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Research on the Effectiveness of Alcoholism Treatment

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Despite the lack of well-controlled and generalizable research on the efficacy and effectiveness of treatments for alcoholism, there is a vast literature that describes and analyzes treatment effects. The literature goes back as many years as alcoholism and alcohol abuse have been problems (see 351). In recent years, the amount of work has dramatically increased and its quality has improved (cf. 32,297). In this chapter, the research literature on treatment effectiveness is reviewed. An effort is made not to dismiss any body of research, but to point out inherent limitations and inferential problems. In addition to providing background for congressional consideration of re-

imbursement policies, the present review strongly suggests that consideration should be given to ways of increasing and improving research conducted on alcoholism.

In the following section, several of the principal reviews of available literature are described and analyzed. These reviews cover much of the research available (except recent and ongoing studies) and summarize current wisdom about alcoholism treatments. In the succeeding section, specific studies related to particular treatment settings and modalities are analyzed.

REVIEWS OF EFFECTIVENESS RESEARCH

As the literature on the effects of alcoholism treatment has developed, a number of investigators have attempted to review and summarize research evidence. Recently, the number of such reviews has increased, and while the reviews generally arrive at similar conclusions, each focuses on a somewhat different literature base and applies a different analytical focus. In selecting reviews for discussion here, an effort was made to include prominent reviews that assess the literature most comprehensively.

Voegtlin and Lemere

In the earliest comprehensive review of treatment effectiveness, Voegtlin and Lemere (325) considered over 100 studies that appeared in the literature between 1909 and 1940. Their review separated psychological from physiological treatments for alcoholism and included within each category many treatments that today would not be considered formal psychological or medical treatments. For example, incarceration was considered a crude psychological treatment; unscien-

tifically based therapies, such as dietary restrictions on salt and water, were categorized as physiological.

Voegtlin and Lemere concluded that poor "statistical" evidence existed and that none of the treatments then available for alcoholism had proven effective. In a systematic review of each treatment modality, however, they did suggest that some techniques showed good effects and appeared promising. Among these were treatments such as inpatient psychotherapy and certain drug therapies. What seems clear from Voegtlin and Lemere's review, and has been partially supported by later reviews, is that treatments for alcoholism are differentially effective for particular populations and that treatments offered in combination seem more effective.

Emrick

Emrick's (93,94,95) reviews of treatment effectiveness research which appeared initially in 1974 and 1975, although not the first work to appear

subsequent to Voegtlin and Lemere's review are important because of their emphases on methodologically acceptable studies. (Hill and Blanc's earlier review in 1967 of psychotherapeutic methods of treating alcoholics (135; see 32) found that only 2 out of 49 available studies met minimum methodological standards. In each of Emrick's reports, the goal was to review research conclusions comprehensively as to effective treatment.

In 1974, Emrick (94) reviewed 271 reports found in the alcoholism literature published between 1952 and 1971. He noted that 67 percent of the 13,817 patients in these studies either improved or were abstinent at followup. Emrick's conclusion was that "once an alcoholic has decided to do something about his drinking and accepts help, he stands a good chance of improving." Emrick cautioned, however, that no evidence documents that one treatment modality is more effective than another. "The weight of present evidence," he wrote, "is overwhelmingly against technique variables being powerful determinants of long-term outcome." Although Emrick seemed to indicate that many alcoholics can stop drinking with minimal or no treatment, and that abstinence rates do not differ between untreated and minimally treated alcoholics, he also maintained that rate of improvement correlates positively with amount of treatment received: 4.2 percent of alcoholics improved with little or no treatment, and 63 percent improved with treatment.

An update (9s) of Emrick's original review added 126 studies of "psychologically oriented" treatments for alcoholism to those studies previously reviewed. The focus of this review was primarily on the effects of treatment versus those of no treatment. However, the results are difficult to interpret because there were relatively few studies with no-treatment conditions and because patient characteristics were not controlled. Emrick also included a group of studies with minimal treatments (fewer than five outpatient visits or 2-weeks' inpatient treatment). He found no significant differences in either abstinence or improvement rates between the no- and minimal-treatment studies (13 and 21 percent abstinent, respectively, and 41 and 43 percent at least somewhat improved, respectively). He did, however, find that more than minimal treatment had an effect on ab-

stinence and improvement rates. Twenty-eight percent of those with more than minimal treatment were abstinent, and 63.1 percent were improved after 6 months or more after treatment. It appears that, as Emrick stated, treatment "seems to increase an alcoholic's chances of at least reducing his [or her] problem."

Emrick's last review (93), published in 1979, focused exclusively on randomized clinical trials of alcoholism treatment. Such studies deal with the most significant confounding factor in alcoholism research—the biases that occur when patients select their own particular forms of treatment. Emrick documented 90 studies that used random assignment of patients to two or more treatments. Almost all studies he reviewed compared treatments to one another, rather than to "no treatment." In general, Emrick was able to distinguish few differences. There seemed to be more evidence of the efficacy of behavioral approaches (including aversion training and systematic desensitization). For nonbehavioral approaches (including inpatient treatment and outpatient psychotherapy), brief interventions were as successful as longer ones.

Although it might be concluded from Emrick's reviews that treatment for alcoholism is neither efficacious nor effective, the limits of the research considered in his analyses should be recognized. In particular, the review of randomized clinical trials of treatment is limited by the fact that the studies tended to be behavioral studies with very specific objectives. What is clear is that experimental clinical research was not available at the time of Emrick's reviews to answer the questions about treatment efficacy.

Baekeland, Lundwall, and Kissin

Shortly after Emrick's initial work appeared in 1974, Baekeland, Lundwall, and Kissin (18; see also 16) reviewed the state of knowledge about the effectiveness of particular treatments for alcoholism. Their comprehensive review analyzed research evidence for each of the treatment modalities then in use. They separately reviewed inpatient and outpatient treatments (although these were not independent categories) along with psy -

chotherapeutic, drug, and sociocultural treatments.

Their substantive conclusions are difficult to summarize. For each of the settings and treatment modalities, some evidence of successful outcome was found. For example, the investigators' analysis of 30 studies of inpatient treatment for alcoholism indicated improvement rates of almost 50 percent. When corrected for attrition from the study sample and spontaneous remission, however, the improvement rates were somewhat lower, approximately 30 percent. In comparing inpatient treatment with outpatient care, Baekeland and colleagues' conclusion was similar to Emrick's (94,95): although methodological caveats apply, research does not demonstrate that inpatient care offers greater likelihood of successful treatment than outpatient treatment.

One problem identified was that characteristics of the patient, rather than the treatment, seemed to affect outcome importantly. The issue is complex because one of the central differences between patients may be their persistence in continuing treatment. Patients with stable marital and occupational status and higher socioeconomic status have better outcomes in that they are both better able to help themselves and respond better to treatment.

It is also clear from the Baekeland reviews that there *are considerable* differences as to who receives or takes advantage of particular treatments. One example is Alcoholics Anonymous (AA). According to Baekeland and colleagues, the large membership AA has attracted is not representative of alcoholics. For various reasons, there are many alcoholics for whom the program is not a good option. The question, then, is whether AA's reported effectiveness is really a function of self-selection by potential members with the best prognoses.

Costello

Another systematic review of the alcoholism treatment and evaluation literature, by Costello (71,72,73), appeared in 1975. In his first report (71), Costello analyzed the results of 58 treatment evaluations published between 1951 and 1973. A followup report (72) separately analyzed 23 of

these studies that had the longest term followup (2 years). In a 1977 update (74) of this research base, 22 additional studies representing more *recent* approaches were located and compared to the original set. Costello's approach is similar to that of other contemporary reviewers: although he does not conduct a formal synthesis (350), his goal is to compare systematically the results of available investigations.

Costello rated studies according to outcome and tried to determine if differences in the characteristics of the treatment programs were related to the outcomes (71,72). Studies were grouped in five categories, from best to poorest, on the basis of both the percentage of successful abstainers and the percentage of problem drinkers. The average percentages, in Costello's initial analysis, varied from 12 percent successes and 60 percent problems to 45 percent successes and 44 percent problems. The percentage of patients who were lost to followup or who died were kept separately.

The findings, which were consistent for both the initial and later samples, indicated that small programs using a variety of intensive techniques (e.g., inpatient care, drugs, psychotherapy) were most successful. The findings were ambiguous, however, and it was also the case that programs using stringent patient selection criteria were most successful. Although it might be viewed that the research was designed to achieve the best outcomes, this finding may also demonstrate the value of providing intensive therapy only when it has a reasonable chance of success. Like other reviewers, Costello found that patients with characteristics such as stable marital and occupational status were more likely to benefit from treatment.

Costello's 1977 update (74) of his 1975 work further validated his initial conclusions. Although a very small increase in successful outcomes and reduction in problem drinking can be detected overall, the range of outcomes is about the same. This suggests that over a relatively long period of time approximately 45 percent of patients in good treatment programs can be expected to maintain sobriety (to drink without problems), and an almost similar rate of patients can be expected to have relapses. It is difficult to know how to interpret these rates. Compared with treatment

success rates for some terminal illnesses, the success rates are good; when viewed against spontaneous remission rates of perhaps 30 percent, they appear less promising. A key question is to what extent the outcome of treatment for alcoholism is determined by patient characteristics.

Rand Studies

The so-called Rand studies, which first appeared in 1976 and 1980 and have been a focal point of debate and policy about alcoholism treatment, are not actually reviews of the alcoholism literature. The studies represent followups at 6 and 18 months (13) and 4 years (250) of patients treated at the National Institute on Alcohol Abuse and Alcoholism (NIAAA) Alcoholism Treatment Centers (ATCS). The importance of the Rand studies is that they followed a large sample of alcoholic patients, who received a wide variety of treatments, and systematically assessed their patterns of drinking.

In the initial study (13), a research team headed by Armor and colleagues considered data from almost 2,000 patients treated at eight ATCS. The investigators analyzed data at 6 and 18 months after treatment. At the 6-month followup, 68 percent of patients completing treatment showed improvements in their drinking behavior. At the 18-month followup, the results were similar (67 percent showed improvement): 24 percent had been abstinent for at least 6 months, 21 percent had been abstinent for 1 month, and the remaining 22 percent were characterized as normal drinkers. Patients were considered to be in remission if they either abstained from drinking or engaged in normal drinking (moderate quantities without signs of impairment). By this criterion, 68 percent of NIA&l patients were in remission at 6 months and 67 percent at 18 months; furthermore, relapse rates did not seem related to ability to abstain. Fifty-three percent of clients who made only a single contact with an ATC (the "untreated" population) were in remission.

The Rand studies generated intense controversy (see, e.g., 96,213,267) because they suggested that it was not necessary that abstinence be the central treatment goal of alcoholism therapies. Critiques of the Rand analyses indicated that the data

were not valid for several reasons: the ATC sites were not randomly selected; about 80 percent of the patients were lost to followup; the report relied on self-reports; and the criteria for normal drinking were not stringent enough. The investigators countered by presenting data indicating that the patients lost to followup were not different from those for whom data were available and that the self-reports were valid. In addition, the use of more stringent definitions of impairment would have reduced the proportion of normal drinkers from 22 percent to, at most, 17 percent.

In a followup to the initial survey (250), Rand researchers (led by Polich and colleagues) collected and analyzed data from a random sample of over 900 patients from the first study. Followup interview data were obtained from 85 percent of the sample. An analysis of effects of nonresponse and sample bias seemed to indicate little distortion. Separate validity checks were conducted on self-report data by having a random subsample of participants take breath tests to evaluate their blood alcohol concentration. In addition, family members were interviewed. Finally, more stringent, empirically based definitions of normal drinking were used. These checks yielded high correlations between self-reports and physiological measures, although the results for reports by significant others* were unclear. Most importantly, adjustments for overreporting "no problems" seemed to make little difference in the outcome rates reported without correction.

The principal finding of the subsequent Rand analyses was that although a large percentage of alcoholics go into remission for periods of time, a substantial proportion relapse and reenter treatment. Only 7 percent of the total sample abstained throughout the entire 4-year period, and nearly 15 percent died (mortality was 2.5 times what would have been expected). Nonetheless, there was a significant decrease in the percentage of individuals with very serious alcoholism problems. At initial treatment, over 90 percent were drinking with serious problems according to NIAAA criteria, whereas after 4 years, only 54 percent were drinking with serious problems. The policy

*Significant others are individuals important to the alcoholic. They can be friends or family.

significance of this reduction is difficult to determine. The results may be due to individuals entering treatment at the worst phase of their problem (for these individuals, some improvement would be expected). Improvement may also not be directly attributable to treatment. No treatment

method in particular seemed to achieve consistently positive results. Although there are a number of diverse treatments that appear to have positive effects, it is difficult to draw clear conclusions in the absence of random assignment and deliberate treatment-patient matches.

STUDIES OF TREATMENT SETTINGS AND SPECIFIC MODALITIES

The above reviews suggest a need for providing various treatments for alcoholism, although evidence on the superiority of particular treatments is lacking. The important policy issue—i. e., the extent to which alcoholism treatment should be supported—is thus only partially addressed. The question of which treatments have the best demonstrated effectiveness under particular conditions for which patients remains unanswered. Below, additional evaluative research on a number of specific treatments and settings is reviewed. Both the setting of treatment (most importantly, inpatient v. outpatient) is considered and the use of treatment modalities such as psychotherapy, drugs (including chemical aversion therapy), and self-help treatments (AA) are considered. Although not a comprehensive review, the discussion covers treatments that are the most frequently employed and are the current focal points of discussion about alcoholism treatment.

Setting

Perhaps the most controversial treatment issue concerns the use of inpatient v. outpatient treatment settings. The necessity for hospitalizing alcoholics—i.e., for providing treatment over and above that necessary for detoxification or dealing with medical complications of ethanol use, is both a substantive problem (relating to treatment goals and effectiveness) and a significant policy problem (because of the high costs associated with hospitalization). Unfortunately, assessments of the effectiveness of particular settings are difficult to separate from the effectiveness of treatment modalities. The setting of treatment is only one factor influencing treatment effectiveness. The review below deals with research comparing outcomes by setting, although a more complete analysis re-

quires parallel consideration of evaluative data for specific modalities.

There seems to be consensus across a number of literature reviews that inpatient treatment is not superior to outpatient care for alcoholism (cf. 92), but most of the available research is flawed because the effects of treatment variables cannot be distinguished from the effects of patient variables. Thus, more severely impaired patients and those of higher socioeconomic status are more typically assigned to, or arrange to receive, inpatient treatment. Furthermore, a distinction is not often made between hospital- and non-hospital-based inpatient (i.e., residential) treatment, although the nature of such settings may be very different (317). Not making this distinction results in the aggregating of results from different types of inpatient settings in literature reviews. Because alcoholism treatment takes place in a variety of hospital settings it may be important to distinguish between their effects.

Several studies have specifically addressed the question of inpatient v. outpatient efficacy or effectiveness. Reviews by Costello (71,72,73) and Baekeland (16) addressed the inpatient-outpatient issue, and the Rand analyses (13,250) compared inpatient and outpatient care. The reviews and studies on which the reviews' conclusions are based are discussed below. Length of treatment as an outcome variable is also discussed.

Ritson

Ritson (263,264) looked at 6-month and 1-year outcomes in two groups of patients. He found no significant group differences between the group that received outpatient care (individual therapy) and the one that received inpatient treatment

(group therapy and AA). However, as apparent, this study confounded treatment modalities with settings. In addition, patients were probably not randomly assigned to experimental groups.

Edwards; Edwards and Guthrie

A series of studies by Edwards and colleagues (87,88,89,90) has been well received critically, because Edwards and his associates randomly assigned socially stable patients to different settings for the same treatment modalities. Well-matched patients were randomly assigned to either 2 months of "intensive" outpatient care followed by outpatient aftercare or to 8.9 weeks of inpatient treatment followed by outpatient aftercare.

Outpatient care was found to be more efficacious with regard to global ratings but not until 12 months after treatment. The populations differed somewhat in marital status (80 percent of the outpatients were married v. 60 percent of the inpatients), although the differences were probably of no consequence. The findings are limited by the exclusion of some treatment modalities (e.g., group therapy) and of alcoholics with severe mental or physical disease.

Wanberg, Horn, and Fairchild

In apparent contradiction to Edwards' results, Wanberg and colleagues (330) found 2 weeks of intensive inpatient treatment to be more effective with respect to drinking indexes 90 to 100 days after intake than three or more in-community treatment sessions. In this study, both types of initial treatment were followed by outpatient group therapy. The study differed from the Edwards studies in that 51 percent of its patients were married and the length of both intensive treatment and evaluation in this study were longer. In addition, outpatient treatment in the Edwards studies was intensive. It is possible that any short-term differences between the Wanberg groups might have disappeared or changed direction at a later point in time.

Gallant

Gallant (107) investigated a population of chronic offenders brought before a municipal court. Individuals convicted of an alcohol-related

offense were randomly assigned to either 1 month of coerced inpatient treatment followed by 5 months of coerced outpatient treatment or 6 months of coerced outpatient treatment. Gallant found no differences between the inpatient and outpatient groups on outcome measures related to alcohol use; however, 44 percent of the offenders assigned to inpatient care received necessary medical attention.

Baekeland

Baekeland's (16) review analyzed improvement rates and found that uncorrected improvement rates were essentially the same for inpatient and outpatient settings (41.5 percent). When the rates were corrected for sample attrition and spontaneous improvement, however, outpatient settings (with an average improvement rate of 36 percent) were slightly more effective than inpatient settings (with an improvement rate of 29.9 percent).

Costello

Costello's report (71,72) which used the statistical technique of cluster analysis to discover the distinctions between studies reporting outcomes of very good, good, intermediate, poor, and very poor concluded, on the other hand, that the inpatient unit was a valuable asset to a treatment program. However, it also concluded that an inpatient setting without an intensive community milieu and aggressive outpatient followup would be of limited value.

Ten of the studies characterized as having very good outcomes combined inpatient with outpatient treatment; two used outpatient only, and two, inpatient only. The studies reporting very good outcomes were also characterized by a variety of other characteristics associated with good outcomes: the use of screening procedures that eliminated high-risk clients, considerable use of Antabuse® or its equivalent, social casework, family therapy, involvement of employers, and behavioral therapy.

Costello's analysis is limited by the inclusion of both controlled and noncontrolled evaluation studies (cf. 18, for a discussion of these limitations). The previously discussed Edwards (88), Edwards and Guthrie (90), and Ritson (263,264)

studies were included in the group with very good outcomes.

Rand Studies

The 18-month followup study of patients treated at NIAAA ATCS by Armor and colleagues' (initial Rand analyses, 13) found only minor variations in outcomes among hospital, intermediate, and outpatient settings. Furthermore, these variations virtually disappeared when the analysis controlled for client characteristics. The 4-year followup by Polich and colleagues' (subsequent Rand analyses, 250) found no differences between outcomes for hospital and outpatient settings.

In the Polich analysis, intermediate care was combined with outpatient care. The Polich analysis found a positive correlation between the amount of treatment and the followup status in outpatient (but not inpatient) settings. The authors hesitated to attribute these differences to the impact of the outpatient setting because of the possibility that patient selection phenomena might have been responsible for the relationship. Better motivated patients might have remained in treatment longer, or more favorable treatment environments might have encouraged more promising patients to stay in treatment. The authors were unable to test this possibility with the data available.

Emrick

In general, according to Emrick (92), controlled studies of psychotherapeutic treatments have not found any positive effects for lengthy intensive treatment either on an inpatient or outpatient basis. An important methodological limitation of available controlled studies, however, is that none of these studies used an intensive treatment longer than 3.5 months of inpatient care; all of these studies used relatively brief treatments. The effects of long-term efforts, some of which are oriented to making character changes, have not been evaluated. In addition, research subjects who receive differing amounts of treatment typically receive different kinds of treatment as well, making it difficult to distinguish the type of therapy from its intensity or duration.

Behavioral Therapies

In the last 20 years, the most developed uses of psychotherapy for alcoholism problems have been in the application of behavioral conditioning techniques (see 208). Most behavioral therapies rely on positive reinforcement, cognitive change, and the development of new skills, although aversion conditioning is also employed (see below). Behavioral techniques, as described in chapter 3, include blood alcohol level discrimination training, use of videotapes of patients when intoxicated, role playing, cognitive behavior therapy, and alternatives counseling. Some researchers have combined these approaches into treatment packages and have attempted to individualize the treatments to meet specific patient needs. There has been some research interest about these broad-spectrum approaches. Three of the most important research efforts are reviewed below.

Individualized Behavior Therapy for Alcoholics

A treatment program called the Individualized Behavior Therapy for Alcoholics (IBTA) was developed by Sobell and Sobell (298,301,302) and has been extensively tested by the program designers. Their findings indicated that regardless of whether the assigned treatment goal was "abstinence" or "controlled drinking," many of the patients who received treatment were drinking in a nonproblematic way compared to the patients in a control group. The investigators also found, ironically, that those patients who were assigned "controlled drinking" as a goal had more abstinent days than those assigned "abstinence." Another important aspect of this study was that the package prescribed a thorough analysis of each individual's behavioral determinants for drinking. A new repertoire of social behavior, designed to replace the old behavioral patterns, was carefully rehearsed. Changing attitudes toward drinking was a second major focus. Sobell and Sobell reported successful outcomes with IBTA (302).

Sobell and Sobell's research on the IBTA has been criticized because it used the treatment goal of "controlled drinking;" recently, serious questions have been raised about the appropriateness of this research method and its conclusions. A

followup study by Pendery, Maltzman, and West (246) of patients in the controlled drinking condition of the Sobell and Sobell 1972 study sharply contradicts the original study's findings. Pendery and associates report that after 10 years, only 1 of 20 subjects was drinking "normally" and without problems. Four of the original subjects had died of alcohol-related causes, eight were drinking excessively, one was not found for followup, and six were totally abstinent (although each had had serious drinking problems since the experiment). According to Pendery and associates, learning how to control drinking maybe impossible for an alcoholic, and abstinence is the only workable treatment goal.

Three recent studies by Vogler and colleagues (326,327,328) tested a package treatment program similar to IBTA. In one Vogler study (326), an overall success rate of about 65 percent was reported (i.e., 65 percent were not problem drinkers after a year). There was no reported difference between the two matched groups of hospitalized chronic alcoholics. One group received the full broad-spectrum package, while the second group received only the educational component, counseling, and alternatives training.

In another Vogler study (327), four groups of problem drinkers each received different combinations of treatments. Again, all groups showed improvements, and there were no differences between groups. In this attempt to "unpack" the broad-spectrum approach, Vogler found groups with alcohol education alone did just as well as groups with more complex treatments. There was an 80-percent attrition rate in this study, limiting the weight that can be given the findings.

Pomerleau's study (252) monitored middle-class alcoholics who were more motivated than subjects in other studies and who were functioning at higher levels. Of 18 patients treated with behavioral techniques, 16 continued in treatment. Of 14 treated with "traditional" methods, only 6 remained in treatment. Because the numbers are so small, the conclusion that behavioral techniques may have advantages over some other therapeutic approaches can be made only tentatively.

Aversion Therapy

In the 1940's, Voegtlin, working at the Shadel Hospital in Seattle, described the use of chemical aversion therapy and reported aversion as a successful treatment (324). Of the 4,096 patients who received chemical aversion therapy, 42 percent had remained totally abstinent and 60 percent were abstinent for at least a year. Thimann, in a study conducted at about the same time, reported a 51-percent success rate (312). More recently, Wiens and colleagues, working at the Raleigh Hills Portland Hospital, found that 63 percent who received the treatment were abstinent for a year (335). These relatively positive findings of the effectiveness of aversion therapy have been replicated at several other Raleigh Hills and Schick-Shadel hospitals.

The Raleigh Hills and Schick-Shadel hospitals use a variety of methods for treating alcoholics, including counseling and AA, but aversion counterconditioning therapy, using the drug emetine, is a central element of their programs (see ch. 3). Patients, who are typically hospitalized for 11 to 14 days (including detoxification), receive aversive conditioning therapy every other day (about five times). Then, as outpatients, they return for reconditioning aversion therapy up to seven times a year.

Despite the relatively high rates of reported abstinence, reviews of aversion therapy are cautious in their analysis of its effects based on nonexperimental studies. Nathan and Lipscomb, for example, maintain that positive results are probably a function of the types of patients that enter these treatments (209). These investigators believe that patients at private hospitals, such as Raleigh Hills, have better prognoses at the beginning of treatment, especially because of their higher socioeconomic status. The data of Neuberger and colleagues (220,221) provide some support for Nathan and Lipscomb's contention. In two samples from 1975 and 1976 (220), these investigators found poorer results than typical (1-year post-treatment abstinence rates of 39 and 50 percent, respectively), and they attributed these to the fact that the samples included a larger number of Medicare, unemployed, and/or unmarried patients.

Their most recent data (221) indicate that disabled Medicare patients have relatively poor outcomes (36-percent abstinence rate, 1-year post treatment), but validate earlier findings of good outcomes for socially stable patients (up to 73-percent abstinence rate for married and employed patients).

The principal question about evidence on aversion therapy is whether treatment outcomes can be attributed to demographic factors, to the use of a broad-spectrum treatment program, or to aversion conditioning itself. Definitive answers to such questions will have to await controlled tests of components of programs that use aversion therapy. It should be noted, however, that patients who successfully abstain following treatment attribute their success to aversion therapy, while those who continue drinking think the most valuable program component is counseling (316). In addition, there is clear evidence that the number of reinforcement sessions following treatment is importantly related to abstinence. For certain patients, in particular those with socially stable backgrounds, aversion therapy may be a useful aid and worth the considerable discomfort it involves. For other patients, perhaps those unmotivated or for whom nausea is not a powerful aversive stimulus, it may not be effective.

There is some basic research evidence of aversion therapy's usefulness (e.g., 55), as well as theoretical arguments to support its efficacy (343). One theoretical problem is that the mechanism underlying its effects may be more complicated than learned association, and cognitive factors may interfere with behavioral conditioning. The effectiveness of aversion therapy may also depend on the technique used to develop the aversive state. Emetine-induced nausea is the most widely used stimulus, but there are many alternatives. Electric shocks have been used in some cases, although not very successfully (209). Some success has been reported with imagined aversive stimuli (s7), but this technique is not widely used.

Various Government agencies have reviewed chemical aversion therapy. The Food and Drug Administration, while it has not approved the use of emetine, does not believe that the evidence on emetine's hazards warrants the imposition of regu-

lations (222). A Public Health Service review recommended that chemical aversion therapy be covered under Medicare (see 222). An Alcohol, Drug Abuse, and Mental Health Administration/NIAAA panel that met in January 1980 also concluded that chemical aversion therapy is probably an effective treatment, but that the lack of controlled trials leaves the question of its safety open (222,261). They sought new research to provide scientific data on safety and efficacy.

Nonbehavioral Psychotherapies

Although there has been considerable research in recent years on the effectiveness of traditional psychotherapies (cf. 227), their use for treating alcoholism has not been validated. In the first review of psychologically oriented treatments, Voegtlin and Lemere (325) found little usable statistical information to indicate the success of psychoanalytically based therapy. Similarly, Hill and Blanc, in their review of psychotherapy outcome studies (135), found that methodological problems made conclusions about the effectiveness of psychotherapy difficult to support. Baekeland's (16,18) and Emrick's (92,93) reviews of controlled studies found no treatment effects for a variety of traditional outpatient psychotherapies compared with each other or with other treatments; only one study Emrick reviewed found that traditional insight-oriented therapy resulted in better economic and legal outcomes than did contact with AA. Emrick found only eight controlled studies, many of which varied aspects of treatment other than the type of therapy (e. g., abstinence v. controlled drinking as a goal of treatment).

The confounding of treatments is illustrated by the controlled study conducted by Corder, Corder, and Laidlaw, which supported the effectiveness of couples therapy (70). In this study, experimental subjects received, in addition to 4 weeks of treatment for alcoholism, an intensive 4-day workshop. The workshop included a couples therapy session, videotape analysis, lectures and discussions, and meetings with AA and other follow-up treatment representatives. Seven months after treatment, 55 percent of those in the couples group were abstinent, and more experimental subjects

were employed and involved in aftercare than were controls. It is difficult to determine which aspects of treatment made the essential difference.

In addition to methodological problems with existing studies, many approaches that are used widely with nonalcoholics (e.g., Gestalt therapy) have not been adequately investigated for use with alcoholics and alcohol abusers. Research comparing different lengths of treatment, from very brief (one to six sessions) to longer treatments (including extended aftercare), is also needed.

Drug Treatments

Pharmacological treatments for alcoholism have a long history of use (cf. 16,23,206,325), although the effectiveness of such drug treatments is not widely accepted. One reason for questioning their effectiveness is that research on drug treatments has been "careless" (16). In addition, the effects of drugs appear to be closely tied to patient compliance and the use of other therapies. Despite these problems, however, drugs are widely prescribed for alcoholics (as many as 90 percent of physicians in private practice report using medication in their treatment of alcoholism), and the use of drug therapies has been associated with positive treatment outcomes (13,71,72,75).

Considered below is outcome research on two major types of drugs for treating alcoholism: 1) sensitizing agents (e.g., Antabuse[®]) and 2) mood-altering drugs (e.g., lithium). Excluded from consideration are drugs used in the treatment of alcohol withdrawal and drugs used to manage alcohol-associated medical disorders (e.g., vitamins for vitamin deficiencies). A brief discussion of safety issues is included.

Sensitizing Agents

Treatment of alcoholism with drug agents that sensitize (i.e., make ill) patients who ingest alcohol has become the most common form of treatment. Antabuse[®] treatment is used as an adjunct in many inpatient and outpatient alcoholism treatment programs and is used in conjunction with a number of therapies. The initial Rand report by Armor and colleagues (13) indicated that 30 percent of all patients studied received Antabuse[®] at some point in their treatment.

Although there is substantial information about Antabuse[®], Becker (23) notes that there is no consensus about its effectiveness. Studies that report effective outcomes (e.g., patients maintaining sobriety) with Antabuse[®] tend to be uncontrolled. There seems to be clear evidence that older, more stable, and highly motivated people use Antabuse[®] successfully, and this may explain positive outcomes.

In part, the effects of Antabuse[®] are difficult to assess because of how the drug is used in alcoholism treatment. The drug makes the alcoholic sick and unable to ingest alcohol, but these effects can be eliminated by the alcoholic's refusing to take the medication. Within 24 to 72 hours after stopping the drug, a user can resume drinking, apparently without having learned to control his drinking behavior. Antabuse[®] seems to force the alcoholic only to delay satisfying the urge to drink. Since Antabuse[®] treatment is given in conjunction with other treatments and depends so greatly on voluntary compliance of the patient, its effectiveness may vary widely according to the patient's maturity and the effectiveness of parallel treatments.

Antabuse[®] does have associated safety problems and can be lethal if ingested with sufficient alcohol. Cardiovascular problems and other chronic disorders are considered contraindicators for its use. Several other drugs (e.g., tramposil, metronidazole) have been proposed as alternatives, but Antabuse[®] still appears to be the drug of choice for deterring consumption of alcohol while in a treatment program (23). Antabuse[®] or other sensitizing drugs can reduce drinking while the patient works out his or her problems.

Mood-Altering Drugs

If it is assumed that psychological factors are part of the alcoholism syndrome, it is reasonable to expect mood-altering drugs to have some benefit. Obviously, these benefits will be greatest for those patients for whom psychological problems are most severe. Depression and anxiety are two such problems for which drug therapies have been widely employed.

In one large-scale and methodologically sophisticated study by Overall (235), negative findings

concerning the effectiveness of chlordizepoxide (Librium™) in reducing symptoms of anxiety and depression were reported. Several studies, however, indicate such medications are superior to placebos (16). After detoxification, it is common to prescribe an antianxiety agent, although some question this practice because the alcoholic can also become addicted to these medications.

Studies of the efficacy of tricyclic antidepressants in the treatment of depressed alcoholics report contradictory results: some fail to show beneficial effects from these drugs; others suggest a high rate of improvement with their usage (303).

The evidence regarding the use of lithium has been inconclusive (169,200). Problems include the length of time for the medication to take hold and the dangers of mixing these drugs with alcohol. In addition, lithium requires extremely careful monitoring, which makes its safe usage a complicated process (169).

Self-Help Groups

AA was described earlier as a sociocultural treatment regarded by some people as the most effective form of treatment of alcoholism—more effective than any of the approaches that profes-

sionals offer. Various problems, however, with specifying the population that uses AA and a lack of hard evidence make such conclusions regarding AA's effectiveness difficult to verify or discount. Baekeland (16), in his review of literature about AA, reports a 34-percent *success* rate—much lower than some of the earlier figures. Other reviewers have reported abstinence rates from 45 to 75 percent, depending on the length of the reporting period (173).

The problem in evaluating AA is that its members probably differ from the general population of alcoholics, but data supporting this statement as well as other data about AA are hard to obtain (16). Although a substantial number of regular attendees are abstinent (see s), it is unclear how this number relates to the number who try the program. Nonabstainers maybe subjected to ridicule and reproach by other members, so it is probably more likely than not that individuals who remain in AA for long periods of time are those who have achieved sobriety. It seems clear that some aspects of AA programs have useful therapeutic roles (e.g., getting alcoholics to acknowledge their problem, and providing a support system), but AA may only be applicable to some categories of alcoholics and alcohol abusers.

CONCLUSIONS

Research on treatments for alcoholism and alcohol abuse seems to be in transition. The 1970's saw a number of attempts to summarize conclusions of piecemeal research on treatment conducted during the last several decades. The conclusion of many of these reviews is that treatment seems better than no treatment, but that methodological problems render it difficult to conclude that any specific treatment is more effective than any other. Importantly, however, various treatments—such as aversion conditioning or AA—have been shown to be effective for some patients under some conditions. Given the diversity of alcohol problems and patients, what seem necessary are treatments tailored to specific patients.

What is also clear is that further research must be conducted to test competing claims (111,144). Although some of this research can reasonably

be done without direct Government support (e.g., by proprietary organizations), a Federal role seems needed to develop such research. Ideally, both experimental and clinical trial research would be supported. Such methods, although not without their own problems, offer the best hope for providing objective and unambiguous data about treatment effectiveness.

Aside from questions of effectiveness (and, to a certain extent, of safety), efficiency issues must also be addressed. It is clear from even a cursory review of the literature, that the costs of alcoholism and alcohol abuse are very large. As the costs for treatment increase, evidence is needed about which treatments offer the greatest value for the resources required. The research questions regarding such costs and benefits are described in the next chapter.