

Regular article

# Substance Abuse Intensive Outpatient Treatment: Does program graduation matter?

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## Abstract

Program graduation, even after controlling for length of stay, may predict for improved outcomes in some substance abuse treatment settings. We investigated the role of program graduation by comparing social outcomes and inpatient utilization the years before and after treatment among graduates and dropouts of a Veterans Administration substance abuse intensive outpatient program. At enrollment, graduates and dropouts were similar in all spheres measured. Patients who completed the treatment program used significantly fewer psychiatric inpatient bed days of care the year after they completed the program, both in comparison to their own prior use and in comparison to program dropouts. Graduates were more likely to be abstinent and less likely to fully relapse or be incarcerated at 6-month followup. Further research is needed to discern optimal treatment length—that which maximizes both length of stay and completion rates, while optimizing use of limited treatment resources. © 2004 Elsevier Inc. All rights reserved.

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## 1. Introduction

Historically, substance abuse treatment research has supported the concept that longer treatment is associated with better outcomes (Simpson, 1979). More recent studies have challenged this belief, citing that outcomes were no different when program length was reduced in inpatient treatment (Long, Williams, & Hollin, 1998), day treatment (Bamford, Booth, McGuire, & Salmon, 2003), and therapeutic community settings (McCusker et al., 1997; McMahon, Kouzekanani, & Malow, 1999). Paradoxically, McCusker et al. (1997) found that dropouts assigned to 6-month relapse prevention were likely to relapse sooner than clients assigned to a 3-month program with similar content, even though treatment time overall was greater for the dropouts. Zarkin, Hoffmann, Stout, Hagberg, Floyd, and DeHart (2002) hypothesized that program completion per se plays an important role in substance abuse treatment outcome and concluded that, after adjustment for length of stay in drug-free outpatient treatment, completers had improved employment rates compared to dropouts. We further explore the role of program completion by exam-

ining social outcomes and hospitalization rates of graduates and dropouts in an intensive outpatient substance abuse treatment program (SAIOP).

We were interested in discerning whether graduation from a prescribed SAIOP of pre-determined length afforded specific benefits beyond that of enrollment or partial participation. In addition, we wanted to determine whether enrollment was associated with medical or psychiatric offset effects—decreased use of medical (Zywiak et al., 1999) or psychiatric services. In a retrospective cohort study, we examined 133 consecutive patients who enrolled in the White River Junction (WRJ) Veterans Administration (VA) SAIOP over a 3-year period. We collected admission, followup, and hospital utilization data in order to compare patient characteristics, outcomes, and service utilization associated with completion and non-completion of the program.

## 2. Methods

Subjects included 133 consecutive veterans enrolled in the WRJ VA SAIOP between 10/1/1997 and 9/30/2000. The 20-session, 4-hr per session SAIOP is composed of educational, 12-step, family, and behavioral group therapies. Subjects attended three to five sessions per week with a

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total requirement of 20 sessions for graduation. Subjects who completed all 20 sessions were categorized as program graduates; those who did not were categorized as dropouts. All subjects met DSM-IV (American Psychiatric Association, 1994) criteria for substance use disorder and, typical of VA populations, subjects were predominantly male. Other demographic features, including specific substance use disorders, incidence of dual diagnosis, age, marital status, race, and gender are stratified by group (graduates and dropouts) and described in Table 1.

After obtaining approval from the VA/Dartmouth Institutional Review Board, we extracted data from the extensive VA electronic medical record on 133 consecutive veteran enrollees. Outcome data were collected through systematic review of individual electronic progress notes. This review provided information on current substance use status and descriptive information on post-discharge level of functioning, and incarceration status. Several factors allowed us to track outcomes on patients who dropped out of treatment as well as those who completed the intensive outpatient treatment program: this rural veteran population generally continues to access the VA healthcare system even if they drop out of a particular treatment program and the VA electronic record allows for easy access to clinical data including discharge summaries and progress notes at both local and remote VA sites nationwide.

Baseline demographic data collected included age, gender, race, marital status, co-morbid psychiatric diagnoses, specific chemical dependencies, episodes of in- or outpatient detoxification immediately prior to program entry, and initial Addiction Severity Index (ASI) scores. The ASI

(McLellan et al., 1992) is a standardized instrument that examines patient characteristics in seven domains: medical, legal, employment, social/family, alcohol use, other substance use, and psychiatric status. The clinicians administering the ASI had formal VA ASI training, and had at least 6 years experience in substance abuse treatment.

We determined psychiatric and non-psychiatric hospital bed days of care for the year prior to enrollment in and the year after discharge from the SAIOP. Inpatient utilization data for all VA sites were extracted from the nationally linked VA electronic record.

Social outcome data collected through systematic chart review included abstinence, relapse to prior substance use level, and incarceration rates at 6 months. These outcomes were imputed from patient reports or clinician observation as gleaned from detailed review of progress notes (local and remote). Death rates were extracted from the Beneficiary Identification and Records Locator Subsystem, a centralized record tracking system for all VA eligible veterans and other VA beneficiaries.

For dropouts, number of completed SAIOP days was determined by appointment record review within the electronic record. Similarly, completion of 20 SAIOP sessions was confirmed for graduates.

Baseline demographic characteristics and initial ASI composite scores of SAIOP graduates and dropouts were compared using *t*-test analyses. Chi-square testing was performed to examine post-discharge social outcomes (abstinence rates, incarceration, mortality) between SAIOP graduate and dropout groups. Psychiatric and non-psychiatric hospital utilization data the years pre- and post-treatment for graduates and dropouts were compared using *t*-test analyses. Because these data were highly kurtotic and skewed, *t*-test analyses were performed after normalization of hospital utilization data. Independent *t*-test analyses were performed using number of SAIOP days completed for dropouts to discern whether social outcomes were associated with number of SAIOP days completed.

### 3. Results

Among the 133 consecutive SAIOP enrollees, both graduates and dropouts were approximately the same age and predominantly male. Baseline demographics and initial ASI composite scores for graduates and dropouts are shown in Table 1. Rates of inpatient detoxification immediately prior to program entry did not differ between groups. Similar proportions of each group were homeless and had co-morbid psychiatric illness. In order, the most prevalent co-occurring psychiatric diagnoses were post-traumatic stress disorder, depressive disorders, panic or other anxiety disorder, bipolar disorder, schizophrenia/ schizoaffective disorder, and personality disorder. Although program graduates were slightly more likely to be dependent on cannabinoids and slightly less likely to be dependent on opioids

Table 1  
Demographics and baseline characteristics of graduates and dropouts

Variable	Graduates	Dropouts	<i>p</i> -value
Number	94	39	—
Age	46.7	46.0	.32
Married	32	28	.76
Homeless	11	10	.95
Caucasian (%)	93	100	.08
Male (%)	94	97	.37
Inpatient detoxification immediately prior to program entry (%)	12	13	.86
Dual diagnosis	71	69	.81
Chemical dependencies			
Alcohol	98	97	.88
Cannabinoids	16	10	.39
Opioids	10	10	.90
Cocaine	3	5	.59
Baseline Alcohol Severity Index scores			
Medical	.49	.40	.25
Employment	.71	.70	.83
Alcohol	.44	.49	.30
Drug	.05	.06	.91
Legal	.13	.13	.92
Family	.26	.24	.87
Psychiatric	.38	.39	.74

or cocaine, observed differences did not reach statistical significance. In addition, admission ASI scores, which were available on 90% of both graduates and dropouts, suggested no statistically significant differences between groups at enrollment in the seven domains measured.

Fig. 1 shows VA psychiatric and non-psychiatric hospital bed days of care for program graduates and dropouts for the year prior to program entry and the year after discharge from the program. Compared to dropouts, program graduates used fewer psychiatric hospital days the year after program termination (1.4 vs. 5.4,  $p = .04$ ). In addition, program graduates used fewer psychiatric hospital days the year after program completion when compared to their use the year before entering the program (1.4 vs. 4.1,  $p = .01$ ) whereas dropouts did not (6.9 vs. 5.4,  $p = .24$ ). We found no significant difference in non-psychiatric hospital utilization within groups (pre- and post-treatment) or between groups (graduates and dropouts.)

Social outcome data were obtained on 89% of SAIOP enrollees, with five (5%) SAIOP graduates and four (10%) dropouts lost to followup during the 6-month period. We considered patients who had no reference to specified outcomes mentioned in progress notes as lost to followup, even if they remained engaged in other types of care at the VA. Social outcomes also differed across groups (Fig. 2). Program graduates were more likely to be abstinent at 6 months (75% vs. 13% for dropouts,  $p < .001$ ), less likely to have a full relapse at 6 months (9% vs. 62% for dropouts,  $p < .001$ ), and less likely to be incarcerated at 6 months followup (1% vs. 10% for dropouts,  $p = .01$ ) than dropouts. The 50% increase in death rate at 3 years for dropouts (15% vs. 10% for graduates) was not statistically significant.

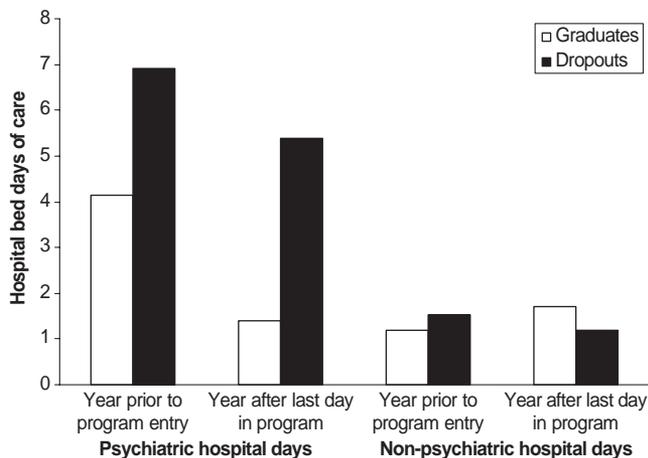


Fig. 1. Psychiatric and non-psychiatric hospital bed days of care for program graduates and dropouts, year prior to program entry compared to year after last day in program. When compared to dropouts, program graduates used fewer psychiatric hospital days during the year after the last day in the program (1.4 vs. 5.4,  $p = .04$ ). In addition, program graduates used fewer psychiatric bed days of care the year after completion of the program when compared to their use the year before entering the program (1.4 vs. 4.1,  $p = .01$ ).

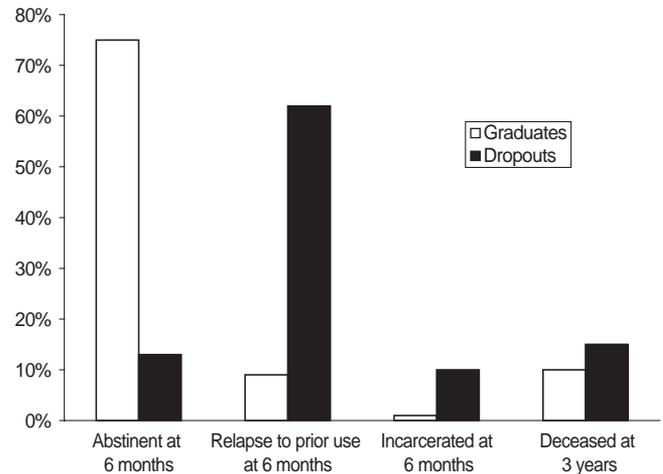


Fig. 2. Social outcomes of program graduates and dropouts. Program graduates were more likely to be abstinent at 6 months ( $p < .001$ ), less likely to have a full relapse at 6 months ( $p < .001$ ), and less likely to be incarcerated at 6 months followup ( $p = .01$ ) than dropouts. The 50% greater likelihood of death for dropouts at 3 years was not statistically significant.

Among dropouts, independent  $t$ -test analyses suggested trends toward improved abstinence rates at 6 months for greater number of SAIOP days completed (patients who were abstinent at 6 months completed 11.7 days vs. 6.3 days for non-abstinent dropouts,  $p = .14$ ). Death and incarceration rates among dropouts were not significantly correlated with shorter length of stay: patients who died within 3 years completed 5.5 days vs. 6.9 days for those who did not,  $p = .54$ , and patients who were incarcerated within 6 months completed 8.0 days vs. 6.5 for those who were not,  $p = .20$ .

#### 4. Discussion

In this examination of outcomes of 133 veteran enrollees in a substance abuse intensive outpatient program, we found no characteristics that predicted for patient attrition from the program. However, we did find a substantial psychiatric hospitalization offset effect: patients who completed the treatment program used significantly fewer psychiatric inpatient bed days of care the year after they completed the program, both in comparison to their own prior use and in comparison to program dropouts. In addition, we found clinically important post-treatment clinical and social outcome differences between program graduates and dropouts, that is, graduates had higher rates of abstinence at 6 months, lower rates of incarceration and relapse to prior use at 6 months, and lower death rates at 3 years.

These results have several implications. First, costs of substance abuse treatment are not trivial (Chen & Barnett, 2001; Schoenbaum, Zhang, & Sturm, 1998). Our findings provide evidence that investment in SAIOP programs may result in reduced psychiatric inpatient costs for the covered population. Conversely, divestment of substance abuse

treatment, as has been reported in VA (Moos, Humphreys, Oimett, & Finney, 1999) may indirectly increase mental health expenditures. Second, enrollment in an intensive outpatient substance abuse program does not confer the same benefits as completion of the program. The poorer social outcomes of dropouts—incarceration, continued substance dependence, and death—suggest that program managers should put a concerted effort into ensuring that patients complete their program. Third, short of actual graduation in this standard length (20-session) SAIOP, completion of greater number of days prior to program attrition trended toward greater likelihood of abstinence at 6 months but did not convey lower death or incarceration rates.

Our study has several limitations. First, the study occurred in a single, rural program that served a veteran population over a limited time period. Rural patients may have different proclivities for substances than urban populations (Eberhardt, Ingram, & Makuc, 2001) and veteran substance abusers may be distinct from non-veteran patients. For instance, VA patients are predominantly male and have a relatively high occurrence of co-morbid psychiatric diagnoses (Chen, Wagner, & Barnett, 2001). Findings may not generalize to other settings or populations. Second, only VA inpatient utilization was tracked; therefore we may have underestimated inpatient utilization rates for both graduates and dropouts. Third, social outcome measure extraction was limited by what was included in electronic progress notes; therefore we may have underestimated some outcomes, good and bad. Finally, our study sample was relatively small. Although some baseline characteristics (60% higher cocaine dependence in the dropout population) and outcomes (50% higher death rate in the dropout population) did not reach statistical significance, this may have been due to the limited numbers under analysis. Likewise, small numbers limited our analysis suggesting trends toward improved outcomes associated with longer program participation among dropouts. Additional studies with a larger dataset will be required to determine ideal SAIOP treatment length, that which is long enough to optimize treatment component exposure while brief enough to maximize likelihood of achieving graduate status.

Despite these limitations, our findings are interesting and warrant consideration by medical care organizations and mental health care managers. While others have reported medical offset effects associated with substance abuse treatment (Zywiak et al., 1999), psychiatric services offsets have not previously been reported. For capitated health care organizations providing comprehensive psychiatric

and substance abuse services to a specified population, psychiatric services offsets associated with substance abuse treatment for chemically dependent, mentally ill patients may be an area to explore.

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