

Effective Treatment for Drug and Alcohol Problems: What Do We Know?

Claims for the effectiveness of treatment for drug and alcohol problems differ dramatically. A recent overview of alcoholism-treatment outcome studies documented widely differing claims, ranging from a better than 90% recovery rate reported by a free-standing hospital facility to a 7% abstinence rate reported by the Rand Corporation for U.S. federally funded facilities.(1) What accounts for such divergent findings on treatment effectiveness? Can the content of different programs vary so radically that some produce a 90% abstinence rate while others generate only a 7% abstinence rate?

Such variant claims of outcome effectiveness are likely to be a function of factors other than the treatment as such. For example, the 90% recovery rate referred to clients who had successfully completed a 28-day residential program and had maintained active involvement in a one- to two-year aftercare program; within this highly selected group of clients, more than 90% had "continuous sobriety" or were "currently sober" but had experienced relapses while still in aftercare. In contrast, the 7% recovery rate reported for clients of government-funded facilities referred to successive male admissions who were continuously abstinent for 4.5 years following treatment. In addition to obvious differences in sample selection and attrition, definition of successful outcome and length of the follow-up interval - any one of which could explain the widely discrepant outcome rates observed - the treatment programs may well have differed in the characteristics of the client populations served. Extreme caution therefore is required in interpreting reported outcome rates.

Although most studies on the effectiveness of alcohol- and drug treatment programs have been conducted outside the correctional system, the results of these studies are relevant to understanding the role of: (a) client characteristics; (b) program length, setting and intensity; (c) treatment methods; (d) client-treatment matching; and (e) relapse-prevention strategies with offender populations. Each of these areas is reviewed below.

Client Characteristics

There are numerous studies exploring the importance of client characteristics in treatment outcome. How do the outcomes of male and female alcoholics compare? Although it is frequently asserted that female alcoholics have poorer prognoses than male alcoholics, reviews of the empirical literature reveal that alcoholic men and women do not differ in treatment outcome rates.(2) However, positive response to alcohol and drug treatment has been associated with several client characteristics other than sex: being married, employed, of a high social class, financially secure, socially active and well adjusted to work and marriage, and having little history of arrest. Unfortunately, these positive prognostic characteristics are not typically found in offender populations.

In fact, poor treatment outcome has been associated with client characteristics that are prominent in offender groups: aggressiveness, high rates of attempted suicide, organic brain syndrome and sociopathic personality. Work by McLellan and his colleagues(3) with both alcohol- and drug-dependent clients indicates that the severity of psychiatric symptomatology is an important factor in predicting response to treatment; alcohol- and drug-dependent clients with low psychiatric severity at admission have achieved good outcomes across a variety of treatments, whereas those with high psychiatric severity have shown

little improvement and uniformly poor outcomes. Offenders with a dual diagnosis (a psychiatric diagnosis and a diagnosis of alcohol or drug abuse and dependence) are likely to respond poorly to substance-abuse programming.

In summary, it is important to recognize that:

1. client characteristics have played a major role in predicting response to alcohol- and drug-treatment programming;
2. some offenders can be expected to have a number of poor prognostic characteristics; and
3. any comparison of outcome rates across treatment programs must take into account differences in the characteristics of the offender populations served.

Program Length, Setting and Intensity

In the past few years, there has been much interest in how the intensity and duration of treatments and treatment settings affect outcomes. Spiralling health-care costs have stimulated an assessment of the effectiveness of traditional methods of service delivery compared with lower-cost alternatives. Specifically, questions have been raised about the required length of residential treatment, the cost effectiveness of residential versus day treatment, and out-patient alternatives.(4)

Findings from well-controlled clinical trials have been remarkably consistent in reporting no advantage for lengthy or intensive treatment programming. For example, residential alcoholism treatment lasting one to two weeks has been found to produce results comparable to treatment lasting several months. Furthermore, random controlled trials at the Donwood Institute in Toronto, Ontario,(5) and the Butler Hospital in Providence, Rhode Island,(6) demonstrated equally positive outcome results for clients in day-treatment programs and those in more costly residential treatment. These studies suggest that factors other than treatment length and setting should receive greater attention in the design of future substance-abuse treatment programming.

Another question that has been raised is whether treatment on an outpatient basis may be as effective as residential treatment for alcohol and drug abusers. In a large-scale evaluation of clients discharged from federally funded alcoholism-treatment facilities in the United States, the Rand Corporation found no differences in outcome for clients treated in out-patient programs and those in residential programs. Similarly, the Drug Abuse Reporting Program (DARP), involving 44,000 clients from 52 federally supported drug-abuse treatment centres throughout the United States, reported that for opioid addicts, other drug-abusing adults and youth clients (19 and under), there was an out-patient treatment option (methadone maintenance or drug-free out-patient counselling) that was equally as effective as or more effective than residential treatment. The results from these large-scale evaluations must be interpreted with caution, however, because clients who self-select to enter residential or out-patient treatment may differ in important but unrecognized prognostic characteristics.

Fortunately, a number of random controlled trials reported in the literature permit a direct comparison of the general effectiveness of outpatient and residential services. In these trials, alcoholics or other

substance abusers were randomly assigned to out-patient counselling or to residential treatment. A number of such studies have been conducted in probation and parole systems. For example, 74 delinquent, drug-abusing adolescents within the San Francisco Juvenile Probation Department were randomly assigned to in-patient treatment or to the usual out-patient probationary care.(7) In-patient treatment averaged 132 days and consisted of psychodynamically oriented psychotherapy, community meetings, family therapy, recreational therapy, psychodrama, and an onward school program. Follow-up at one year after admission showed no difference on a variety of outcome measures, including alcohol and drug use and social functioning between the adolescents receiving in-patient treatment and those receiving the usual out-patient probationary services. Similar results were reported in a study of adult parolees with a history of opiate abuse.(8) Parolees randomly assigned to parole services or an experimental halfway house program showed no differences in the rate of new criminal convictions or in the number of drug-free weeks in the community during the first year following release from incarceration.

The weight of evidence from these and other well-controlled trials is clear. Out-patient treatment for substance abuse can produce outcomes essentially equivalent to those of residential treatment at substantially lower cost.

Treatment Methods

Are some treatment methods more effective than others? This question is currently the subject of some controversy in the field of substance-abuse treatment. Bill Miller, a prominent scientist in the field, argues that certain treatment methods such as aversion therapy, behavioural self-control training, social skills training, stress management, marital and family therapy, and a community reinforcement approach have demonstrated specific effectiveness, particularly in the treatment of alcoholics. (Ironically, Miller notes that these methods are not currently employed in most treatment programs.)

In contrast, other investigators conclude that differences between treatment methods have demonstrated relatively little effect on long-term outcomes. Although statistically significant outcome differences are occasionally reported for different treatment methods, the magnitude of these differences is usually small. Whereas client characteristics at treatment intake typically account for about 30% of the outcome variance, treatment variables account uniquely for only 6% to 7% of the variance, with additional variance being shared with the predictive value of client characteristics. Clearly, much remains to be learned about improving treatment programming.

Client-Treatment Matching

Despite the controversy about the impact of treatment variables on outcome, there is a growing consensus in the field that the search for a single, universally effective treatment approach is misguided. It is now widely acknowledged that there is broad heterogeneity among alcoholics, cocaine abusers and other substance abusers, and that a client with one set of characteristics may respond favourably to one type of treatment or treatment setting, whereas a client with another set of characteristics may respond more favourably to another treatment approach. The attempt to match clients to treatments in order to

improve outcome results is referred to as client-treatment matching or the matching hypothesis. Although the development of empirical evidence of matching effects is in its infancy, there is general agreement that the differential assignment of clients with drug and alcohol problems to different treatments has the potential to substantially improve outcome results.

Over the past few years, the promise shown by a variety of pharmacological agents in the treatment of cocaine abuse has generated much excitement. The agents studied have included desipramine, lithium, bromocriptine, and other psychotropic drugs. Recently, prominent researchers in the area have cautioned that the development of a single, definitive treatment for all cocaine abusers now appears no more likely than it has for opiate abusers or alcoholics. Progress is being made, however, in defining appropriate matches of pharmacological agents to types of cocaine abusers. Studies to date have used DSM-III Axis I symptomatology and have tended to be non-blind, non-placebo preliminary trials. Early data suggest that some pharmacological agents may be effective for specific diagnostic subpopulations of cocaine abusers. For example, methylphenidate, a substitute medication that shares cross-tolerance with cocaine, has been found effective only in the treatment of the 5% of cocaine abusers who have a clearly established attention-deficit disorder. Similarly, non-cyclothymic cocaine abusers have shown no benefit from lithium, whereas lithium has been associated with cessation of cocaine abuse and reduced cocaine craving in cyclothymic patients. Larger samples and double-blind controlled trials are needed to substantiate these findings.

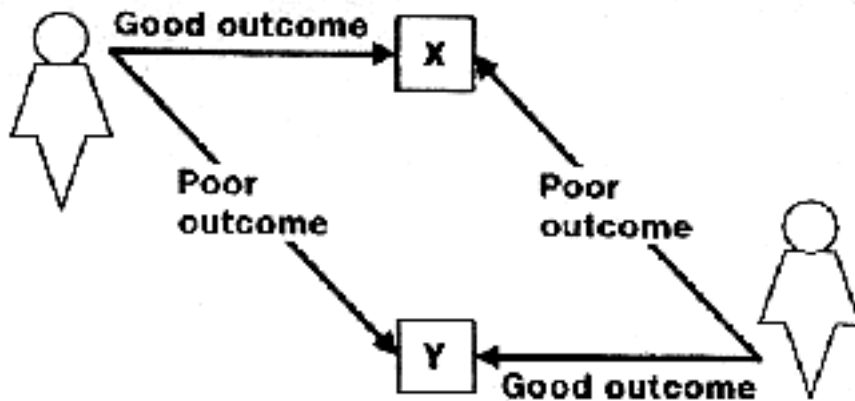
In order to demonstrate a differential treatment response or matching effect, it is necessary to study clients who vary on a particular characteristic under two or more treatment conditions. A simple case is illustrated in the figure: client type "A" has a positive outcome under treatment "X" but a poor outcome under treatment "Y," whereas the reverse is true of client type "B." In this example, a matching effect would still be demonstrated if client type "B" showed a similar outcome under treatments "X" and "Y," and client type "A" continued to show a better outcome under treatment "X."

The search for patient-treatment matching effects requires the reliable assessment of patient variables on the one hand, and treatment variables on the other. More progress has been achieved in the conceptualization and assessment of salient characteristics of patients than in the measurement of treatment variables; nevertheless, advances are being made in the evaluation of certain aspects of treatment environments. The table lists some patient and treatment variables that have received attention in the alcohol- and drug-abuse treatment literature in relation to patient-treatment matching.

Figure 1

CLIENT-TREATMENT MATCHING

CLIENT TYPE A TREATMENTS CLIENT TYPE B



A recent review of substance-abuse treatment literature by this author located 15 studies that provide evidence of successful client-treatment matching effects.(9) One of these studies, conducted on an offender population drawn from Monteith Correctional Centre in Northern Ontario, demonstrated the importance of a personality variable in the differential assignment of alcoholic inmates to a highly confrontational form of addiction treatment. One hundred and fifty incarcerated male alcoholics with a high or low self-image were randomly assigned to 224 hours of intensive, confrontational group psychotherapy or to institutional care. Alcoholic inmates with a high self-image showed a better outcome in the group therapy than in institutional care, whereas the reverse was true of alcoholic inmates with a low self-image. For those with a low self-image, the group therapy program apparently had a detrimental effect.

A study conducted at the Addiction Research Foundation in Toronto demonstrated that an alcoholic client's risk profile can provide a powerful guide for differential treatment assignment. Seventy alcoholics participating in an employee assistance program were randomly assigned to relapse-prevention therapy or to more traditional counselling on an outpatient basis. Each client was classified as having either a "generalized profile" (i.e., similar drinking risk across all categories of risk situations) or a "differentiated profile" (i.e., greater drinking risk in some types of situations than others). At six months, follow-up results showed no difference across the two treatment conditions in typical quantity of alcohol consumed daily by clients with generalized profiles; however, clients with differentiated profiles showed substantially better outcomes under relapse-prevention treatment than under traditional counselling. The results were significant, both statistically and clinically: the client-treatment matching effect accounted for over 30% of the outcome variance.

Relapse-Prevention Strategies with Offender Populations

The prevention of relapse is increasingly being recognized as a central problem in the treatment of alcoholism and other substance abuse. One influential theoretical framework that has been applied to the problem of relapse is Albert Bandura's cognitive-social learning approach. In Bandura's theory of self-efficacy, the critical distinction between initiation and maintenance strategies heralded a significant conceptual development for the addiction treatment field. The maintenance of behavioural change had been largely neglected in alcoholism and other substance-abuse programming. However, attention has recently focused on the development of relapse-prevention treatment strategies explicitly designed to foster the maintenance of behavioural change.

The Addiction Research Foundation in Toronto has been evaluating a cognitive-social learning approach to relapse prevention. The relapse-prevention model essentially involves a highly individualized analysis of the client's drinking or drug-use behaviour over the previous year to determine the high-risk situations experienced by that client. A 100-item self-reported questionnaire called the Inventory of Drinking Situations(10) has been developed to assess drinking within the eight categories of relapse situations identified in the work of Allan Marlatt(11): unpleasant emotions, physical discomfort, pleasant emotions, testing personal control, urges and temptations, conflict with others, social pressures to drink, and pleasant times with others. The IDS subscales have received positive reports on reliability, content and external validity, and a client classification system based on the profile of IDS subscores has been shown to be associated with age, sex and consumption-related variables. A parallel questionnaire for drugs other than alcohol, the Inventory of Drug-Taking Situations (IDTS), is currently undergoing psychometric evaluation.

In the cognitive-social learning approach to relapse prevention, the first step in the development of an individually tailored treatment plan is the assessment of a client's high-risk situations. Treatment focuses on encouraging the client to engage in homework assignments designed to develop alternative coping responses in high-risk situations for relapse. Mastery experiences in successfully implementing alternative behaviours to drinking or drug use in these situations have a powerful impact on the client's cognitive appraisal of personal coping abilities, resulting in an improved perception of self-efficacy and a change in future drinking or drug-use behaviour.

Figure 2

Patient-Treatment Matching

Patient Variables

1) General

SOCIODEMOGRAPHIC

(e.g., age, sex, marital status, social stability, family history of alcoholism/drug abuse)

ENVIRONMENTAL RESOURCES

(e.g., finances, social supports)

NEUROPSYCHOLOGICAL STATUS

(e.g., type and degree of neuropsychological deficit)

PERSONALITY

(e.g., self-esteem, locus of control, MMPI profile, psychiatric diagnosis, psychiatric severity)

Treatment Variables

SETTING

(e.g., in patient, out patient, day treatment)

INTENSITY/DURATION

(e.g., brief advice, long-term therapy)

METHOD

(e.g., disulfiram, relaxation therapy)

THERAPIST

(e.g., directive, non-directive, professional, peer)

GOAL

(e.g., abstinence, moderation)

CONTEXT

(e.g., group, individual treatment system)

2) Alcohol/Drug Specific

CONSUMPTION

(e.g., years of excessive drinking/drug taking, quantity, frequency)

DEPENDENCE

(e.g., degree of alcohol/drug dependence symptomatology, presence of physical withdrawal)

EXPECTANCIES/ OUTCOME BELIEFS

(e.g., self-efficacy, belief in disease concept)

SITUATIONAL ANTECEDENTS

(e.g., types of high-risk situations)

Adapted from Annis, H.M. (1988). Patient-Treatment Matching in the Management of Alcoholism. In *Treatment of Chemical Dependence*. Edited by C.P. O'Brien. NIDA Research Monograph 90. Washington: National Institute on Drug Abuse.

Based on clinical trials conducted at the Addiction Research Foundation in Toronto,(12) a two-phase approach to relapse prevention is recommended: phase I to concentrate on strategies known to be powerful in the initiation of a change in drinking or drug-use behaviour, and phase II to focus on strategies with greater potential for the long-term maintenance of this change. Phase I uses powerful induction aids, such as avoidance of drinking or drug-use situations, coercion, hospitalization, protective conditions like sensitizing drugs (e.g., antabuse), involvement of a spouse or responsible collateral, and a directive role by the therapist.

In phase II, the maintenance phase, all external aids are gradually withdrawn as the focus shifts to

promoting client self-inferences that are consistent with those known to facilitate generalization and maintenance of behavioural change. The major challenge is to create assignments (i.e., real-life cue exposure conditions) in which clients succeed in controlling their drinking or drug use in formerly problematic situations. A hierarchy of risk situations is established: The use of external aids established in phase I is reduced as the therapist gradually transfers the responsibility for risk anticipation and the planning of coping strategies to the client. Multiple assignments are given across a variety of the drinking or drug-use risk situations in the client's hierarchy, and all major risk situations are involved in homework assignments before treatment is terminated in order to promote client self-attribution of control. The goal of treatment is to enhance client self-efficacy in all identified areas of drinking and drug-taking situations.

These relapse-prevention counselling methods are currently being used with some offender groups in the Ontario correctional system. Institutional settings provide a particular challenge for the application of these procedures. Ideally, institution-based programs combine the use of therapy sessions - which are designed to help inmates identify their high-risk situations for the use of alcohol and other drugs and to rehearse alternative coping responses - with the use of temporary absence passes to allow planned entry into high-risk situations in the community. Probation and parole services can provide a good counselling setting for the implementation of relapse-prevention procedures if the reporting of a slip in alcohol or drug use does not automatically result in a disciplinary sanction.

The United States Federal Bureau of Prisons recently implemented a large-scale clinical research trial of relapse-prevention procedures to evaluate a new residential therapeutic community program for men and women who are within 18 months of release from prison. In this controlled, multisite prison trial, involving over 6,000 inmates with drug-abuse problems, inmates assigned to the new program will be assessed on the Inventory of Drinking Situations (IDS) and the Inventory of Drug-Taking Situations (IDTS) to establish their alcohol or drug-use risk profiles. These profiles will be used as a clinical tool for developing an individualized relapse-prevention treatment plan. The program's effectiveness will be evaluated on the basis of self-efficacy, drug use, criminal behaviour, occupational and social functioning, and mental and physical health over a five-year follow-up period.

Conclusion

Our increased understanding of effective treatment for drug and alcohol problems is reflected in the evolution of question-guided clinical investigation in the field. More simplistic questions about the effects of patient characteristics on outcome and the comparative effectiveness of treatments varying in duration, intensity, setting and method are leading to a greater focus on more complex questions about client-treatment interaction effects and the development of client-specific relapse-prevention strategies. Fundamental to this evolution has been an acknowledgment of the tremendous heterogeneity among alcoholics and other substance abusers, and of the great diversity of possible treatment approaches.

Evidence to date suggests that under certain conditions, matching can yield a major improvement in client outcome. Studies with a strong theoretical orientation in the choice of client-treatment variables have tended to produce the most dramatic effects of matching, accounting for 16% to 30% of the treatment outcome variance. These results are extremely encouraging. Clearly, much remains to be

learned about the most salient characteristics of clients with alcohol and drug problems and how they can be matched to theoretically relevant treatment structures. Nevertheless, current evidence strongly suggests that treatment outcome results for substance abusers will improve substantially with our growing knowledge of the optimal matching of clients to treatment alternatives and of the application of relapse-prevention strategies that are designed to promote improved maintenance of treatment gains in the community.

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Dr. Annis has been conducting research on the treatment of alcoholics and other drug abusers since joining the Addiction Research Foundation in 1970 and has published widely in the academic field. Her publications include three books and more than 50 articles. Her work in developing a relapse-prevention treatment model for alcoholics and other drug abusers has received international recognition, and her assessment instruments and clinical procedures are now available in half a dozen foreign languages.

(1) *Emrick, C.D., & Hansen, J. (1983). "Assertions Regarding Effectiveness of Treatment for Alcoholism," American Psychologist, 1078-1088*

(2) *Annis, H.M., & Liban, C.B. (1980). "Alcoholism in Women: Treatment Modalities and Outcomes," in Alcohol and Drug Problems in Women, ed. O.J. Kalant. Research Advances in Alcohol and Drug Problems, vol.5. New York: Plenum Press.*

(3) *McLellan, A.T., Luborsky, L., Woody, G.E., O'Brien, C.P., & Druley, K.A. (1983). "Predicting Response to Alcohol and Drug Abuse Treatments: Role of Psychiatric Severity," Archives of General Psychiatry 40, 620-625.*

(4) *For reviews of this literature, see: Annis, H.M. (1986). "Is Inpatient Rehabilitation of the Alcoholic Cost-Effective? Con Position," Advances in Alcohol and Substance Abuse 5, 175-179; Miller, W.R., & Hester, R.K. (1986). "Inpatient Alcoholism Treatment: Who Benefits?" American Psychologist 41, 794-805; and Wilkinson, D.A., & Martin, G.W. (in press). "Intervention Methods for Youth with Problems of Substance Abuse," in Drug Use by Adolescents, ed. H.M. Annis & C.S. Davis. Toronto: Addiction Research Foundation.*

(5) *McLachlan, J.F.C., & Stein, R.L. (1982). "Evaluation of a Day Clinic for Alcoholics," Journal of Studies on Alcohol 43, 261-272.*

(6) *McCrary, B., Longabaugh, R., Fink, E., Stout, R., Beattie, M., & Ruggieri-Authalet, A. (1986). "Cost Effectiveness of Alcoholism Treatment in Partial Hospital Versus Inpatient Settings after Brief Inpatient*

- Treatment: 12-Month Outcomes,*" *Journal of Consulting and Clinical Psychology* 54, 708-713.
- (7) Amini, F., Zilberg, N.J., Burke, E.L., & Salasnek, S. (1982). "A Controlled Study of Inpatient vs. Outpatient Treatment of Delinquent Drug Abusing Adolescents: One Year Results," *Comprehensive Psychiatry* 23, no.5, 436-444.
- (8) Miller, D.E., Himelson, A.N., & Geis, G. (1967). "Community's Response to Substance Misuse: The East Los Angeles Halfway House for Felon Addicts," *The International Journal of the Addictions* 2 no. 2, 305-311.
- (9) Annis, H.M. (1988). "Patient-Treatment Matching in the Management of Alcoholism," in *Problems in Drug Dependence*, ed. L.S. Harris. *NIDA Research Monograph 90*. Rockville, Maryland: NIDA.
- (10) Annis, H.M. (1982). *Inventory of Drinking Situations*. Toronto: *Addiction Research Foundation*.
- (11) Marlatt, G.A., & Gordon, J.R. (1985). *Relapse Prevention: Maintenance Strategies in the Treatment of Addictive Behaviors*. New York: *Guilford Press*.
- (12) Annis, H.M., & Davis, C. (1989). "Relapse Prevention," in *Handbook of Alcoholism Treatment Approaches*, ed. R.K. Hester & W.R. Miller. New York: *Pergamon Press*.