Cost-Effectiveness of Psychiatric Rehabilitation

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In recent years there has been increasing demand for information on the costs and benefits of psychiatric rehabilitation programs. Interest has grown not only in basic descriptive cost and outcome data, but also in more formal methods for comparing the resources used and the benefits accrued from different programs, including cost-effectiveness analyses (Fishman 1981), benefit-cost analyses (Weissbrod 1983), and cost-utility analyses (Kamlet 1992). We shall generically refer to all of these economic comparisons as cost-effectiveness (CE) analyses. In this brief overview we discuss the rationale for conducting such research, summarize the existing literature, identify several conceptual and methodological issues, and indicate future directions for research.

Psychiatric rehabilitation has been defined as "assisting persons with long-term psychiatric disabilities to increase their functioning so that they are successful and satisfied in the environments of their choice with the least amount of ongoing professional intervention" (Anthony et al. 1990, p. 2). Broadly conceived, psychiatric rehabilitation includes both approaches defined narrowly as rehabilitation programs and those with a combined emphasis on treatment and rehabilitation, such as the Program of Assertive Community Treatment (PACT; Stein and Test 1980). These programs frequently offer a range of services, such as assisting clients in employment, social-recreational activities, independent living, and academic preparation. Some psychiatric rehabilitation agencies are relatively comprehensive in the range of services they offer, whereas others have a more restricted focus. There are those program models that emphasize a gradual approach to rehabilitation, using transitional housing and transitional employment as preparatory steps in the rehabilitation process. In contrast, other program models stress community integration by providing assistance directly in community settings, through supportive approaches for housing, employment, and education.

Given this diversity of approaches, it is meaningless to speak in a generic sense of psychiatric rehabilitation program costs and benefits. Instead, evaluators should compare the relative costs and benefits of specific programs and describe carefully program elements and methods for estimating expenses. This focus allows service providers and policymakers to compare the evaluated programs with those in their respective areas and to make judgments about the relevance of cost comparisons.

RATIONALE FOR COST-EFFECTIVENESS STUDIES

The impetus for conducting CE studies comes from several sources. From both a scientific and a common sense standpoint, CE analysis represents the next logical step after assessing program effectiveness for judging a program's merits (Yates 1994). Adding urgency to the CE question are political and budgetary pressures at Federal, State, and local levels and the perception that health care costs are spiraling out of control. In years past, the utility of mental health program models has been taken largely on faith, and the budgets for such programs often justified on the basis of volume of services provided. With the widespread adoption of managed care (Jacobs and Moxley 1993), administrators are now much more likely to consider costs and outcomes of psychiatric services (American Association for Partial Hospitalization 1994).

Another motivation for cost studies comes from mental health advocates who have sought parity of mental health services with general medical services (Stoller and Havel 1994). The health care reform debate has exposed the meager database on psychiatric rehabilitation, which has weakened arguments for its reimbursement under any comprehensive medical coverage.

REVIEW OF THE LITERATURE

Researchers have given scant attention to the CE of programs that help persons with serious mental illness (SMI) achieve optimal levels of functioning, with only seven such studies located in a 1981 review (Frank 1981). A later review found a number of new CE studies in the mental health services area, most of which evaluated drug treatments, partial hospitalization, or psychotherapy (Frank 1993). Although Frank also found several CE studies of programs based on the PACT model, he reported no studies of other psychiatric rehabilitation approaches. A recent review examining vocational programs for persons with SMI also found a dearth of CE research (Clark and Bond, in press).

CE analysis has had a longer history within the general field of vocational rehabilitation (VR), largely because the Federal-State VR system historically has justified its funding on the basis of return on taxpayers' dollars (Conley and Noble 1990). Some studies have made optimistic assumptions about an individual's projected future earnings after obtaining employment through VR services, although such assumptions generally are not warranted for the psychiatric population (U.S. General Accounting Office 1993). More recently, several studies of supported employment (SE) for persons with mental retardation have sought evi-
dence for a cost offset for SE program expenses by showing reduced use of alternative placements, such as sheltered workshops and day activity centers (Conley and Noble 1990). As noted below, however, questions have been raised about the methodology used in some of the rehabilitation cost research (Thornton 1992; Heal et al. 1989).

Evaluators have used two general approaches for assessing the CE of psychiatric rehabilitation programs. One has been to evaluate a comprehensive program, attempting to measure costs of all program services. The classic example of this approach is the evaluation of PACT (Weisbrod 1983). The second is to examine the costs and benefits of a single-function program (e.g., a vocational program), and then measure its impact on other service domains. An example of the latter is given by Rogers et al. (1995), who examined changes in benefits and costs after enrollment in a SE program.

Several early studies examined the cost of programs serving as an alternative to psychiatric hospitalization (Kinsler 1982). The CE of community care relative to long-term institutional care is now widely accepted. Nevertheless, reducing expensive psychiatric inpatient care continues to be the primary goal of many community-based programs (Bond et al. 1995b). Studies incorporating costs of hospital use have suggested that the costs of psychiatric rehabilitation programs are often roughly equivalent to those of usual inpatient care or are substantially less, depending on numerous factors, such as the pattern of prior hospital utilization.

A more recent strategy, which assumes that excessive hospital use has been eliminated, examines whether participation in psychiatric rehabilitation reduces the use of outpatient mental health services. While the answer to the question will undoubtedly prove to be complicated, two studies suggest that clients participating in SE programs use day treatment less (Bond et al. 1995c; Rogers et al. 1995). Moreover, Drake et al. (1994) showed that a day treatment program could be converted to an SE program, resulting in improved client employment outcomes accompanied by a reduction in program staff and facilities.

CONCEPTUAL AND METHODOLOGICAL ISSUES

Clark and Bond (in press) identified a series of issues in conducting CE analyses of vocational programs. Their discussion is adapted here to encompass psychiatric rehabilitation programs in general.

Perspectives. Critical for any economic analysis is the point of view from which costs and benefits are measured. Possible perspectives include those of clients, families, taxpayers, county or State mental health authorities, service providers, and society as a whole. Each of these perspectives represents a group with an important, but different, stake in the success of a given program. To illustrate, increased individual earnings benefit individuals directly but have little direct impact on service providers or on State mental health agencies. From a societal perspective, decreases in income support payments (e.g., Supplemental Security Income or Social Security Disability Insurance) resulting from increased earnings are of no consequence, because they do not represent societal costs, but are treated simply as transfers of money from one group to another. Obviously, however, decreases in such payments do affect Federal spending and, therefore, are seen as a benefit by governmental units issuing such payments and by taxpayers. Given these and other differences in how economic events are viewed, it is essential to know whose perspective guides a particular cost analysis.

Apparent cost savings, as viewed from one perspective, may represent costs shifted from one group to another. For example, the shift from institutional care may have brought increased burdens on families. Families spend substantial time and money, and they experience stress and role strain as they care for a relative with mental illness (Leffley 1989; Clark and Drake 1994). The economic impact of psychiatric rehabilitation programs on families has rarely been studied, but it is apparent that they experience different costs and benefits than those in other perspectives.

CE analyses are heavily influenced by values, perspectives, and interpretations of theory. They emphasize the importance of making such factors explicit in research and evaluation reports. Practices such as conducting sensitivity analyses and reporting a range or confidence interval for summary values to reflect uncertainty are standard in good evaluations of health and social programs (Hurvitz et al. 1992; Drummond et al. 1993).

Methods of Comparison. Each of the methodologies used to evaluate costs and benefits has its strengths and weaknesses. CE analysis involves the comparison between programs on a ratio of costs to specific benefits. A CE analysis typically yields more than one ratio of costs to benefits, which can make it difficult to draw clear conclusions for policy purposes. Benefit-cost analysis involves the conversion of all measures to monetary terms. Because both costs and benefits are measured in dollars, this type of analysis has certain apparent advantages over a CE analysis in which benefits may be measured in any of a number of units. A single net benefit (total benefits minus total costs), benefit-cost ratio (benefits divided by costs), or rate of return (percent of costs returned in a given period) can be calculated in a benefit-cost analysis. Although cost-utility analysis consolidates multiple effectiveness measures into a single unit, the resulting policy conclusions still may not be unambiguous as those produced by a net benefit or average net benefit figure. On the other hand, the difficulty of measuring some benefits in terms of dollars means that they are often left out of benefit-cost comparisons. What is gained in apparent
analytical clarity may be lost in a failure to account comprehensively for all relevant benefits. Ultimately, evaluators and policymakers must decide what type of analysis is most useful for their purposes.

**Benefit Measurement.** One of the greatest challenges for CE analyses of psychiatric rehabilitation is identification of suitable benefit measures. Many of the goals of psychiatric rehabilitation programs, such as improved quality of life, increased self-esteem, greater sense of control over one’s life, and career enhancement, are not easily measured. Moreover, they are not easily translated into monetary terms. One cost-utility strategy for dealing with the measurement issues is to convert health or social benefits (such as increased social activity) into the common metric of “Quality-Adjusted Life Years” (Kaplan, in press). This strategy, used increasingly to evaluate a wide variety of health care interventions, has yet to be applied to psychiatric rehabilitation.

**Current and Future Benefits.** Another consideration is whether all costs and benefits are contemporaneous or whether there are future benefits for current services. For example, the issue of future benefits is especially pronounced in the case of supported education programs, in which program costs are accrued far earlier than benefits. When the assumption of future benefits can be defended, evaluators should include the actual or estimated value of such benefits, discounted at a standard rate of return (Lipscomb 1989). Because estimates of future costs or benefits are usually highly sensitive to changes in the assumptions on which they are based, it is often advisable to test the effects of different assumptions on conclusions.

**Program Comparison.** The gold standard in outcome research is the controlled clinical trial. The common practice in the VR literature of using pre-post designs and pooling that clients entering a rehabilitation program would have otherwise continued to receive an alternative placement (Conley and Noble 1990) is problematic for psychiatric populations, given the propensity for clients with SMI to drop out of programs. Quasi-experimental designs applied to costs are vulnerable to the usual threats to validity, with perhaps greater dangers for bias, given the fragility of cost estimates under different assumptions. Even experimental designs are not without their problems. An experiment in which controls receive “services as usual” may be defended as an appropriate design for assessing the effectiveness of a new intervention. However, the range of services such control groups receive may be so heterogeneous as to yield high variance in cost estimates (Frank 1993).

**Attribution of Change.** Psychiatric rehabilitation agencies that provide a comprehensive range of programs pose a formidable challenge to CE comparisons. Such configurations make sense clinically and organizationally, but they make it difficult to untangle the different costs and effects of specific programs, particularly when the services received vary from individual to individual.

**Program Implementation.** Poor program implementation can also confound a CE analysis. Fidelity of program implementation is especially problematic when introducing a new approach in several sites simultaneously. Thornton (1992), noting unfavorable results in statewide SE initiatives in Illinois and New York, suggested variability in program operations as one explanatory factor. Unfortunately, program descriptions are often omitted from published program evaluations. For example, in his review of 33 controlled studies of mental health programs, Brekke (1988) found only one study with adequate documentation on how the program was implemented.

**New and Established Programs.** Many cost evaluations focus on new programs that are evaluated over a fairly short period of time. Such findings often do not represent accurately the long-term effects of an established program. Problems with model implementation are fairly typical of new programs, and start-up expenses, such as capital purchases, training, or down time due to slow enrollment may inflate program costs (Wesbord 1983). Later in the program development, economies (or diseconomies) of scale may also affect costs. All of these potential problems demonstrate the need for longer evaluation periods and for careful measurement of changes in service cost over time. In addition to inefficiencies, new programs may be more or less effective than developed programs because of staff inexperience or Hawthorne effects. Illustrative of these start-up issues, one rehabilitation program from the mental retardation field showed an unfavorable benefit-to-cost ratio in its first year, followed by a large improvement in the second year and gradual improvement in each successive year for six more years (Hill et al. 1987).

**Client Factors.** The conclusions one can draw from a CE analysis are strongly influenced by the types of clients served. A common limitation in CE studies is restricting samples to those who complete the programs, without adequate adjustment for the resultant selection bias. For example, CE studies of partial hospitalization programs are limited because their findings apply mainly to clients who are compliant with treatment (Frank 1993). Within the general rehabilitation field, it is well known that a favorable caseload mix improves successful closure rates (Worrall 1978). Selection biases may work in the opposite way as well, such that some psychiatric rehabilitation programs may serve clients requiring more intensive, and therefore, more costly services. One survey, for example, found that clients attending three psychosocial rehabilitation centers were substantially more dis-
bled than a comparison sample of mental health service recipients (not attending these centers) in the same communities (Bond et al. 1995a).

Although we know very little about how different models of psychiatric rehabilitation affect costs and benefits, we know even less about the impact on CE of personal characteristics, such as diagnosis, cognitive capacity, functional abilities, gender, race, and age. And, because a large percentage of people with SMI receive public benefits, understanding the incentives and barriers that these and other alternative sources of income create is critical.

Selection biases are difficult to avoid in psychiatric rehabilitation research. Evaluators should carefully report sample characteristics and seek to document selection biases through examination of differential dropout rates and comparison with other samples. Purposive sampling for clients with different rehabilitation needs is another strategy (Murphy and Date 1976).

Location. Although evaluators have paid little attention to the geographic location of a program, it seems likely that differences in the availability and type of resources (e.g., jobs, housing, mental health professionals), cultural differences, and a myriad of other factors will affect program costs, program implementation, and client outcomes. The cost of housing is much higher in large cities, resulting in clients living in lower quality housing (Levstik and Bond 1993). On the other hand, urban and suburban areas may be more conducive to developing vocational services that require large pools of entry-level jobs (Marrone 1993).

DIRECTIONS FOR FUTURE RESEARCH

As we have described, comparison of costs and benefits associated with psychiatric rehabilitation programs is hampered by the use of different methods for measuring costs and outcomes. Many existing studies do not estimate costs directly, using charges or average revenues instead, or offer inadequate descriptions of how costs are determined. Few studies have considered a full range of perspectives relevant to psychiatric rehabilitation programs.

Directions for future research include both descriptive cost studies and carefully designed experimental studies. Descriptive studies are needed because of the lack of empirical norms about the costs of psychiatric rehabilitation. In order for descriptive cost data to be meaningful, they must include specific information addressing the issues discussed above (e.g., perspective used, methods for calculating costs and benefits, sampling methods, and description of the program). The barriers to compiling such a database are, of course, formidable. Most psychiatric rehabilitation programs are not equipped to undertake even rudimentary program evaluations, much less the ambitious type of data compilation needed for cost studies (Neeser-Todd 1993).

Evaluators unfamiliar with cost analyses could benefit from rigorous, yet user-friendly guidelines to measuring costs. Efforts underway to develop a benefit-cost “toolkit” (Dockey, in preparation) will help standardize methods. However, no toolkit can cover all the judgments that need to be made in comparing the cost-effectiveness of complex psychosocial rehabilitation interventions.

Evaluators will still need to be familiar with economic theory and cost determination methods to ensure that their decisions are logically consistent and to increase comparability across studies. Moreover, many elements necessary for reporting information in a standardized fashion have not been developed. For example, despite the prevalence of problems with program implementation, work on the development of scales to measure the fidelity of program models has just begun (McGrew et al. 1994).

Difficult as the demands of descriptive studies are, the challenges of full-blown CE studies with experimental designs are even greater. Development of appropriate control groups will require ingenuity. Psychometric work is still needed to quantify psychiatric rehabilitation outcomes in ways that are meaningful for research and practice. Measuring future benefits remains a vexing issue for psychiatric disabilities, which often follow unpredictable time courses. Certainly long-term followup studies are needed to obtain credible data.

We have not addressed the many substantive differences among psychiatric rehabilitation models, but they represent another important area for future research. For example, little attention has been given to relative costs and benefits of programs with extensive transitional services, compared to those stressing community integration with support. Another issue concerns the types of specialists required to provide optimal services (Frank 1993). Many psychiatric rehabilitation approaches have used a “generalist” model of staffing (Dincin 1975). Within the psychiatric rehabilitation field, the lore is that academic degrees are unimportant to program effectiveness. By contrast, PACT programs have long stressed the importance of multidisciplinary teams, with the inclusion of psychiatrists, nurses, rehabilitation counselors, substance abuse counselors, and other specialists. The relative impact of these two staffing philosophies has not yet been systematically compared. These and other issues are best addressed through comprehensive CE analyses.

CE methodologies are important tools for making policy decisions and for advancing knowledge about strengths and limitations of program models. Such studies will benefit not only from increased rigor but also from greater consensus about what methods and assumptions are most appropriate for comparisons. In the interim, researchers must
report their methods explicitly and, where appropriate, test how the chosen methodology affected their conclusions.

REFERENCES
Rehabilitation of people with severe mental disorders is the subject of the two most recent issues (Winter 94–95 and Spring 95) of American Rehabilitation published by the Department of Education, Office of Special Education, Rehabilitation Services Administration. For further information, please contact:

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