An Abstinence-Oriented Program for Substance Use Disorders: Poorer Outcome Associated With Opiate Dependence

Antonios Paraherakis, MSc[1], Dara A Charney, MD[2], Jorge Palacios-Boix, MD[3], Kathryn Gill, PhD[4]

Objectives: To evaluate the characteristics of patients with various substance-related disorders, and to examine rates of retention in treatment.

Methods: We assessed the demographic characteristics, substance abuse, and psychological distress of 239 men and women at admission. Six-month performance was evaluated, using as criteria length of stay in treatment, abstinence, attendance in therapy sessions, and completion status at discharge.

Results: Moderate to severe psychological distress was observed among these individuals. Higher levels of depression were found among women and in individuals with alcohol and sedative use disorders. The primary drug of abuse, frequency of use, and reason for entering treatment were the most significant predictors of retention.

Conclusions: Opiate-addicted clients had the worst prognosis and treatment profiles. Further research is needed to identify factors that would optimize treatment for opiate dependence.

Findings from various evaluation studies have been optimistic about the effectiveness of treatment for alcohol and drug use disorders. Multisite longitudinal outcome studies, such as the Drug Abuse Reporting Program (DARP) (1), the Treatment Outcome Prospective Study (TOPS) (2), and the Drug Abuse Treatment Outcome Study (DATOS) (3–5), have reported successful outcomes. These include reduced drug use, decreased criminal activity, and improved psychological and vocational functioning (2,3,5–8). These improvements were more apparent as length of stay in treatment increased. Despite these favourable results, the effectiveness of addiction treatment is frequently debated. Early attrition continues to be a central issue in evaluation studies and a serious obstacle in clinical practice. Several studies have reported dropout rates greater than 50% within the first month of treatment (9), and investigators have studied various pretreatment client characteristics to identify predictors of early dropout. Sociodemographic factors (10–12), substance use variables (7,9,11,12), and psychiatric comorbidity (12,15–17) have proven to be modest predictors, accounting for up to 25% of the variance in treatment outcome (12–14,17). However, such percentages should be interpreted cautiously since the clinical significance of the variables may be low and the causal influence of most variables has not been experimentally determined.

This study examines the clinical profiles of patients with various substance abuse disorders and explores factors that predict treatment outcome in the early stages of addiction treatment. Treatment outcome was determined by length of stay in treatment; abstinence, measured by mandatory urine screening tests; attendance in individual and group psychotherapy sessions; and completion status, defined as having completed recommended treatment or having dropped out.

Method

The sample consisted of 239 men and women with substance use disorders who sought treatment at the Addictions Unit of the Montreal General Hospital. The unit follows an abstinence-oriented philosophy and provides care to clients with all forms of psychoactive substance use disorders. There were no exclusion criteria; all clients entering treatment were eligible for the study.

Table 1. Substance Use Variables Stratified by Primary Drug Use

Variable	Drug Group					P
	Alcohol only ($n = 73$)	Alcohol + ($n = 48$)	Coacaine+ ($n = 62$)	Opiates+ ($n = 29$)	Sedatives+ ($n = 22$)	
Mean age in years (SE)	45.2 (1.4)	37.6 (1.3)	34.3 (1.0)	35.2 (1.3)	46.6 (2.1)	< 0.05
Mean age in years at first use (SE)	15.9 (0.5)	15.2 (0.3)	21.4 (0.8)	24.9 (1.5)	32.1 (2.3)	< 0.05
Percentage male	74.0	68.8	72.6	58.6	22.7	< 0.05
Percentage female	26.0	31.2	27.4	41.4	77.3	< 0.05
Number of years of problem use (SE)	12.7 (1.2)	13.9 (1.2)	7.1 (0.5)	7.6 (1.2)	7.2 (1.2)	< 0.05
Using daily (%)	30.6	39.1	27.1	89.3	86.4	< 0.05
Percentage abusing a 2nd drug		100	75.8	44.8	45.5	ns
Most frequently used 2nd drug (%)		Cocaine (37.5%)	Alcohol (51.6%)	Benzos (20.7%)	Alcohol (13.6%)	
Percentage with prior inpatient treatment	31.3	20.6	26.6	12.0	9.4	ns
Percentage with outpatient treatment	30.4	20.9	27.0	12.2	9.6	ns

Table 2. Psychiatric symptomatology at intake measured by the Beck Depression Inventory (BDI) and the revised Symptom CheckList (SCL-90-R)

Psychological measure	Drug group					P
	Alcohol ($n = 68$)	Alcohol+ ($n = 43$)	Cocaine+ ($n = 56$)	Opiates+ ($n = 26$)	Sedatives ($n = 19$)	
BDI						
Mean (SE)	18.8 (1.2)	22.2 (1.5)	16.9 (1.3)	20.5 (2.5)	23 (2.6)	
Percentage with BDI score > 20	27.2	29.3	19.6	13.0	10.9	< 0.05
SCL-90-R						
Mean Global Severity Index score (SE)	1.1 (0.08)	1.6 (0.09)	1.0 (0.08)	1.2 (0.12)	1.6 (0.2)	< 0.05
Mean Positive Symptom Total (SE)	49.2 (2.6)	64.5 (2.5)	47.9 (2.6)	47.6 (3.6)	55.7 (3.8)	< 0.05
Mean Total Symptom Score (SE)	97.7 (7.1)	142.1 (8.7)	89.4 (7.3)	104.4 (11.0)	141.6 (14.9)	< 0.05

During the initial visit, trained addiction therapists using a semistructured interview collected detailed information on demographics, current and lifetime drug and alcohol abuse, addiction treatment history, psychiatric status, educational background, employment and legal status, and family history. Patients were asked to complete the Beck Depression Inventory (BDI) (18) and the revised Symptom Check List-90 (SCL-90-R) (19).

After assessment, each patient began a standard treatment program consisting of weekly group psychotherapy, medical and psychiatric monitoring, and random urine screening. Progress was monitored by examining monthly patient progress notes, clinic charts, results of random urine screening tests, and discharge summaries.

Results

The sample was stratified into 5 groups on the basis of the primary and secondary drug of abuse. These drug groups included: alcohol only, alcohol+ (alcohol with a secondary drug of abuse), cocaine+ (cocaine with or without a secondary drug of abuse), opiates+ (opiates with or without a secondary drug of abuse), and sedatives+ (sedative–hypnotics with or without a secondary drug of abuse).

Most participants were male (66.5%) and white (94%); their mean age was 39.45 years (SE 0.7) years. Individuals entered treatment primarily for health (38.4%) and family or social (26.7%) problems. Employment (34.7%) and social assistance (39.0%) were their major sources of financial support, with men relying more on employment than did women ($n = 234$; $\chi^2 = 17.08$, df 2, $P = 0.003$).

There were significant differences in age between the 5 drug groups ($F_{4,233} = 16.15$, $P = 0.001$) (Table 1). Post-hoc analysis showed that the alcohol and sedatives+ groups were significantly older than the cocaine+ and opiates+ groups ($P = 0.05$). Most subjects in the sedatives+ group (77.3%) were women ($n = 234$; $\chi^2 = 21.50$, df 4, $P = 0.001$). The alcohol and alcohol+ groups had significantly more years of problem use ($F_{4,219} = 8.30$, $P = 0.001$), and the opiates+ and sedatives+ groups were more likely to be daily users ($n = 227$; $\chi^2 = 75.04$, df 4, $P = 0.001$). The opiate+ group consisted mainly of heroin users (83%), most of whom used heroin intravenously (62.5%).

Table 3. Six-month treatment outcome by primary drug of abuse

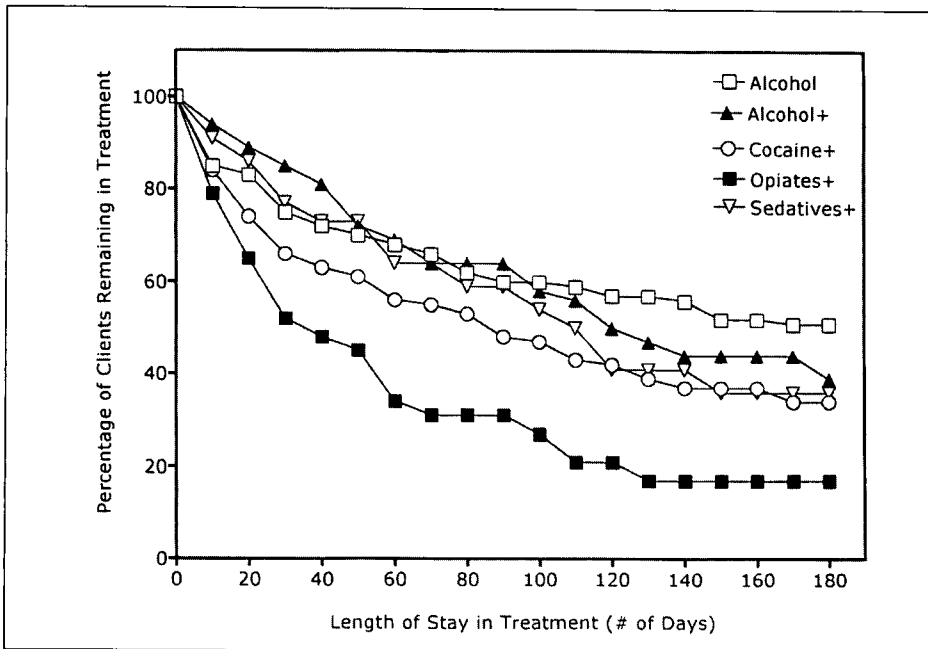|	Drug group					
	Alcohol $n = 73$	Alcohol+ $n = 48$	Cocaine+ $n = 62$	Opiates+ $n = 29$	Sedatives+ $n = 22$	P
Mean number of days in treatment (SE)	115.8 (8.7)	113.9 (9.5)	94.2 (9.3)	62.5 (11.9)	105.2 (14.5)	< 0.05
Median number of days in treatment	180.0	120.5	84.0	37.0	108.5	
Percentage of treatment completers	50.7	39.6	37.1	17.2	36.4	< 0.05
Percentage of positive urine screens	20.7	43.3	42.6	69.9	59.3	< 0.05
Percentage of positive urine screens for primary drug	6.5	10.1	33.8	67.3	55.7	< 0.05

Figure 1. The effects of primary drug of abuse on 6-month survival in treatment. The group abusing opiates had the lowest rates of survival in treatment (Wilcoxon [Gehan] statistic = 13.34, P = 0.009)

Psychological Symptomatology at Intake

Moderate levels of depression were observed at admission as indicated by the mean BDI score of 19.58 (SE 0.73). There was a significant sex difference on BDI scores ($F_{1,215} = 10.43$, $P = 0.001$), with women (mean 22.47, SE 1.42) scoring higher than men (mean 18.06, SE 0.80). After dichotomizing the BDI scores using 20 as the cut-off (a score $\geq$ 20 suggests the presence of moderate to severe depression), chi-square analysis revealed that individuals in the alcohol and alcohol+ groups had a significantly higher percentage of BDI scores $\geq$ 20 than the other groups ($n = 212$; $\chi^2 = 9.36$, df 4, $P = 0.05$) (Table 2). Analysis indicated that scores on all SCL-90-R subscales and global indices were significantly different between groups: Global Severity Index ($F_{4,208} = 7.38$, $P = 0.001$), Positive Symptom Total ($F_{4,208} = 5.82$, $P = 0.001$), and Total Symptom Score ($F_{4,208} = 7.37$, $P = 0.001$). Post-hoc analysis showed that the alcohol+ and sedatives+ groups had significantly higher scores ($P < 0.05$).

Six-Month In-treatment Performance

Significant differences between groups were observed on length of stay in treatment ($F_{4,233} = 3.51$, $P = 0.008$) and the number of positive urine screens for the primary drug ($F_{4,227} = 29.55$, $P = 0.001$). Post-hoc tests indicated that the opiate+ group had significantly lower retention and significantly higher rates of positive urine screens (Table 3).

Multiple regression analyses were performed to determine predictors of treatment outcome; variables included demographic characteristics, substance use variables, and measures of psychological distress (BDI scores and SCL-90-R total score and subscores). Results showed that the reason for entering treatment (family, employment, health, legal, or financial problems) ($r = -0.16$, 2.6% of variance) and the frequency of use of the primary drug ($r = -0.21$, 4.2% of variance) were significant indicators of length of stay in treatment ($F_{2,225} = 9.24$, $P = 0.001$) at 6-month follow-up. Survival analysis was used to compare the dropout rates among the primary drug groups. The primary drug of abuse was a significant indicator of survival. The opiate+ group displayed a significantly higher dropout rate (Figure 1).

Discussion

This study examined the profiles of individuals with different drug and alcohol abuse disorders and explored variables that predicted treatment outcome. Analysis indicated that the primary substance of abuse was the largest predictor of dropout and poor outcome. Subsequent analysis on substance use variables indicated that the frequency of use of the primary drug of abuse was a significant, though modest, indicator of 6-month survival in treatment. More frequent substance use prior to treatment predicted shorter survival in treatment.

Compared with other substance-abusing clients, opiate-addicted persons stayed in treatment for very brief periods of time, completed recommended therapy less frequently, had the highest rates of daily use, and had lower rates of abstinence as indicated by urine toxicology screening. Survival analysis also showed that this group of patients tended to withdraw from treatment at a faster rate, especially during the first month of therapy. Of this group of clients, 52% had dropped out of the program within the first month. These results clearly demonstrate the difficulty of engaging and retaining opiate addicts in treatment. Simpson and colleagues asserted that the presence of such premature dropouts has significant implications regarding the overall effectiveness of treatment (5); hence, more research is needed to understand the factors contributing to early drop out.

In addition to predicting low treatment compliance, opiates have detrimental effects on the lives of individual addicts. Opiate dependence has wider public health implications, particularly in terms of AIDS. Many opiate-dependent individuals, particularly heroin users, who constitute the majority of opiate-dependence cases, administer drugs intravenously. Needle-sharing and high-risk sexual practices make intravenous drug users a very high-risk group for the transmission of HIV (20–22). Researchers have found that long-term retention in treatment for drug dependence, by controlling drug use, can play an important role in limiting the spread of AIDS (20,23). The effectiveness of treatments for opiate dependence and the ability to retain patients in treatment represent critical research issues.

Based on these results, the utility of traditional drug-free interventions for opiate dependence should be questioned. Several experts have noted that opiate abusers who have been stabilized on methadone may respond better to subsequent treatment and rehabilitation (24,25). The poor outcome for opiate-using patients in this study suggests that additional or alternative interventions may need to be developed for this population, including increased use of substitution therapies. Future studies should develop strategies for reducing early dropout and compare various treatment modalities to identify the most appropriate intervention for opiate-addicted individuals.

References

1. Simpson DD, Sells SB. Effectiveness of treatment for drug abuse: an overview of the DARP research program. Advances in Alcohol and Substance Abuse 1982;2:7–29.
2. Hubbard RL, Marsden ME, Rachal JV, Harwood HJ, Cavanaugh ER, Ginzburg HM. Drug abuse treatment: a national study of effectiveness. Chapel Hill (NC): The University of North Carolina Press; 1989.
3. Hubbard RL, Craddock SG, Flynn PM, Anderson J, Etheridge RM. Overview of 1-year follow-up in the Drug Abuse Treatment Outcome Study (DATOS). Psychol Addict Behaviors 1997;11:261–78.

Clinical Implications

- The first month of substance addiction treatment appears to be crucial for longer-term recovery.
- Opiate dependence is associated with poor outcome.
- Alternative interventions should be developed to reduce the dropout rate of opiate addicts.

Limitations

- Study results were based on self-reports and may have been partially affected by social desirability of responses and poor recall.
- Attrition prevented a detailed examination and analysis of prognosis and outcomes of participants who dropped out early from treatment.
- This study focused on pretreatment variables as predictors of outcome while omitting factors associated with treatment.

4. Simpson DD, Brown BS. Treatment retention and follow-up outcomes in the Drug Abuse Treatment Outcome Study (DATOS). Psychology of Addictive Behaviors 1997;11:294–307.
5. Simpson DD, Joe GW, Broome KM, Hiller ML, Knight K, Rowan-Szal GA. Program diversity and treatment retention rates in the Drug Abuse Treatment Outcome Study (DATOS). Psychology of Addictive Behaviors 1997;11:279–93.
6. Gottheil E, McLellan AT, Druley KA. Length of stay, patient severity and treatment outcome: sample data from the field of alcoholism. J Stud Alcohol 1992;53:69–75.
7. Hoffmann NG, Miller NS. Perspectives of effective treatment for alcohol and drug disorders. Psychiatr Clin North Am 1993;16:127–40.
8. McLellan AT, Woody GE, Metzger DS, McKay J, Durell J, Alterman AI, and others. Evaluating the effectiveness of addiction treatments: reasonable expectations, appropriate comparisons. Milbank Q 1996;74:51–85.
9. Stark MJ. Dropping out of substance abuse treatment: a clinically oriented review. Clinical Psychology Review 1992;12:93–116.
10. Agosti V, Nunes E, Stewart JW, Quitkin FM. Patient factors related to early attrition from an outpatient cocaine research clinic: a preliminary report. International Journal on Addictions 1991;26:327–34.
11. Gainey RR, Wells EA, Hawkins JD, Catalano RF. Predicting treatment retention among cocaine users. International Journal on Addictions 1993;28:487–505.
12. McLellan AT, Alterman AI, Metzger DS, Grissom GR, Woody GE, Luborsky L, and others. Similarity of outcome predictors across opiate, cocaine and alcohol treatments: role of treatment services. J Consult Clin Psychol 1994;62:1141–58.
13. Brewer DD, Catalano RF, Haggerty K, Gainey RR, Fleming CB. A meta-analysis of predictors of continued drug use during and after treatment for opiate addiction. Addiction 1998;93:73–92.
14. Miller NS, Ninonuevo FG, Klamen DL, Hoffmann NG, Smith DE. Integration of treatment and posttreatment variables in predicting results of abstinence-based outpatient treatment after one year. J Psychoactive Drugs 1997;29:239–48.
15. Alterman AI, McLellan AT, Shifman RB. Do substance abuse patients with more psychopathology receive more treatment? J Nerv Ment Dis 1993;181:576–82.
16. Rounsaville BJ, Kosten TR, Weissman MM, Kleber HD. Prognostic significance of psychiatric disorders in treated opiate addicts. Arch Gen Psychiatry 1986;43 739–45.
17. Charney DA, Paraherakis AM, Negrete JC, Gill KJ. The impact of depression on the outcome of addictions treatment. J Subst Abuse Treat 1997;15:123–30.
18. Beck AT, Steer RA. Beck Depression Inventory. New York: Harcourt Brace; 1987.
19. Derogatis LR. The SCL-90-R: administration, scoring and procedures manual II. Towson (MD): Clinical Psychometric Research; 1983.
20. Canadian Centre on Substance Abuse. HIV/AIDS and injection drug use: a national action plan. Ottawa: Canadian Centre on Substance Abuse; 1997.
21. Gill K, Nolimal D, Crowley T. Antisocial personality disorder, HIV risk behavior and retention in methadone maintenance therapy. Drug Alcohol Depend 1992;30:247–52.
22. Des Jarlais D, Friedman S, Stoneburner R. HIV infection and intravenous drug use: critical issues in transmission dynamics, infection outcomes, and prevention. Review of Infectious Diseases 1988;10:151–7.
23. Hubbard RL, Marsden ME, Cavanaugh E, Rachal JV, Ginzburg HM. Role of drug-abuse treatment in limiting the spread of AIDS. Review of Infectious Diseases 1988;10:377–83.
24. Laqueille X, Bayle FJ, Spadone C, Jalfre V, Loo H. Treatment of depressive syndromes in detoxified drug addicts: use of methadone. Biomed Pharmacother 1996;50:279–82.
25. Zweben JE. Methadone maintenance in the treatment of opioid dependence: a current perspective West J Med 1990;152:588–99.

Résumé—Traitement des troubles liés à une substance dans un programme axé sur l'abstinence : résultat faible associé à la dépendance à un opiacé

Objectifs : Cette étude a été menée en vue d'évaluer les caractéristiques des patients souffrant de divers troubles liés à une substance et d'examiner les taux de maintien en traitement.

Méthodes : Deux cent trente-neuf femmes et hommes ont été évalués à l'arrivée concernant les caractéristiques démographiques, la toxicomanie et la détresse psychologique. Le rendement à six mois de traitement a été évalué en examinant la durée du séjour en traitement, les taux d'abstinence, la présence aux séances de thérapie, et l'état d'avancement lors du congé.

Résultats : Une détresse psychologique de modérée à grave a été observée chez ces personnes. Des niveaux élevés de dépression ont été constatés chez les femmes et les personnes souffrant de troubles de consommation d'alcool et de sédatifs. La principale drogue consommée, la fréquence de consommation et la raison de commencer un traitement étaient les principaux prédicteurs significatifs du maintien en traitement.

Conclusions : Les clients présentant une dépendance à un opiacé avaient les pires pronostics et profils de traitement, ce qui indique le besoin de recherche additionnelle afin de cerner les facteurs qui amélioreraient le traitement de la dépendance aux opiacés.