

6.

**Illustrative Cost-Effectiveness
and Cost-Benefit Analyses**

Illustrative Cost- Effectiveness and Cost= Benefit Analyses

As noted in the previous chapter, the application of cost-effectiveness and cost-benefit analysis (CEA/CBA) to psychotherapy is fairly recent and probably far less developed than other areas of psychotherapy research. Not surprisingly, therefore, there are a number of problems with the available CEA/CBA research. Some of these problems have to do with the methodological limitations of the ways in which psychotherapy's outcomes have been assessed (see chs. 2 and 3); additional problems relate to the way CEA/CBA methods have been employed. CEA/CBAs of psychotherapy, for example, focus solely on the costs of treatment and pay minimal attention to outcomes. Others use single or insensitive measures of outcome. Still others fail to measure costs or outcomes comprehensively, and many CEA/CBA studies use accounting costs, rather than opportunity costs. CEA/CBA studies that use only accounting costs potentially underestimate the actual amount of resources required to provide psychotherapy treatments and the benefits that may accrue from their application. At present, CEA/CBA analyses of psychotherapy seem to have neither the methodological rigor, nor the breadth of application, to be centrally useful in assessing psychotherapy's value (see 2).

Despite the problems with CEA/CBA research, however, it does not follow that CEA/CBA studies of psychotherapy cannot or should not be conducted. As described in chapter 5, there are methods for valuing the resources used by psychotherapy; in addition, methods for valuing the outcomes of psychotherapy, though less well developed, can be applied. To the extent that CEA/CBA is a useful adjunct to the health policy decisionmaking process (see 203), its application to psychotherapy seems as reasonable (see, e.g., 179) as its application to other health problems. The use of CEA/CBA studies may provide information about the use

and impact of psychotherapy that is otherwise unavailable. At the very least, such studies may help structure the questions and data about psychotherapy in a way that should aid policymakers in choosing among alternative programs. CEA/CBA may also be useful in stimulating better research about the effects of psychotherapy. When resource-effect relationships are considered as in CEA/CBA, aspects of psychotherapy are highlighted which otherwise might be ignored; thus, for example, cost analyses may suggest assessing a wider range of variables than would usually be considered theoretically relevant.

Although CEA/CBA studies of psychotherapy currently appear to have limited policy usefulness, it should be recognized that data from such studies sometimes provide helpful policy information. There are reliable and valid data which indicate that some conditions of offering psychotherapy are more cost effective or cost beneficial than others. Although these data may have limited generalizability, they may be helpful in making specific resource allocation decisions (e.g., reimbursement policy for mental health treatments). The data also suggest promising areas for future research.

The review below describes selected aspects of a number of recent cost-effectiveness and cost-benefit studies of psychotherapy. The focus is on individual studies, because syntheses of the CEA/CBA literature in psychotherapy are not yet available. In general, the available CEA/CBA studies do not compare different psychotherapy treatments—instead, they deal with the factors that affect the provision of psychotherapy treatments. Thus, a major emphasis of CEA/CBA studies conducted to date has been differences among treatment settings. Another emphasis has been the analysis of conditions under which either low-cost therapies or potentially high-benefit treatments have been used.

Because of the difficulties associated with measuring psychotherapy's benefits (see ch. 5), the literature is probably biased toward assessing low-cost treatments. This characteristic of the available studies should be kept in mind.

The attempt in the present review is not to provide a comprehensive analysis of the CEA/CBA literature, but to illustrate the types of studies available and their findings. A number of the studies reported here were included, in some form (e.g., were considered within a review that was analyzed), in the discussion of effectiveness in chapter 4. They are described in more detail in the present chapter because of their explicit consideration of resource issues (i.e., assessment of cost and/or benefits). Included in the present chapter are a number of

studies that assess effectiveness poorly and contain other methodological flaws. These studies are included to suggest the potential contribution of CEA/CBA research on psychotherapy and to identify some of the problems of conducting CEA/CBA.

The discussion below is organized according to the treatment factors and patient conditions to which CEA/CBA has been applied. First, the review considers a number of treatment-related characteristics that have been subjected to CEA/CBA. Next, it considers therapist factors as they relate to costs of treatment and outcomes. Finally, several specific patient conditions and CEA/CBA studies of psychotherapy treatments applied to these conditions are reviewed.

TREATMENT-RELATED CHARACTERISTICS

As noted above, a focus of psychotherapy CEA/CBAs conducted to date has been characteristics of the treatment system in which psychotherapy is provided. Some studies have focused on the provision of psychotherapy under various forms of institutional care, and some have compared, for example, institutional and outpatient/community-based treatments. The results of these comparisons are not easy to summarize, although it does seem clear that the conditions of treatment can vary widely in terms of the resources they use and their impact.

Inpatient Therapy

One area in which CEA/CBAs of psychotherapy have frequently been done concerns institutionalization of mental patients and the provision of inpatient psychotherapy. The costs of institutionalizing a patient are high, and the costs of providing therapy (in addition to caring for the patient) are potentially even higher. A number of studies have examined the costs and benefits of various treatments offered patients, in particular, the provision of therapy along with custodial or milieu care. The conclusion of a number of these studies is that the provision of psychotherapy can provide more cost-effective

or cost-beneficial treatment (e.g., 24,130, 175,273,289). These findings were obtained because therapy may reduce the amount of hospitalization or achieve larger benefits in some other area.

McCaffree (175), in one study of the benefits of "intensive" inpatient treatment, reviewed the costs and results of treatment in the Washington State hospital system during two periods. During the two periods, there was a shift in the treatment of institutionalized patients. In the first period, only custodial care was provided; in the second period, various forms of psychotherapy (which was called "intensive therapy") were provided as well. McCaffree assessed the costs for both types of treatment. He included both public costs (e.g., subsistence and treatment) and private costs (e.g., loss of patient income). McCaffree found that the costs per patient in intensive therapy were about 50 percent less than the costs of custodial care. Moneys were saved in intensive therapy primarily because patient stays were much shorter (22 v. 42 days). Unfortunately, McCaffree's data are nonexperimental, and some of his data indicate that the intensive therapy patients may have been less disabled than the custodial care group.

In addition, McCaffree ignores psychological measures of effectiveness. It is possible that the intensive therapy group was no better after receiving treatment, but that criteria for patient discharge had been altered between the two data gathering periods. Also important is the fact that not only was more psychotherapy offered in intensive treatment, but (see 173) drug treatment was introduced at the same time.

A later study by May (173) assessed the cost effectiveness of milieu care (see also 24) and four other treatment methods. A patient in milieu care is provided a therapeutic environment (nurses and others who deal with the patient are specially trained). May used experimental procedures to assign schizophrenic patients to treatment conditions and assessed both costs and effectiveness. He found that milieu therapy was almost as costly as psychotherapy, but was the least effective of the five treatments. Drugs without psychotherapy were the least costly treatment, and drugs with psychotherapy were the most effective. It is difficult to determine whether May's results are generalizable to other patient conditions and psychotherapy/chemotherapy as they are currently provided.

Community= Based Versus Institutional Therapy

Although it appears to be more cost beneficial and cost effective to provide inpatients with intensive treatment, other alternatives have been studied. Thus, a major focus of CEA/CBA studies has been community-based approaches for providing psychotherapy. Community care has the potential to provide major cost savings, because such care reduces the costs not directly associated with treatment (i. e., the costs of housing, feeding, and supervising an institutionalized patient are higher than the costs of the same services provided in the community).

Thus, for example, Binner, Halpern, and Potter (22) used data from almost 600 patients who had received either inpatient or outpatient treatment. Binner, et al. quantified intensity according to a factor-analyzed combination of resource utilization, therapeutic involvement, support from the therapeutic environment, and

length of stay (see 247). Binner, et al. found that less intensive treatment resulted in higher benefit/cost ratios. Categorizing patients by severity of dysfunction at admission, and stratifying therapy intensity at four levels, Binner, et al. showed that benefit/cost ratios were greater than 1 (benefits exceeded costs) for all combinations of impairment and intensity, but were significantly larger for low-intensity therapy provided to less impaired patients. Average benefit/cost ratios ranged from 2.28 for patients treated more intensively to **5.23** for patients given the least intensive therapy. These results suggest that therapy may not be effective for severely impaired populations and that resources should be directed to outpatient treatment.

Although Binner, et al.'s (22) study collected data on outcomes as well as cost, it is nevertheless difficult to generalize from it. One problem is that patients were not randomly assigned to different levels of therapy intensity. The classification scheme for intensity, though mathematically sophisticated, cannot control for possible differences in the type of patient who was assigned to more versus less intensive therapy. It is also not clear whether the patients who participated in community-based treatment had dysfunctions as severe as those of the inpatients. Furthermore, the outcome measure used by Binner, et al. was a gross measure based on a therapist rating. The valuing of this benefit was done by assigning an arbitrary dollar amount to changes in therapists' ratings. Finally, Binner, et al. used operations costs, rather than opportunity values, and this may have led to either an underestimate or overestimate. It is difficult to determine what bias was incorporated and how this relates to the procedure they used to value therapist-rated changes.

In another study of an outpatient treatment program, Washburn, Vanicelli, Longabaugh, and Sheff (292) studied a "daycare" treatment. Daycare is actually a modified form of inpatient treatment where patients return to their own homes (or families) each evening. The researchers collected a variety of effectiveness data, including checklists completed by patients, those

who knew them well, and their therapists. Patients were assigned randomly to daycare or standard inpatient care. Analyses of effectiveness data collected at 6-month intervals during therapy and at a 2-year followup found only a few significant differences. Daycare patients evidenced somewhat less subjective distress, functioned better in the community, and were less of a burden to their families than patients who received standard inpatient therapy. Cost data also collected at 6-month intervals, however, showed significantly lower costs for daycare. The lower cost of daycare treatment seems to be the primary determinant of cost effectiveness, although daycare also seems to have improved effectiveness to some degree. What is missing from Washburn, et al. 's study, unfortunately, is a no-treatment or a placebo treatment condition, which would allow inferences about how much of the outcome is caused by factors not related to treatment procedures (i.e., spontaneous remission), or by the patient's expectations.

In another comparative study of community versus institutional treatment, Murphy and Dattel (192; see also 57) projected the costs and benefits for 52 mentally ill and mentally retarded patients who were placed in the community from State institutions. The costs of community care included housing and subsistence, as well as the costs of community treatment. Benefits included the cost savings of not having to provide institutional care and the wages/fringe benefits received from jobs. Costs and benefits were adjusted for present value (a 0.08 discount rate was used) and inflation. Murphy and Dattel's results were organized in terms of 12 patient categories. Their findings indicated that 10-year projected benefits exceeded 10-year projected costs of community care, yielding benefit/cost ratios of between 0.99 to 11.86. The average ratio was substantially greater than 1, indicating that community care was superior.

Murphy and Dattel's (192) study, although it considered a broader array of benefits and costs than most CBA studies and used present value and inflation adjustment procedures, does have some methodological problems. Although it was recognized that there are psychological ben-

efits to patients and their families and data on such things as marriage, normality of appearance, mobility in the community, and employment were presented, these data were not used in the benefit/cost ratios. Valuing such benefits is admittedly difficult, but Murphy and Dattel's analysis, as presented, may underestimate therapy's benefits. Another problem with this study that limits its validity is that patients who refused community placement were not included in the analysis. These individuals were considered treatment failures and excluded from the analysis. If a significant number of these patients returned to the institution, costs of establishing them in the community ("set-up" costs) and of readmitting them to institutions should have been incorporated in the CBA. The study also didn't consider cost ratios for an alternative program. As discussed in the preceding chapter, there always is an implicit alternative to which a cost-benefit calculation is compared and not all programs with benefit/cost ratios exceeding 1 should be continued. An obvious comparison group for the Murphy and Dattel study would have been a randomly selected group from the potentially deinstitutionalizable population that was retained in the institution or was released to another program.

Cassell, Smith, Grunberg, Bean, and Thomas (32) obtained cost and effectiveness data for almost 500 deinstitutionalized patients, most of whom had been diagnosed as chronic schizophrenics. These patients had resided in mental hospitals for an average of 18.2 years prior to deinstitutionalization, and the costs of hospitalization had totaled \$70,000 per patient before release. After deinstitutionalization, the costs of welfare, followup, drugs, and rehospitalization for those who could not adapt to community living was only \$1,575 annually, or 2.44 times less than the cost of institutionalization. Although very few of the patients would have been discharged had their deinstitutionalization program not begun, 49 percent of the men and 38 percent of the women under age 65 were employed at least 3 months during the 2-year postrelease period. More than 20 percent of the men and 10 percent of the women were employed for at least 13 months following their

release. Utilization of medical care by the deinstitutionalized patients was also significantly less than for normally adjusted persons in similar groups. In sum, the cost was less and effectiveness greater for noninstitutional compared to institutional care provided to severely disturbed patients. Other studies of reinstitutionalization, which similarly have tracked patients after release, have yielded similar findings (see, e.g., 79,156,191).

An important methodological limitation of these deinstitutionalization studies is their use of nonexperimental designs. Typically, these CEA/CBA studies follow deinstitutionalized patients, accounting for the resources they require. This is potentially problematic given the fact that new treatments were simultaneously being introduced within mental hospitals (see 173,175) and the fact that patients who were reinstitutionalized are likely to be less disabled than those who remain in the hospital. There is also a problem of adequately assessing the costs of community care. Although most studies include major housing and support costs for maintenance of patients in the community, a comprehensive accounting of community costs may be difficult (especially in comparison to the obviousness of many costs borne in a hospital). As a result of these factors, the high benefit/cost ratios for community treatment may be overly optimistic.

The study reported by Weisbrod (296; see also 297) illustrates the implications of considering these factors comprehensively in a CBA. Weisbrod compared traditional therapy in a mental institution against a community care program using random assignment of patients. Therapy in the mental institution was brief (usually less than 1 month) and was followed by community care delivered by local mental health agencies. The usual stay in the hospital was 17 days, but many patients returned to the institution. Therapy in the alternative community-based program involved relatively little time in institutions (i.e., every effort was made not to hospitalize patients). During this 14-month "community living" trial, patients had to cope with normal living conditions and were required to take responsibility for the problems

that might, in other circumstances, result in their return to an institution.

Sixty-five patients were included in each therapy condition and data were collected for the first 12 months of treatment. Weisbrod's (296) cost assessment procedures were comprehensive and included a variety of direct and indirect costs of treatment. Included also were law enforcement costs and family burden costs (e.g., lost wages caused by the patient). Weisbrod's results indicated that community care was slightly more costly, but yielded higher benefit than the institutional treatment program. The costs were higher in the community program because patients were closely supervised and received intensive therapy. The benefits of community treatment were higher primarily because the outpatients earned more from employment.

Despite the use of random assignment and comprehensive assessment of cost and benefits, there are important limitations to the generalizability of Weisbrod's (296) findings. Although data were collected over a relatively long period of time (4 years, from 1972 to 1976), each patient participated for only 14 months. That may be too short a time to assess the effects of treatment. In addition, only a rather small number of patients were included (less than 150), all from the same geographic area. It is not clear whether the program actually studied a representative sample of those eligible for reinstitutionalization. There is also no evidence that either community or institutional treatment is superior to no treatment, since a no-treatment control condition was not included. Of course, the patients in Weisbrod's study were severely dysfunctional, and withholding treatment would have been difficult.

Residential Versus Institutional Therapy for Problem Children

Most of the aforementioned studies involved schizophrenics and other severely disturbed adults. Another typical application of CEA/CBA in assessing mental health treatments are studies which have examined the use of psychotherapy for "problem populations" (see 63). For example, there has been great interest in study-

ing the use of psychotherapy with juvenile delinquents. There is evidence that a substantial number of serious crimes are committed by juveniles under 14 years of age (see **286**), and there is considerable correlational evidence that criminal behavior in youths is related to adult crime and mental dysfunction (see, e.g., **233**). The magnitude of the costs associated with these problems is very great.

A number of studies have investigated the use of behavior modification procedures with troubled youths. Phillips (**213**), for example, presented data on the cost and effectiveness of a residential token economy therapy for juvenile delinquents called Achievement Place (see also 243). Token economy therapy is an application of learning theory to establish a therapeutic milieu. Along with the direct costs of treatment, Phillips assessed effectiveness data on several variables, including police and court contacts, school attendance, and grades before, during, and after therapy. Before therapy, Achievement Place youths averaged about 3.8 contacts per year with the police or courts. After 1 year of therapy, Achievement Place delinquents averaged only 0.75 police and court contacts and no contacts 2 years after therapy. In comparison to a traditional program for juvenile delinquents (a

special school), Achievement Place was much more effective and one-third as costly (\$6,000 v. \$20,000 to \$30,000 per delinquent).

Although Phillips, et al. (213) provide very positive cost-effectiveness data, it should be noted that their findings are in contrast to those of Powers and Witmer (217). In what has become a classic study (known as the Cambridge-Somerville youth study), 650 youths were matched and randomly assigned to either long-term counseling and supervision or no mental health treatment. The participants in this study were tracked from 1939 to 1976, and data on a variety of psychological and social dimensions were collected (see also 178). Unfortunately, no long-term benefits can be demonstrated, and there is some disturbing evidence that the therapy-treated youths have fared worse than those who received no treatment (on such criteria as alcoholism and later mental health). It is important to recognize, however, that the treatment received by these youths may be far different from that provided by current standards (see **269**). In some respects, the Cambridge-Somerville approach is not comparable in rigor to treatments such as Achievement Place (which was based on a clear-cut theoretical rationale).

THERAPIST VARIABLES

Because the major proportion of resources used in psychotherapy relates to the cost of personnel time, a number of cost comparisons of different therapists have been conducted. Included in these studies is an analysis of the differences in fees charged by various professionals and paraprofessionals and the impact of therapist variables on outcome.

Professional Therapists

Karen and VandenBos (132) report one of the few available studies on the cost effectiveness of different professional therapists. A small number of patients diagnosed as schizophrenics were treated by psychologists, by psychiatrists, or by

drugs without therapy. Karen and VandenBos found that the cost of therapy provided by psychologists was substantially less than the cost of therapy provided by psychiatrists, primarily owing to lower hospitalization and drug use in therapy provided by psychologists. The average cost per patient treated by psychologists was **\$7,813**, but the average cost per patient was \$12,221 when psychiatrists provided treatment and **\$17,234** when drugs alone were used in therapy. Long-term costs due to recidivism also favored psychologists over psychiatrists. Patients treated by psychologists were hospitalized an average 7.2 days in a 2-year followup, compared to 93.5 days for patients treated by psychiatrists and **99.8** days for patients treated by drugs alone.

Although these findings suggest that psychologists may be more cost-effective therapists for schizophrenics than psychiatrists, the generalizability of these data is hard to determine. Fee schedules for psychologists vary widely, and the specific conditions of Karen and VandenBos' research setting may have affected the results in unknown ways. One important outcome was that therapy given by either type of professional was less costly than drugs alone: 17 percent less when provided by psychiatrists, and 33 percent less when provided by psychologists. While, again, it is difficult to know the generalizability of these findings, these data suggest an area for further CBAs.

In a related study, Karen and VandenBos (133) report that therapy provided by better trained therapists is more effective, though more costly, than therapy provided by less trained therapists. The reduction in costs results from generally shorter lengths of stay and other savings in types of services required. This finding was obtained despite a gross underestimate of the actual cost of hospitalization (132). The generalizability of such studies, however, may be limited to the type of patient they used.

There is evidence, for example, that hospitalized neurotics can be treated by nurse therapists with better cost/benefit ratios than with therapists who have more training (i.e., a doctorate). Ginsberg and Marks (95) assessed the effectiveness of treatment by nurse therapists for brief behavioral psychotherapy (patients used an average of 9 sessions) for neurotic and phobic patients. Ginsberg and Marks used data from 1 year prior to therapy and 1 year post-therapy to estimate the impact of therapy. The data indicated that therapy significantly reduced symptomology and resulted in a number of tangible (i. e., valued) benefits. The benefits included reduced use of medical services and improved work productivity. Since the study did not employ comparison groups, it is impossible to estimate the comparative effects of nurse-therapists; however, the study does suggest a potentially useful direction for future analyses.

Gabby and Leavitt (89) report similar findings for therapy on a population of neurotics. A self-supporting nonprofit clinic provided long-term

therapy and was able to charge an average of 50 percent of the fees charged by private practitioners in the area (\$13.50 to \$15/hour v. \$19.95/hour at that time). A key factor in the clinic's being able to offer lower fees was its extensive use of nonpsychiatric staff. Psychiatrists were called in only when necessary for consultation. Although Gabby and Leavitt provide an example of how costs can be reduced, they do not report outcome data in any detail, it is unclear whether the effects of treatment in the clinic setting were as good as those in traditional settings. In addition, it is unclear whether patients at the clinic were more or less disturbed than other patients in the community. There is also some reason to suspect that they attracted a select population of patients.

Nonprofessionals

One focus of CEA/CBA studies has been the training of parents to provide therapy to disturbed children (see, e.g., 111,211,290). In one study, Rubenstein, Armentrout, Levin, and Herald (243) placed 36 emotionally disturbed children in normal homes. Parents residing in these homes had received training in child management skills and received salaries and expense reimbursement for caring for the disturbed children. Lengths of stay ranged from 9 to 26 months, and the patients were supervised by other "parent therapists." Professional mental health specialists also met weekly with parents. Psychometric tests, grades, and a behavior checklist showed that children treated by parent therapists were as improved as comparable children treated in two residential programs. Costs of parent-therapist treatment were only half of residential treatment costs (\$30.60 v. \$63.77 per child per day).

What seems to have reduced costs was the distribution of professional expertise over a number of "helpers." This simple modification of the traditional way of providing psychotherapy (direct contact between professional therapists and patient) would be expected to reduce costs. However, the cost reductions suggested by the Rubenstein, et al. (243) study probably are overestimated because they do not include many of the costs of training parents. The cost

findings also are limited by Rubenstein, et al.'s use of "comparable" rather than randomly selected comparison groups. Perhaps the children assigned to the parent-therapist program were less severely disturbed or had characteristics that predisposed them to benefit more from parent therapy than other children. As is typical of many CEA and CBA studies, costs used in Rubenstein, et al.'s study were accounting costs, rather than opportunity costs. These costs may well underestimate the use of resources.

Other CBA and CEA studies have explicitly compared the use of professional versus paraprofessionals. Yates (306), for example, reports a study of paraprofessionals who conducted therapy for obese patients. The therapy was less than one-tenth as costly as therapy provided by psychologists and psychiatrists, but appeared to be equally effective. Effectiveness was measured directly in terms of the number of pounds lost. Yates' study, however, used a quasi-experimental design in which patients selected their own therapy, and it may be that those who selected the paraprofessional treatment condition believed they needed less help to lose weight (i.e., were most motivated). Also, while it can be assumed that nonprofessionals are less costly than professionals, costs were not directly reported (see also 282).

Self-directed therapy, with or without consultation with a professional, has also begun to receive some attention (see 96). Many of these studies have focused on dysfunctions typically

not treated by professional psychotherapy, but there are some examples with depression, anxiety, phobias, and sexual dysfunctions. Such therapies involve the use of a book or manual to direct the individual and have been mainly based on learning and phenomenological theories. Case studies of therapies directed by manuals have yielded results indicating that positive effects can be obtained with such low-cost therapies (e. g., 294,299), but a thorough evaluation of the effectiveness and cost effectiveness of these procedures has not been done. The lack of comprehensive cost data in such studies further limits any conclusions about cost effectiveness or cost benefit.

One formal cost-effectiveness study of self-directed therapy was conducted by Marston, Marston, and Ross (170). Marston, et al. mailed obese patients weekly weight-reduction readings ("bibliotherapy") and had them respond to written questions about the readings and weight-loss problems. They found their form of therapy to be as effective as weekly visits with a professional therapist and much less costly. Unfortunately, the range of cost and effectiveness data collected was limited; in addition, these programs have not been compared with traditional psychotherapy treatments. Further studies have shown that some contact with a professional or paraprofessional therapist is necessary for these bibliotherapies to be effective compared to no-treatment groups, even if this contact is made by phone or mail (305,307).

DRUG ADDICTION AND MEDICAL UTILIZATION

The studies cited above principally focus on CEA and CBA of different ways of offering psychotherapeutic treatments. CEA and CBA reports have also been developed to study treatments for problems such as alcohol and heroin addiction. These are high-cost problems to society and are also problems that have highly visible costs and benefits/effects. Overutilization of medical services, also a costly problem, has also received considerable attention (e. g., 60, 129), and it has a number of implications for how and under what conditions, psychotherapy

should be evaluated in a national health insurance program. Below several CEA/CBA studies of treatment for these high-cost problems are described.

Psychotherapy for Drug Addictions

The obvious relationship between alcohol and opiate addictions and subsequent psychological dysfunction, coupled with the high societal costs of such addictions, has stimulated a number of CEA and CBA studies of therapies

for drug addictions. Involvement of multidisciplinary teams in therapy for drug addictions seem to have generated more comprehensive CEA and CBA in this area than in any other and, in general, the findings of these studies is that therapy is beneficial. This conclusion must be tempered, however, by recognizing that treatments for drug addiction almost always involve more than psychotherapy.

Rufener and his colleagues (244,245), for example, conducted a CBA of five different therapies for heroin addiction: 1) methadone maintenance, 2) therapeutic community, 3) outpatient drug-free treatment, 4) outpatient detoxification, and 5) inpatient detoxification. Benefits were calculated by estimating social costs incurred directly and indirectly as a result of heroin use (e. g., crime, incarceration, court costs), the reduction in costs produced by rehabilitating a heroin abuser, and adjustment of benefits for the relative effectiveness of different programs. Costs were assessed from accounting records of providing each therapy. Rufener, et al. considered benefits under three assumptions of the size of heroin abuser population and three different discount rates for present-valuing. The resulting ratios were all greater than 1 (benefits exceed costs) and showed that outpatient drug-free therapy to be the most cost beneficial. Drug-free therapy yielded a 12.82 benefit/cost ratio for the intermediate abuser population size (and included discount rate assumptions). A possible problem of this has to do with estimated adjustment cost savings for differential relapse rates which may have been overly optimistic. In addition, the study did not use random assignment of patients to different treatment techniques, and it is difficult to determine the possible effects of the research design.

In another study, Hall, Bass, Hargreaves, and Loeb (112) report a 20-percent reduction in the use of opiates and barbiturates for outpatient detoxification patients. Random assignment of subjects to behavior therapy and no treatment conditions was accomplished, and effectiveness was assessed by urine tests. The behavior therapy consisted of reinforcing patients (by paying them up to \$10/day) for drug-free urines. Depending on the day urines were collected, 40 to

50 percent of the paid subjects had not used drugs. Since most estimates of the daily cost to society of heroin use are five or more times that cost, this reinforcement contingency seems promisingly cost beneficial, even when personnel, facility, and testing costs are added. Other data suggest that patients did not use their payments to purchase illegal drugs.

Sirotnik and Bailey (262), in a similar study, conducted a CBA of heroin addiction therapies. Their investigation involved 285 patients over a 1.5-year period. They found that comprehensively defined benefits exceeded costs by more than a 2.5 ratio under each of a range of cost-savings assumptions. This analysis probably is conservative, because it did not consider benefits that might accrue to patients and society after the program. Unfortunately, nonrandom assignment to therapies and the absence of a control group limit, the implications of this study.

Even larger benefit/cost ratios may be produced by long-term therapy for addicts, although there is much debate on this point. Aron and Daily (8), for example, found that long-term therapy was more effective and, in total, less costly than short-term therapy for drug addiction when costs of re-entry to therapy and long-run effectiveness were assessed. Cost-effectiveness ratios were \$4,624 per successfully treated addict in long-term therapy, but \$5,988 per successful patient in short-term therapy.

Maidlow and Berman (167) contrasted the cost effectiveness and cost benefit of a drug-free therapeutic community and methadone approaches to treating heroin addiction. The average stay of 4 years in drug-free communities was found to generate a 65-percent success rate, resulting in a direct cost per successful patient of \$17,760. Methadone or other drug substitution had a higher, 87-percent success rate at a lifetime cost effectiveness of \$45,000 per successful patient. Considering the probability that former addicts would leave therapy, and present-valuing future benefits and costs (thus reducing lifetime cost of drug substitution), it would seem drug substitution is more cost beneficial than drug-free therapeutic communities. However, Maidlow and Berman's study, although it uses

sound CBA methodology, did not use random assignment or a no-treatment control group and there may be important biases in who selects particular treatment.

Goldschmidt (101) described a comprehensive model of CEA for health care, applying it to analysis of heroin addiction therapies. Sampling 1,640 patients over a 6-month period he found 1,241 who could be interviewed and used data from them to compare the cost effectiveness of drug substitution (methadone) to the therapeutic community. Using several variables to assess effectiveness and operations cost for the two approaches, high variability was found in non-recidivism measures of effectiveness (10.9 to 33.7 percent for methadone therapy, depending largely on length of stay, v. 12.5 to 47 percent for therapeutic communities). Goldschmidt found that the annual cost per patient of the therapeutic community was about four times the cost of drug substitution. Because therapeutic communities were found to treat more patients and have somewhat more persistent effects, the average cost/successful patient ratio was 1.7 times higher for therapeutic communities than for drug substitution, thus favoring drug substitution as more effective for its cost. This finding was maintained for both “normalcy” (i. e., some use of drugs, but normal functioning) and “heroin-free” criteria of effectiveness. This study shows the impact that treatment system costs can have on CEA findings. Consideration of lifetime costs of methadone maintenance, however, might reverse the direction or magnitude of the findings. No information was provided on opportunity value and comprehensive costs and, as well, no-treatment control groups were not evaluated.

To summarize the status of CEA and CBA for drug addictions, while this area has received much attention, there are still serious shortcomings with the available research. These shortcomings have to do primarily with the research designs used. Although some of the findings are impressive in that consistent cost/benefit ratios greater than unity are found, there may be other explanations for these results. In addition, it should be recognized that drug abuse remains a serious problem and it is not

clear that the available studies are representative of the treatment programs being conducted.

Psychotherapy and Overutilization of Medical Services

Depending on the definition used, it has been estimated that medical services are overused (or in some other way abused) by between 20 and 60 percent of those who seek them (e.g., 54, 174,182). Various researchers and analysts have concluded that medical services often are used to ameliorate mental problems, rather than the treatment of physical dysfunctions. Regier, et al. 's (225) data on the role of primary care physicians in the delivery of mental health services is one indication of this problem (see ch. 1). It has been suggested that psychotherapy may be used to reduce individuals' dependence on medical services. Thus, for example, a 4-year study by Cavanaugh (cited in 119) found that hospitalization for physical ailments was reduced from an average 111 to an average 53 days by psychotherapy, resulting in a \$1.1 million savings (which was greater than psychotherapy costs).

Cummings and Follette (53; see also 99) reported that a single session of psychotherapy reduced utilization of medical services for high utilizer patients by 60 percent over a 5-year period. Additional sessions further reduced medical care utilization: patients attending two to eight sessions subsequently decreased medical use by 75 percent. Continuing their study on use of medical services in the large Kaiser-Permanente health insurance plan, Cummings (51) used findings from Cummings (50) and Cummings and Follette (52,53) to contrast the benefits of medical cost savings to costs of four durations of psychotherapy.

Cummings formed benefit/cost ratios by dividing medical care utilization (number of visits) for the year preceding therapy by the sum of subsequent medical care and psychotherapy visits. Very brief psychotherapy (one to four sessions) generated “cost-therapeutic effectiveness” (actually crude benefit/cost) ratios of 2.59. Psychotherapy lasting from 1 to 15 sessions had a similarly positive benefit/cost ratio of 2.11.

Long-term therapy (more than 16 sessions) and interminable therapy were found to be less cost-beneficial (benefit/cost ratios of 1.14 and 0.91, respectively). Not receiving any psychotherapy, however, generated the worst ratio of all: 0.88.

Other investigators have found specific reductions in use of physician services, especially laboratory and X-ray services. In one report, Goldensohn and Fink (100) found that these effects followed after the administration of psychological tests. A number of other studies show similar, and often monetized, reductions in medical care utilization following a variety of forms of psychotherapy, including brief treatment (e. g., 125). In many of the studies, reductions in medical utilization have been directly related to reduced costs.

Jones and Vischi (129), at the National Institute of Mental Health, have conducted a comprehensive review of the literature on the “offset” benefits of psychotherapy treatments. They reviewed 25 studies that examined the impact of therapy for mental illness, alcohol abuse, and drug abuse on medical utilization. Their conclusion was that, under certain circumstances, medical care utilization does “appear” to be reduced as a result of therapy. In particular, for treatments of mental illness, they found 12 studies (out of 13 available studies) which demonstrated reduced medical care utilization following therapy. The median reduction was 20 percent, and the range (for the 12 studies) was 5 to 85 percent. The reduction in medical care utilization was accompanied by parallel reduction

in cost (mental health treatments being typically less costly than medical treatment). The investigators report a variety of benefit/cost ratios, which range from 0.95 to 2.11.

Jones and Vischi (129) also reported a variety of studies in which psychotherapeutic treatments were applied to alcoholism and drug abuse. These studies report similar findings (of reduced medical care utilization) although they tended to have more methodological problems than the mental illness studies. A particular problem for all of the studies was the frequent lack of appropriate control group conditions. Another problem was the selection of time periods for analysis. Typically, patients entered these studies after a period of high use of services and it is difficult to attribute the reduction solely to the mental health treatment (it could reflect a natural change in medical needs). Jones and Vischi, although optimistic about the use of psychotherapy to reduce medical utilization, recommend more rigorous research that includes better cost-benefit data.

In a number of cases, psychotherapy has been employed as an adjunct to medical services (e.g., 143,204,215,238). Although there is not yet a substantial literature describing the effectiveness of psychotherapeutic treatments used in this way, such fields as “behavioral medicine” are being developed. It would seem that as the effectiveness literature on such behavioral-mental treatment matures, cost and benefit data should also be assessed.

SUMMARY

This chapter has provided a number of illustrations of the use of CEA/CBA methods for assessing a variety of psychotherapy treatment alternatives and mental health problems. The conduct of CEA/CBA studies of psychotherapy research is not widespread, and many important areas and types of psychotherapy have been ignored to date. The review in this chapter suggests that, for some treatment system characteristics and for some problems, psychotherapy

appears to be cost beneficial and that it can be made more efficient (improved cost effectiveness). These findings must be considered tenuous, however, given the methodological problems inherent in many of these studies. What is needed is a more systematic application of rigorous research designs that employ no-treatment and placebo treatment conditions, as well as more comprehensive measures of outcome and cost.

It would seem that we possess the scientific tools to assess psychotherapy and to use this information in making policy decisions about societal support for these treatments. It would also appear that we have substantial knowledge which indicates that these treatments offer the

potential to improve well-being and to be cost effective. Although one will probably never be totally satisfied with the answers provided by research, that seems a poor reason not to attempt” more rigorous and comprehensive scientific analyses.