Conducting Systematic Outcome Assessment in Private Addictions Treatment Settings

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ABSTRACT: Systematic outcome assessment is central to ascertaining the impact of treatment services and to informing future treatment initiatives. This project was designed to be conducted within the clinical operations of 4 private addictions treatment centers. A structured interview was used to assess patients' alcohol and other drug use and related variables (on treatment entry and at 1, 3, and 6 months following treatment discharge). The primary outcomes were percentage of days abstinent (PDA) from alcohol and drugs, PDA from alcohol, and PDA from other drugs. Collateral reports during follow-up also were gathered. A total of 280 patients (56% men) across the 4 programs participated. Percentage of days abstinent for each outcome increased significantly from baseline to the 1-month follow-up assessment, and this change was maintained at the 3- and 6-month follow-up assessments. Collateral reports mirrored the patient follow-up reports. Secondary outcomes of patient ratings of urges/cravings, depression, anxiety, and general life functioning all indicated significant improvement from baseline over the course of the follow-up. The results suggest the feasibility of conducting systematic outcome assessment in freestanding private addictions treatment environments.

KEYWORDS: Outcome assessment, addictions treatment, collateral reports

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Introduction

Systematic outcome assessment is central to determining the impact of clinical services provided and to informing future treatment activities and initiatives.[1,2] According to Filstead,[3(p249)] "accountability is essential to the delivery of high-quality clinical care". In response, there has been an ongoing demand not only to demonstrate that treatment services are providing benefit but also to ensure that this information is being communicated to the community and to policymakers.[4] The desire for outcome data comes from a variety of sources.[5–7] Direct treatment providers, for example, desire feedback on outcomes during and following their clinical interventions with patients. Program managers desire such information to identify what program components provide benefit and which may not and to inform the development of new treatment initiatives. Insurers seek data provided through outcome assessments to help ensure that their health service expenditures are yielding benefits for their enrollees. Finally, individuals considering or seeking clinical services desire such information to inform their decision making on where to turn for clinical services.

This article is a description of the development and implementation of an outcome assessment project at 4 private addictions treatment centers. The collection of these data, gathered at baseline (ie, treatment entry) and through 6 months postdischarge from treatment, was intended to serve multiple aims. First, it was intended to fully describe patients' pretreatment use of alcohol and other drugs and their functioning in a variety of domains (including urges/cravings, self-help group involvement, legal involvement, depression, anxiety, and overall life functioning). These data also were intended to be useful in the prediction of treatment involvement (ie, length of stay in treatment, regular versus irregular discharge) and treatment outcome. Second, the follow-up data were intended to permit assessment of patients' posttreatment alcohol and drug use and functioning in these same domains. It was anticipated that the information gathered would be useful in documenting posttreatment functioning and, as warranted, shaping the nature of treatment provided to patients. The primary goal of this article is to provide data on the outcomes for patients receiving treatment in these more intensive treatment settings (residential, day hospital, intensive outpatient). A secondary goal is to disseminate the methods and procedures that we followed in completing this project to provide a foundation for others conducting addiction treatment evaluations in their own clinical settings.

Methods

The following sections describe (1) the process of developing the outcome assessment measure and (2) the implementation of the measure across multiple treatment sites.

Part 1—development of the outcome assessment measure

The impetus for the development of this outcome assessment pursuit emanated through the clinical/administrative offices of a corporation operating a number of private addictions treatment programs throughout the United States. Arrangements were made with 2 external, experienced treatment outcome researchers to collaborate on the project. One of the researchers visited 2 of the treatment sites scheduled to participate in the project to become more familiar with the programs and meet the staff members. Subsequent interactions over a period of several months, predominantly involving the researchers and the organization's Chief Executive Officer/Chief Medical Officer, focused on identifying the domains of patient functioning to be assessed and the points in time for such assessments to occur. This effort was guided by the perspective that outcome assessment should go beyond the quantity and/or frequency of alcohol and other drug use.[8] The selection of patient functioning domains to be assessed beyond alcohol and other drug use was guided by existing literatures on the predominant comorbid conditions presented at treatment entry (eg, anxiety, depression)[9] and on factors associated with posttreatment relapses, such as urges/cravings, negative affect, and interpersonal stress.[10–11] In addition, an effort was made to capture an estimate of overall life functioning. An emphasis was placed on using assessments that were psychometrically sound.

The final measure was administered as a structured interview. The measure was scheduled for administration at baseline (ie, treatment entry) and at 1, 3, and 6 months following discharge from treatment. The interview format was used because the follow-up interviews were to be conducted via phone contacts. The baseline interview (at the treatment site) was administered in a similar fashion to maintain consistency in the data collection approach. (A comparable version was developed for interviewing collateral informants, or patient-identified significant others, during follow-up.) Details on the final measure and the domains of assessment are provided below.

Demographic variables

1. Basic demographic information (eg, age, sex, race/ethnicity, marital status, education, and employment status) was collected as part of the baseline assessment. Only information on current marital and employment status was gathered at the follow-up assessments.

Alcohol and other drug use

1. Alcohol use—4 questions from the Quick Drinking Screen (QDS)[12,13] were used to assess alcohol consumption. For the baseline interview, the questions covered the 30-day period prior to the last use of alcohol or other substances before admission to treatment. For the follow-up interviews, the assessment window for the alcohol use questions was the 30 days prior to the targeted assessment point (months 1, 3, and 6). The questions covering any given time period assessed yielded several outcome variables, including percentage of days abstinent, drinks per drinking day (the average number of drinks consumed on days when drinking occurred), drinks per week, and percentage of days heavy drinking (defined as days when 5 or more standard drinks were consumed for men or 4 or more standard drinks for women). A "standard drink" was a beverage containing 0.6 oz alcohol, such as a 12-oz bottle/can of regular 5% alcohol beer, a 5-oz glass of regular (12%) wine, 1.5 oz of 80-proof hard liquor either straight or in a mixed drink, or a 12-oz wine cooler. When evaluated in relation to the psychometrically well-established Timeline Followback (TLFB),[14] which has excellent reliability and validity, the QDS was found to yield very similar summary drinking variables.[12,13]
2. Other drug use—2 questions were used to assess frequency of drug use other than alcohol. Drug use was operationalized to include nonprescribed medication use; prescribed medication use was not assessed as it was not a focus of the treatment programs. These 2 questions yielded an index of percentage of days using drugs during the time periods covered in the respective follow-up assessments. As with the alcohol use questions, the baseline interview covered the 30-day period prior to the last use of alcohol or other drugs before admission to treatment and the follow-up interviews assessed 30 days prior to the targeted assessment point. In addition, participants who reported any drug use during the assessment window were asked to identify which drugs/drug types have been used (ie, marijuana [pot, weed], hash, hallucinogens/designer drugs [lysergic acid diethylamide, acid, Ecstasy, GHB], crystal meth [ice], speedball, cocaine, crack, heroin, opiates/painkillers [morphine, Lortab, OxyContin], tranquilizers, sedatives [Valium, Xanax], and stimulants [Ritalin, Adderall, Dexedrine]). Finally, a pair of questions were asked to ascertain the number of days in the 30-day period the participant was totally abstinent, that is, abstinent from alcohol as well as any other substance use.
3. Urges/cravings—2 questions were used to assess urges/cravings for alcohol or other drugs. The questions selected were modified items from the Minnesota Cocaine Craving Scale.[15] The first question asked for an estimate of how frequently the participant experienced craving for alcohol or other drugs during that week (using a 7-point Likert scale rating). The second question, using a 5-point Likert scale, asked how strong, on average, were these urges or cravings for alcohol or other drugs during that week. The time frame for the questions at baseline was the week prior to the last use of alcohol or other drugs before admission to treatment,

and the time frame for the follow-up assessments was the 7-day period at the end of the targeted assessment point (months 1, 3, and 6). The coefficient α for the original measure was .83.[15] The coefficient α for the 2-item version used in this study, among participants responding to both items, was .71 for the baseline assessment.

4. Readiness to change—motivational readiness to change is thought to be central to the behavior change process. At the baseline assessment only, a "readiness ruler" measure was used to assess readiness to change. On this measure, the patient indicated on a figure the extent to which he or she was ready to change his or her substance use–related behavior. The figure represented a 10-point scale (1 = not ready to change; 5 = unsure about changing; 10 = ready to change).

Self-help group involvement

1. Self-help group involvement—data on participants' frequency of attendance at self-help group meetings (eg, Alcoholics Anonymous, Cocaine Anonymous, and Narcotics Anonymous) were collected for each time frame assessed. The baseline assessment covered the 30-day period prior to the last use of alcohol or other substances before admission to treatment, and the follow-up assessments covered the 30 days prior to the end of the targeted assessment point. The participant was asked to indicate the number of days per week that such meetings were attended.

Psychological status

1. Depression—2 items were included to assess depressed mood. On the first question, the participant indicated, on a 3-point Likert scale, the extent to which he or she felt sad, blue, or depressed during the period addressed. If any such feelings were reported, a follow-up question, adapted from Zimmerman et al,[16] was administered to obtain an estimate of the level of severity of the sad, blue, or depressed feelings (on a 4-point Likert scale). The latter item was found by Zimmerman et al to possess strong reliability and validity; the test-retest reliability of the item was high (.76) and it correlated significantly with the total scores and individual item scores of longer measures of the same constructs ($P < .001$). In this study, the time frame for the questions at baseline was the week prior to the last use of alcohol or other substances before admission to treatment, and the time frame for the follow-up assessments was the 7-day period at the end of the targeted assessment point (months 1, 3, and 6). The coefficient α for the 2-item assessment used in this study, among participants responding to both items, was .72 for the baseline assessment.
2. Anxiety—2 items from the Overall Anxiety Severity and Impairment Scale (OASIS)[17,18] were used to assess anxiety, tapping into frequency and severity of symptoms. The first addressed frequency of feeling anxious (on a 5-point Likert scale) and the second concerned how intense or severe was the anxiety experienced (on a 4-point Likert scale). The same past week time frame as described above for depression was used for this assessment. The OASIS has excellent test-retest reliability (.82) and excellent convergent validity with other measures of anxiety; coefficient α was .80.[19] The coefficient α for the 2-item assessment used in this study, among participants responding to both items, was .85 for the baseline assessment.

Legal involvement

1. Arrests—2 questions were used to assess whether the participant had been arrested (aside from traffic tickets) in the period covered by the interview, and if so, whether the arrest was alcohol or drug related. For the baseline interview, the period was the past 90 days; for the 1-month interview, the period was the past 30 days (ie, the period since treatment discharge); for the 3-month interview, the period was the past 60 days; and for the 6-month interview, the period was the past 90 days.

Overall life functioning

1. Overall life functioning—general quality of life was assessed using an item that captured the participant's rating of his or her overall quality of life during the past week time frames described above. The item, adapted from the work of Zimmerman et al,[16] yielded a rating of the participant's overall quality of life (using a 4-point Likert scale). This single-item self-report measure of overall quality of life has been found to be reliable and valid. In prior research, its test-retest reliability was high (.81) and scores on the item correlated with the total scores and individual item scores of longer measures of the quality of life construct ($P < .001$).[16]

Part 2—implementation of the assessment measure

Treatment sites. Four private addictions treatment programs located in the United States served as recruitment sites. Each of the sites offered multiple levels of care, including residential treatment, day treatment (5 hours per day, 5 days per week), and intensive outpatient treatment (3 hours per day, 3 to 4 days per week). Patients were enrolled into the outcome assessment project at the time of their first treatment contact with the programs, which generally occurred at the residential or day treatment levels of care. Most patients attending day treatment or intensive outpatient treatment resided in supportive housing. Two of the programs were located in California, the third in Florida, and the fourth in Tennessee. Patients frequently moved through more than one level of care while in the active treatment phase. The sites were selected because they differed

with respect to the average patient age, program design, and length of stay and were intended to give a representative view of the services of the company as a whole.

Participants. A total of 280 patients across the 4 program sites were recruited into the project. Most of the baseline sample was male (56.1%), nonworking (61.4%), white (90.7%), non-Hispanic (92.9%), and single (63.2%), with a mean age of 30.6 (SD = 11.7) years and a mean of 14.1 years of education (SD = 2.4). In terms of alcohol and other drug use reported at baseline, participants indicated, for the 30-day period prior to their most recent alcohol or other substance use, an average of 58.56 (SD = 38.97) percentage of days abstinent from alcohol, 39.43 (SD = 42.74) percentage of days abstinent from other drugs, and 19.15 (SD = 29.30) percentage of days abstinent from alcohol and other drugs combined. Descriptive information on the participants by treatment site is provided in Table 1.

Procedure. Potential participants were recruited from sequential admissions to each treatment site. They were approached at the time of admission or shortly thereafter by a staff member trained in the protocol. This individual described the project and answered any questions that arose. Patients interested in participating were provided with an Information Sheet on the project and were asked to read and sign the project Consent Form. The project procedures were reviewed and approved by an oversight independent review board (Aspire Institutional Review Board Protocol IRB-EBH-001).

Participants were assessed on 4 occasions. The first assessment, called the baseline assessment, occurred in person on treatment entry (ideally within 3-5 days of entry to treatment). The next 3 assessments occurred by telephone at 1, 3, and 6 months following discharge from treatment. Treatment discharge was operationalized as program discharge or transition from intensive treatment (3 treatment days per week) to a lower intensity of treatment. The telephone follow-up assessments were performed by a research staff member not affiliated with any of the programs. Each assessment entailed administration of the structured interview. A $10 gift card (Amazon, Target, Starbucks) was provided for completing the 1- and 3-month telephone follow-up interviews after treatment discharge, and a $25 gift card was provided for completing the 6-month follow-up. (There was no compensation for completion of the baseline interview.) On occasions when a follow-up interview for the earlier time frame was not administered (eg, the participant was reached for the 3-month follow-up but missed the 1-month follow-up), the current interview was administered, followed by the alcohol and drug use, self-help group involvement, and legal involvement portions for the previous interview period.

As part of the baseline assessment, participants were asked to complete a Locator Form, which included contact information for the participant. Participants also were asked to identify 2 individuals who could always get a message if contact with the participant be lost during the follow-up.

In addition, as a condition of participation, each participant was required to identify a "collateral," such as a friend or family member, who would be able to provide another perspective on how things have been going for the participant. The questions asked of the collateral were similar to those asked of the participant so that an index of the validity of participant self-reports could be calculated. Collaterals also were asked how much contact they had with participants for the reporting period, their relationship to them, and their degree of confidence in the data they were providing. A given participant's collateral was scheduled to be contacted for 1 randomly determined follow-up assessment (ie, at the 1-, 3-, or 6-month follow-up assessment point). Efforts to reach the collateral continued for 1 month following the target date. If they were unsuccessful, then efforts were reinitiated at the next follow-up point (in the case of the 1- and 3-month contacts). Participants provided written permission before any given collateral was contacted.

On discharge, a Medical Record Review Form on each participant was completed to collect information on the treatment period and type of discharge. Discharges were classified as regular (following successful completion of the program or transfer from intensive treatment [3 treatment days per week] to a lower intensity of treatment), administrative (discharge due to patient infraction of treatment program rules), or against medical advice (AMA).

It should be noted that the administration of the evaluation measure required time, effort, and resources. For the baseline assessment, a clinical staff member typically devoted 30 to 45 minutes of time and effort. This included describing the project to the patient, answering any questions, obtaining written informed consent, completing the locator form and collateral contact information paperwork, and administering the measure itself. The telephone follow-up interviews (each took approximately 10-20 minutes to complete) were completed by a research staff member operating in the central offices of the operating company and thus external to the actual treatment sites. Depending on the number of follow-up interviews with the participants and their collaterals scheduled for a given week, which was somewhat variable over time, this staff member typically devoted 60% to 100% weekly effort to the project. This individual also was responsible for scanning the data forms so that the data could be entered into a spreadsheet. The subsequent data entry, data cleaning, and data analyses were performed under the supervision of the collaborating researchers, who developed analysis plans in consultation with the program administrators.

Results

Study retention

Follow-up rates for the combined sample for the 1-, 3-, and 6-month assessments were 68%, 61%, and 60%, respectively. Most (78.9%, n = 221) of the participants completed at least 1

Table 1. Demographic and baseline alcohol and other drug use for participants at each program site.

	TREATMENT PROGRAM			
	1 (N=86)	2 (N=53)	3 (N=31)	4 (N=110)
Age, y (mean, SD)	30.9 (11.7)	41.2 (11.8)	24.3 (3.6)	27.1 (9.7)
Gender, % male	43.0	56.6	67.7	62.7
Employment status, %				
Full-time	27.9	30.2	12.9	31.8
Part-time	9.3	11.3	0.0	4.5
Unemployed	47.7	30.2	51.6	59.1
Disabled	0.0	0.0	0.0	0.9
Homemaker	4.7	9.4	0.0	0.9
Student	7.0	1.9	16.1	0.9
Retired	1.2	1.9	0.0	0.9
Other	2.3	15.1	19.4	0.9
Ethnicity, % Hispanic	3.5	3.8	9.7	7.3
Race, %				
Asian	0.0	3.8	3.2	0.9
Native Hawaiian/Pacific Islander	0.0	0.0	0.0	0.9
Black or African American	1.2	1.9	9.7	4.5
White	97.7	86.8	87.1	88.2
Multiracial	1.2	1.9	0.0	0.0
Other	0.0	3.8	0.0	0.0
Missing	0.0	1.9	0.0	5.5
Marital status, %				
Married	17.4	41.5	0.0	13.6
Cohabiting	4.7	3.8	0.0	3.6
Separated	5.8	5.7	0.0	4.5
Divorced	10.5	15.1	9.7	6.4
Widowed	1.2	0.0	0.0	0.0
Single/never married	60.5	34.0	90.3	71.8
Education, y (mean, SD)	14.9 (2.7)	15.0 (2.2)	14.3 (1.8)	13.0 (1.9)
PDA—alcohol (mean, SD)	49.4 (36.3)	34.8 (37.1)	53.5 (36.1)	54.1 (36.6)
PDA—drugs (mean, SD)	25.1 (32.2)	39.8 (38.1)	14.7 (26.1)	18.3 (28.8)
PDA—alcohol and drugs (mean, SD)	23.7 (32.5)	24.8 (32.5)	12.7 (23.0)	14.2 (25.3)

Abbreviation: PDA, percentage of days abstinent.
PDA for 30-day period prior to last alcohol or other drug use prior to treatment admission. The figures provided for the PDA variables were calculated based on participants who reported alcohol, drugs, or either, respectively, during the baseline assessment period.

follow-up interview. Data for all 3 follow-up assessment points were available for 45.7% of the sample (n=128). There were few differences at baseline among participants who completed varying numbers of follow-up assessments in demographics, physical/mental health, and substance use. Regarding this, there were no significant differences between those who did

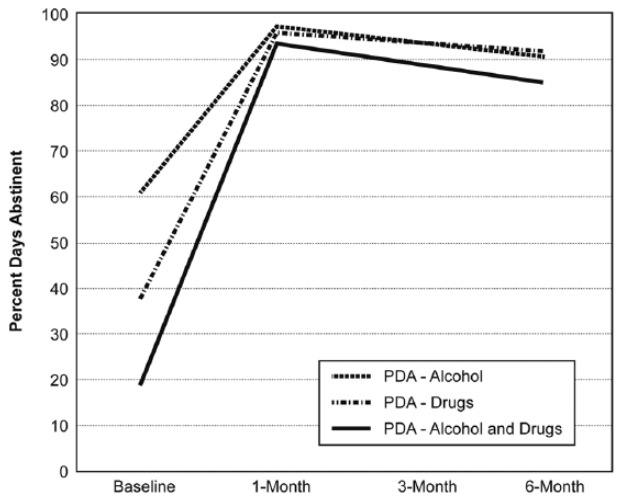

Figure 1. Percentage of days abstinent (PDA) from alcohol, drugs, and alcohol and drugs at baseline and at 1-, 3-, and 6-month follow-up assessments for combined sample.

and did not complete the 1-month follow-up. In comparison with the 3-month completers, those who were not reached at 3 months reported significantly stronger craving strength at baseline ($P < .05$). Finally, in comparison with the 6-month completers, those who were not reached at 6 months reported significantly greater depression at baseline and were significantly more likely to have left the treatment AMA ($P < .05$).

Treatment involvement

Participants across the 4 treatment programs averaged 46.5 (SD = 28.2) days in treatment. The figures for the 4 individual treatment sites were 48.4 (SD = 23.3), 39.5 (SD = 15.5), 93.4 (SD = 41.9), and 35.2 (SD = 15.3), respectively. In total, 85% of the treatment discharges were classified as regular, 6.4% were administrative discharges, and 8.6% were classified as AMA. Hierarchical regression analyses predicting treatment duration revealed 3 significant independent baseline predictors of longer treatment duration: being unemployed, lower ratings of readiness to change, and using both alcohol and other drugs (as opposed to using only alcohol or only other drugs). Logistic regression analyses did not reveal any baseline variables that significantly predicted the type of discharge.

Alcohol and other drug use

The percentage of days abstinent for each primary outcome (percentage of days abstinent from alcohol, percentage of days abstinent from other drugs, and percentage of days abstinent from alcohol and other drugs) for the baseline and follow-up periods are displayed in Figure 1. A repeated-measures analysis of variance (ANOVA) (with a Greenhouse-Geisser correction for sphericity) of each percentage of days abstinent variable was significant ($F_{1.49,186.15} = 85.16$, $P < .001$, for alcohol; $F_{1.64,208.14} = 157.43$, $P < .001$, for other drugs; and $F_{2.32,295.18} = 323.75$, $P < .001$, for alcohol and other drugs). Bonferroni-adjusted pairwise comparisons for each outcome revealed that the rate of percentage of days abstinent for each outcome at each follow-up was significantly higher than the baseline rate (all P's < .001).

Other domains of functioning

Friedman tests were performed on the secondary outcome variables of urges/cravings (composite score), depression (composite score), anxiety (composite score), and overall life functioning. In each case, the Friedman test was significant ($\chi^2(3) = 152.44$, $P < .001$, for urges/cravings; $\chi^2(3) = 89.62$, $P < .001$, for depression; $\chi^2(3) = 90.05$, $P < .001$, for anxiety; and $\chi^2(3) = 163.83$, $P < .001$, for overall life functioning). Post hoc analyses with Wilcoxon signed rank tests were conducted with a Bonferroni correction applied and revealed that the report on each outcome at each follow-up was significantly different from baseline (all P's < .001). Regarding this, follow-up reports of urges/cravings, depression, and anxiety significantly decreased from baseline and reports of general life functioning significantly increased from baseline. Furthermore, improvements were maintained throughout the 6-month follow-up.

Self-help group involvement

A repeated-measures ANOVA (with a Greenhouse-Geisser correction for sphericity) of self-help group involvement over time was significant, $F_{2.55,323.64} = 95.93$, $P < .001$. Bonferroni-adjusted pairwise comparisons revealed that the self-help group attendance at each follow-up was significantly higher in comparison with self-help attendance prior to baseline (all P's < .001).

Collateral reports

Collateral data were collected for 55% (n = 154) of the 280 participants. The relationship of the collateral to the participant was most frequently as a parent (46%) or spouse/partner (30%); 9% reported the relationship as a friend, 5% as a counselor, 5% as a sibling, and the remaining 5% as another relationship (ie, ex-partner, child, another family member). The breakdown of their frequency of contact with the participant was as follows: 57% daily, 6% 4 to 6 times a week, 22% 1 to 3 times a week, 4% 2 times a month, <1% monthly, or 10% less than monthly. The collaterals also provided a rating of their confidence in the accuracy of the drinking and drug use information they provided, on a 5-point scale ranging from 1 = a little confident/mostly guessing to 5 = very confident/very accurate. The mean confidence rating was 4.3; 78% provided a confidence rating of 4 or 5.

As intended, the collection of collateral data was evenly distributed across the 1-, 3-, and 6-month follow-up points (32.4%, 34.3%, and 33.3%, respectively). For analytic purposes,

Table 2. Bivariate correlations between participant and collateral reports.

OUTCOME VARIABLE	PEARSON *R*	*P* VALUE	N
PDA—alcohol	.617	<.001	96
PDA—drugs	.276	<.01	99
PDA—alcohol and drugs	.544	<.001	96

Abbreviation: PDA, percentage of days abstinent.

Table 3. Comparison of participant and collateral reports.

LARGER REPORT	PDA—ALCOHOL, % (N)	PDA—DRUGS, % (N)	PDA—ALCOHOL AND DRUGS, % (N)
Collateral	10.4 (10)	11.5 (11)	5.0 (5)
Participant	11.5 (11)	10.4 (10)	7.1 (7)
No difference	78.1 (75)	78.1 (75)	87.9 (87)

Abbreviation: PDA, percentage of days abstinent.

data were collapsed across 1-, 3-, and 6-month assessments, as each participant had only 1 collateral report. Participant and collateral reports were significantly correlated (see Table 2); the correlation was .544 ($P < .001$) for percentage of days abstinent from alcohol and other drugs, .617 ($P < .001$) for percentage of days abstinent from alcohol, and .276 ($P < .01$) for percentage of days abstinent from other drugs.

To examine the direction of discrepancies, participant and collateral reports were compared on the dimension of which source provided the larger (in the case of percentage of days abstinent, the more positive) report. These data, as shown in Table 3, revealed that collateral reports generally mirrored those provided by participants. For all substance use variables, most (>75%) of the reports were the same between collaterals and participants. When discrepancies did occur, there was no evidence of systematic participant underreporting or overreporting. Collateral confidence ratings in the accuracy of the information they were providing on the participant's alcohol and other drug use were not associated with the degree of discrepancy between collateral and participant reports.

Discussion

The primary goal of this project was to provide data on the outcomes for patients receiving treatment in intensive treatment settings (residential, day hospital, intensive outpatient). Regarding this, the participant and collateral interviews as part of this outcome assessment effort showed significant increases in each percentage of days abstinent outcome variable from baseline to the 1-month follow-up, improvements that were maintained at the 3- and 6-month follow-up contacts. A corresponding pattern of findings emerged for a range of secondary outcome variables reflecting other dimensions of function, including urges/cravings, depression, anxiety, and overall life functioning.

The presentation of data in this report covered core primary and secondary outcome variables but did not include all of the information gathered from participants at baseline and follow-up. Instead, the present analyses are representative of the larger array of variables potentially available for evaluation. Furthermore, we have highlighted outcomes overall, not specific to the individual treatment sites. This was partly not only a function of small sample sizes but also a function of a broader focus on the range of outcomes provided through use of the outcome assessment measure that was developed. With the continued administration of the measure at baseline and follow-up, it would be possible to look at program site–specific outcomes in similar detail.

The collateral data suggested that the participants tended to provide accurate self-reports of their posttreatment alcohol and other drug use. These results also indicate that collateral informants are a good additional source of data regarding participants' posttreatment substance use. The finding that among these private treatment programs there was good correspondence between participant and collateral reports of alcohol and other drug use is consistent with the broader literature.[20] This degree of correlation was particularly strong for reports of abstinence from alcohol and abstinence from alcohol and other drugs combined. Although the relationship between participants and collateral reports was significant for abstinence from other drugs, the correlation was not as large. It is possible that alcohol consumption (which was a component of each of those 2 abstinence categories) was more visible and salient behaviorally to the collaterals, elevating the correspondence for those 2 variables. Furthermore, it is noteworthy that when discrepancies occurred in reports of participants' substance use, participants and collaterals were equally likely to provide larger (ie, more positive) reports. Overall, these results indicate that collateral informants are a good additional source of data for

patients' posttreatment substance use in private addictions treatment environments.

A secondary aim of this article was to describe the process of developing this outcome assessment project for application in these private addictions treatment programs. The protocol implemented provided multiple types of information relevant to describing the population of individuals admitted for treatment, their treatment involvement (including days in treatment and type of discharge), and their posttreatment functioning. The primary outcome variables reflected alcohol and other drug use. Secondary outcome variables of interest included urges/cravings, depression, anxiety, self-help group involvement, and overall life functioning. The results suggest that it is feasible to implement an outcome assessment, including patient follow-up, within freestanding private addictions programs. As a result, the programs obtained detailed information on the posttreatment functioning of their program participants. Furthermore, there may also have been potential benefit to the participants, in that previous research has shown that patients benefit from the contact and feedback about their posttreatment efforts at sustaining abstinence and improving their overall life functioning.[21,22]

An advantage of the measure used in this outcome assessment is that it is amenable to modification as a function of program needs or interests. For example, there might be desire to obtain more detailed information on particular drugs of abuse, such as opiates, as a function of the drug use perceived by staff during recent program admissions. Another possibility is studying the extent to which particular personality characteristics might predict duration of treatment stays and type of discharge. In that context, the baseline assessment could be modified to include the measurement of such variables.

There were several findings from this outcome assessment that might be pursued in future research. For example, longer treatment durations were predicted by being unemployed, reporting lower readiness to change, and use of both alcohol and other drugs. It would therefore seem worthwhile to explore how these characteristics contributed to longer stays in treatment. Also, participants not contacted at the 3-month follow-up, compared with those contacted, reported stronger urges/cravings at baseline, and participants not contacted at the 6-month follow-up, compared with those contacted, had greater depression at baseline. For purposes of further research, alternative follow-up strategies might need to be implemented with individuals with similar characteristics, such as having shorter intervals between follow-ups.

As with any such project, there are limitations that should be noted. One limitation is that we did not track the participation rate. All consecutive admissions to the treatment programs were approached to participate. Although clinical staff anecdotally reported only rare declinations, we cannot empirically evaluate differences that may exist between the participants and the few who declined. Also, not tracked in this study was a classification of the regular discharges into those who were fully discharged from the program versus those who were discharged from the program into a lower level of care. Thus, it is not possible to ascertain if there were any differences in the outcomes for patients with these 2 types of regular discharges. In terms of follow-up contacts with participants, data for all 3 follow-up points were available for 45.7% of the sample. Although 78.9% completed at least 1 follow-up interview, efforts might be devoted in future applications of this protocol to increasing the rate of data collection across each follow-up point. Furthermore, there was only a 58% contact rate with collaterals. It could be the case that a greater emphasis on collateral contacts could raise this figure, including having participants identify more than one potential collateral contact and providing gift card payments to collaterals for their participation. Finally, this study did not include biological verification of alcohol and drug use status, such as urine screens, breath tests, and blood tests.

Finally, there are several considerations if one were to implement the protocol described in this project at another treatment site. Most central is the availability of resources, such as staffing for conducting the baseline assessment and the follow-up interviews. In addition, resources would be needed for data entry, data analyses, and report development, along with participant remuneration (if included). To the extent that resources are limited, which often will be the case, one possibility is to implement the protocol for a limited period of time, as was the case in this study, as opposed to ongoing. Also, it could be that a decision is made not to include follow-up contacts with the collaterals. Another possibility might be to collaborate with colleagues from a local college or university in the conduct of the project. This might benefit both parties, with the treatment program obtaining the resource of students conducting the interviews and managing the data collection and the students obtaining experience in the conduct of research.

Taken together, the results of this study suggest that it is feasible to implement outcome assessment, including a baseline assessment and follow-up, within private freestanding addictions treatment programs. The continuing conduct of such evaluations ideally will benefit multiple constituencies, including treatment providers, treatment program managers, program funders, health care insurers, and the general public more broadly.

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Author Contributions

DS, GJC, and SAM conceived the concepts and designed the measures and procedures. CEC and SAM analyzed the data.

GJC wrote the first draft of the manuscript. GJC, SAM, CEC, BT, and DS contributed to the writing of the manuscript. All authors agree with manuscript results and conclusions. All authors reviewed and approved the final manuscript.

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