followed by instruction in social problem solving. Using videotaped vignettes, patients learn to identify the problem, generate a number of potential solutions to the problem, and evaluate the alternative responses that might be made for successfully dealing with the particular social situation.

Cognitive Enhancement Therapy (CET)⁴⁷ is an integrated approach to the concomitant training of neurocognitive and social cognitive abilities as well as social skills. Starting from the premise that both the neuropsychological and social cognitive anomalies of schizophrenia are developmental in nature, these authors suggest that the treatment approach also should be developmental. Using 75 hours of computer-assisted, neurocognitive training with weekly 1.5-hour sessions of social cognitive group exercises for up to 1 year, CET aims to facilitate the attainment of social cognitive milestones including the ability to comprehend the gist of a social exchange, active processing of social content, tolerance for ambiguity, cognitive flexibility, and personal comfort with abstraction. Increasingly complex goals are added as patients demonstrate mastery of the more fundamental tasks.

CET has been experimentally evaluated for its efficacy on cognition and behavior as compared with “enriched” supportive therapy. After 2 years of treatment, improvements were noted on a broad set of neurocognitive measures, cognitive style, social cognition, and social adjustment that were significantly greater than with supportive therapy.⁴⁴ At the 2-year evaluation, all composite scores showed significant differential effects favoring CET. At neither assessment point were there differences in positive or negative symptoms, highlighting the general principle that biobehavioral interventions for schizophrenia are treatment specific.

The role of social skills training has been shown to be critically important for cognitive remediation to generalize to real-life accomplishments in social and vocational roles. For example, in the program of CET described above, weekly sessions involved patients in practicing structured social interactions, solving of real-life social dilemmas, appraisal of affect and social contexts, initiating and maintaining conversations, feedback from other patients, and coaches and homework assignments to implement skills in real-life situations. Use of concurrent social skills training groups was also important as an element in a neurocognitive enhancement therapy aimed at improving work skills. Computer-mediated training of sustained attention, verbal learning, and memory and executive functions were accompanied by a skills training group that fostered the transition of improved, molecular cognitive skills to successful participation in employment situations.⁴² Results from the innovative combination of cognitive remediation with social skills training advocate for the inclusion of cognitive remediation in rehabilitation programs for schizophrenia.

Errorless Learning for Work and Social Problem-Solving Skills

Errorless learning is a rehabilitation approach for improving social and work skills that capitalizes on the implicit or procedural learning capacity of individuals with schizophrenia. Implicit learning involves those psychomotor actions that are repetitive, overlearned, and can be employed “without thinking” or conscious awareness. Examples are riding a bicycle, catching a ball, saying nighttime prayers, or hitting a nail with a hammer. Procedural learning has been shown to be relatively spared in schizophrenia.⁴⁸

A novel and effective means of utilizing procedural or implicit learning to compensate for deficits in verbal learning and memory in persons with schizophrenia, errorless learning combines fine-grained analysis of the behaviors to be trained with precision teaching techniques. In this method, the task to be learned—whether it be social or instrumental—is broken down into its constituent components, and training is done sequentially, starting with the smallest and simplest component in the array of skills required for the errorless performance of the overall goal. Training is done by having the individual observe how a model selects the correct response, followed by prompts and reinforcement that promote similar correct responses in the subject. Only when the subject demonstrates correct responding for a minimum of 10 trials does the trainer move to the next behavioral component in the task.

This method has been shown to be superior to customary “trial-and-error” learning in teaching persons with schizophrenia to master entry-level tasks typical of those required in competitive employment.⁴⁹ A subsequent study demonstrated that errorless learning could be effectively extended to broader, more complex functions such as social problem solving.⁵⁰

Use of SST as an Element in Comprehensive, Multidimensional Programs

For all its benefits, the effects of social skills training on domains of psychopathology such as psychotic symptoms, relapse rates, and quality of life among patients with schizophrenia are not consistently confirmed by existing reviews and meta-analyses.^{20–24} Just like antipsychotic medication or any other single therapeutic modality, however, social skills training is not intended to be a stand-alone treatment for schizophrenia. Rather, it is always delivered in the context of comprehensive treatment approaches that also confer protection against exacerbation of symptoms and contribute to community functioning. Antipsychotic medication, supportive and more intensive forms of case management, crisis intervention, family psychoeducation, vocational rehabilitation, supported housing, and a potpourri of other services

all contribute to protection against relapse and successful living in the community.

There is little purpose in attempting to isolate the specific contribution of social skills training within a holistic program of rehabilitation because the broad spectrum of treatment needs of persons with schizophrenia will always require integrated, multimodal services. However, the important role of social skills training in the overall rehabilitation effort is evidenced by its insertion in broader treatment programs serving the clinical needs of dually diagnosed mentally ill substance abusers, older adults, and individuals who choose to work and are enrolled in supported employment.

Skills Training for Dual Diagnosis

Drug and alcohol abuse by people with severe and persistent mental illness is one of the most significant problems facing the public mental health system.⁵¹ While dual diagnosis programs address a wide variety of skills for management of mental disorders and for improving quality of life, the rehabilitation effort must also focus on teaching patients to control their substance abuse. One such method, the “Substance Abuse Management Module,⁵²” uses relapse prevention and harm reduction strategies in an effort to teach participants how to (1) quit drugs after a “slip,” (2) report a slip to a therapist or psychiatrist, (3) refuse drugs from pushers, friends, and relatives, (4) solicit the involvement of a support person who is willing to accept phone calls at times of craving or when the patient is in a “high-risk” situation, and (5) participate with others in “healthy pleasures.” Patients who have completed the program have demonstrated more sustained participation in treatment, decreased drug and alcohol use, improved adherence of psychoactive medications, fewer psychiatric symptoms, and improved quality of life although program dropout rates approach 50%.⁵³ In a study of the sequential accumulation of elements to create an integrated treatment program for stimulant abusing schizophrenics, the addition of the Substance Abuse Management Module increased treatment adherence, abstinence, and community tenure.⁵⁴

More recently, a multifaceted treatment for substance abuse in patients with dual disorders has been developed and tested.⁵⁵ This 6-month, small group includes the following 6 integrated components: (1) motivational interviewing, (2) a urinalysis contingency management to reward “clean” tests, (3) structured goal setting, (4) social skills training aimed at helping patients combat social pressure to use drugs and learn how to say “No,” (5) education about substance use and its particularly detrimental effects on people with severe mental disorders, and (6) relapse prevention training focused on behavioral skills for coping with urges and dealing with high-risk situations and lapses. The social skills training element in this program was offered in groups of 4–6 participants

twice per week for 6 months by trained therapists following detailed manuals. A randomized, controlled trial involving 129 stabilized outpatients meeting Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria for drug dependence and severe mental illness, 40% of whom met Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria for schizophrenia or schizoaffective disorder, found that the integrated dual diagnosis program was significantly more effective than a supportive therapy program in percentage of clean urine test results, length of time in treatment, medication adherence, relapse rates, and quality of life.⁵⁵

Skills Training Combined With Supported Employment

Supported employment has become an evidence-based treatment for vocational rehabilitation of persons with severe mental illness.^{23,56,57} Although almost half of the individuals who volunteer for supported employment are placed in competitive jobs, by 6 months after job placement, half of the employed mentally ill lost their jobs.⁵⁸ The Workplace Fundamentals Module was designed to improve the job tenure, success, and satisfaction of mentally ill persons entering the workplace by demonstrating how to (1) anticipate job stressors, (2) utilize stress management techniques, (3) identify and overcome stigmatizing attitudes, (4) solicit performance feedback and assistance from one’s supervisor or employer, and (5) start conversations and relationships with coworkers.⁵⁹

To date, 4 studies have been conducted with this module supplementing supported employment.^{59,60–62} Improved tenure after getting jobs was reported in most, and there is some evidence that job satisfaction also is increased. The variability in the degree of participation by patients in the module as well as differences in work histories among patients in the different studies make it difficult to conclude at this stage the significance of the contribution of the module to overall job placement, tenure, turnover, and satisfaction. When young patients within 2 years of the onset of schizophrenia were offered the module and supported employment, their rate of returning to regular schools or jobs reached 93% in 1 year.⁶³

Skills Training With Older Adults Receiving Geropsychiatric Services

With the graying of the population, growing numbers of older adults with schizophrenia are in need of treatment. One of the priorities for such patients is achieving clinical stability through reliable management of their medications, especially because elders with schizophrenia have memory problems and are often taking many different medications for various physical and mental disorders. Procedures from the UCLA Social and Independent

Living Skills modules⁶⁴ have been shaped by 2 clinical and research teams designing treatments for elderly patients with severe mental illness: at the University of California at San Diego and the New Hampshire-Dartmouth Psychiatric Research Center.^{65–68} In accord with the multiple problems and deficits of this population, the programs combined cognitive therapy, supportive care, nursing, and medical services as well as social skills training. Patients who participated in the programs that included social skills training showed greater improvements in skills, social functioning, independent living, and insight into their illnesses.

Optimal Treatment Programs Integrating Skills Training and Other Evidence-Based Services

The “Optimal Treatment Project,” an international effort coordinated by Ian Falloon and his colleagues, was designed to test the superiority of integrated, evidence-based biomedical and psychosocial treatments to the standard clinical management of schizophrenia. The evidence-based strategies, including social skills training, assertive community treatment, antipsychotic medication with compliance training, and family psychoeducation, were implemented in routine clinical practice through intensive training of the team of practitioners. Although no attempt was made to tease out the relative benefits of each of these modalities, the program was evaluated in a randomized controlled trial conducted in Ankara, Turkey, in comparison to the standard treatment offered at the same psychiatric clinic. A total of 100 consecutively referred patients whose schizophrenic illness had not exceeded 10 years in duration were randomized to the 2 treatment conditions. Treatment was provided to both groups of patients every 2 weeks for the first 3 months, followed by monthly sessions thereafter for a total of 2 years. Significantly greater improvement was found for the patients in the Optimal Treatment Program for psychotic symptoms, dysphoria, total symptoms, disability, quality of life, and family stress. Hospitalizations were infrequent for both groups, reflecting the close monitoring and high standard of care in the comparison group. Of note was the steady and continuous improvement by patients receiving optimal treatment, reflecting their cumulative resilience and attainment of personal goals through disease management, stress management, and social skills. Patients receiving standard treatment also improved during the first 6 months but reached a plateau thereafter.⁶⁹ Using a far less rigorous study design, over 1000 patients in 6 different countries have received these services with significant improvements in social adjustment, quality of life, and reductions in rehospitalization.⁷⁰

Social skills training was integrated with a similar comprehensive treatment program of evidence-based services for 547 young patients in their first episode of psychotic

illness in Aarhus and Copenhagen, Denmark. Patients were randomly assigned to the integrated and comprehensive treatment programs or the standard treatments available in the 2 cities. The comprehensive program included assertive community treatment, social skills training, and multifamily therapy groups in which coping and problem-solving skills were taught using behavioral principles. Social skills training focused on medication self-management, coping with symptoms, conversation skills, and problem-solving skills in small groups. At the end of 2 years, patients in the integrated program had significantly less positive and negative symptoms, less comorbid substance abuse, and significantly greater satisfaction with treatment. Noteworthy was the unexpectedly substantial improvement in negative symptoms that was attributed to the skills training in groups of patients and families.^{71,72}

Future Directions for Social Skills Training

Social skills training as a modality within the field of psychosocial rehabilitation for schizophrenia is still in a developmental stage. We have begun to see the emergence of adapted forms of social skills training as a component of comprehensive services, for new patient populations and in new clinical settings. But there are many more prospects on the horizon for scientist-practitioners who will be the future designers, validators, and disseminators. The present modes of social skills training have only begun to tap the manifold influences that determine social and vocational functioning.

Enhancing Generalization

Generalization of social skills training must address more directly the factors in the environment and other treatment and rehabilitation treatments. For example, the growth of the self-help, peer support, and advocacy movements in communities could become an important source of nonprofessional, natural supporters for improving generalization of skills into patients' everyday lives. This will require bridges to be built between professionals and the leaders of the consumer-directed organizations.

Communication technologies can also be tapped to extend the reach of therapists and trainers into patients' natural environments. Already, Internet chat rooms have emerged for purposes of social support, education, and consultation from professionals. Telemedicine, cell phones, and programmable hand-operated computers are untapped means of augmenting generalization of skills into the community. These electronic devices are becoming less expensive and, if shown to be effective in promoting generalization and improving quality of life, could be purchased by mental health organizations and given to patients.

We can expect further improvements in the generalization of social skills training into patients' longer term personal goals of a better life with friendships,⁷³ independent living, education, employment, and subjective quality of life. These goals are related to recovery from schizophrenia and will require even closer integration of social skills training with normative programs and places where people get

- acquainted to form friendships and experience dating (eg, places of worship, Internet),
- normalized housing (eg, Section 8 housing, supported and congregate residences),
- education (eg, college offices for disabled students, supported education),
- employment (eg, supported employment, consumer-run businesses)

Skills for Increasing Recovery

Empowerment, hope, and responsibility for taking an active role in directing one's treatment are areas of importance to the emerging recovery movement that will be achieved through adaptations of social skills training. For example, shared decision making in treatment planning, a key element in self-directed recovery, is an interactive process between patients and health care practitioners.⁷⁴ Genuine and informed participation in decision making will require more than deferring to patients' wishes. Social skills training curricula have been effective in teaching patients to become more assertive and proactive in communicating with their mental health clinicians,¹⁴ but this will be a growth area for new training approaches.

Empowerment, self-efficacy, hope, and self-responsibility have become touchstones for the recovery movement with the assumption that they will bring many positive outcomes and benefits on their own. However, many decades of psychological research have shown that efforts directed at boosting self-esteem and its congeners do not yield anticipated benefits to individuals; rather, self-esteem, empowerment, and hope are consequences of adaptive, productive behavior, and self-improvement which leads to social competence and its associated rewards.⁷⁵ By including empowerment, life satisfaction, and self-efficacy as outcome measures of social skills training, the subjective benefits of gaining competence will inspire improvements in the educational design of training goals and procedures.

Integrating Skills Training With Other Therapies

The future will see the technology of social skills training adapted for multiplying the therapeutic outcomes from cognitive behavior therapy and interpersonal therapy. Depression and social anxiety are common concomitants of schizophrenia that have been treated almost exclu-

sively with medications; however, by infusing social skills training procedures into evidence-based, psychological treatments for these comorbid disorders, mood and anxiety disorders will be more effectively treated. Because depression and social anxiety are major causes of poor quality of life, this important, subjective index of recovery should have an upswing.

While cognitive behavior therapy also has become an evidence-based treatment for residual psychotic symptoms, few clinicians or investigators have recognized the importance of social skills in this modality's reliance on behavioral assignments and "experiments."⁷⁶ Social skills training is implicitly involved in instigating favorable outcomes in both cognitive behavior therapy and interpersonal therapy, but more explicit integration and adaptation of skills training methods in these therapies holds promise for improving their impact in schizophrenia.⁷⁷⁻⁷⁹

Dissemination of Social Skills Training

As with other evidence-based treatments for schizophrenia, the greatest challenge to moving the field forward is the slow pace of dissemination and adoption by clinicians and systems of service. While the utilization of social skills training that meets standards of high fidelity has been minimal at the level of practitioners, there has been considerable dissemination of the modality internationally. For example, the modules of the UCLA Social and Independent Living Skills Program⁶⁴ have been translated into 23 languages and are used in 6 continents. Since 2000, there have been 19 publications of controlled studies of social skills training in Switzerland, Spain, Japan, China, Hong Kong, Turkey, Holland, and Canada. In countries where universal health insurance is available and where the national mental health system is more centrally organized (eg, Holland and Japan), social skills training appears to be more widely adopted by clinicians.⁸⁰

Disseminating social skills training to practitioners in the United States has been done for over 25 years; however, the problem lies in the adoption and continued use of the modality once the consultant or change agent departs. By adhering to accepted methods of the dissemination of innovations,⁸¹ it is likely that more success will be seen in the coming years for the diffusion of social skills training into customary, clinical settings for the treatment of schizophrenia. Charting future directions for social skills training is a prerequisite for ensuring that this approach remains vital and inseminated with new ideas.

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