

Evaluating Outcomes of Rehabilitation for Severe Mental Illness

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Improving the quality of life of individuals with severe mental illness has been the focus of considerable research. With advances in treatments for severe mental illness, particularly in psychiatric rehabilitation, evaluating outcomes has become increasingly important. Given the complex and multidimensional nature of severe mental illness, outcome evaluation of psychiatric rehabilitation is particularly difficult. This article addresses issues in evaluating psychiatric rehabilitation outcomes, including key outcome domains, selection of methods and measures, and meaningful use of results. Continuing conceptual and methodological issues are discussed. Also, future directions are explored, including evaluating multidimensional treatment effects and interactions and building an integrated understanding of all of the outcomes involved in psychiatric rehabilitation.

More than 8% of individuals 18 years of age or older in the United States, or approximately 17.5 million people, have a severe mental illness resulting in significant functional impairment in their daily lives (Substance Abuse & Mental Health Services Administration, 2003). The social and economic costs of these illnesses are high. Needless to say, the suffering of affected individuals and their families is immeasurable. The Global Burden of Disease Study (Murray & Lopez, 1996) identified mental illness as one of the leading burdens, second only to cardiovascular conditions, in market economies such as the United States. Although individuals with severe mental illness represent a small proportion of all individuals having a mental illness, they account for a significant proportion of the economic burden. Reducing the costs of and improving the quality of life of individuals with severe mental illness have thus been the foci of considerable research during the past three decades.

Severe mental illness (also labeled severe and persistent, serious, disabling, or chronic mental illness) encompasses a group of disorders that result in substantial functional impairments in one or more major life activities (Kessler et al., 2003). Severe mental illnesses typically include schizophrenia, bipolar disorder, severe forms of depression, panic disorder, and obsessive-compulsive disorder but are predominated by schizophrenia spectrum disorders. Individuals with severe mental illness face persistent and pervasive disruptions in functioning, from work to socialization to neurocognition to self-care. As a group, people with severe mental illness have much in common, but at the same time each individual represents a unique set of impairments and disabilities requiring multiple interventions in varying combinations.

*Psychiatric rehabilitation*¹ has emerged as a comprehensive approach for treating severe mental illness, organizing a diversity of treatment modalities for the purpose of addressing multiple impairments, providing combinations of treatments, and overcom-

ing disabilities. From its beginnings four decades ago (e.g., Anthony, Buell, Sharratt, & Althoff, 1972; Paul & Lentz, 1977), psychiatric rehabilitation has evolved along with the specific technologies it incorporates toward an increasingly complex but integrated approach (for recent reviews, see Spaulding, Sullivan, & Poland, 2003; Wallace, Liberman, Kopelowicz, & Yaeger, 2001). Psychiatric rehabilitation is closely associated with *the recovery movement*, a worldwide social movement that seeks to reverse the stigma of schizophrenia, empower consumers, push clinical technology beyond simplistic “medical model” treatment of psychotic symptoms, and define recovery as the ultimate outcome criterion (Anthony, Cohen, & Farkas, 1999). In this context, recovery means overcoming the functional disabilities of severe mental illness and achieving the best possible quality of life. The recovery perspective on severe mental illness has become a key component in national health policy (President’s New Freedom Commission on Mental Health, 2004; U.S. Department of Health and Human Services, 1999). Psychiatric rehabilitation provides clinical methods and technologies for helping people achieve recovery.

The literature on treatment outcomes for severe mental illness is essentially the literature on outcomes of psychiatric rehabilitation. As in other areas of health and rehabilitation, evaluation of psychiatric rehabilitation has intensified in recent years (Dickerson, 1997). The managed care movement, cost-containment efforts, and calls for “evidence-based practice” have created the same demands for accountability of economic resources and demonstrations of effectiveness as in other areas of health care (e.g., Drake, Rosenberg, Teague, Bartels, & Torrey, 2003; Lehman et al., 2003). Consistent with the recovery approach, consumers, clinicians, and policymakers are increasingly demanding that services be evaluated not only on the basis of costs incurred but also on the basis of the impact of the services on individuals’ quality of life.

¹ The term *psychiatric rehabilitation* may be confused with *psychosocial rehabilitation*, and the two are sometimes used interchangeably. In practice, both are sometimes used as a contraction of biopsychosocial rehabilitation. However, psychosocial rehabilitation sometimes specifically refers to a particular type of program, associated with specific prototypes, such as Fountain House in New York and Thresholds in Chicago (McEvoy, Scheifler, & Frances, 1999).

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Although there are challenges in evaluating outcomes in any health care domain, evaluating psychiatric rehabilitation is particularly difficult. The first problem is the pervasiveness of severe mental illness. Effective rehabilitation must address impairments and disabilities at every level of human functioning, from neurophysiological dysregulation to cognitive deficits to problematic behavior to social and living skill deficits to problematic person–environment interactions. Changes across these different levels are not highly intercorrelated. Improvements at one level do not necessarily lead to improvements at other levels. Each level requires a different treatment technology. As a result, the psychiatric armamentarium is expansive, yet each modality in it must be separately validated. The diversity of treatment technologies in psychiatric rehabilitation, from psychopharmacotherapy to cognitive–behavioral therapy to living skills training to family education to case management, may create complex treatment interactions that further complicate the outcome evaluation process. It is thus difficult to evaluate the unique effectiveness of specific modalities.

A second problem is the heterogeneity of severe mental illness. Individuals have different clinical presentations, different abilities and disabilities, and different courses of illness, and they respond differently to interventions. Also, the course of severe mental illness is discontinuous, with periodic exacerbation and improvement. Outcomes vary with these periods.

A third problem is the complex context of psychiatric rehabilitation. Individuals with severe mental illness are treated in an increasing variety of settings and circumstances, from conventional psychiatric institutions to community-based programs to independent living. Psycholegal developments, such as outpatient civil commitment and limited guardianship, have further complicated the context of treatment and outcome evaluation. There are varied stakeholders involved in psychiatric rehabilitation with different and sometimes conflicting needs. Among these stakeholders are consumers, clinicians, family members, insurance payers, researchers, regulatory and accrediting agencies, policymakers, and the community at large. Different stakeholders often value different outcomes, complicating selection of outcome domains.

Because of these complications, the outcome literature on psychiatric rehabilitation is voluminous, and even a summary is beyond the scope of this article. Instead, we address four overarching issues in the *methodology* of psychiatric rehabilitation outcome research, providing an introduction and a conceptual framework for this broad and complex topic.

Four key methodological issues in psychiatric rehabilitation outcome research are as follows:

1. What domains and measures of human functioning are valid indicators of outcomes?
2. How should methods and measures be selected and applied in specific settings?
3. How should the results of outcome evaluations be put to practical use?
4. What continuing conceptual and methodological issues will shape development of psychiatric rehabilitation in the near future?

The remaining sections of this discussion address in turn each of the key methodological issues.

Key Domains of Rehabilitation Outcome

The methodological challenge of outcome research on psychiatric rehabilitation is not simply to select the “best” outcome measure or even to select the “best” measure for a particular purpose. Some domains of rehabilitation outcome are better suited than others to evaluation of a specific part of the rehabilitation enterprise, but there is an inherent trade-off between specificity and generality. The outcome researcher must balance the need to demonstrate the impact of some specific modality against the need to demonstrate the clinical significance of the impact and its meaning to the recovering person. This usually involves selection of multiple measures from several of the domains discussed in this section.

Psychiatric Symptoms

Psychiatric symptoms are the most traditional domain of outcomes in mental health treatment research. In the case of severe mental illness, the symptoms of primary concern are psychotic symptoms, especially those that constitute the diagnostic criteria for schizophrenia spectrum disorders. These symptoms include hallucinations; delusions; extreme, flat, or anomalous affect; language and communication disruption; and impoverished thought.

Although psychiatric diagnoses are based on the presence of specific symptoms currently codified in the *Diagnostic and Statistical Manual of Mental Disorders* (fourth edition, text revision [DSM-IV-TR]; American Psychiatric Association, 2000), diagnosis itself is not a suitable outcome variable (Poland, Von Eckardt, & Spaulding, 1994). A diagnostic category may include considerable etiological, symptomatic, and functional heterogeneity. Symptoms may fluctuate in severity over time without changes in diagnosis. In addition, 79% of individuals in community samples who meet diagnostic criteria for one disorder also meet criteria for another disorder (National Comorbidity Survey; Kessler et al., 1994). Individuals with severe mental illness are especially likely to have multiple coexisting problems such as anxiety, depression, and substance abuse. Substance abuse is the most common comorbid diagnosis with severe mental illness, and studies indicate that individuals with severe mental illness have rates of substance abuse problems as high as 31% (Epstein, Barker, Vorburger, & Murtha, 2004). For these reasons, diagnosis is unsuitable as a dependent variable in psychiatric rehabilitation outcome research, although it has limited usefulness in roughly defining subgroups as an independent or inclusion variable (e.g., people with severe mental illness with or without substance abuse).

Independent of diagnosis, specific psychiatric symptoms can be quantitatively measured and are often useful variables in outcome research. Structured interview measures designed to produce a reliable diagnosis can also be used to assess the presence of specific symptoms (e.g., the Anxiety Disorder Interview Schedule for DSM-IV [Brown, DiNardo, & Barlow, 1994] and the Structured Clinical Interview for DSM-IV—Clinician Version [First, Spitzer, Gibbon, & Williams, 1996]). Structured interviews and questionnaire measures that assess specific types of symptoms and symptom severity (e.g., the Beck Depression Inventory II [Beck,

Steer, & Brown, 1996], the Brief Psychiatric Rating Scale [Lukoff, Liberman, & Nuechterlein, 1986], the Positive and Negative Syndrome Scale [Kay, Fiszbein, & Opler, 1987], and the Scale for the Assessment of Negative Symptoms [Andreasen, 1990]) provide more precise quantitative data on change and are therefore more suitable for outcome research. Self-report measures can also be used to assess symptoms (e.g., Symptom Checklist 90—Revised [Derogatis, 1994]).

Symptom measures have the practical advantage of being relatively noninvasive and easy to administer in structured interview or self-report formats. They have a certain degree of a priori validity as outcome criteria, in that almost everyone agrees that psychotic symptoms are distressing and undesirable. However, symptom measures are subject to serious reliability threats, including social desirability bias and dissimulation in self-report measures and observational bias and psychometric drift in interview measures (Ventura, Green, Shaner, & Liberman, 1993). Considerable attention to these threats is necessary to preserve reliability and validity in the course of a longitudinal outcome study. Also, despite the a priori validity, reductions in symptoms must be interpreted with caution. Several studies have shown that symptom reduction may not be as highly predictive of functional behavioral improvement or quality of life as might be expected, especially relative to measures of cognitive functioning (see review by M. F. Green, 1998). For many individuals, the desirability of symptom reduction may reside solely within the domain of subjective distress.

Quantitative interview-based symptom measures are by far the most common outcome variable in research on psychopharmacotherapy. Symptom measures usually accompany other variables, for example, functional measures, in studies of psychosocial interventions. Even when they are not the primary outcome criterion, they provide information on an individual's clinical status and severity that assists interpretation of findings. This is especially true in the longitudinal context of outcome research.

Cognitive Measures

The cognitive aspects of severe mental illness have long been a focus of scientific attention. In the 1980s, the methods of neuropsychology merged with an older experimental psychopathology to produce powerful new paradigms for studying psychotic disorders. By the end of the century, it was reasonable to propose that schizophrenia is, in essence, a neurocognitive disorder (M. F. Green, 1998). The impact of psychopharmacotherapy on cognition in schizophrenia has so far been disappointing, but research investment in this area is heavy and further progress seems probable (e.g., Meltzer & McGurk, 1999). Psychosocial techniques of various kinds have also shown considerable promise (see review by Twamley, Jeste, & Bellack, 2003). In addition to neuropsychology, paradigms of "higher" cognitive functions have received increasing attention, and rehabilitation modalities that target these functions have begun to appear (Cather et al., in press).

A variety of tests are commonly used for assessing neurocognitive impairments in severe mental illness, adapted from both neuropsychology and experimental psychopathology paradigms. Neuropsychological tests include instruments for comprehensive assessment of intellectual functioning (e.g., Wechsler Adult Intelligence Scale III [Wechsler, 1997]) and instruments for assessment

of discrete neurocognitive domains (e.g., the Continuous Performance Task [Neuchterlein, 1991] for attention and vigilance, the Repeatable Battery for Assessment of Neuropsychological Status [Wilk et al., 2002] for memory, and the Wisconsin Card Sorting Task [Grant & Berg, 1980] for executive functioning). However, many of these tests were designed for a one-time assessment and may not all be suitable for repeated or longitudinal assessment in outcome research. Batteries designed specifically for repeated assessment are just beginning to appear (e.g., Repeatable Battery for Assessment of Neuropsychological Status [Wilk et al., 2002]; Neuropsychological Assessment Battery [Stern & White, 2003]).

Biological approaches to assessing neurocognition (e.g., functional magnetic resonance imaging [fMRI] and positron emission tomography [PET]) are promising in their ability to localize neurocognitive functions and characterize recovery. For example, using fMRI, Wykes et al. (2002) demonstrated that individuals with schizophrenia who completed cognitive remediation therapy showed increased activation in the frontocortical region associated with working memory. Biological measures of neurocognition may also prove useful as short- or intermediate-term outcome variables if they are found to be linked to ecologically important aspects of functioning.

Social cognition encompasses several higher order processes underlying social interactions such as attributional styles, social perception, self-representation, and affect recognition. Measures of potential relevance to outcome evaluation range from traditional psychological assessments such as personality inventories and attitude instruments to measures of social problem solving such as the Assessment of Interpersonal Problem-Solving Skills (Donahoe et al., 1990), measures of social perception such as the Social Cue Recognition Task (Corrigan & Nelson, 1998), and measures of attribution such as the Internal, Personal, and Situational Attribution Questionnaire (Kinderman & Bentall, 1997).

So far, the two main roles of cognitive measures in outcome research have been (a) as predictors or moderators of long-term rehabilitation outcome and recovery (see review by M. F. Green, 1996) and (b) as proximal measures of the impact of psychosocial treatment modalities that target the cognitive level of functioning (see review by Twamley et al., 2003) and, to a lesser degree, psychopharmacological treatment (e.g., Meltzer & McGurk, 1999). Both applications have been successful, so further research in both areas is to be expected. Cognitive measures are moderately costly, requiring testing sessions of up to several hours performed by trained laboratory technicians. The most important limitation of cognitive measures is that although they appear to be powerful mediators of other treatment effects (Brekke, Kohrt, & Green, 2001), the causal pathways among impairments, treatment interventions, and functional outcomes are obscure (e.g., Spaulding, Fleming, et al., 1999). In the future, the role of cognitive measures in psychiatric rehabilitation outcome research will probably be to elucidate the mechanisms of drug and psychosocial treatment effects.

Recently, the National Institute of Mental Health (2003) invested in the development of a standard battery of cognitive assessments in a project titled Measurement and Treatment Research to Improve Cognition in Schizophrenia (MATRICS). As the name implies, the central purpose of MATRICS is to facilitate development of treatments, meaning pharmacological treatments, targeting the cognitive impairments associated with schizophrenia.

The hope is that it will facilitate research on psychosocial treatments as well. A prototype battery has been developed and is currently undergoing initial trial applications.

Functional Measures

Psychiatric rehabilitation targets specific domains of personal and social functioning in which severe mental illness produces crucial disabilities (Anthony, Cohen, & Nemeec, 1986). Social and personal functioning includes social role performance (work, leisure, family roles, and basic self-care) and interpersonal functioning (friendship, social relations, and family relations). Emphasis on functional measures is consistent with a key principle in the recovery perspective that recovery involves more than reducing the symptoms of the illness, including regaining a sense of self and purpose and participating in meaningful instrumental and social activities (Anthony, 1993; Davidson & Strauss, 1992).

Functional measures vary widely with respect to the range of specific areas of functioning they address. Probably the most widely used global function scale is the Global Assessment of Functioning (GAF) scale, which is incorporated into the *DSM-IV-TR*. The GAF rates overall personal and social functioning during a specified time period on a scale ranging from 0 to 100. Despite its widespread use, the GAF has significant limitations, including confounding symptom severity with functioning and a nonstandardized method of assigning scores (Roy-Byrne, Dagadakis, Unutzer, & Ries, 1996). In general, global function scales have limited usefulness in identifying improvements within specific domains, particularly when these improvements occur at varying rates and times (Dickerson, 1997).

Given the limitations of global function scales, multidimensional approaches to assessment of functioning are generally preferred for psychiatric rehabilitation outcome research (Dickerson, 1997). Consistent with the social learning theory pedigree of psychiatric rehabilitation, these dimensions are generally thought of as specific *skills*. The specific skills that are common targets of outcome assessments in severe mental illness are social/interpersonal skills, independent living skills (e.g., cooking and housekeeping), occupational/vocational skills, and illness management skills (e.g., self-administering medication, monitoring symptoms, and managing stress). There are clinician-rated measures (e.g., Social Adjustment Scale II [Weissman, Sholomskas, & John, 1981]) and self-report measures (e.g., Endicott Work Productivity Scale [Endicott & Nee, 1997]) of functioning in these specific domains. Quiz-type assessments are often included in skills training modalities (e.g., Eckman, Liberman, Phipps, & Blair, 1990).

For observational assessments of very specific functional abilities, such as cooking or personal financial management, the recovering person can be introduced to an *in vivo* situation in which such skills are required—for example, cooking a meal or balancing a checkbook. In the case of some abilities, functioning can be deduced from historical records, self-reports, or both. Two measures, the Independent Living Skills Inventory (Menditto et al., 1999) and the Independent Living Skills Survey (Wallace, Liberman, Tauber, & Wallace, 2000), are essentially compilations of these types of assessments, organized to provide a profile of specific abilities and skill deficits.

Social or interpersonal skill deficits are a core feature of severe mental illness, and much research has been invested in develop-

ment of treatment modalities to directly improve these skills (e.g., Bellack, Turner, Hersen, & Luber, 1984; Benton & Schroeder, 1990; Liberman, Massel, Mosk, & Wong, 1985). Assessment of change in interpersonal skills is a specialized functional assessment. It typically involves a fairly elaborate procedure in which participants view vignettes portraying interpersonal problems or conflicts, are probed for apprehension and understanding of the portrayed situation, and then role play with the examiner an appropriate behavioral solution to the problem (e.g., Mueser, Bellack, Douglas, & Morrison, 1991). The participants' responses are rated and scored to reflect separate dimensions of social skill performance.

Direct behavioral observation is a type of functional assessment that can yield frequency and intensity data for highly specific behaviors (Iwata, Kahng, Wallace, & Lindberg, 2000; O'Brien & Haynes, 1993). Observational instruments especially designed for assessing severe mental illness in treatment environments have been developed by Gordon Paul and his colleagues (Paul, 1988a, 1988b). These highly sophisticated instruments are designed for integrated use in a comprehensive social-learning-oriented rehabilitation program. Computerization is necessary to manage the quantity of data they generate (Paul, 1988c). The Nurses' Observational Scale for Inpatient Evaluation (Honigfeld, Gillis, & Klett, 1966) is a scalar type of observational instrument, also designed for use with severe mental illness in treatment environments. It is simpler to use than Paul's elaborate instruments (Paul, 1988a, 1988b, 1988c) but has relatively inferior psychometric properties.

Functional assessment can also address interpersonal processes beyond the recovering person's behavior. The most important example is assessment of the *expressed emotion* within families and other small groups that include a person with severe mental illness (see review by Hooley, 1985). Expressed emotion is measured by trained observers who rate the frequency of specific interactive behaviors, for example, critical comments and hostile expressions. Lowering the expressed emotion of family interactions is a primary target of therapeutic interventions that have been shown to reduce psychotic relapse (Lam, 1991).

Quality of life measures have enjoyed increasing popularity in psychiatric rehabilitation because they go beyond the limitations of global scales and the circumscribed scope of measures of specific domains. Quality of life measures typically address a range of functional areas, including but not limited to role functioning, life satisfaction, and material well-being. Examples of quality of life instruments include the Quality of Life Inventory (Frisch, Cornell, Villanueva, & Retzlaff, 1992), the Wisconsin Quality of Life Index (Diamond & Becker, 1999), and the Quality of Life Scale (Lehman, 1983). These measures generally combine subjective ratings of comfort, satisfaction with one's circumstances, and optimism about the future with objective measures (e.g., success in obtaining and maintaining employment, disposable income, number of social contacts per week, and number of meals eaten per week). Some systematically include collateral reports from key informants (e.g., family members, employers, and teachers).

The scope of functional assessment is so broad that it is impossible to identify specific methodological advantages and disadvantages that apply to all measures. Detailed, narrowly focused measures—for example, of interpersonal or occupational skills—closely correspond to rehabilitation modalities such as social skills training and occupational skills training. Thus, they can provide

sensitive measures of the effects of the modalities. However, the ecological validity of narrowly focused measures is open to question. For example, it remains controversial whether improvements in interpersonal skills as measured in the laboratory reflect improvements in interpersonal functioning in the natural environment. As with other outcome domains, it cannot be assumed that improvement in one functional area generalizes to any other.

Detailed skill assessments are also relatively costly, usually requiring that a trained assessor observe an individual performing structured tasks in controlled situations. However, they are often used routinely in the course of treatment and rehabilitation and are therefore potentially “free” sources of outcome data. When skills are judiciously selected, assessment can have a substantial degree of a priori ecological validity. Behavioral observational measures are costly but are also often used in the course of treatment and rehabilitation, for example, in contingency management. Behavior observation measures often have a priori ecological validity, because the behaviors observed are selected for their ecological impact (e.g., aggressive or socially unacceptable behaviors). Broader but still detailed assessments, such as those of quality of life, may have a degree of overall a priori validity, but they are multidimensional, and the dimensions most pertinent to one individual (e.g., money, social support, or an intimate relationship) may not be so for the next. On the other hand, quality of life measures are relatively economical. Global functional measures such as the GAF are quite economical, but reliability is an overriding concern, and they provide little information about specific areas of functioning.

Goal Attainment

Identification of measurable goals and an individual's strengths and weaknesses with reference to these goals is often the basis for assessment and treatment planning in psychiatric rehabilitation (Spaulding et al., 2003). This is also a useful framework for evaluating outcomes in psychiatric rehabilitation. Goal attainment scaling (GAS; Heavlin, Lee-Merrow, & Lewis, 1982) is a systematic procedure for defining rehabilitation goals and measuring progress toward these goals. Some of the advantages of GAS are the ability to transform subjective desires into measurable goals and the ability to rate progress toward goals using a variety of methods such as rating scales, functional criteria, and objective measures. A structured GAS instrument designed especially for psychiatric rehabilitation is the Client's Assessment of Strengths, Interests, and Goals (CASIG; Wallace, Lecomte, Wilde, & Liberman, 2001). Rehabilitation planning and outcome assessments using the CASIG are based on the patient's goals in five areas of community living: housing, money/work, interpersonal relationships, health, and spiritual activities. Use of the CASIG is facilitated by the availability of computer software for scoring and formatting output.

Patient Satisfaction

Assessments of patient satisfaction have variously been called client satisfaction and consumer satisfaction. The criterion of patient satisfaction with treatment and other services is increasingly being used as a measure of outcomes (Hermann, Etnner, & Dorwart, 1998). In addition to being an indicator of outcomes in itself,

patient satisfaction mediates outcomes by increasing adherence to treatment recommendations (Priebe & Gruyters, 1995). There are a wide range of methods for the measurement of patient satisfaction, including personal interviews, letters from patients, semantic differential techniques, and satisfaction scales. Patient satisfaction scales in widespread use are the Client Satisfaction Questionnaire 8 (Attkisson & Greenfield, 1996), the Verona Service Satisfaction Scale (Ruggeri & Dall'Agnola, 1993), and the Consumer Assessment of Behavioral Health Services (Eisen et al., 1999). Although accreditation groups and regulatory agencies frequently use patient satisfaction ratings to evaluate and compare rehabilitation programs, a number of concerns have been raised about their use. Concerns include lack of a standardized methodology for assessing satisfaction across studies, the subjective nature of satisfaction ratings, and the influence of patient characteristics on ratings (Elbeck & Fecteau, 1990; Hermann et al., 1998). It has been argued that symptoms (e.g., paranoia) and involuntary commitment of patients into psychiatric rehabilitation programs could affect satisfaction ratings. On the other hand, proponents of patient satisfaction ratings argue that individuals with severe mental illness can accurately identify elements of service programs that are beneficial to them and that use of consumer ratings is consistent with the rehabilitation goal of empowerment.

Adverse Events

Adverse events refer to those events or outcomes of a treatment that result in some form of harm to the individual receiving the treatment (e.g., adverse reactions to psychopharmacological interventions or number of suicides in a residential program). The assumption in the use of adverse events is that they could have been avoidable if appropriate care had been given (McGlynn, 1996). There are several problems associated with the use of adverse events. Measuring adverse events often requires adjusting for severity and case mix. Adverse events are usually rare, and thus it may be difficult to detect statistically significant differences. In psychiatric rehabilitation, adverse events have limited utility because of the multiplicity of factors that affect these events. Hospitalization, for instance, is often used as an adverse event outcome measure in studies of individuals with severe mental illness. But the likelihood of hospitalization is highly affected by local laws and availability of alternatives to hospitalization. In some mental health systems, only the most severe patients are admitted, and in others the hospital is a viable option early on in the continuum of care.

Service Utilization

The most immediate or proximal goals of psychiatric rehabilitation are prevention of psychiatric hospitalizations, decreases in the length of inpatient stays, and decreases in the use of emergency services (Anthony, Cohen, & Vitalo, 1978; Cook et al., 1996). These factors are all assumed to disrupt the recovery process and interfere with achievement of more global goals such as functional recovery and enhanced quality of life. They are also costly in the fiscal sense, so reductions have benefits beyond client goal attainment. More generally, recovery is expected to bring reduced use of treatment and support services. Many instruments have been developed to assess the frequency, intensity, and duration of services

received (e.g., Client Service Receipt Inventory [Beecham & Knapp, 1992]). Typically, data on number of rehospitalizations, duration between discharge and rehospitalization, length of rehospitalization stay, and costs of aftercare services are used as measures of service utilization. Psychiatric rehabilitation services have been shown to reduce the costs of aftercare by more than half (Barton, 1999). Adults with severe mental illness have multiple service needs that vary over time. Therefore, service utilization data also need to be comprehensive and longitudinal. Alternative explanations for recidivism other than a failure of the treatment model must be considered, including poor treatment implementation, lack of available crisis services, and lack of residential alternatives. By the same token, a decrease in service utilization does not unequivocally mean that the individual did not need the services in question (Olsen, 1995).

Economic Evaluations

Severe mental illnesses, especially the schizophrenia spectrum disorders, are probably the most costly to treat of any mental illness (Knapp, Almond, & Percudani, 1999). The tremendous financial burden of severe mental illnesses is one reason for the growing concern about the cost-effectiveness of treating these illnesses. In addition, there is pressure from accreditation and regulatory agencies to account for expenditures and to minimize costs while providing adequate levels of care. When considering costs of mental health services, Knapp and Beecham (1990) identified a number of issues. First, costs should be comprehensive and include all service domains. Second, cost variations between service providers should be assessed comparatively when comprehensive data are available. Third, cost data must not be interpreted without considering data on other outcomes. A relatively small number of sound methodological studies have evaluated the cost-effectiveness of psychiatric rehabilitation services. These studies allow some conclusions about the cost-effectiveness of such services and about possible ways to integrate cost estimation procedures into outcome evaluations.

A general conclusion has been that it is cheaper to provide quality services at the outset instead of providing more costly services on an ongoing basis. For instance, Dickey and Normand (2004) found that the costs of treating patients with higher than recommended dosages of antipsychotic medications were higher as a consequence of the costs of the additional medication as well as the costs of treating resulting side effects. Cost-effectiveness data can help inform state mental health policies. For example, a cost-effectiveness evaluation of a comprehensive psychiatric rehabilitation program in Nebraska showed that the cost of rehabilitation was offset by reduced service utilization over time (Weilage, 1998). Compiling cost-outcomes data from numerous studies can help in drawing more accurate conclusions. For example, an integrated cost-effectiveness analysis of 14 studies on skills training and supported employment for individuals with severe mental illness indicated that for every dollar invested in these services, \$1.61 in benefits was generated (Barton, 1999).

Economic evaluations of treatments for severe mental illness have produced promising findings. Despite this, progress in economic evaluation methodology has been slow. There are numerous direct and indirect costs of severe mental illnesses. Identifying

these costs and evaluating the absolute value of outcomes is extremely difficult (Knapp et al., 1999).

Implementing Outcome Evaluations

Although implementing outcome evaluations seems relatively simple in concept, it is often difficult in practice and requires consideration of several issues, including selection of outcome measures, design and goals of the evaluation, and the time frame of the evaluation.

Selection of Measures

Addressing critical conceptual issues before an outcome evaluation is initiated can facilitate selection of appropriate outcome measures and collection of useful outcome data. Some issues that need consideration are identification of primary stakeholders, treatment characteristics, target patient population, availability of data sources, psychometric precision of outcome measures, and feasibility of the outcome evaluation.

Given the wide-ranging interests of the numerous stakeholders involved in psychiatric rehabilitation, it has been recommended that outcome evaluation activities use a multidimensional approach (Spaulding et al., 2003). Psychiatric rehabilitation approaches are used in a great diversity of treatment settings, and different treatment settings have somewhat different outcome goals. Whereas the typical goals of long-term rehabilitative settings are skill building, employment, independent living, social integration, and improved adaptive functioning, the typical goals of outpatient services are ensuring aftercare compliance and relapse prevention. The sociodemographic characteristics of patient populations should also be taken into account in selecting outcome measures. Outcome measures for elderly patients with severe mental illness will tap different domains than measures for adolescent patients with severe mental illness. Similarly, measures for a Spanish-speaking patient population will ideally have been validated with a Spanish-speaking patient population.

The implications of using different data sources must be considered, along with the information that each data source provides. Among the data sources available are management information systems, administrative data, clinician observations and interviews, client self-reports, psychological tests, biological tests, and collateral informant reports. Different data sources provide information on different aspects of psychiatric rehabilitation. Client surveys, for instance, provide information on functional outcomes and interpersonal aspects of care. In contrast, administrative data provide information on service utilization patterns such as patient demographics, number of visits, and length of hospitalization.

An important consideration in selecting outcome measures is the adoption of a standardized instrument that has been tested with the target population of interest and has adequate psychometric properties. Interpretation of outcome data presumes the use of standardized measures. In practice, however, many of the measures used in psychiatric rehabilitation settings are ad hoc, developed by a specific agency for its own use. These ad hoc measures usually lack sufficient psychometric precision and thus preclude comparability among services (Busch & Sederer, 2000). The use of ad hoc measures is partly attributable to the perceived feasibility (i.e.,

ease of use) of these measures. Because they are locally designed, ad hoc assessments of patient outcomes have the advantage of increased feasibility, decreased cost, and lower burden on clients and service systems. However, this may come at the cost of precision, reliability, or even validity. Multidimensional assessment using standardized measures can provide more accurate, meaningful, and comprehensive information to service systems. However, such assessment is also logistically difficult and burdensome. Thus, a challenging issue in implementing outcome evaluations in psychiatric rehabilitation is choosing between ad hoc and standardized multidimensional assessments.

Design and Goals

Several design paradigms have been used in psychiatric rehabilitation outcome studies, depending on the goals of the evaluation.

Efficacy studies. The efficacy model of research refers to testing the outcomes of an intervention “under ideal circumstances” (Dickey, Hermann, & Eisen, 1998). It involves randomized controlled trials in which participants are randomly assigned to either an experimental or a control group. Inclusion and exclusion criteria are clearly delineated. Participants in efficacy studies are more homogeneous and have fewer comorbid problems than actual patient populations. Efficacy studies rank high in terms of internal validity but low in terms of ecological validity (i.e., generalizability to real-world settings).

Effectiveness studies. Effectiveness studies assess treatment outcomes in settings that replicate actual practice conditions, such as hospitals, clinics, and inpatient sites. Inclusion and exclusion criteria are not as stringent as in efficacy studies. Consequently, the participants themselves are more representative of the actual patient population. Effectiveness studies differ widely in their methodology (Andrews, 1999). Some studies use experimental methodologies, and others use observations or even routine clinical data. The strength of effectiveness research lies in its greater ecological validity.

Single-case study designs. Significant within-group heterogeneity exists in clinical presentation, course, and treatment outcomes in patient populations with severe mental illness. Thus, measurement of outcomes in relation to each individual can provide valuable information. The simplest single-case study design incorporates an initial baseline or pretreatment phase and a treatment phase (“A–B” design). Changes in the frequency, severity, or duration of behaviors from the pretreatment phase to the treatment phase are the outcome data in these designs. Multiple baseline designs can address the durability of gains made. Time series analysis can be used to study a single course by means of repeated and frequent observations. Such analyses can help describe patterns of symptoms and functioning over the course of treatment and elucidate pathways from patient characteristics to rehabilitation outcomes (Kupper & Hoffmann, 2000). For example, using a time series approach, Kupper and Tschacher (2002) tracked individual symptom trajectories among inpatients with schizophrenia spectrum disorders during an average treatment period of 104 days. These investigators found that different symptom trajectories were associated with different treatment responses and, ultimately, different outcomes.

Comparative versus additive designs. Comparative outcome designs that evaluate the relative effectiveness of two interventions are often popular in medical and physical rehabilitation outcome research. Such designs have limited utility in psychiatric rehabilitation, however, because different interventions usually target different goals and cannot be meaningfully compared. For example, showing that an intervention designed to improve medication management does so better than an intervention designed to improve money management is not meaningful. Additive outcome designs are more valuable in psychiatric rehabilitation research. In additive outcome designs, the outcomes of a treatment package including a specific modality are compared with the outcomes from the same treatment package without the additional modality. For example, Spaulding, Reed, Sullivan, Richardson, and Weiler (1999) demonstrated that addition of a cognitive rehabilitation technology to a larger regimen of psychiatric rehabilitation resulted in greater improvements in social competence and attentional processing.

Continuous quality improvement. Continuous quality improvement (CQI) is typically an in-house activity undertaken to improve quality of care. The audience for CQI reports is internal staff, both clinical and administrative. Key selection criteria for outcome measures in CQI are clinical relevance and time and cost considerations. The exactness of a research protocol is missing in CQI. The main purpose is to arrive at outcome data that have direct and immediate implications for improving quality. Quality control protocols such as CQI can be effective in improving services, particularly when actions are taken in response to quality control data (Spaulding et al., 2003, chap. 11).

Performance indicators. Performance indicators are estimates of broad categories of processes of care (e.g., number of patients treated, number of visits, and patient satisfaction ratings) that are generally derived from administrative data and are used to evaluate the overall quality of health facilities or health plans. These data are often presented in the form of report cards. Performance indicators are used by purchasers of health plans and regulatory agencies to make providers more accountable and to compare health plans (in this case, rehabilitation programs).

Assessment Time Frame

Many outcome evaluations in psychiatric rehabilitation use a pretreatment–posttreatment design that involves assessments at the beginning and termination of treatment. Among the main criticisms of this design is the inability to assess treatment course patterns and durability of change. Severe mental illnesses have a highly variable course, with varying rates, amount, and quality of change in different domains. Many posttreatment changes lag behind symptom remission and sometimes behind rehabilitative services, necessitating follow-up designs. Outcome assessments should cover longer time periods, and outcomes should be assessed at multiple time intervals during and after treatment to examine the course of treatment and recovery (Blankertz & Cook, 1998; Spaulding et al., 2003). Multiple assessments over a long period, when coupled with statistical procedures to smooth out state-related variability, can yield meaningful data regarding amount and timing of change.

Uses of Outcome Evaluation

The main use of outcome evaluation in psychiatric rehabilitation has been to demonstrate the effectiveness of programs and specific treatment interventions. A range of measures has been used to test multiple interventions in terms of their effects on multiple outcome domains. Outcome evaluations have also been used to test hypotheses about predictors of rehabilitation outcomes. Thus, cognitive and symptomatic variables have been examined as predictors of work outcomes (McGurk, Mueser, Harvey, LaPuglia, & Marder, 2003), substance abuse, insight, and therapeutic alliance as predictors of medication noncompliance (Olfson et al., 2000) and impairments in self-care and symptom severity as predictors of rehospitalization (Lyons et al., 1997).

Outcome evaluations can also be the basis for efforts to improve services and reduce costs. Ongoing outcome assessment can help treatment planning and is considered the first step in quality improvement efforts (Spaulding et al., 2003). Analysis of relationships between admission data and outcomes can help programs identify who is served best and what changes may be needed to better serve others (Elliott, 1994). Evaluation data may identify a need to modify types of services offered or their timing or intensity. For example, outcome evaluations of psychosocial skill training suggest that skills training should be integrated into rehabilitation programs (Heinssen, Liberman, & Kopelowicz, 2000). Treatment algorithms based on existing outcome data can indicate how interventions should be timed or sequenced (Spaulding, Johnson, & Coursey, 2001) and the level of intensity that produces the best result (Brekke, Long, Nesbitt, & Sobel, 1997).

After years of debate over process versus outcome measurements, there is general agreement that improved quality of care requires measuring both process and outcome (Brugha & Lindsay, 1996; McGlynn, 1996). Identification of linkages between processes and outcomes has important implications for improving outcomes. Therapeutic alliance is an example of a process variable that has consistently been associated with better outcomes (Martin, Garske, & Davis, 2000). Measures of alliance can serve as early indicators of outcome. If there is evidence of a poor early alliance, efforts to repair alliance ruptures may be warranted (Safran & Muran, 1996). Several process–outcome linkages have been demonstrated in medication management. For example, Valenstein et al. (2002) found that specific pharmacy-based process measures such as an excessive dosage of prescribed medication and a gradually increasing pattern of nonadherence were linked to higher readmission rates. This would suggest at least two points of intervention: ensuring that dosage recommendations are followed and intervening during the earliest signs of nonadherence. Identifying the processes that improve outcomes may form the basis for developing practice guidelines that can be disseminated. These guidelines in turn serve as standards against which current treatment practices can be evaluated.

In the past, it was commonly (perhaps naively) assumed that presenting outcome data or disseminating evidence-based guidelines automatically leads to changes in clinician and treatment team behaviors that will then result in improved quality. Several factors mediate clinician and team behaviors and decisions, and research is beginning to focus on these factors. Impediments to

adopting innovations in psychiatric rehabilitation have been identified through surveys of clinical staff (Corrigan, Kwartarini, & Pramana, 1992; Emerson & Emerson, 1987). The impediments identified by Corrigan and colleagues (1992) were institutional limitations, perceived lack of support from colleagues, beliefs that the new practices are not appropriate for individuals with severe mental illness, client disapproval, and interference from collateral sources such as clients' families. Recently, several approaches to disseminating new treatments and educating staff on effective practices have been investigated. Corrigan (1998) reported the effectiveness of an interactive staff training approach that combines educational and organizational strategies to build effective rehabilitation teams. Others have suggested ways to increase acceptance of outcome data in organizations based on evidence that the degree of acceptance of outcome data strongly affects the use of such data (Hodges & Hernandez, 1999). Many researchers have evaluated the usefulness of various educational and feedback formats in changing clinician/staff behaviors (Burlingame, Lambert, Reisinger, Neff, & Mosier, 1995; Eisenberg & Williams, 1980; R. S. Green, 1999). For example, Eisenberg and Williams (1980) found that individualized feedback was more effective than general educational strategies such as memos and newsletters. However, this research has been conducted primarily in the medical realm, and its applicability to psychiatric rehabilitation and mental health remains unknown.

Practice guidelines can be the basis of administrative strategies that can be put into effect by passing regulations, using audits, or controlling economic incentives for improving the quality of services. Many quality improvement projects also present providers and programs with feedback about how their practices compare with those of providers or programs offering similar services. In psychiatric rehabilitation, there is immense heterogeneity among client populations, services, outcome measures, and quality of outcome data across systems. Also, outcomes in psychiatric rehabilitation are influenced not only by the quality of services provided but also by demographic and clinical characteristics of patients and facility characteristics. Risk-adjustment (case-mix adjustment) procedures have been proposed to account for such nontreatment factors (Iezzoni, 1997), but these procedures are currently not sophisticated enough to meet the complex challenges of comparing outcome data in psychiatric rehabilitation (Hermann & Palmer, 2002).

Finally, outcome data can also be used to help consumers make informed choices. Within the family care and internal medicine settings, it has long been a practice to offer data on different treatments to clients, including their prognosis, duration, success rates, and potential side effects. Because psychiatric rehabilitation approaches are influenced by a wider range of variables and are therefore less uniform or perfectly predictable, outcome information on psychiatric rehabilitation interventions has not always been made available to clients. Recent advances in research and consumer empowerment efforts have made outcome data regarding psychiatric rehabilitation available to clients.

Considerable energy has been spent in evaluating outcomes of psychiatric rehabilitation. Such efforts have helped uncover the mechanisms of impairment and recovery in severe mental illness and build models of effective rehabilitation.

Continuing Conceptual and Methodological Issues in Evaluation of Psychiatric Rehabilitation Outcomes

Promising Analytical Techniques

Until recently, data analysis in psychiatric rehabilitation was limited to the use of traditional data-analytic strategies such as paired *t* tests and simple analyses of variance. With the increasing use of psychiatric rehabilitation, multivariate databases have become available, and it has become possible to use modern analytic strategies such as path analysis (e.g., Spaulding, Fleming, et al., 1999), growth curve modeling (e.g., Brekke et al., 1997), and time series analysis (e.g., Kupper & Tschacher, 2002). These modern analytic techniques offer several advantages over traditional strategies, such as assessment of the shape and timing of recovery, assessment of relationships between multiple domains, and assessment of the heterogeneity of course trajectories in severe mental illness. For example, the path analyses conducted by Spaulding, Fleming, et al. (1999) revealed that patients' response to cognitive therapy is moderated by improvements in memory and executive functioning. The memory and executive improvements were attributable to the overall rehabilitation milieu rather than the specific therapy. This finding has implications for combining and sequencing treatment interventions. The Brekke et al. (1997) growth curve analyses revealed that individuals in more intense programs showed greater improvement. This draws attention to the issues of intensity or dose of treatments in rehabilitation. The Kupper and Tschacher (2002) analyses identified subgroups of patients based on their symptom trajectories and identified differences in their treatment responses. This has implications for understanding how patient characteristics affect rehabilitation outcomes. Thus, complex modeling shows great promise for understanding patterns of recovery and treatment mechanisms in psychiatric rehabilitation.

Evidence-Based Practices

Evidence-based practices for individuals with severe mental illness have been well documented (e.g., guidelines for the treatment of schizophrenia [American Psychiatric Association, 1997; Lehman et al., 1998; McEvoy, Scheifler, & Frances, 1999] and empirically supported treatments [American Psychological Association, n.d.]). Assessing adherence to evidence-based guidelines is often considered an important task of outcome evaluation in severe mental illness. The assumption is that, in the case of evidence-based practices, adherence to evidence-based guidelines can serve as a valid indicator of the quality of care provided and of expected outcomes (Lehman et al., 2003). There appears to be a considerable gap between what is known through research and what is actually implemented (Ganju, 2003), and evidence-based practices are not available to most individuals with severe mental illness and their families (Mueser, Torrey, Lynde, Singer, & Drake, 2003; U.S. Department of Health and Human Services, 1999). The Schizophrenia Patient Outcomes Research Team (PORT) studies (Lehman et al., 1998) revealed that usual treatment practices for schizophrenia did not always conform to evidence-based recommendations. As another example, whereas evidence-based guidelines recommend that antidepressant medication be continued for at least a 12-week acute treatment phase (National

Committee on Quality Assurance, 1996), clinical practice data show that 55.6% to 62.6% of individuals who are recommended antidepressant medication discontinue the medication before 12 weeks (National Committee on Quality Assurance, 2000). Increasingly, attention is being devoted to identify barriers to the implementation of evidence-based practices and to promote evidence-based practices in actual clinical settings (Ganju, 2003; Mueser et al., 2003; President's New Freedom Commission on Mental Health, 2004).

Culturally Sensitive Outcome Assessment

Cultural norms and expectations may have implications for what is designated as a "good outcome." For example, many outcome instruments assessing housing assume that independent living is the "desirable" outcome, yet such independence may represent a form of social isolation and may not be appropriate for some cultural groups. Culturally sensitive outcome assessment entails assessing culturally relevant domains and using culturally sensitive measures. Despite the growing attention to cultural differences in mental health disciplines, the impact of culture and ethnicity on treatment outcomes has received little attention (Doyle, 1998).

Changes in National Health Care Systems

The growing role of managed care in the treatment of individuals with severe mental illness has given rise to numerous concerns. State Medicaid agencies are increasingly contracting care for individuals with severe mental illness to managed care organizations (Rothbard, Kuno, Hadley, & Dogin, 2004). In general, the goals of managed care have been reduced service utilization and reduced costs (Dickey & Azeni, 1992). Given the recurrent nature of severe mental illnesses and the high level of need for services among individuals with severe mental illnesses, managed care and treatment for such illnesses are seen as difficult to reconcile. There is a fear that access and utilization will be reduced for individuals with severe mental illness in managed care programs (Rothbard et al., 2004). The most consistent research finding on managed care programs is a reduction in inpatient service utilization and costs among individuals with severe mental illness (Dickey et al., 1998; Leff et al., 2001; Rothbard et al., 2004). It is not clear whether there are any differences in patient outcomes and satisfaction between managed care and traditional state-run programs (Rothbard et al., 2004). Caution must be exercised before interpreting available findings as favoring managed care programs over traditional programs. Many such studies do not include a longitudinal perspective, which is important given the discontinuous course of severe mental illness. Other problems include difficulty comparing programs as a result of differences in case mix and the possibility of shifting costs.

Technological Advances

The need to address cost and methodological problems inherent in paper-and-pencil systems prompted the development and implementation of computerized outcome systems. Databases that compile quality measures and provide technical assistance in using these measures are available. The National Quality Measures Clearinghouse (Agency for Healthcare Research and Quality,

2004), sponsored by the Department of Health and Human Services, is an online database of 410 measures that is updated weekly. Computer-assisted interviewing, computerized assessments, computerized representation of data, and computerized performance and outcome measurement systems (e.g., computerized medical records) offer several advantages in terms of reduced time and increased efficiency in collecting, storing, and analyzing outcome data. In mental health, as in the rest of medicine, independent outcome data sets are being merged into clinical information systems. Computerized decision support systems based on these information systems can assist in identifying key processes, individualizing treatments, and directing clinician attention to critical decision points. On the downside, these advances have heightened consumer concerns about confidentiality.

Future Directions

The past three decades have been marked by significant advances in psychopharmacological and psychosocial interventions for severe mental illness, adding to the armamentarium of credible tools in psychiatric rehabilitation. These interventions have contributed much to helping individuals manage their illness, minimize disruption to their lives, and improve their instrumental, social, and adaptive functioning (Spaulding et al., 2001, 2003; Wallace, Liberman, et al., 2001). Concomitantly, over the past three decades, there has been a tremendous increase in outcome evaluation investigations of psychiatric rehabilitation services. Yet, discourse on treatment outcomes for severe mental illness has had limited utility for clinical practice and continues to be marked by singular findings that have not been integrated. This is in part attributable to the disconnect between research on treatment outcomes and research on etiology and mechanisms of change.

There is wide acknowledgment of the heterogeneity in levels of functioning among individuals with severe mental illnesses, and this has led to the use of multiple treatment approaches in psychiatric rehabilitation. But outcome evaluation itself tends not to address this heterogeneity. Attention has been focused primarily on the outcomes of particular treatments for particular problems rather than multidimensional treatment effects and interactions. The problem of interactions continues to stimulate more discussion than empirical investigation. In large part, this is because it has been methodologically difficult to evaluate multidimensional treatments, especially in this population.

Although outcome evaluation investigations support the overall effectiveness of the psychiatric rehabilitation model, they have contributed little to an understanding of how to tailor multimodal treatment to individual patients and circumstances so as to achieve optimum outcomes and cost-effectiveness. Unresolved questions remain, including the following: When is the patient physiologically stable enough that psychosocial interventions will have optimal impact? How important is symptom reduction, relative to behavioral functioning, as recovery proceeds? What aspects of functioning can be expected to respond to medication, and what aspects will require psychosocial or environmental interventions, in a specific patient? How should treatment and rehabilitation efforts be distributed to address the separate domains of personal, social, and occupational functioning? Once again, these are essentially questions about complex interactions. These questions are beginning to be addressed in psychiatric rehabilitation through the

use of complex analytical techniques. Although research of this nature may be more costly and time consuming, such research can lead to a meaningful and comprehensive understanding of treatment outcomes and recovery.

Outcome research needs to be genuinely integrated into clinical practice. Findings about treatment effectiveness need to be disseminated more rapidly and in a manner that is understandable and actionable. Often, clinicians fear the consequences of outcome evaluation activities. Some common fears include loss of employment, loss of economic incentives, and extreme micromanagement of clinical activities. These fears may lead to “deceptively derived positive outcomes” (Burlingame et al., 1995), and it is important that such fears and gaps in understanding of clinicians and other stakeholders are identified and addressed.

The field of outcome evaluation in psychiatric rehabilitation needs to expand its scope. The effects of mental health interventions need to be assessed at the level of specific targeted subpopulations or risk groups and at the community level. Public health goals such as reductions in community prevalence rates and alleviation of personal, familial, and social burden need to be assessed. A critical mandate for mental health outcomes research is to begin to thoroughly and consistently evaluate the effectiveness of mental health policies and public health initiatives. An integrated understanding of all outcomes involved in psychiatric rehabilitation is a necessary frame of reference for understanding rehabilitation for people with severe mental illness.

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