Maximizing the synergy between pharmacotherapy and psychosocial therapies for schizophrenia

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Schizophrenia was first labeled medically at the beginning of the twentieth century, although depictions of the illness can be found throughout recorded history. During the nineteenth century, the concept of humane treatment of all mental illness replaced the religious and moralistic shunning of affected individuals. The principle of humane treatment incorporated psychosocial concepts that seem familiar today, including methods such as vocational therapies to help patients achieve a functioning role in society. In the first half of the twentieth century, the invention and propagation of a variety of psychoanalytical therapies promised relief from mental illness. It initially was presumed such treatments could be applied to patients with psychoses; this turned out to be ambiguous in anecdotal cases, and rigorous treatment trials did not support the use of such therapies for treatment of these disorders.

The major advancement in the treatment of schizophrenia came with the development of various antipsychotic drugs in the 1950s and 1960s. Since then, these medications have been shown consistently to be effective for the treatment of acute psychosis and the prevention of relapse, and they are now the foundation of treatment for patients with schizophrenia. As described in other articles in this issue, there has been a steady development of new antipsychotics since chlorpromazine in the 1950s. The putative mechanism of action of the first generation of these medications was dopamine blockade,
and clinicians accepted hypodopaminergic side effects (extrapyramidal symptoms [EPS]) as a necessary evil. The industrial pursuit of increasingly purer dopamine blockers led to effective high-potency antipsychotics with a high incidence of neurologic side effects.

A significant paradigm shift in schizophrenia pharmacotherapeutics occurred with the establishment of the superiority of clozapine for patients with treatment-resistant schizophrenia [1]. Clozapine was particularly remarkable in that it achieved its greater efficacy in this patient population without having strong dopamine-blockade properties. For the first time, it was shown that an antipsychotic effect could be separated from the “neuroleptic” or iatrogenic parkinsonian effect. The search for other medications that duplicated clozapine’s therapeutic effects, without its risks, gave rise to a new class of drugs, the atypical or novel antipsychotics, which has grown rapidly. The characteristics thought to define an ideal atypical antipsychotic include superior efficacy for positive and negative symptoms, low incidence of EPS and tardive dyskinesia, unchanged prolactin levels, and minimal worrisome metabolic effects.

The pharmacologic advancements in the treatment of schizophrenia have had major implications for all concerned. Patients have less severe symptoms of the illness and fewer (although not absent) side effects of the medication. Families have been comforted in the knowledge that schizophrenia is most likely due to biologic factors and not due to rearing practices. For physicians, each new medication offers more in the therapeutic armamentarium, and insurers have seemed willing to operate on the assumption that schizophrenia is an illness that can be controlled simply by medications. It now is widely accepted by clinicians familiar with the course of schizophrenia, however, that most patients (even patients with a good response to medication) likely will continue to have disabling residual symptoms and impaired social functioning and to be at high risk of future relapses even if adherence to treatment is maintained. The need for the development of effective psychosocial interventions with benefits demonstrable in rigorous clinical trials is still crucial. Since the 1970s, the rebirth has occurred of an empirically driven field of psychiatric rehabilitation with attention to treatment methods and to systems for delivery of services. One of the most positive aspects of the current state of treatment for schizophrenia is that, far from the acrimonious debates earlier in the twentieth century regarding biologic versus psychological methods, it now is generally accepted that in mainstream psychiatric practice, psychosocial treatments should be used with optimal pharmacologic management.

This article presents the authors’ interpretation of the current state of the field regarding psychosocial interventions that can augment treatment with medication. One tenet that the authors hold is that mental health professionals should maintain a high expectation for what constitutes an acceptable outcome for most patients. A good outcome must go beyond just a reduction in overt psychotic symptoms or rehospitalization, the traditional
markers of success. Gains in cognitive abilities and social skills; an acceptable quality of life; the ability to sustain competitive employment; reduction of comorbid substance abuse; and improvement in less obvious clinical phenomena, such as negative, depressive, and deficit symptoms, also must be expected.

**Symptoms, compliance, and relapse**

By definition, patients with schizophrenia have limitations in their social competence and vocational functioning for a significant period. To some extent, these limitations are a consequence of the multiple symptoms and cognitive impairments of the disorder. In patients with onset during the crucial developmental years of adolescence and early adulthood, it is likely that the “lost opportunities” to acquire fundamental social skills also contribute to impairments in function.

The symptoms of schizophrenia can be conceptualized best as symptoms presumably representing an exaggeration of various normal psychological functions (positive or psychotic symptoms, such as hallucinations and delusions) and symptoms representing a diminution of other functions (negative symptoms). Negative symptoms include avolition, asociality, poverty of speech, and restricted affect and are subdivided further into primary and secondary. Secondary negative symptoms are thought to stem from psychotic withdrawal, neuroleptic side effects, and depression. Primary negative symptoms, which are enduring, also are known as deficit symptoms [2]. It has become increasingly apparent that although psychotic symptoms generally cause significant distress to the patient and get the attention of family and community (often leading to hospitalization), deficit symptoms account for a significant proportion of the premorbid impairment [3] and subsequent poor outcome in schizophrenia [4].

Although there is significant conceptual and descriptive overlap between deficit symptoms and impaired social skills, they currently are being addressed by different therapeutic interventions. Improvement in deficit symptoms has become a target of pharmacologic treatment, although the efficacy of the currently available medications in achieving this is a matter of much debate. Social skills training (SST) was developed to address social skills impairments using principles derived from learning theory and cognitive rehabilitation techniques and is now the focus of the burgeoning field of psychiatric rehabilitation. Supported work programs are being studied in the hope of increasing the likelihood of independent employment among individuals with schizophrenia. Patients with persistent negative symptoms may benefit from a trial of SST, although the effectiveness of this has not yet been evaluated formally, and one preliminary report on a small sample failed to show efficacy of SST in improving targeted social skills measures in patients with deficit symptoms [5].
If a patient is continuing to have significant positive symptoms despite appropriate treatment with medication, before deciding the patient is treatment resistant, it is necessary to determine if these symptoms are due to other factors, such as noncompliance, treatment intolerance, comorbidity (e.g., untreated depression), substance abuse, inadequate social support, violence, residual negative symptoms, or cognitive impairment. The issue of whether a patient who relapses despite compliance with a medication previously found to be effective is treatment resistant or is experiencing the natural course of a chronic illness is unclear. A study [6] also has raised the issue of whether relapse rates may differ between antipsychotics independent of compliance issues. In this randomized, double-blind prospective study, 397 previously stable patients over 40 clinical sites were assigned to flexible doses of risperidone or haloperidol for at least 1 year and monitored for compliance, symptom severity, and rates of relapse. At the end of the study period, 25.4% of patients on risperidone and 39.9% of patients on haloperidol had relapsed despite greater than 95% compliance (as assessed by pill count) in each group.

Even with the best treatment now available, most patients suffering from schizophrenia experience a relapse [7]. Different psychosocial interventions have been studied systematically and some, such as family therapy and assertive community training (ACT), have shown a therapeutic effect in reducing psychotic relapse. Medication noncompliance and substance abuse should be considered in all patients with worsening symptoms. That a proportion of relapses are directly due to noncompliance was suggested strongly by studies that ensured antipsychotic medication delivery. Patients treated with maintenance intramuscular depot preparations had a clear advantage in relapse rate compared with patients taking oral preparations [8]. Because schizophrenia frequently is associated with poor insight, low motivation, and various cognitive impairments, it is tempting to conclude that noncompliance with medication is a much bigger problem than for other chronic nonpsychiatric medical illnesses. Most studies [9] suggest, however, that the average rate of noncompliance (i.e., approximately 50% of patients) is no more frequent in schizophrenia than in various other chronic illnesses, such as rheumatoid arthritis, diabetes, seizure disorders, and hypertension. Fenton and coworkers [9] cogently argued the value of distinguishing covert (purposeful) noncompliance from overt noncompliance when managing schizophrenic patients. Covert noncompliance frequently is associated with side effects from antipsychotic drugs, and among these, evidence of EPS, particularly akathisia [10], should be considered. The availability of the new antipsychotic medications should have an impact on reducing noncompliance secondary to EPS, but these drugs have other side effects, such as sedation and weight gain, which are distressing to many patients. Long-term controlled studies should clarify whether the new antipsychotics would have a significant impact on compliance. Overt noncompliance may be related to characteristics of the illness, such as limited insight,
forgetfulness, poor planning, and amotivation; in these cases, provision of external structure and support and the use of depot antipsychotic preparations may be particularly helpful. None of the atypical antipsychotic drugs are presently available in a long-acting intramuscular form, although this is currently a highly active area in pharmaceutical industry research and may change in the near future.

**Psychosocial treatments for schizophrenia**

*Psychodynamic psychotherapy for schizophrenia*

Although it is outside the scope of this article to review the practice and theory of psychoanalytic treatment for schizophrenia, a brief summary provides a historical context for the discussion of other psychosocial treatments. The prevailing notion for nearly 60 years was that the same basic assumptions that applied to neurotic spectrum patients could be adapted to patients who were severely psychotic. Anecdotally, this notion seemed true in that some patients diagnosed with schizophrenia improved with intensive insight-oriented treatment. Viewed retrospectively, one questions whether those individual patients had psychosis in the context of either a mood disorder or a personality disorder, such as borderline personality disorder. Today the notion that patients with schizophrenia could benefit from analytically based therapy is not widely accepted.

Two landmark studies did much to refute the effectiveness of individual psychodynamic psychotherapy for schizophrenia. The first study by May [11], completed in 1968 at Camarillo State Hospital in California, sought to show the superiority or at least the synergy of psychotherapy and medications. In this study, moderately ill patients with schizophrenia were divided into five groups: milieu alone, individual psychotherapy alone, antipsychotic treatment alone, electroconvulsive treatment alone, or an antipsychotic treatment plus individual psychotherapy. The results were dramatic. Both antipsychotic groups had superior response to the other groups. These were followed by the group receiving electroconvulsive therapy, which had better response than either the psychotherapy or milieu treatment groups. The antipsychotic medication plus psychotherapy group showed no advantage over the group receiving antipsychotic medication alone. Because the study was criticized for using relatively inexperienced therapists and only weekly psychotherapy sessions, the question of the value of individual psychotherapy remained.

The second study by Stanton and colleagues [12] at McLean Hospital and Boston University sought to address the perceived shortcomings in the May study. This time, psychotherapy performed three times a week by an experienced therapist was compared with weekly supportive therapy. Both groups were treated with antipsychotic medications and managed by a psychopharmacologist blinded to the therapy condition. The results were
negative for the intensive psychotherapy group. The intensive treatment group had a greater attrition rate, particularly with more severely symptomatic patients, and even when the remaining less symptomatic group was compared with the supportive group, the outcome favored the nonpsychodynamic treatment. The results of these two studies effectively “killed off” dynamic psychotherapy for schizophrenia and forced clinicians and researchers to consider other types of therapy to improve outcome for these patients. The widely accepted “stress-vulnerability” hypothesis of schizophrenia has been the framework for the two current forms of individual therapy that have received the most study—individual personal therapy and cognitive behavioral therapy (CBT). Both of these methods attempt to help patients diminish symptoms and prevent relapse by coming to understand and work actively with their individual patterns of stress and response, although with different methods and emphases.

**Personal therapy**

Personal therapy was developed by researchers at the University of Pittsburgh [13] on the premises that affective dysregulation associated with stress may precede psychotic relapse or trigger inappropriate behaviors based on possible underlying cognitive deficits and that patients with psychotic disorders may benefit by learning to anticipate and manage their affective state and sources of stress. The therapy was designed to be flexible enough to accommodate individual patient differences while also able to be operationalized for empirical studies. It incorporates techniques of stress reduction, cognitive reframing, and vocational rehabilitation. In the studies carried out by this group, personal therapy sessions lasting 30 to 45 minutes were conducted weekly following an incremental approach individualized for the patients’ stage of recovery. The initial phase focused on the relationship between stress and symptoms; the intermediate phase emphasized learning to use relaxation and cognitive reframing techniques when stressed; and the advanced phase, generally beginning approximately 18 months into treatment, centered on seeking social and vocational initiatives in the community and applying what had been learned in the previous two phases. Hogarty and associates [14,15] carried out a 3-year trial comparing four different treatment branches: personal therapy, family therapy, family therapy plus personal therapy, and supportive therapy. The results of the study showed that personal therapy was no different than the other therapy methods in the primary outcome of relapse prevention. The personal therapy group was favored, however, in a composite measure of social adjustment, with the greatest differential improvement occurring in the last 2 years. Social adjustment data were determined from various unblinded sources, including patient interviews, therapist assessments, and surveys filled out by relatives. Of the patients assigned to personal therapy, 40% were not able to progress
to the advanced phase of therapy, where the gains were to be applied in real-world settings.

**Cognitive behavioral therapy**

Although the broad aims and rationale in CBT are in some ways similar to those in personal therapy, it differs from personal therapy in methods, which are drawn from the earlier work of Beck [16] in depression, and in the greater attention paid to the content of individual psychotic symptoms. There is a growing body of work, particularly in Great Britain, on the use of CBT for residual psychotic symptoms and more recently as an adjunct in the treatment of acute episodes. One approach has been “coping strategy enhancement” for residual psychotic symptoms. The goal in this method is to decrease distress by teaching coping mechanisms by which the patient can distract himself or herself and ignore the content of some symptoms. Initial studies suggested a beneficial effect on delusions persisting approximately 6 months and with limited generalizability to other symptoms or social functioning [17]. A different approach more similar to the original CBT for depression consists of attempting to decrease the severity of delusions by challenging them in a gentle but systematic fashion [18]. The challenge is followed by a “behavioral experiment,” which may or may not support the belief, and the outcome of the experiment (reality testing) reinforces the verbal challenge. An approach for persistent hallucinations, which have seemed more resistant to CBT, is to help patients focus on individual characteristics of the hallucinations and their meaning to the patient and learn to attribute the hallucinations to themselves [19]. After these initial preliminary results, a few well-controlled studies were carried out with larger samples and extended posttreatment follow-up periods.

Kuipers and colleagues [20] studied 60 individuals with schizophrenia who were randomized to either CBT plus standard care or standard care alone. Outcome measures were obtained after the 9-month course of treatment and again at 9 months posttreatment. Raters were independent but not blinded. They found that patients receiving CBT showed a significant reduction in overall symptom scores (29% for CBT group versus 2% for controls), delusional distress, and frequency of hallucinations at the end of treatment, a difference that continued to be significant 9 months after treatment ended.

Tarrier and associates [21] found a clinically meaningful reduction of delusions and hallucinations with CBT compared with supportive counseling (of equal intensity) and routine care alone. A particular effort was made in this study to ensure that symptoms were rated blindly. Although the advantage for CBT was maintained at 12-month follow-up [22], at 24-month follow-up, the CBT and supportive treatment groups showed decreased symptoms compared with the control group, but the CBT group had lost its advantage over the supportive therapy group [23]. In contrast, a methodologically rigorous study by Sensky and colleagues [24] compared patients
treated with routine care in addition to CBT or a befriending intervention of equal intensity. Both groups showed a reduction of psychotic symptoms after 9 months of treatment. At 9-month follow-up, these treatment gains were sustained in the CBT group but not the comparison condition.

Buchkremer and coworkers [25] compared four different combinations of psychoeducational medication management training, cognitive psychotherapy, and key-person counseling (a cognitive therapy model addressed to family members instead of patients) with a standard care control group. A total of 132 patients in seven clinical sites received services for 8 months and were assessed at 1 and 2 years of follow-up. The treatment groups did not show a significant difference in psychopathologic symptoms, compliance, or rehospitalization rates from the control group, but the group that received all three interventions showed a trend toward fewer hospitalizations.

Only one study compared two forms of CBT for medication-resistant psychotic symptoms. Tarrier and associates [17] compared coping strategy enhancement with problem-solving interventions and found both groups had reductions in psychotic symptoms, with no between-group differences. The study did not include a no-treatment group, which limits conclusions that may be drawn regarding the active components of these interventions.

CBT has shown some efficacy in treating other aspects of the illness besides medication-resistant residual psychotic symptoms. In a preliminary study, Drury and colleagues [28] found that acutely psychotic inpatients treated with CBT in addition to antipsychotic medication experienced a significantly faster and more complete recovery from the psychotic episode than a control group that spent equal hours with a therapist doing structured or supportive activities. The CBT group continued to report significantly fewer symptoms at 9-month follow-up, with 95% of the CBT group reporting few or no hallucinations or delusions compared with 44% in the control group. A limitation of this study is that the raters of psychopathology also provided the experimental treatment. Another trial of a brief CBT intervention in acutely psychotic inpatients that targeted compliance with antipsychotic medication showed significant improvements in compliance, attitudes toward drug treatment, and insight into their illness compared with controls receiving standard treatment [27]. At 6-month follow-up, these gains were still present; however, the predicted improvements in social functioning or symptoms were not seen.

CBT has not been shown to improve social functioning [20,28] or relapse rates [21], both of which have been targeted outcomes in medication-resistant patients. The role of CBT in the treatment of negative symptoms is not clear. Studies reporting effects for negative symptoms generally have not found significant improvements associated with CBT [21,25,26]. One group’s preliminary studies of CBT in patients with only negative symptoms found such poor response that they ceased to include individuals with purely negative symptoms in subsequent studies [29]. The study by Sensky and
colleagues [24] described previously found, however, that the improvement in negative symptoms and depression observed in CBT and control groups during the 9 months of treatment persisted over the 9-month follow-up period in the patients who had received CBT and not in the control group, suggesting CBT may affect negative symptoms in some patients.

**Family treatment**

One of the most consistent validators of schizophrenia as a distinct syndrome has been that, similar to other major psychiatric and medical disorders, it tends to “run in families.” Although this finding led in the past to premature speculations regarding the influence of early family environment as having a causal role for schizophrenia, it now is widely accepted that the familial association is secondary to genetic and not psychosocial factors. Nevertheless, family variables seem to have a significant impact on the course of the illness. One variable is the stress that a family purposely or unwittingly may impose on the patient. This stress has been defined and studied as *expressed emotion*.

Brown and Rutter [30] developed the concept of expressed emotion in an attempt to understand why some patients with schizophrenia who had had a good response to pharmacologic treatment while in the hospital rapidly relapsed on returning home. They determined a family’s expressed emotion level according to an empirically derived index of three factors including frequency of critical comments, hostility, and “emotional overinvolvement.” Patients who have extensive contact with a “high expressed emotion” family have been found to have significantly higher rates of relapse despite adequate medication compliance [31], a result replicated in many studies in multiple countries [32]. Further research on expressed emotion has shown that it is significant in many other psychiatric and nonpsychiatric illnesses besides schizophrenia [32] and that it is not specific to the family environment but can be a factor in patient outcome in multiple care settings [33,34], social groups, or consistently stressful treatment approaches.

The literature on family interventions and outcome in schizophrenia consistently has affirmed the commonsense view that patients with a chronic, relapsing illness tend to manifest exacerbations with continued stress. Most controlled trials have documented the effectiveness of various family interventions to reduce relapse [35]. Average relapse rates for family interventions are approximately 24% compared with about 64% for routine treatment [36], within the same range of magnitude as treatment with maintenance antipsychotic medication. Additionally the beneficial effects of long-term (>9 months) family interventions seem to be durable and in studies have been found to persist for 2 years [36] or longer [37].

Considerable attention has focused on the reduction of expressed emotion as an active mediator for the efficacy of family interventions. In studies that selected high expressed emotion families, patients who did not relapse
were more likely to reside in a family household that had changed from high to low expressed emotion during the treatment [31,38–40]. The number of subjects and families reassessed was small, however, and there were no reports of a clear correlation between reductions in expressed emotion and relapse. Because it is possible that a high expressed emotion status may be a consequence of the relapse itself (or of patients being more severely ill), proving a causal role of expressed emotion for psychotic relapse requires a controlled study that includes interim expressed emotion assessments. Only Tarrier and associates [40] assessed expressed emotion at baseline, 4.5 months, and 9 months. Although they found changes from high to low expressed emotion in the relatives in the experimental treatment, similar changes occurred for the control condition.

What is remarkable about family treatment is that it seems that even minimally intense but persistent treatment is effective, and intensive treatment is not mandatory. One of the only large-scale studies investigating the efficacy of maintenance medication treatment and its relationship to family intervention is the Treatment Strategies for Schizophrenia study [41]. The study supported two significant concepts that have had a long-lasting impact on the treatment of schizophrenia. The first is that a standard dosing of depot antipsychotic is superior to either placebo or very-low-dose strategies for relapse prevention and that discontinuing medication and restarting it when symptoms first appear is not effective at preventing relapse. Second, the study showed that relatively nonintensive, multifamily educational monthly groups had equal long-term effectiveness for the prevention of relapse as the comparison, more intensive family treatment. For most patients, it is indicated to engage families early in a psychoeducational framework that emphasizes realistic expectations, support, detection of early warning signs of relapse, and medication compliance [42]. McFarlane and colleagues [43] studied schizophrenia patients considered to be at high risk for relapse secondary to histories of poor compliance, violence, and homelessness. Half of the patients received biweekly multifamily group treatment, and half received family intervention only during crises. There were no differences in relapse for the two treatment groups (27% at 2 years), suggesting that more intensive family treatment is not better.

Not all studies have yielded positive results. Linszen and colleagues [44,45] studied adolescent patients early in the illness and found that the group receiving family treatment and the control group had equally low (16–20%) overall relapse rates at 1 year. The comparison intervention involved a fairly intensive individual treatment approach rather than standard services. The personal therapy study previously described by Hogarty and coworkers [14] included a family therapy arm for patients who resided with their families, in this case mostly chronic schizophrenia patients. Family treatment offered no advantage over supportive therapy in preventing relapse, which was low at 29% at 3 years. The supportive therapy group received an enriched package of care compared with most community
standards, including biweekly sessions, minimum effective medication dosage, and case management. These studies illustrate that if the base relapse rate is low because of the type of population selected or the presence of a comprehensive control care program, the potential advantages of family intervention may not be seen. This seems to be more likely than ever to be the case as atypical antipsychotics with potentially lower relapse rates [6] are adopted as the standard of care.

In addition to reducing relapse, some studies reported improvement in other factors, such as family burden, coping, and knowledge of schizophrenia [43,46–48]. Interpretation of these results is confounded, however, by the effects of relapse, which would be expected to improve the efficacy of family interventions for these other outcome variables. The effect on social functioning independent of the effect on relapse has been assessed in two studies [15,41] in which relapsed subjects re-entered their original treatment group when stabilized, and social functioning was assessed between relapse episodes. Neither study found an advantage in social functioning for the experimental family treatment group.

Social skills training

Most patients with schizophrenia, even patients with a favorable response to antipsychotic medications, are likely to continue to have residual symptoms, cognitive impairments, and limited social skills. Psychosocial interventions aimed at the functional rehabilitation of the patient have been designed and studied systematically since the 1980s in the effort to address this problem. Largely based on concepts from the rehabilitation of physical disabilities, psychiatric rehabilitation uses the principles of learning theory to improve the patient’s social competence in roles such as self-care, work, leisure, and family, which contribute to the patient’s being able to function more autonomously in the community. SST is a precisely targeted set of interventions that should be distinguished from activities in other programs in which the acquisition of skills occurs incidentally. There are currently three models of SST: basic, social problem solving, and cognitive remediation. In the basic model, also known as the motor skills model, patients learn by identifying and “overlearning” components of social interactions through repetition, then reintegrating them into natural settings through role play. The social problem-solving model focuses on improving impairments in information processing that are assumed to be the cause of social skills deficits. The model targets functional domains needing improvement and teaches them as part of a module that attempts to correct deficits in receptive learning, processing, and sending skills. In the cognitive remediation model, the corrective learning process begins by targeting more fundamental cognitive impairments, such as attention or planning. The assumption is that if the underlying cognitive impairment is improved first, this learning will be transferred to support more complex cognitive
processes, and the traditional social skills models will be better learned and generalized in the community. More details about each method are given subsequently.

Basic model

In the basic model, problematic complex social repertoires are identified and broken down into more basic elements, such as eye contact, speech volume, length of response, and questioning. These may be modeled by the therapist and are learned through repetitive practice. The elements are “reassembled” into a whole functional repertoire. The patient next role-plays the integrated social repertoire with therapist and peers and finally practices it in a natural setting.

The literature is consistent in that patients with schizophrenia can be taught various social skills and that learning tends to persist 6 to 12 months [49]. Results so far are mixed as to whether this learning will lead to an improvement in important clinical measures, such as symptom severity and relapse rate. A highly rigorous clinical trial in Pittsburgh [39,50] found that patients receiving SST in addition to antipsychotic medications had a significantly lower relapse rate than a group receiving only medications (30% versus 46%). This difference remained statistically significant at 21 months but not at the end of the study at 24 months. For psychosocial interventions in general and SST in particular, “booster” sessions or continuous treatment may be required to maintain a favorable effect on relapse rates, similar to the need for continuous medication.

Although it has been shown that patients with schizophrenia can learn the individual skills targeted by this method, success in the crucial outcome measure of generalization to the patients’ natural environment has not been shown clearly [49]. The social problem-solving model was developed in part to deal with this limitation.

Social problem-solving model

The social problem-solving model uses social learning principles and assumes that impairments in information processing underlie the limited social competence present in many patients with schizophrenia. Modules have been developed to target problems within domains, such as medication management, symptom management, recreation, basic conversation, and self-care. As in traditional SST, complex problem behaviors are identified, and patients can be assigned to the modules that are most pertinent. For each of these modules, an emphasis is placed on learning receiving, processing, and sending skills, hoping that these will provide the patient with more flexibility and result in greater durability and generalization of the skills learned in the module. Two studies have examined the long-term impact on social function of this model. Marder and coworkers [51] compared outcomes for patients assigned to the problem-solving model versus patients assigned to equal hours of supportive therapy and found a small but statisti-
cally significant advantage for the problem-solving intervention in two out of six measures of social adjustment after 2 years. Liberman and associates [52] assigned patients to 6 months of treatment with either a problem-solving group model or equally intensive occupational therapy and followed them for 2 years. The experimental condition had a significant effect in 3 of 10 independent living skills (more personal possessions, more skilled food preparation, and money management) assessed through interview that were maintained 18 months after completing the intervention. The authors suggest that the effect on independent living skills was due to generalization of skills learned and attributed this effect to the assignment of a case manager to each patient who actively encouraged the patient to apply the skills learned in the community.

Cognitive remediation

It is well established that patients with schizophrenia have a multiplicity of cognitive impairments [53]. The presence of similar impairments in a variety of “subclinical populations,” such as children at high risk for schizophrenia, nonpsychiatric relatives of schizophrenic patients, and persons with schizophrenia-spectrum personality disorders, makes it unlikely that these are just epiphenomena of symptom severity or medication side effects. The characterization of these cognitive impairments is unclear. Impairments are generalized, but some particular functions, such as attention, memory, and planning, may be more affected than others.

Psychopharmacology and cognitive remediation are two avenues of treatment that are being actively explored. Although pharmacologic treatment is addressed in a separate article and is not discussed here, it is anticipated that the two methods of therapy most likely will be used together. The practice of cognitive remediation of schizophrenia is still in its infancy. Researchers have reasoned that the limitations on the durability and generalization of SST may be overcome by improving the impairments in elementary cognitive functions before teaching social skills; however, the exact nature of the impaired elementary functions that underlie generalized or specific deficits and their relation to impairment in real-world social functions is still not well understood. The preliminary studies of cognitive remediation available so far show there is some evidence that with practice patients can improve their performance in measures of vigilance and planning. Nevertheless, there has not yet been documentation of patients transferring these improvements to other tests, even within the same cognitive domain (vigilance or planning), much less any studies showing evidence of generalization to particular social skills.

Probably the most comprehensive cognitive remediation program for schizophrenia to date is integrated psychological treatment [54], developed by researchers in Switzerland. Integrated psychological treatment is based on the theory that dysfunctions in lower and higher level cognitive deficits interact in a vicious cycle to diminish competence, leading to an increased
likelihood of stress from inability to handle social situations, which results in a second vicious cycle in which stress-related arousal further impairs cognitive function. The therapy comprises a hierarchical arrangement of five subprograms to target and social function: Early interventions (cognitive differentiation subprogram) emphasize treatment of basic cognitive skills through training in card sorting and concept formation using computer games; middle interventions (social perception and verbal communication subprograms) shape these into verbal and social responses through exercises in social problem solving; and the final interventions (social skills and interpersonal problem solving) target more complex interpersonal problems through techniques resembling the more traditional motor skills model.

Initial studies of the cognitive remediation model have shown mixed results. The few existing controlled studies of integrated psychological treatment in schizophrenia show modest gains in elementary cognitive functions but no clear benefit for more complex cognitive tasks or overall social functioning [54]. Wykes and colleagues [55] found that patients treated with an intensive cognitive remediation approach (1-hour daily sessions for 3 months) targeting deficits in executive functioning showed improvement on 3 of 12 cognitive measures but no direct improvements in social functioning or symptoms compared with patients receiving occupational therapy matched for therapist contact and treatment duration. Hodel and Brenner [56] compared a program that started with cognitive remediation before skills training with one that followed the opposite order and found no advantage to beginning with cognitive remediation. The generalization of integrated psychological treatment to measures of symptoms and social competence in the community remains to be assessed.

Spaulding and colleagues [57] studied cognitive remediation in a population of 90 severely impaired patients who had been referred for long-term hospital treatment because of an inability to sustain community living. They compared cognitive remediation plus the social problem-solving modules with a group receiving supportive therapy plus the modules. Both groups received 3 hours of intervention per week for 6 months. The cognitive remediation group did better in two of four measures of social competence and showed better acquisition of skills for two of four of the social problem-solving modules, suggesting that the cognitive remediation approach can enhance response to more standard skills training in ill institutionalized patients.

Supported employment

One of the defining features of schizophrenia is difficulty with employment. Rates of competitive employment for chronically mentally ill persons have been estimated to be less than 20%, and for patients with chronic schizophrenia they are most likely even lower [58]. Because the associated economic insecurity, dependence on families and public assistance for basic
needs, social stigma, and low self-esteem can impair quality of life signifi-
cantly, multiple programs have been developed to help patients find and
keep jobs. With current average hospitalizations being shorter than 2 weeks,
hospital-based workshop programs are no longer feasible, and most voca-
tional rehabilitation now takes place in the community.

Supported employment is an approach in which patient skills are identi-
fied and matched with a job, and the patient is referred directly to regular
employment intended to be permanent, rather than going through a transi-
tional or sheltered vocational setting first. The goal is for the patient to
develop the necessary skills while working, getting on-site support and train-
ing from a work coach. Although several models of supported employment
exist, common elements include a goal of permanent competitive employ-
ment without preoccupational training, minimal screening for employabil-
ity, individualized placement (ie, not enclaves or mobile work crews) with
consideration of client preferences, and ongoing support [59].

The more traditional vocational rehabilitation programs were successful
in helping patients to adapt to a specific transitional or sheltered employ-
ment setting, but patients generally did not move on to regular employment
in the community [58]. Two studies involving supported employment are
more positive. In a quasi–experimental study, researchers compared patients
involved in a traditional partial hospitalization program with patients
assigned to an integrated program of supported employment and intensive
case management. During the follow-up year, the experimental group signif-
ically increased its rate of competitive employment by 14%, whereas there
was no improvement in the control group [60]. In the second study, two
forms of supported employment programs were compared: one with gradual
entry and the other with accelerated involvement in the job. At 1-year
follow-up, 56% of the accelerated-entry patients were engaged in compe-
titive employment versus 29% of the gradual-entry group [61].

Interpersonal placement and support is a version of supported employ-
ment that was shown to be efficacious in two small cities in New Hampshire
[62] and when compared with standard vocational services in a Washington,
DC, sample with a different ethnic composition (83% African American)
[63]. An extension of these studies comparing interpersonal placement and
support with a standard psychosocial rehabilitation program in a popula-
tion with severe mental illness (75% with chronic psychosis) and high rates
of substance abuse showed that the treatment group was significantly more
likely to obtain employment (42% versus 11%); however, job retention was
found to be low, leveling off at 15% to 20% despite ongoing supports [64].
The availability of a treatment manual for interpersonal placement and sup-
port [65] should facilitate further research into this treatment modality
across multiple settings. Although traditional vocational rehabilitation pro-
grams by definition enhance job-related activities, they do not improve sig-
ificantly the likelihood of the individual transitioning to competitive
employment, and although new programs using a supportive employment
model do show higher rates of obtaining competitive employment, problems with retention remain.

Supportive employment has not been shown to result in benefits for nonvocational outcomes. Despite the belief that employment may produce such secondary benefits as improved self-esteem, improved quality of life, and reductions of symptoms and relapses, the studies reviewed provide little to no evidence to support these assumptions. The effects of supported employment programs on nonvocational outcomes are not informative, however, with regard to the effects of employment per se on nonvocational outcomes. Evidence from one noncontrolled study [66] indicated that patients who were paid for participating in a Department of Veterans’ Affairs work placement worked more hours, showed improvement in symptoms at follow-up, and had a reduced rate of rehospitalization compared with patients who performed the same work but were not paid. Evidence that supported employment is not associated with increased rates of relapse or other negative outcomes, suggesting that competitive employment is not experienced as overly stressful by severely mentally ill patients.

Assertive community training

Patients with schizophrenia often have difficulty accessing the multiple services they may need to function in the community. Services may be provided by a wide array of individuals, including psychiatrists, nurses, pharmacists, social workers, and vocational therapists. The traditional role of case manager as broker may be insufficient for the many patients who lack the cognitive and social skills needed to follow through with referrals for necessary services, increasing these individuals’ risk of relapse.

The ACT program originally was developed by researchers in Madison, Wisconsin, in the 1970s [67] in response to this difficulty. ACT is currently the most carefully defined, well-documented, and successful program being used for the delivery of services for patients with chronic mental illness. Patients are assigned to one multidisciplinary team with a fixed caseload of patients and a high staff-to-patient ratio (1:12 compared with 1:30 in traditional case management models). The team provides treatment, rehabilitation, and support activities, where and when needed by the patient, 24 hours a day, 7 days a week. Potential services include home delivery of medications, monitoring of mental and physical health, SST in the patient’s regular environment, and helping patients maintain frequent contact with family members. The original study from Wisconsin [67] compared outcomes in a group of chronically mentally ill patients assigned to ACT with a group discharged from the hospital to standard community care. After 14 months, the ACT group showed significant advantages in rates of hospitalization, sheltered employment, independent living, and decreased family burden, with essentially no difference in costs; the advantages did not persist after the patients were discharged from the experimental program. There have been
several replications of the effectiveness of ACT in reducing total number of days in the hospital and increasing patients’ and family satisfaction [68], including Lehman and colleagues’ [69] study documenting the ACT program’s advantage over standard community care in a sample of homeless chronically mentally ill persons. Despite these positive measures, most studies have failed to document improvement in competitive employment, social functioning, or other measures of quality of life. Because of the complexity of the services provided by ACT and the lack of adequate controls, it is difficult to answer several important questions, including what are the key factors in preventing relapse and hospitalization, whether ACT is more cost-effective than another high-intensity system that does not use constantly available multidisciplinary teams, what minimum program intensity is needed to maintain gains, and which special populations of patients may require continuous services. Still, among various models of programs with intensive case management, those that approximate the original ACT model the most closely tend to have better outcomes [70].

Summary

Although the traditional antipsychotic medications were a major advancement in schizophrenia therapeutics and made possible the era of deinstitutionalization, just maintaining a patient out of the hospital no longer can be viewed as the final goal of treatment. Most patients are able to maintain outpatient status despite persistent psychotic symptoms, pervasive negative symptoms and poor social competence. It is hoped that the availability of the atypical antipsychotic drugs will improve significantly compliance, treatment of symptoms, and possibly relapse rates and overall outcome. It should be the norm and not the exception for patients to be treated with these new medications as early as possible in their illness. The clinician should not be complacent and quick to accept persistent psychosis, and patients with various forms of treatment resistance should be tried early in the course of illness with clozapine (or other medications as they become available if they show superiority for treatment-resistant patients). Pharmacologic interventions aimed at deficit symptoms may become available in the future. Psychosocial interventions have a place in the modern therapeutic armamentarium. Relatively simple sustained family interventions and more comprehensive ACT programs are effective for relapse prevention and reduction of the “revolving door syndrome,” whereas patients with psychosis nonresponsive to medication may benefit from new modalities of CBT. For patients with persistent negative symptoms and limited social competence, SST is indicated where available, and even in places where staff may be limited and social skills and other programs difficult to implement, family psychoeducational interventions can be carried out to good effect.
References


