

Findings from the

RECOVERY CENTER OUTCOME STUDY

2015

EXECUTIVE SUMMARY

This is the fourth annual Recovery Center Outcome Study (RCOS) report. The goal of RCOS is to examine client satisfaction, recovery support, and outcomes for several specific targeted factors including: (1) substance use; (2) mental and physical health; (3) education; (4) employment; (5) homelessness and living situation; and (6) criminal justice involvement. In addition, RCOS estimates avoided costs to society in relation to the cost of recovery services. This report describes outcomes for 283 men and women who participated in a Recovery Kentucky program, completed an intake interview at entry to Phase 1 and agreed to participate in the RCOS between July 1, 2012 and June 30, 2013, and then completed a 12-month follow-up survey between July 2013 and June 2014.

Overall, in FY 2013 1,952 clients from all 14 Recovery Kentucky programs across the state completed the RCOS intake interview. Clients' average age was 33 years old and ranged from 19 years old to 64 years old. About half were male (51%) and half were female (49%). A random sample of clients stratified by gender and by Department of Corrections (DOC) referral into the program was drawn and was also stratified by month of intake. Overall, the 283 clients who were followed up received about 8.4 months of services, on average, from the program and there was no difference in length of service between clients who were referred

by DOC and clients who were not referred by DOC. Furthermore, analysis examining the relationship between length of service, DOC referral status, and several targeted outcomes showed few significant associations: specifically, shorter length of service was associated with greater odds of using alcohol or drugs as well as meeting study criteria for generalized anxiety during the follow up period (12 months after the intake)

Comparisons between those who completed a follow-up and those who did not suggest no significant differences on any of the key factors targeted including pre-program education, employment, living status, substance use, mental health, criminal justice involvement, and treatment history. For those who completed a follow-up, 6.7% were still involved with the program at the time of the follow-up with most of those clients in Phase II of the program.

Results show that clients were overwhelmingly satisfied with their Recovery Kentucky program experience. On a scale of 1 to 10, with 1 being the worst possible experience and 10 being the best possible experience, clients rated their program experience, on average, as 8.6. Further, over 95% of clients reported getting the services needed to get better, feeling better about themselves as a result of their program experience, understanding what was expected of them, and being treated with respect. The most commonly self-reported positive

85%

Reduction in illegal drug use

84%

Reduction in alcohol use

93%

Reduction in alcohol intoxication

79%

Reduction in clients meeting criteria for depression

85%

Reduction in clients meeting criteria for anxiety

90%

Reduction in clients meeting criteria for depression & anxiety

outcomes of the program included major life changes, reductions in substance use, positive interactions and relationships with other people, and improved mental health.

In addition to the positive program experience reported by clients, their overall quality of life improved significantly. Clients reported significantly higher quality of life after the program, having significantly more positive feelings and significantly less negative feelings, and higher satisfaction with life at the follow-up compared to before they entered the recovery program. Similarly, clients reported less stress and fewer days their health and mental health were not good at follow-up compared to intake.

At follow-up, there were significant reductions in substance use, improvements in mental health, employment and living situation, decreased involvement with the criminal justice system, and improvements in recovery supports.

Specifically, 87.2% of clients indicated using illegal drugs in the 12 months before entering the recovery center while during the 12 (or 6) month follow-up period only 13.2% of clients reported using illegal drugs. There was a similar trend for alcohol use with 62.4% of clients reported using alcohol in the 12 months before entering the recovery center while only 9.8% reported using alcohol during the follow-up period.

A trend analysis shows that from FY 2010 to FY 2013, the percentage of clients reporting at intake they had used opioids (i.e., prescription opiates, methadone, and buprenorphine) has

significantly decreased while the percentage of clients that had used heroin has significantly increased. This trend corresponds to other data sources including the National Drug Use and Health Survey (SAMHSA, 2014) that have found an increase in the number of individuals who use heroin as the number of individuals who use prescription opiates/opioids decreases.

There was also significant improvements in mental health. The majority of clients (59.4%) met study criteria for depression at intake and by follow-up only 12.4% of clients met criteria for depression. At intake, 64.0% of clients reported symptoms that met criteria for generalized anxiety and at follow-up about 9.9% met criteria for generalized anxiety. In addition, there was a 90% decrease in the number of clients reporting criteria for both depression and generalized anxiety (from 51.6% at intake to 5.3% at follow-up). The percentage of clients reporting suicide ideation and/or attempts decreased significantly by 93%.

There was a significant improvement in education and employment. At intake 46.6% of clients reported working at least 1 month in the 12 months before program entry and 76.7% reported working at least 1 month during the follow-up period, representing a 64% increase. Men were more likely to report working at intake but by follow-up, the number of women who reported being employed at least one month increased by 93% so there was no difference by gender at follow-up. Also, the percentage of clients who considered themselves currently homeless decreased 71%. Further, the number

71%

Reduction in clients reporting homelessness

87%

Reduction in clients reporting an arrest

88%

Reduction in clients reporting incarceration

of clients who reported economic hardship decreased significantly from intake to follow-up. Nearly half of clients reported at intake they had difficulty meeting basic living needs (e.g., food, shelter, utilities, telephone) in the 12 (or 6) months before entering the recovery center. By follow-up this number had decreased 40.8%. Similarly, the number of individuals who reported having difficulty for financial reasons obtaining health care (e.g., doctor, dental, and prescription medications) decreased 33.3% from intake to follow-up.

Fewer clients were involved in the criminal justice system during the follow-up period compared to the 12 months before the intake was completed. The number of clients who reported being arrested decreased 87% from the 12 months before entering the recovery center to the 12 (or 6) months before follow-up. Likewise, the percentage of clients reporting spending at least one day in jail or prison decreased 88%.

Furthermore, at follow-up, there was a significant increase (97%) in the number of individuals reporting they had gone to mutual help recovery group meetings in the past 30 days. Also there was an increase in the average number of meetings clients attended. There was a 13% increase in the percentage of clients who felt they had interactions with family and friends who were supportive of their recovery. Finally, the number of people individuals reported they could count on for recovery support nearly doubled from intake to follow-up.

Examining the total costs of drug and alcohol abuse to society in relation to expenditures on recovery services, estimates suggest that for every dollar spent on Recovery Kentucky programs there was a \$3.56 return in avoided costs (or costs that would have been expected given the costs associated with drug and alcohol use before participation in Recovery Kentucky programs). This is very similar to the cost savings estimated in last year's report.

Overall, evaluation results indicate that Recovery Kentucky programs have been successful in facilitating positive changes in clients in a variety of areas including decreased substance use, improved mental health problems, improved employment situations, improved living situations, and a decrease in involvement with the criminal justice system. Results also suggest clients appreciate their

Estimates suggest that for every dollar spent on Recovery Kentucky programs, there was a \$3.59 return in avoided costs.

experiences in the recovery centers and have much more support for their recovery as well as a higher quality of life after participation in Recovery Kentucky. Further, the Recovery Kentucky Program saved taxpayers money with a return of \$3.56 for every dollar spent on Recovery Kentucky program services.

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FINDINGS FROM THE RECOVERY CENTER OUTCOME STUDY 2015 REPORT

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OVERVIEW OF REPORT

This is the fourth annual Recovery Center Outcome Study (RCOS) follow-up report conducted by the Behavioral Health Outcome Study team at the University of Kentucky Center on Drug and Alcohol Research (UK CDAR). All 14 of the currently established Recovery Kentucky programs participate in this Recovery Center Outcome Study (RCOS). There are currently 7 Recovery Kentucky facilities for women and 7 facilities for men across the state.^{1,2}

RCOS staff conduct a face-to-face Phase 1 intake interview with program clients to assess targeted factors such as substance use, mental health symptoms, education, employment status, living situation, and criminal justice involvement prior to entering the recovery center. Then, a follow-up interview is conducted with a selected sample of clients about 12 months after the intake survey is completed. The follow-up interviews are conducted over the telephone by an interviewer at UK CDAR. Client responses to the follow-up interviews are kept confidential to help facilitate the honest evaluation of client outcomes and satisfaction with program services.

Results are presented in ten main sections including:

Section 1: Overview of RCOS Method and Client Characteristics. This section briefly describes the Recovery Center Outcome Study (RCOS) method including how clients are selected into the outcome evaluation. In addition, this section describes characteristics of clients who entered Phase 1 of a recovery center program and agreed to participate in the RCOS between July 1, 2012 and June 30, 2013. This section also describes characteristics for clients who completed a 12 month follow-up survey conducted by UK CDAR between July 1, 2013 and June 30, 2014.

Section 2: Client Satisfaction with Recovery Kentucky Programs and Quality of Life Ratings. This section describes three aspects of client satisfaction: (1) overall client satisfaction; (2) client ratings of program experiences; and (3) quality of life rating changes.

Section 3: Substance Use. This section describes pre-program compared to post-program change in illegal drug, alcohol, and tobacco use for adult clients. Past-12-months substance use is examined as well as past 30-day substance use separately for clients who were not in a controlled environment all 30 days before entering the Recovery Kentucky program and clients who were in a controlled environment all 30 days before entering the program. Results for each targeted factor are presented for the overall sample and by gender when there were significant gender differences.

Section 4. Mental Health, Stress, and Physical Health. This section describes pre-program compared to post-program change on mental health, stress, and physical health including the following factors: (1) depression; (2) generalized anxiety; (3) suicidal thoughts or attempts; (4) number of days physical and

¹ Women's facilities include: Trilogy Center for Women – Hopkinsville; Women's Addiction Recovery Manor – Henderson; Brighton Recovery Center for Women – Florence; Liberty Place for Women – Richmond; Cumberland Hope Community Center for Women – Evarts; The Healing Place for Women – Louisville; The Hope Center for Women – Lexington
Men's facilities include: Owensboro Regional Recovery Center for Men – Owensboro; The Healing Place for Men – Louisville; The Transitions Grateful Life Center for Men – Erlanger; Morehead Inspiration Center for Men – Morehead; The Healing Place of Campbellsville – Campbellsville; George Privett Recovery Center – Lexington; CenterPoint Recovery Center for Men – Paducah

² A eighth recovery center for men opened in December 2014 (Hickory Hill Recovery Center). This center was not included in this year's outcome evaluation.

mental health were not good; and (5) physiological symptoms of stress. Results for each targeted factor are presented for the overall sample and separately by gender when there were significant differences.

Section 5. Education and Employment. This section examines changes in education and employment from intake to follow-up including: (1) highest level of education completed; (2) the percentage of clients who worked full-time or part-time; (3) the number of months clients were employed full-time or part-time, among those who were employed the year prior to program entry; (4) hourly wage, among employed individuals; and (5) expectations to be employed in the near future. Results for each targeted factor are presented for the overall sample and separately by gender when there were significant differences.

Section 6. Homelessness, Living Situation, and Economic Hardship. This section of target factors examines the clients' living situation at both intake and follow-up. Specifically, clients are asked at both points: (1) if they consider themselves currently homeless; (2) in what type of situation (i.e., own home or someone else's home, residential program, shelter) they have lived; and (3) economic hardship. Results for each targeted factor are presented for the overall sample and separately by gender when there were significant differences.

Section 7. Criminal Justice System Involvement. This section examines change in clients' involvement with the criminal justice system from intake to follow-up. Specifically, information about: (1) arrests; (2) incarceration; and (3) supervision by the criminal justice system. Results for each targeted factor are presented for the overall sample and separately by gender when there were significant differences.

Section 8. Recovery Supports. This section focuses on three main changes in recovery supports: (1) percentage of clients attending mutual help recovery group meetings; (2) recovery supportive interactions with family/friends in the past 30 days; and (3) the number of people the individual said they could count on for recovery support.

Section 9: Cost and Implications for Kentucky. Section 6 examines cost reductions or avoided costs to society after Recovery Kentucky Program participation. Using the number of individuals who reported drug or alcohol use at intake and follow-up, a national per/person cost was applied to the sample used in this study to estimate the cost to society of drug and alcohol use for the year before individuals were in recovery and then for the same individuals during the period after leaving Phase I. The cost savings were then divided by the cost of providing the Recovery Kentucky Program to the 283 individuals in the follow-up sample, yielding a return of \$3.56 for every dollar spent on recovery programs.

Section 10. Conclusion and Study Limitations. This section summarizes the report findings and discusses some major implications within the context of the limitations of the outcome evaluation study.

SECTION 1

Overview of RCOS Method and Client Characteristics



This section briefly describes the Recovery Center Outcome Study (RCOS) method including how clients are selected into the outcome evaluation. In addition, this section describes characteristics of clients who entered Phase 1 of a recovery center program and agreed to participate in RCOS between July 1, 2012 and June 30, 2013.

RCOS includes a face-to-face intake interview conducted by recovery center staff with clients as they enter Phase I to assess targeted factors such as substance use, mental health symptoms, education, employment, living situation, involvement with the criminal justice system, and recovery supports prior to entering the recovery center. In FY 2013, 1,952 clients completed an intake survey.³

DESCRIPTION OF RCOS CLIENTS AT PHASE I INTAKE

Table 1.1 presents demographic information on clients with an intake survey submitted in FY 2013. Clients' average age was 33.1 years old. Men made up 51.0% of the sample. Nine in ten clients (90.4%) were White and 7.6% were Black. About half of the RCOS clients reported they had never married, 35.2% were separated or divorced, and only 13.7% were married at intake.

TABLE 1.1. DEMOGRAPHICS FOR ALL RCOS CLIENTS AT PHASE I INTAKE IN FY 2013 (N = 1,952)

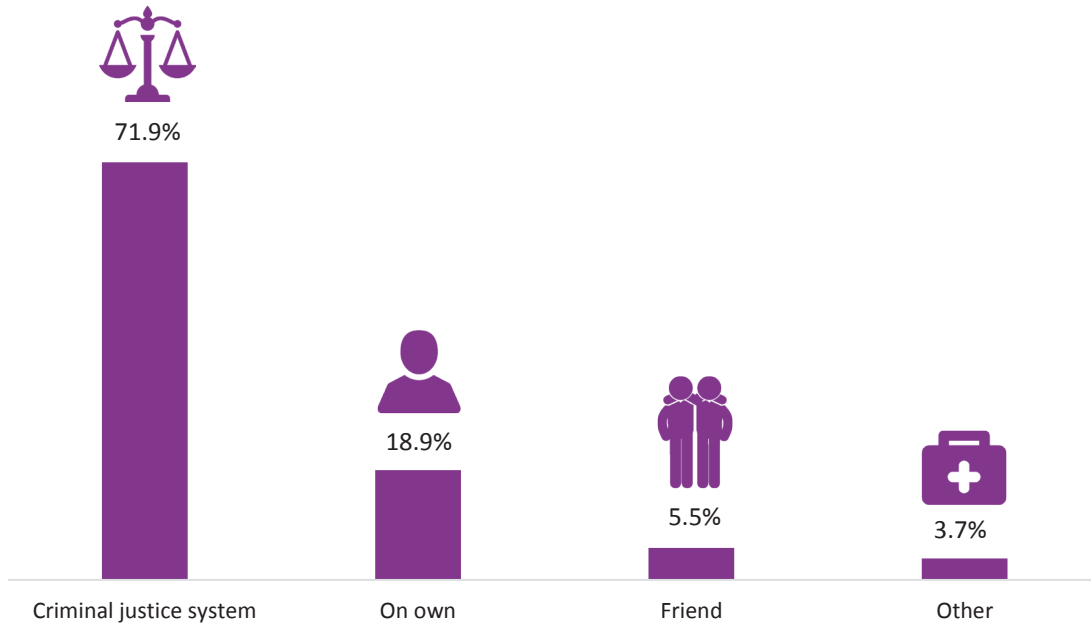
AGE	33.1 (Min. = 19, Max. = 64)
GENDER	
Male	51.0%
Female	49.0%
RACE	
White	90.4%
African American	7.6%
Other or multiracial	2.0%
MARITAL STATUS	
Never married	49.1%
Married or cohabiting	35.2%
Separated or divorced	13.7%
Widowed	2.0%
HOMELESS	60.7%

Figure 1.1 shows the referral source for RCOS clients. The majority of clients (71.9%) were referred by the criminal justice system (e.g., judge, probation officer, Department of Corrections). The next largest referral category was that the client decided to get help on his/her own (18.9%), and that the client was referred to the recovery center by a relative, friend, or partner (5.5%). The remaining 3.7% of clients

³ When a client had more than one intake survey in the same fiscal year, the survey with the earliest submission date was kept in the data file and the other intake surveys were deleted so that each client was represented once and only once in the data set.

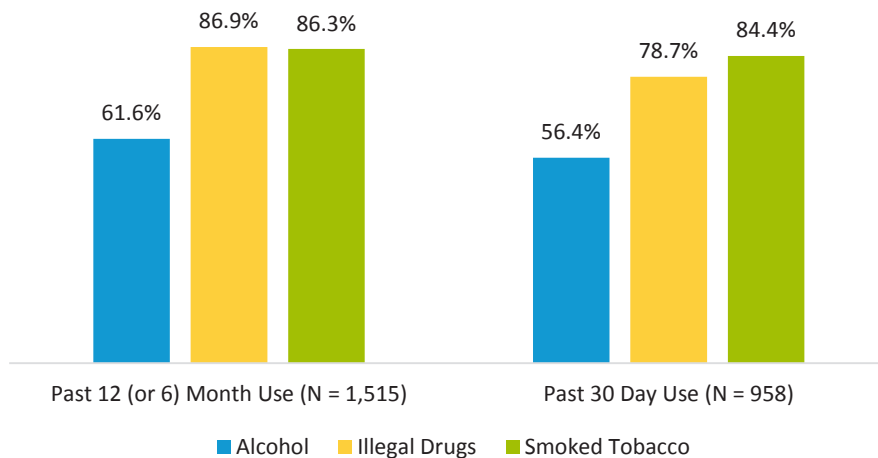
stated other referral sources such as a treatment program, Department of Community Based Services, a health care provider, a mental health care provider, or another recovery center.

FIGURE 1.1. REFERRAL SOURCE FOR ALL RCOS CLIENTS (N = 1,952)



The majority of clients reported using illegal drugs, alcohol, and tobacco in the 12 (or 6) month period before entering the recovery center.⁴ Similar percentages were found when past-30-day use was examined for clients who were not in a controlled environment all 30 days before entering the recovery center.⁵

FIGURE 1.2 ALCOHOL, DRUG AND TOBACCO USE 12 MONTHS AND 30 DAYS BEFORE THE PROGRAM

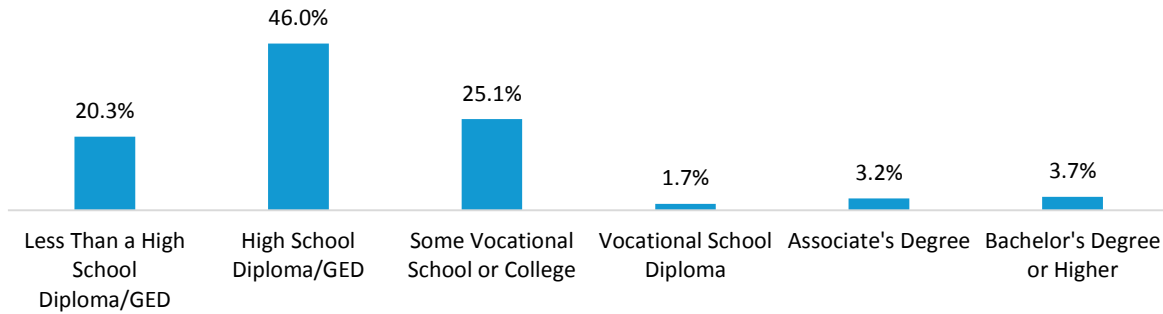


⁴ Because being in a controlled environment inhibits substance use, individuals who were in a controlled environment the entire period before entering the recovery center (N = 437) are not included in the analysis of substance use in the past 12 (or 6) month period before entering the recovery center.

⁵ Because being in a controlled environment inhibits substance use, individuals who were in a controlled environment the entire period before entering the recovery center (N = 994) are not included in the analysis of substance use in the past 30 days before entering the recovery center.

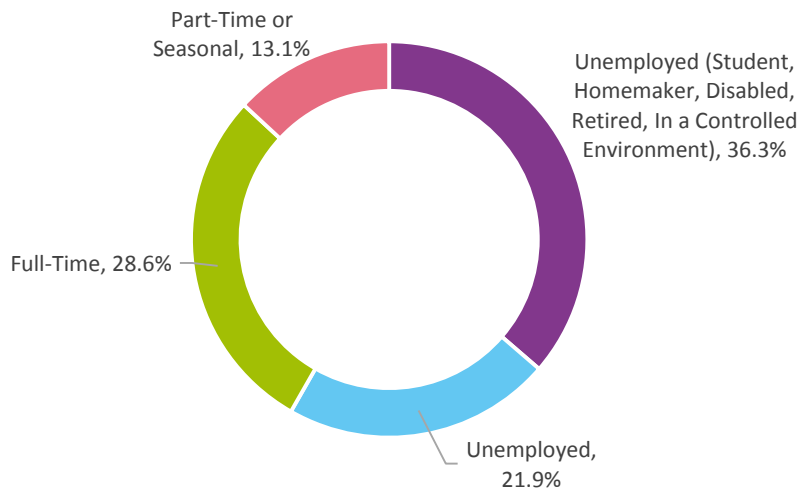
One in five clients (20.3%) had less than a high school diploma or GED at intake. The highest level of education for 46.0% of the sample was a high school diploma or GED. One fourth of clients (25.1%) had completed some vocational/technical school or college. Only a minority of clients had completed vocational/technical school (1.7%), an associate’s degree (3.2%), or a bachelor’s degree or higher (3.7%).

FIGURE 1.3. HIGHEST LEVEL OF EDUCATION COMPLETED AT INTAKE (N = 1,952)



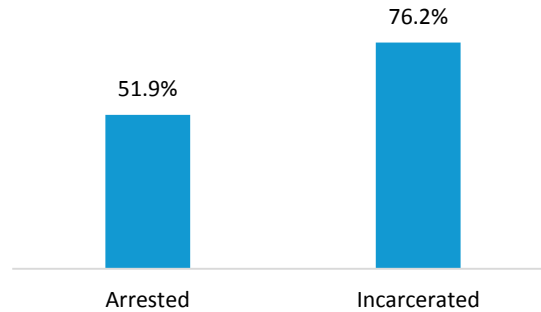
A little over one fourth of clients (28.6%) reported their usual employment status in the months before they entered the recovery center was full-time employment, with 13.1% reporting part-time or seasonal work (see Figure 1.4). A little over one third (36.3%) reported they were unemployed because they were a full-time student, parent/homemaker, retired, disabled, or in a controlled environment. About one-fifth reported they were unemployed.

FIGURE 1.4. USUAL EMPLOYMENT STATUS AT INTAKE (N = 1,952)



About half of individuals reported being arrested at least once (51.9%) and three-fourths reported being incarcerated at least one night (76.2%) in the 12 (or 6) months before they entered the recovery center (see Figure 1.5).

FIGURE 1.5. CRIMINAL JUSTICE INVOLVEMENT BEFORE ENTERING THE RECOVERY CENTER (N = 1,952)



RCOS FOLLOW-UP SAMPLE

This report describes outcomes for 283 men and women who participated in a Recovery Kentucky program and who completed an intake interview at entry to Phase 1 and a follow-up telephone interview about 12 months (average of 367.7 days) after the intake survey was submitted to UK CDAR.⁶ Intake interviews are conducted soon after clients' entry into Phase 1. Detailed information about the methods can be found in Appendix A.

Follow-up interviews are conducted with a selected sample of RCOS clients about 12 months after the intake survey is submitted. All individuals who give at least one mailing address and one phone number, or two phone numbers if they do not have a mailing address in their locator information, are eligible for the follow-up component of the study. The follow-up interviews are conducted over the telephone by an interviewer at UK CDAR with eligible individuals. Client responses to the follow-up interviews are kept confidential to help facilitate the honest evaluation of client outcomes and satisfaction with program services. There was a low refusal rate for follow-up participation (0.2%) and a good follow-up rate (64.8%). This means that 35.0% of individuals included in the sample to be followed up were not successfully contacted.⁷

The target number of follow-up surveys to be completed each fiscal year is 280. For this reporting period, the sample to be followed up was stratified by target month (12 months after intake is the target month for each client), gender and DOC referral status so that there were close to equal numbers of individuals in each of the following categories: (1) Male, referred by DOC, (2) Male, not referred by DOC, (3) Female, referred by DOC, and (4) Female, not referred by DOC.⁸ Consistent with the targeted selection of the sample of clients to be followed up, among the 283 clients with follow-up interviews, 48.4% (n = 137) were referred by the Department of Corrections (DOC), 49.8% (n = 141) were not DOC-referred, and 1.8% (n = 5) did not have information provided about DOC referral. Also, for the follow-up sample included in this report, 51.6% of the sample was female and 48.4% was male. The primary reason the sample was stratified by DOC status was to allow examination of whether length of service differs by DOC referral status, and whether either of these factors are related to key targeted outcomes. Analysis presented in

⁶ The actual date the intake interview was completed is not known for 105 clients. Some sites do the intake interviews on paper and submit them to UK CDAR through the website at a later date. Although UK CDAR requests the intake information be submitted within 7 days it is not clear whether or not that is the case; therefore, the date the intake is submitted to UK CDAR is used for analysis.

⁷ Clients are not contacted for a variety of reasons including follow-up staff are not able to find a working address or phone number or are unable to contact any friends or family members of the client.

⁸ The selection criteria for the follow-up sample was determined in collaboration with Kentucky Housing Corporation and may change each year depending on the study needs and priorities.

Appendix D shows that DOC referral status was not associated with any of the targeted outcomes, while length of service was associated with several targeted outcomes. Specifically, shorter length of service was associated with greater odds of using alcohol or drugs as well as generalized anxiety in the 6 months before follow-up (6 months before follow-up).

Almost all followed up clients were White (91.2%) or African American (8.1%) and were an average of 33.6 years old at the time of the intake interview. Overall, at intake, half of the clients who completed a follow-up interview (49.8%) reported at intake that they were never married, 37.8% were separated or divorced, and only 11.0% were married at intake. See Appendix B for detailed information about clients.

No differences on selected key factors were found when comparing clients who completed a follow-up interview to those who had not completed a follow-up interview. Specifically, when clients with a follow-up interview were compared with clients who did not have a follow-up interview on a variety of intake variables there were no significant differences for demographics, socio-economic status indicators (e.g., education, employment, living situation, inability to meet basic needs), substance use, severity of alcohol and drug use, mental health (e.g., depression, generalized anxiety, suicidality), criminal justice involvement (e.g., arrested, incarcerated), and treatment history. See Appendix B for detailed comparisons on demographic and targeted factors.

When clients with a follow-up interview were compared with clients who did not have a follow-up interview on a variety of intake variables there were no significant differences for demographics, socio-economic status indicators (e.g., education, employment, living situation, inability to meet basic needs), substance use, severity of alcohol and drug use, mental health (e.g., depression, generalized anxiety, suicidality), criminal justice involvement (e.g., arrested, incarcerated), and treatment history.

Of the 283 individuals who completed a follow-up survey, 6.7% (n = 19) were still in the recovery center at follow-up, which was targeted to be about 12 months after the intake survey was completed. For those clients who were still at the recovery center at the time of the follow-up, 15 were in Phase 2, one was still in Phase 1, and information was missing for 3 individuals.

SECTION 2

Client Satisfaction with Recovery Center Programs and Quality of Life Ratings



One of the important outcomes assessed during the follow-up interview is the client's perception of the Recovery Center program experience. This section describes six aspects of client satisfaction with the program and quality of life indicators: (1) overall client satisfaction; (2) client ratings of program experiences; (3) clients' rating of their quality of life before and after involvement in the program; (4) clients' positive and negative feelings before and after their involvement in the program; (5) clients' satisfaction with their life before and after their involvement in the program; and (6) clients' perceptions of their social standing in society before and after involvement in the program.

OVERALL CLIENT SATISFACTION

The majority of individuals (79.1%) gave a highly positive rating between 8 and 10 of their experience in the Recovery Kentucky program, where 10 represented the best possible experience (not in a table). Overall, the mean rating was 8.6 indicating a very positive experience.

CLIENT RATINGS OF PROGRAM EXPERIENCES

When asked about specific aspects of the program, the majority of clients reported they either agreed or strongly agreed with each aspect of the Recovery Kentucky program assessed (see Figure 2.1). The overwhelming majority of clients (95% or higher) reported getting the services needed to get better, feeling better about themselves, understanding what was expected of them in the program and their rights as a client, and feeling they were treated with respect.

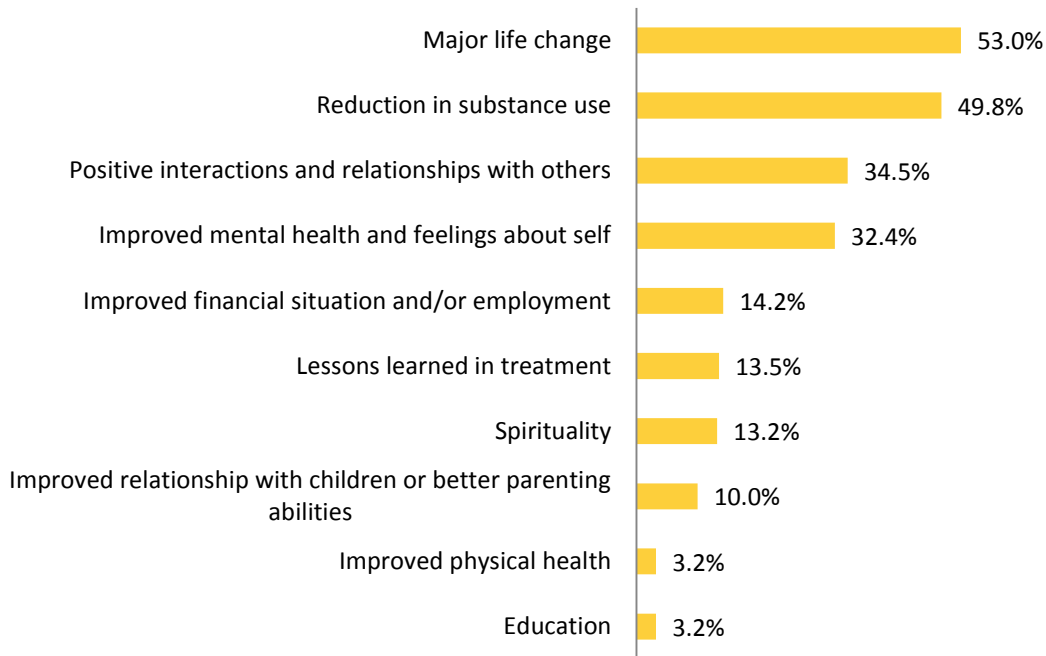
FIGURE 2.1. PERCENTAGE OF INDIVIDUALS WHO AGREED/STRONGLY AGREED WITH THE FOLLOWING STATEMENTS ABOUT THE RECOVERY KENTUCKY PROGRAM AT FOLLOW-UP (N = 283)^a



a--There were missing values for 1 – 3 cases on the items (interviewer skipped in error)

At the beginning of the follow-up survey, individuals were also asked about the most positive outcomes from their Recovery Kentucky program experience (see Figure 2.2). The most commonly self-reported positive outcomes of the program included major life changes (e.g., better quality of life, better able to function, having a “normal” life, greater control over life), reductions in substance use, positive interactions and relationships with other people, and improved mental health and feelings about themselves.

FIGURE 2.2. PERCENTAGE OF INDIVIDUALS WHO REPORTED THE MOST POSITIVE OUTCOMES OF THEIR RECOVERY KENTUCKY PROGRAM EXPERIENCE AT FOLLOW-UP (n = 281)^a



a—Two cases had missing values for this question (i.e., interviewer skipped)

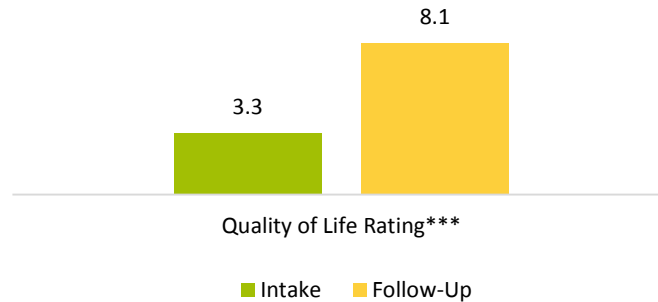
QUALITY OF LIFE AND SATISFACTION WITH LIFE

There were four quality of life and satisfaction with life indexes used including: (1) quality of life rating, (2) positive and negative feelings, (3) satisfaction with life, and (4) perceived social standing in society. The first three scales were included in the updated version of the intake survey (n = 178) whereas the fourth scale was included in the version of the survey that was used before November 2012 (n = 105). For eleven of the individuals who completed the updated version of the intake survey the follow-up interviewer used the older version of the follow-up survey (instead of the corresponding updated version); thus, they have missing data on the quality of life measures presented in this section.

QUALITY OF LIFE

At follow-up, clients were asked to rate their quality of life before entering the recovery center and after participating in the program. Ratings were from 1=‘Worst imaginable’ to 5=‘Good and bad parts were about equal’ to 10=‘Best imaginable’. RCOS clients rated their quality of life before entering the recovery center as on average 3.3 (see Figure 2.3). The average rating of quality of life after participating in the program significantly increased to 8.1.

FIGURE 2.3. PERCEPTION OF QUALITY OF LIFE BEFORE AND AFTER THE PROGRAM (N = 167)



1, worst imaginable; 5, good and bad parts are equal; 10, best imaginable

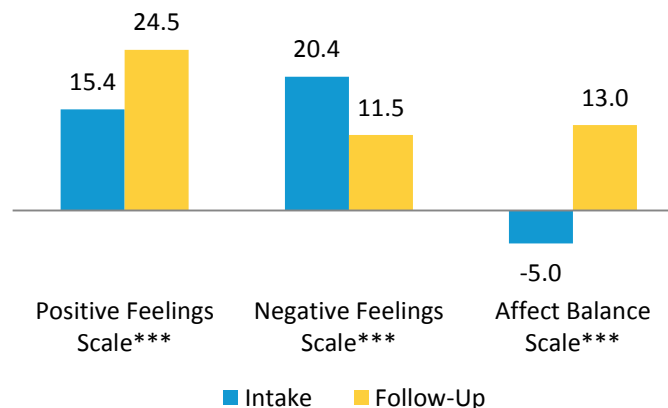
***p < .001.

POSITIVE AND NEGATIVE FEELINGS

At intake and follow-up, clients were asked a set of questions about how often they experienced 6 positive and 6 negative emotions/states in the past month (Scale of Positive and Negative Experience [SPANE]; Diener & Biswas-Diener, 2009). Clients answered using a scale with 1 representing “Very rarely or never” to 5 “Very often or always.” The responses are then added for the 6 positive items, yielding a Positive Feelings Score, and the same scoring method is used for the Negative Feelings Score. The lowest possible score is 6 and the highest positive score is 30. Low scores on the Positive Feelings Scale indicate the client rarely or infrequently experienced the six positive emotions/states. A high score on the Positive Feelings Scale indicates the client very often or frequently experienced the six positive emotions/states. To determine the overall affect balance (or the balance of negative and positive feelings about one’s life), the score derived from the negative feelings score is subtracted from the positive feelings score (with -24 being the minimum and unhappiest to 24 being the happiest). For example, a client with a high affect balance score reports that she rarely experiences negative feelings and very often has positive feelings.

Figure 2.4 shows that clients’ positive feelings increased significantly and their negative feelings decreased significantly from intake to follow-up. Further, the affect balance score also increased significantly from intake to follow-up. The affect balance score of -5.0 at intake indicates that clients’ negative feelings were more frequent than their positive feelings, whereas the significantly higher and positive score at follow-up indicates that clients’ positive feelings were more frequent than their negative feelings.

FIGURE 2.4. POSITIVE AND NEGATIVE FEELINGS BEFORE INTAKE AND FOLLOW-UP (N = 167)

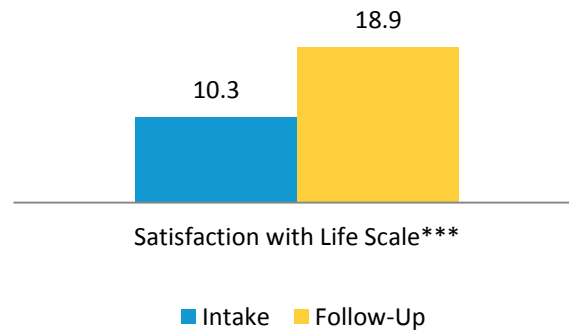


***p < .001.

SATISFACTION WITH LIFE

At intake and follow-up, clients were presented with five statements and asked to respond how much they agreed or disagreed with each statement, using a scale with 1 representing “Strongly disagree” and 5 representing “Strongly agree” (Diener, Emmons, Larsen, & Griffin, 1985). Each statement is a positively worded aspect of high satisfaction with one’s life. One statement, for example, is “In most ways my life is close to my ideal.” The values assigned to each response are added to create a life satisfaction score. The lowest possible score is 5 and the highest possible score is 25. Lower scores indicate lower satisfaction and higher scores represent higher satisfaction. Figure 2.5 shows that clients’ scores on the satisfaction with life scale increased significantly from intake to follow-up.

FIGURE 2.5. SATISFACTION WITH LIFE BEFORE INTAKE AND FOLLOW-UP (N = 167)

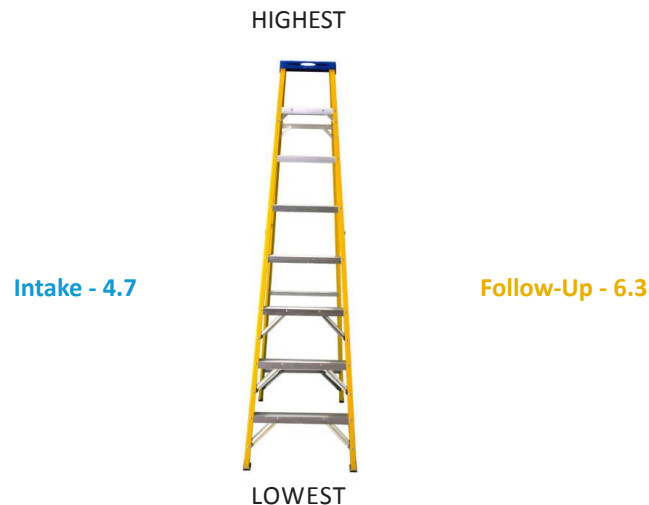


***p < .001.

SOCIAL STANDING

At intake and follow-up individuals’ perceptions of their social standing in society were assessed. Individuals were asked to place themselves on a ladder, representing their perception of their standing in society (Adler et al., 2000). The bottom rung, 1, represents “people who are the worst off, those who have the least money, least education, and worst jobs or no jobs” and the top rung, 10, represents “people who are the best off, those who have the most money, most education, and best jobs.” This item was included on the intake survey version that was effective before November 2012. Overall, clients rated themselves as a 4.6 on average, (just below the middle of the ladder) at intake, and a 7.2 (above the middle) at follow-up, which was a significant increase (see Figure 2.6).

FIGURE 2.6. AVERAGE RATING OF HOW CLIENTS SEE THEMSELVES IN SOCIETY (N = 98)^a



a—There were missing values for 178 cases because they completed a version of the intake survey that did not include this question and an additional 7 cases were not asked this question at follow-up

SECTION 3

Substance Use



This section describes pre-program compared to post-program change in illegal drug, alcohol, and tobacco use for adult clients. Past-12-months substance use is examined as well as past 30-day substance use separately for clients who were not in a controlled environment all 30 days before entering a recovery program and clients who were in a controlled environment all 30 days before entering the program. Results for each targeted factor are presented for the overall sample and by gender when there were significant gender differences.

Section 3A examines change in use of (1) any illegal drugs; (2) alcohol;⁹ and, (3) tobacco before entering the recovery center and before the follow-up.¹⁰ Results are presented for each substance in four main subsections:

1. **Change in 12-month/6-month substance use from intake to follow-up for clients not in a controlled environment.**¹¹ Comparisons of use of substances (any illegal drug use, alcohol use, and tobacco use) in the 12 months (or 6 months) before the client entered the program and use of substances during the 6 month follow-up period are presented (n = 234).¹² Significant gender differences are highlighted. Appendix C provides change over time on specific substances for men and women.
2. **Average number of months individuals used substances.** For those who used any of the substances, the proportion of months they used the substance before program entry (out of a 12 month or 6 month period) and during the follow-up period (6-month period) are analyzed.¹³ For ease of interpretation, the proportion was then multiplied by a 6-month period to estimate the number of months a client used the substance and this is presented in the figures.
3. **Change in 30-day substance use from intake to follow-up for clients not in a controlled environment.** Comparisons of any use in the 30 days before program entry and the 30 days before the follow-up interview for any illegal drugs, alcohol, and tobacco for clients who were not in a controlled

⁹ Alcohol use was asked three main ways: (1) how many months/days did you drink any alcohol (alcohol use); (2) how many months/days did you drink alcohol to intoxication (alcohol to intoxication); and (3) how many months/days did you have 5 or more (4 if female) alcoholic drinks in a period of about 2 hours (i.e., binge drinking).

¹⁰ z-test for proportion was used for significance testing of substance use; Chi-square test of independence was used to test for significant differences for gender at intake and then at follow-up.

¹¹ Forty-nine Individuals were not included in the analysis of change in substance use from the 12 (or 6) months before entering the recovery center to the 6 months before follow-up because they reported being incarcerated the entire period measured at intake (n = 48) or follow-up (n = 1).

¹² If the client progresses through the phases of the Recovery Kentucky Program in a typical manner, the follow-up interview should occur about 6 months after they are discharged from Phase I. However, because client's progress through phases at their own pace and many factors can affect when they are discharged from Phase 1, the follow-up timing varies by client. For example, some individuals may not complete Phase 1 and may be discharged before the approximate 6 months it should take to complete Phase 1.

¹³ Because the reference period before Recovery Kentucky program entry was 12 months (for 105 of the clients who completed the older version of the intake survey) and the reference period at follow-up was 6 months, the proportion of months in each period individuals reported using particular substances (e.g., any illegal drugs, alcohol, tobacco) was calculated. Then, that proportion was applied to a projected 6-month period at follow-up to facilitate comparisons. For example, if a client reported using tobacco all 12 months in the 12 months before intake, then the proportion of months of use was 1.0, and when this proportion was applied to a 6-month period, the value was 6 for the intake period.

environment all 30 days before entering the recovery center (n = 149) are presented.¹⁴ Significant gender differences are highlighted. Appendix C provides change over time on specific substances for men and women.

4. **Change in self-reported alcohol and drug severity composite scores for client not in a controlled environment.** The Addiction Severity Index (ASI) composite score based on self-reported severity of alcohol or drug problems are also examined for change over time for alcohol (n = 82) and illegal drugs (n = 114). The alcohol and drug severity composite scores assess addiction severity even among those reporting no substance use in the past 30 days. The alcohol and drug severity composite scores are computed from items about 30 days alcohol (or drug) use as well as:
 - The number of days of alcohol (or drug) use
 - Money spent on alcohol
 - The number of days individuals used multiple drugs (for drug use composite score)
 - The number of days individuals experienced problems related to their alcohol (or drug) use
 - How trouble or bothered they are by their alcohol (or drug) use
 - How important treatment is to them for their alcohol (or drug) problems

Section 3B presents results for each substance in two main subsections for clients who were in a controlled environment all 30 days before entering the program:

1. **Change in 30-day substance use from intake to follow-up for clients who were in a controlled environment all 30 days before entering the recovery center.** Comparisons of any use in the 30 days before program entry and the 30 days before the follow-up interview for any illegal drugs, alcohol, and tobacco for clients who were in a controlled environment all 30 days before entering the recovery center (n = 134) are presented.
2. **Change in self-reported alcohol and drug severity composite scores for clients who were in a controlled environment all 30 days before entering the recovery center.** Alcohol and drug severity composite scores are also examined for change over time for clients who reported alcohol use in the past 30 days (n = 18) and for clients who reported drug use in the past 30 days (n = 40) at intake and/or follow-up.

3A. SUBSTANCE USE FOR CLIENTS WHO WERE NOT IN A CONTROLLED ENVIRONMENT

ANY ILLEGAL DRUG USE

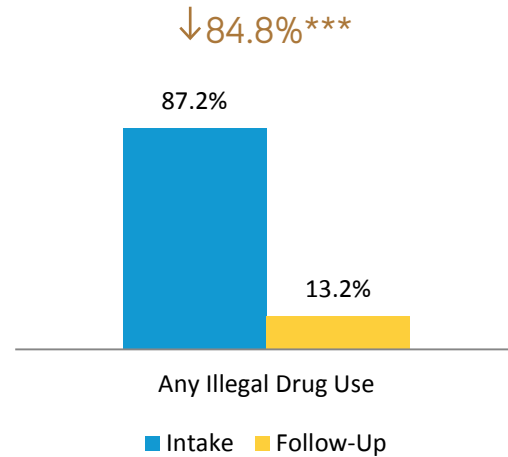
ANY ILLEGAL DRUG USE, PAST 12-MONTH/6-MONTH

The number of clients reporting alcohol use decreased 84%

At intake, 87.2% of clients reported using any illegal drugs (including prescription drug misuse and other illegal drugs) before entering the recovery center. At follow-up, only 13.2% of clients reported using illegal drugs in the 6 months before follow-up (a significant decrease of 84.8%; see Figure 3A.1).

¹⁴ Because many individuals enter the Recovery Kentucky program after leaving jail or prison, substance use in the 30 days before entering the program was examined separately for individuals who were in a controlled environment all 30 days from individuals who were not in a controlled environment all 30 days. The assumption for this divided analysis is that being in a controlled environment inhibits opportunities for alcohol and drug use.

FIGURE 3A.1 ANY ILLEGAL DRUG USE AT INTAKE AND FOLLOW-UP (N = 234)

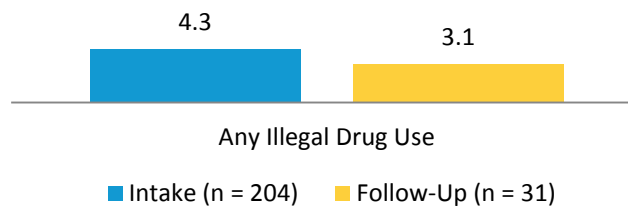


***p < .001.

AVERAGE NUMBER OF MONTHS USED ANY ILLEGAL DRUGS

Among clients who reported illegal drug use in the 12 (or 6) months before entering the program (n = 204), they reported using drugs an average of 4.3 months out of a 6 month period (see Figure 3A.2). Among individuals who reported using illegal drugs at follow-up (n = 31), they reported using an average of 3.1 of the 6 month follow-up period.

FIGURE 3A.2. AMONG CLIENTS WHO USED ANY ILLEGAL DRUGS, THE AVERAGE NUMBER OF MONTHS INDIVIDUALS USED ILLEGAL DRUGS



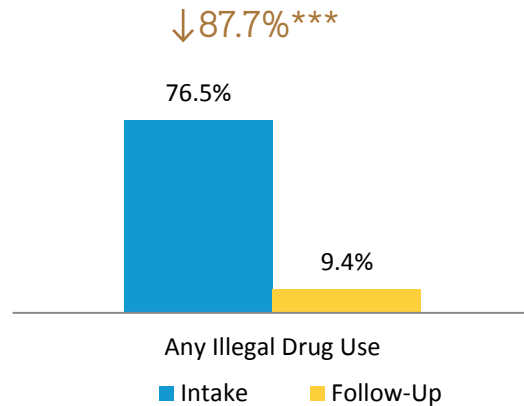
ANY ILLEGAL DRUG USE, PAST 30 DAYS

Three-fourths of individuals (76.5%) who were not in a controlled environment all 30 days reported they had used illegal drugs (including prescription misuse and other illegal drugs) in the 30 days before entering the recovery center (see Figure 3A.3). At follow-up, only 9.4% of individuals reported they had used illegal drugs in the past 30 days—a significant decrease by 87.7%.

The number of individuals who reported using illegal drugs in the past 30 days decreased by 88%



FIGURE 3A.3. 30-DAY USE OF ANY ILLEGAL DRUG USE AT INTAKE TO FOLLOW-UP (n = 149)



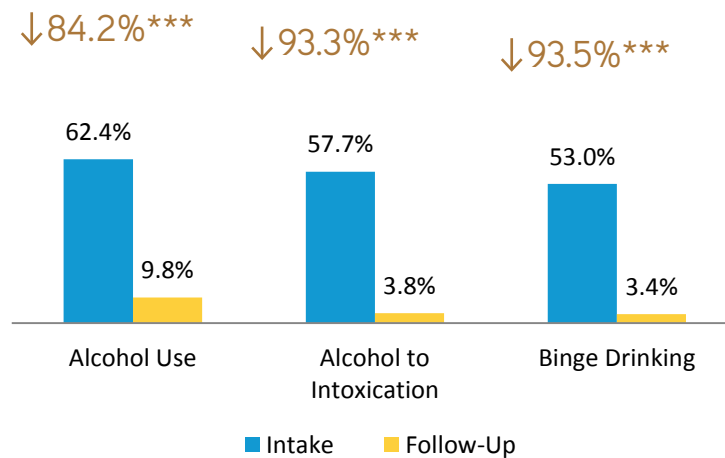
ALCOHOL

ALCOHOL USE, PAST 12-MONTH/6-MONTH

Alcohol use was asked three main ways: (1) how many months/days did you drink any alcohol (i.e., alcohol use); (2) how many months/days did you drink alcohol to intoxication (i.e., alcohol to intoxication); and (3) how many months/days did you have 5 or more (4 or more if female) alcoholic drinks in a period of about 2 hours (i.e., binge drinking; National Institute on Alcohol Abuse and Alcoholism, 2004).

The majority of individuals (62.4%) reported using alcohol in the 12 (or 6) months before entering the recovery center while 9.8% of clients reported alcohol use in the 6 months before follow-up. There was an 84.2% decrease in the number of individuals reporting alcohol use (see Figure 3A.4). Overall, 57.7% of individuals reported using alcohol to intoxication before entering the recovery center and 3.8% reported using alcohol to intoxication at follow-up—a 93.3% decline. Also, 53.0% of individuals reported binge drinking in the 12 (or 6) months before program entry and only 3.4% reported binge drinking in the follow-up period—a 93.5% decrease.

FIGURE 3A.4. ALCOHOL USE AT INTAKE A FOLLOW-UP (N = 234)



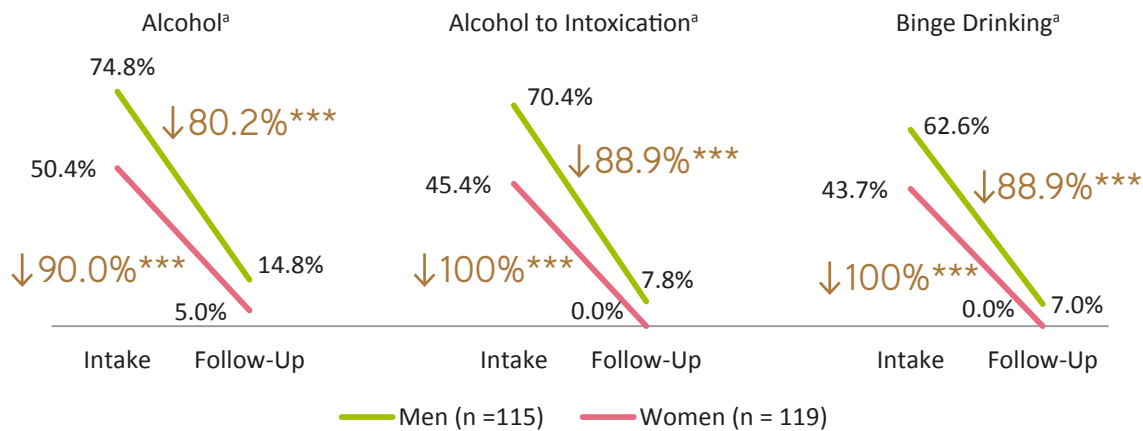
Gender Differences in Alcohol Use, Alcohol Use to Intoxication, and Binge Drinking, Past 12-month/6-month

Significantly more men than women reported using alcohol, alcohol to intoxication, and binge drinking at intake and at follow-up. The number of men and women who reported alcohol use decreased significantly by 80.2% and 90.0% respectively (see Figure 3A.5). The number of men and women who reported alcohol use to intoxication and binge drinking decreased significantly by 88.9% to 100% respectively.



Significantly more men reported alcohol use to intoxication at intake and follow-up compared to women

FIGURE 3A.5. GENDER DIFFERENCES IN ALCOHOL USE, ALCOHOL USE TO INTOXICATION, AND BINGE DRINKING AT INTAKE AND FOLLOW-UP



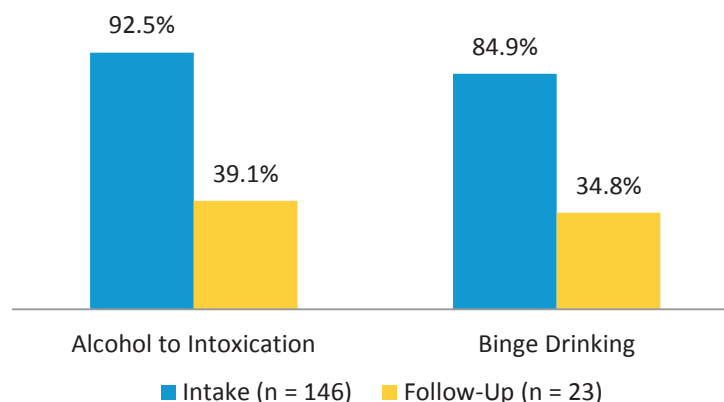
***p < .001

a—Significant difference by gender at intake and follow-up, p < .05.

ALCOHOL INTOXICATION AND BINGE DRINKING AMONG THOSE WHO USED ALCOHOL, PAST 12-MONTH/6-MONTH

Of the individuals who used alcohol in the 12 (or 6) months before entering the recovery center (n = 146), 92.5% used alcohol to intoxication (see Figure 3A.6). Of the individuals who used alcohol in the 6 months before follow-up (n = 23), 39.1% of clients reported alcohol to intoxication. Of the 146 individuals who used alcohol in the 12 (or 6) months before intake, 84.9% reported binge drinking. At follow-up, of those reporting alcohol use (n = 23), 34.8% reported binge drinking.

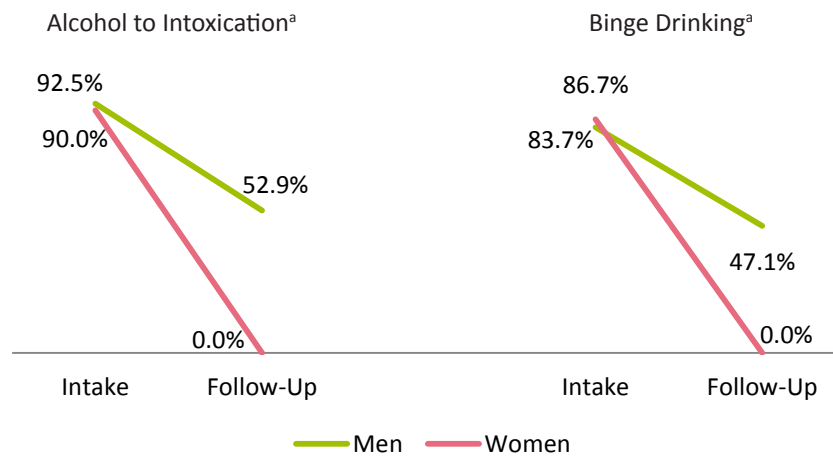
FIGURE 3A.6 ALCOHOL TO INTOXICATION AND BINGE DRINKING AT INTAKE TO FOLLOW-UP, AMONG THOSE REPORTING ALCOHOL USE AT EACH POINT



Gender Differences in Alcohol Use to Intoxication and Binge Drinking Among Those Reporting Alcohol Use

Among individuals who used alcohol at intake (n = 146), there was no gender difference in alcohol use to intoxication or binge drinking at intake (see Figure 3A.7). However, at follow-up, of the individuals who used alcohol in the 6 months before follow-up (n = 23), significantly more men than women reported using alcohol to intoxication (52.9% vs. 0.0%, respectively) and binge drinking (47.1% vs. 0.0%, respectively).

FIGURE 3A.7. GENDER DIFFERENCES IN ALCOHOL USE TO INTOXICATION AND BINGE DRINKING AT INTAKE AND FOLLOW-UP, AMONG THOSE REPORTING ALCOHOL USE AT EACH POINT

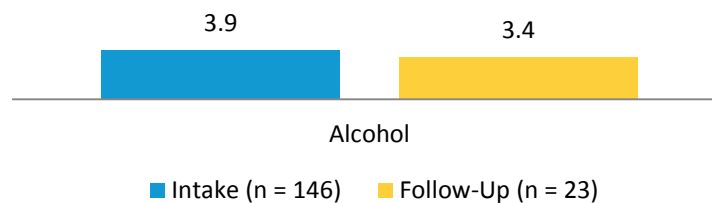


a—Significant difference by gender at follow-up, $p < .05$.

AVERAGE NUMBER OF MONTHS USED ALCOHOL

Figure 3A.8 shows the number of months of alcohol use for those who reported using any alcohol at intake and any alcohol at follow-up. Among the individuals who reported using alcohol in the 12 (or 6) months before entering the program (n = 146), they used an average proportion of .65 of the intake period, which translates to 3.9 months out of a 6 month period. Among individuals who reported using alcohol at follow-up (n = 23), they used an average of 3.4 months.

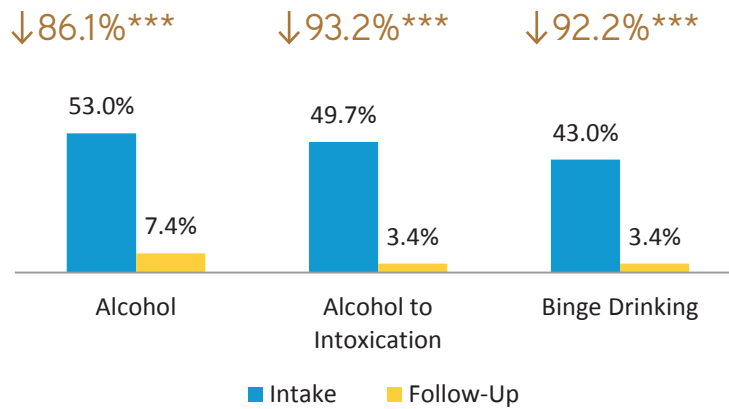
FIGURE 3A.8. AVERAGE NUMBER OF MONTHS OF ALCOHOL USE



ALCOHOL USE, PAST 30-DAY USE

There was a decrease in the percentage of individuals who reported using alcohol in the past 30 days from intake (53.0%) to follow-up (7.4%). This means that the number of RCOS clients reporting alcohol use decreased 86.1% from intake to follow-up. Decreases in the number of individuals who reported using alcohol to intoxication were also significant for the sample overall (by 93.2%). There were similar significant decreases in the number of individuals who reported binge drinking at follow-up compared to the 30 days before entering the recovery center (92.2%; see Figure 3A.9).

FIGURE 3A.9. 30-DAY ALCOHOL USE FROM INTAKE TO FOLLOW-UP (N = 149)



***p < .001.

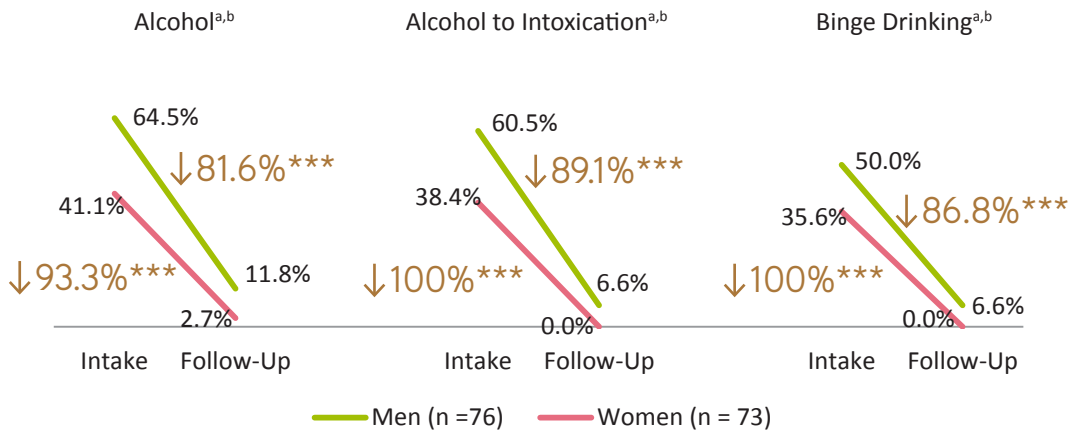
Gender Differences in Alcohol Use, Alcohol Use to Intoxication, and Binge Drinking, Past 30 Days

Figure 3A.10 shows that nearly two-thirds of men reported using alcohol in the 30 days before entering the recovery center, and by follow-up, only 11.8% reported alcohol use, representing an 81.6% significant decrease. Significantly more men than women reported using alcohol and alcohol to intoxication in the 30 days before entering the program and at follow-up. Decrease in the number of individuals who reported using alcohol to intoxication were significant for men (89.1%) and women (100.0%). Similarly, the decrease in the number of men and women who reported binge drinking in the past 30 days was significant.



Significantly more men than women reported using alcohol and alcohol intoxication in the 30 days before entering the program and at follow-up

FIGURE 3A.10. GENDER DIFFERENCES 30-DAY ALCOHOL USE, ALCOHOL TO INTOXICATION, AND BINGE DRINKING AT INTAKE AND FOLLOW-UP



***p < .001

a—Significant difference by gender at intake, p < .05.

b—Significant difference by gender at follow-up, p < .05.

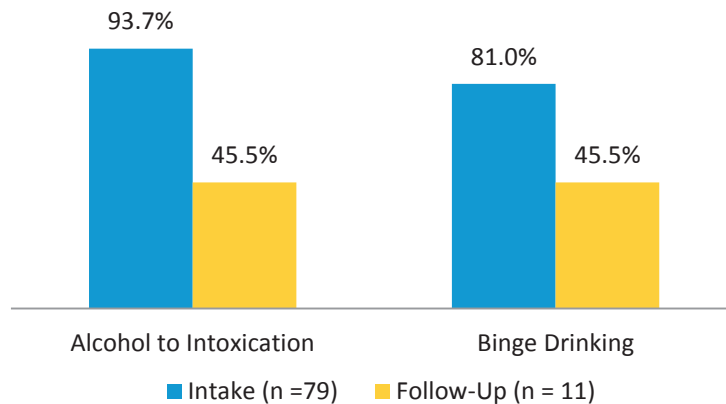
ALCOHOL INTOXICATION AND BINGE DRINKING AMONG THOSE WHO USED ALCOHOL IN THE PAST 30 DAYS

Of the 79 individuals who used alcohol in the 30 days before entering the recovery center, 93.7% used alcohol to intoxication in the 30 days before entering the program (see Figure 3A.11). Of the 11 individuals

who reported using alcohol in the 30 days before follow-up, 45.5% reported alcohol use to intoxication.¹⁵

Of the 79 individuals who used alcohol in the 30 days before entering the recovery center, 81.0% reported binge drinking in the 30 days before entering the recovery center. Of the 11 individuals who used alcohol in the 30 days before follow-up, 45.5% reported binge drinking.

FIGURE 3A.11. PAST 30-DAY ALCOHOL TO INTOXICATION AND BINGE DRINKING AT INTAKE AND FOLLOW-UP, AMONG THOSE REPORTING ALCOHOL USE AT EACH POINT



SELF-REPORTED ALCOHOL AND DRUG SEVERITY FOR CLIENTS NOT IN A CONTROLLED ENVIRONMENT

One way to examine overall change in degree of severity of substance use disorder is to use the Addiction Severity Index (ASI) composite scores for alcohol and drug use. These composite scores are computed based on self-reported severity, taking into consideration a number of issues including number of days of alcohol (or drug) use, money spent on alcohol, the number of days individuals used multiple drugs (for drug use composite score), the number of days individuals experienced problems related to their alcohol (or drug) use, how troubled or bothered they are by their alcohol (or drug) use, and how important the recovery program is to them (see sidebar). Change in the average ASI composite score for alcohol and drug use was examined for individuals who were not in a controlled environment all 30 days before entering the recovery center. Individuals who reported abstaining from alcohol or drugs at intake and follow-up were not included in the analysis of change for each composite score.

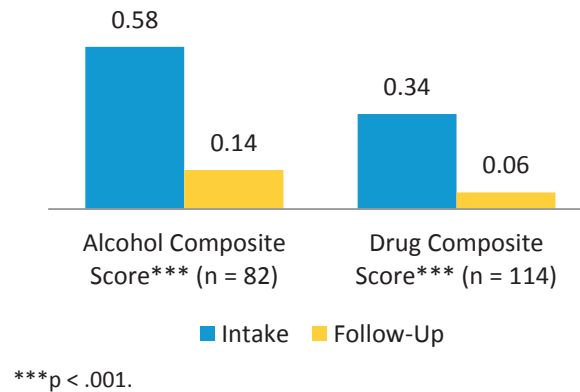
¹⁵ It was not possible to conduct a chi square test to examine difference in the percentage of men and women who used alcohol to intoxication and binge drank in the 30 days before follow-up among those who used alcohol (n = 11) because of the small number of individuals who reported using alcohol in the 30 days before follow-up.

ASI DRUG COMPOSITE SCORES AND SUBSTANCE DEPENDENCE

Rikoon et al. (2006) conducted two studies to determine the relationship between the ASI composite scores for alcohol and drug use and DSM-IV substance dependence diagnoses. They identified alcohol and drug use composite score cutoffs that had 85% sensitivity and 80% specificity with regard to identifying DSM-IV substance dependence diagnoses: .17 for alcohol composite score and .16 for drug composite score. These composite score cutoffs can be used to estimate the number of individuals who are likely to meet criteria for active alcohol or drug dependence.

Figure 3A.12 displays the change in average scores.¹⁶ The average alcohol composite score decreased significantly from 0.58 at intake to 0.14 at follow-up. The average drug composite score decreased significantly from 0.34 at intake to 0.06 at follow-up.

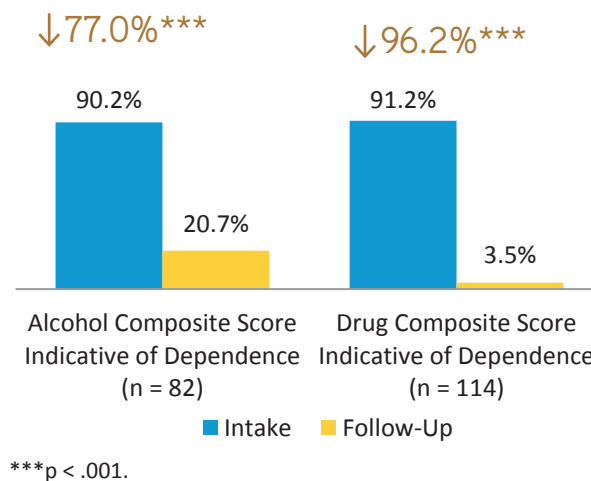
FIGURE 3A.12. AVERAGE ASI ALCOHOL AND DRUG COMPOSITE SCORES AT INTAKE AND FOLLOW-UP



Among the individuals who were not in a controlled environment all 30 days before entering the recovery center and who also did not report abstaining from the substance (alcohol, drugs) both at intake and follow-up, the percentage of individuals who had ASI composite scores that met the cutoff for dependence decreased significantly from intake to follow-up (see Figure 3A.13). The vast majority of individuals had alcohol and drug composite scores that met the cutoff for dependence at intake (90.2% and 91.2% respectively), while the percentages of individuals with alcohol and drug composite scores that met the cutoff for dependence were significantly lower at follow-up. Only 20.7% of individuals had an alcohol composite score that met the cutoff for dependence at follow-up, and only 3.5% had a drug composite score that met the cutoff for dependence at follow-up. Thus, the number of individuals who had an alcohol composite score that met the cutoff for dependence decreased significantly by 77.0% and the number of individuals who had a drug composite score that met the cutoff for dependence at follow-up decreased significantly by 96.2%.

The number of individuals with ASI composite scores indicating alcohol or drug dependence decreased significantly at follow-up

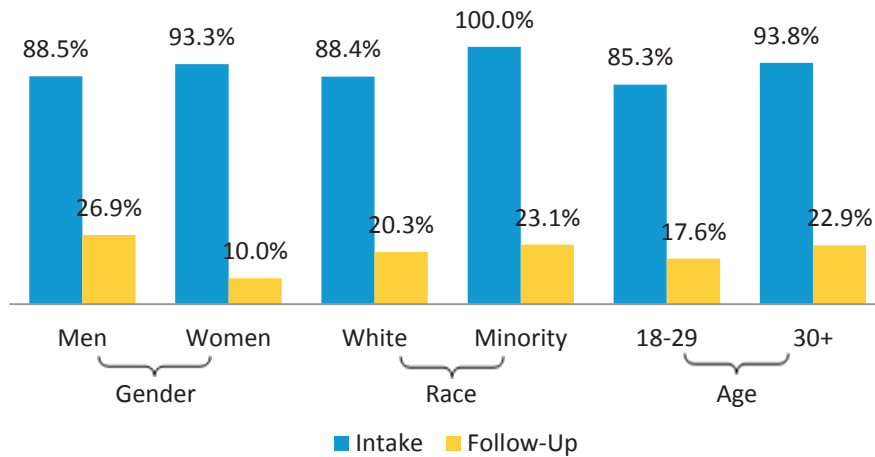
FIGURE 3A.13. INDIVIDUALS WITH ASI COMPOSITE SCORES MEETING THE CUTOFF FOR ALCOHOL OR DRUG DEPENDENCE AT INTAKE AND FOLLOW-UP



¹⁶ The following numbers of cases were not included in the analysis of change in the composite score because 67 individuals reported abstaining from alcohol and 33 individuals reported abstaining from drugs at intake and follow-up, and 2 individuals had missing values on some of the items that were used to compute the drug composite score at follow-up.

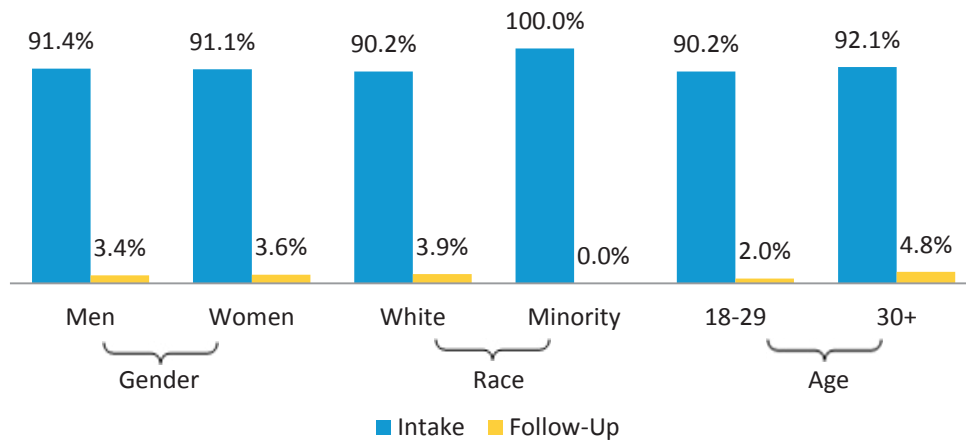
Analysis was also conducted to examine differences between individuals who had an alcohol composite score indicative of dependence at intake and follow-up by gender, race/ethnicity, or age (see Figure 3A.14). No demographic differences were found at intake or follow-up for the percentage of individuals who had an alcohol composite score indicative of dependence.

FIGURE 3A.14. ALCOHOL-USING INDIVIDUALS WITH AN ALCOHOL COMPOSITE SCORE INDICATIVE OF DEPENDENCE AT INTAKE AND FOLLOW-UP BY DEMOGRAPHIC FACTORS (N = 82)



Analysis was also conducted to examine whether individuals who had a drug composite score indicative of dependence at intake and follow-up differed by gender, race/ethnicity, or age (see Figure 3A.15). No statistically significant differences were found at intake or follow-up.

FIGURE 3A.15. DRUG-USING INDIVIDUALS WITH A DRUG COMPOSITE SCORE INDICATIVE OF DEPENDENCE AT INTAKE AND FOLLOW-UP BY DEMOGRAPHIC FACTORS (N = 114)

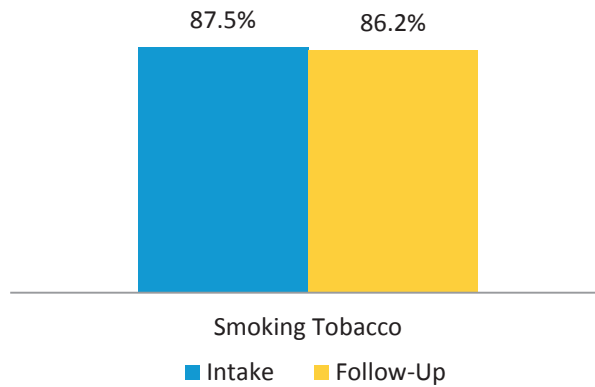


SMOKING TOBACCO

SMOKING TOBACCO, PAST 12-MONTH/6-MONTH

Overall, there was no change in smoking tobacco from intake to follow-up (see Figure 3A.16). Most individuals reported smoking tobacco in the 12 (or 6) months before entering the recovery center (87.5%) and in the 6 months before follow-up (86.2%), with no significant change from intake to follow-up.

FIGURE 3A.16. SMOKING TOBACCO AT INTAKE AND FOLLOW-UP (N = 232)¹⁷



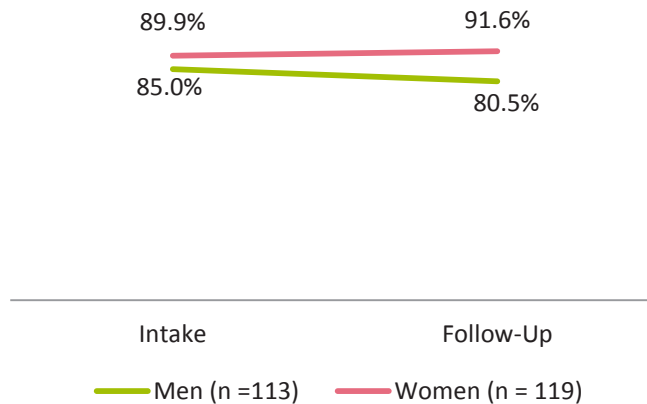
Gender Differences in Smoking Tobacco, Past 12-month/6-month

At intake there were no gender differences in the percentage of clients reporting smoking tobacco (see Figure 3A.17). The majority of men and women reported smoking tobacco at intake and follow-up, with a slight but non-significant decrease for men. At follow-up, significantly more women than men reported smoking tobacco (91.6% vs. 80.5%).



Significantly more women reported smoking tobacco at follow-up compared to men

FIGURE 3A.17. GENDER DIFFERENCES IN SMOKING TOBACCO AT INTAKE AND FOLLOW-UP^a



a—Significant difference by gender at follow-up, $p < .05$.

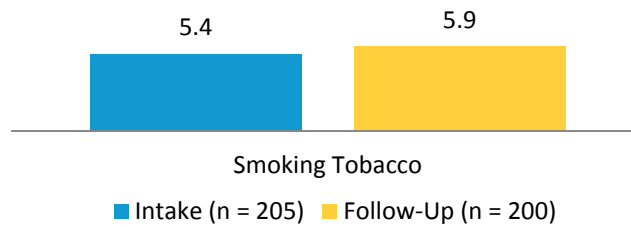
AVERAGE NUMBER OF MONTHS USED TOBACCO

Figure 3A.18 shows, among smokers, the average number of months clients reported smoking tobacco at intake and follow-up. Among the individuals who reported smoking tobacco in the 12 (or 6) months before entering the program (n = 205), they reported smoking tobacco, on average, .90 of the intake period, which translates to 5.4 months in a 6 month period. Among individuals who reported smoking tobacco at follow-up (n = 200), they reported using, on average, 5.9 months of the 6-month period.



¹⁷ Two cases had missing values for smoking tobacco at follow-up.

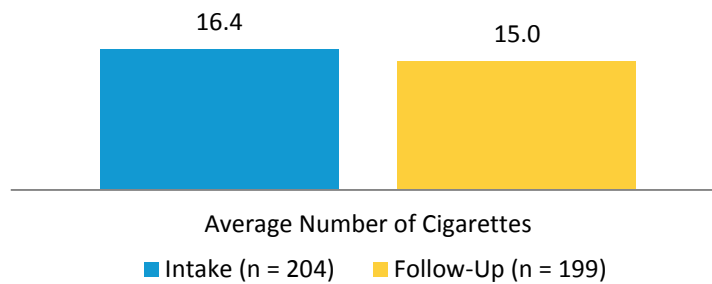
FIGURE 3A.18. AVERAGE NUMBER OF MONTHS TOBACCO USE



AVERAGE NUMBER OF CIGARETTES SMOKED PER DAY

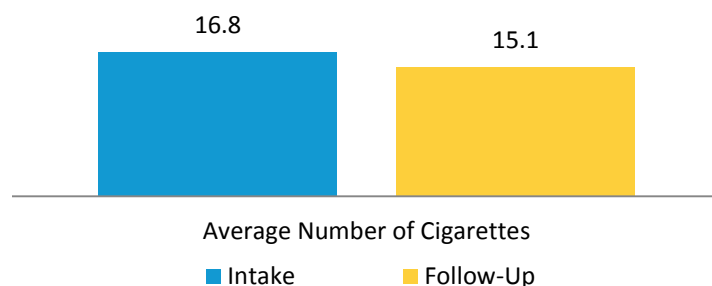
Figure 3A.19 shows, among individuals who smoked tobacco, the average number of cigarettes smoked per day. Among the individuals who reported smoking tobacco in the 12 (or 6) months before entering the program (n = 204¹⁸), they reported smoking, on average, 16.4 cigarettes per day. Among individuals who reported smoking tobacco at follow-up (n = 199¹⁹), they reported smoking, on average, 15.0 cigarettes per day.

FIGURE 3A.19. AVERAGE NUMBER OF CIGARETTES SMOKED PER DAY



Among the individuals who reported smoking tobacco in the 12 (or 6) months before intake and the 6 months before follow-up (n = 185), the average number of cigarettes they smoked per day decreased significantly from 16.8 at intake to 15.1 at follow-up (see Figure 3A.20).

FIGURE 3A.20. AMONG INDIVIDUALS WHO SMOKED CIGARETTES AT INTAKE AND FOLLOW UP (N = 185), THE AVERAGE NUMBER OF CIGARETTES SMOKED PER DAY*



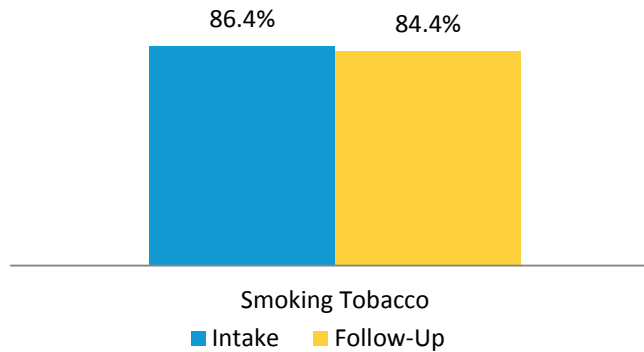
*p < .05.

¹⁸ One case had a missing value for the number of cigarettes smoked per day at intake.

¹⁹ One case had a missing value for the number of cigarettes smoked per day at follow-up.

The majority of individuals reported smoking tobacco in the 30 days before entering the recovery center (86.4%) and at follow-up (84.4%). There was no change in the number of clients who reported smoking tobacco use from intake to follow-up (see Figure 3A.21).

FIGURE 3A.21. 30-DAY SMOKING TOBACCO AT INTAKE AND FOLLOW-UP (N = 147)



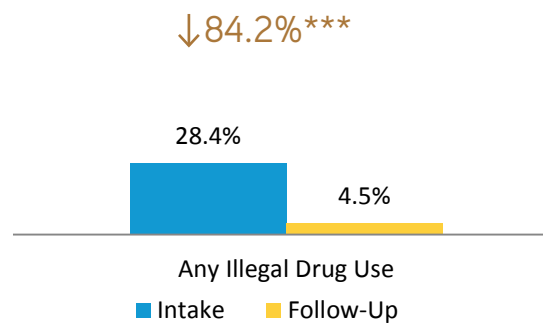
3B. SUBSTANCE USE FOR CLIENTS WHO WERE IN A CONTROLLED ENVIRONMENT

Changes in drug and alcohol use from intake to follow-up were analyzed separately for individuals who were in a controlled environment (e.g., prison, jail, other drug-free residential facility) all 30 days before entering the recovery center (n = 134) because being in a controlled environment reduces opportunities for alcohol and drug use.

ANY ILLEGAL DRUGS, PAST 30 DAY USE

Of the individuals who were in a controlled environment all 30 days, 28.4% reported they used illegal drugs (including marijuana, cocaine, heroin, methadone, hallucinogens, barbiturates, inhalants, synthetic marijuana, and non-prescribed use of prescription opiates, sedatives, and amphetamines) in the 30 days before they entered the recovery center (see Figure 3B.1). In the 30 days before follow-up, 4.5% of clients reported illegal drug use which is a significant decrease of 84.2% from intake to follow-up.

FIGURE 3B.1. PAST-30-DAY ILLEGAL DRUG USE AT INTAKE AND FOLLOW-UP FOR CLIENTS IN A CONTROLLED ENVIRONMENT (N = 134)

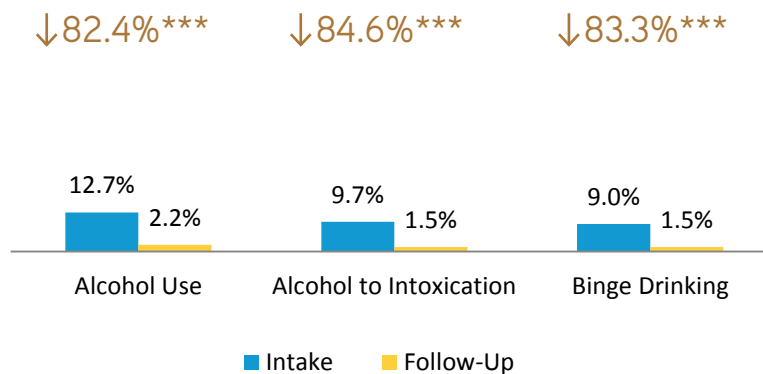


***p < .001.

ALCOHOL, PAST 30 DAY USE

As expected, given their confinement to a controlled environment in the 30 days before entering the recovery center, only a minority of individuals reported they had used alcohol in those 30 days (see Figure 3B.2). The percentage of individuals who reported alcohol use at follow-up decreased to 2.2% (a significant decrease of 82.4%). At follow-up, 1.5% reported they used alcohol to intoxication, and 1.5% reported they had engaged in binge drinking. Thus, there were significant decreases in alcohol use, alcohol use to intoxication, and binge drinking for individuals who were in a controlled environment all 30 days before intake.

FIGURE 3B.2. PAST-30-DAY ALCOHOL USE AT INTAKE AND FOLLOW-UP FOR CLIENTS IN A CONTROLLED ENVIRONMENT (N = 134)

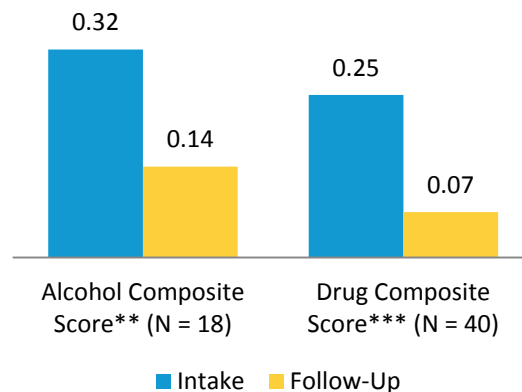


**p < .01.

SELF-REPORTED ALCOHOL AND DRUG SEVERITY FOR CLIENTS IN A CONTROLLED ENVIRONMENT

Among the individuals who were in a controlled environment all 30 days before entering the program and who did not report abstaining from the substance (alcohol, drugs) at intake and follow-up, the average composite score for alcohol use and drug use decreased significantly from intake to follow-up (see Figure 3B.3).²⁰

FIGURE 3B.3. AVERAGE ALCOHOL ASI ALCOHOL AND DRUG COMPOSITE SCORES AT INTAKE AND FOLLOW-UP

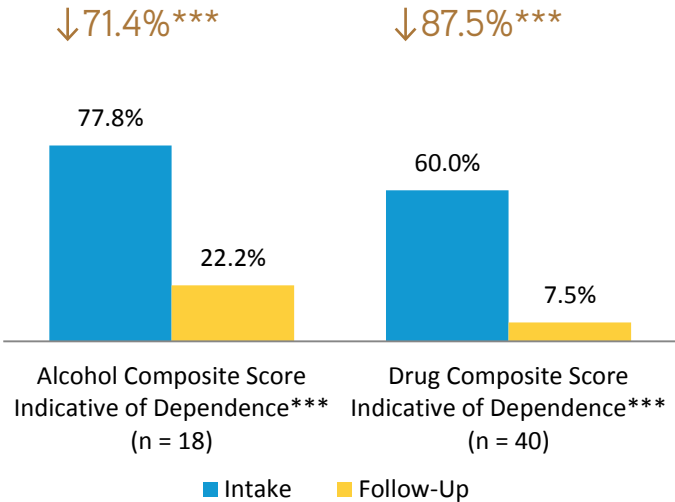


p < .01, *p < .001.

²⁰ Of the 134 cases where the individual was in a controlled environment all 30 days before entering the recovery center, 18 individuals used alcohol and 41 individuals used drugs in the 30 days before entering the recovery center, follow-up or both periods. Also one case was missing data on items used to compute the drug composite score at follow-up.

Among the individuals who were in a controlled environment all 30 days before entering the program and who did not report abstaining from the substance, the majority had an alcohol and drug composite score that met the cutoff for dependence at intake (77.8% and 60.0% respectively), while the percentages of individuals with alcohol and drug composite scores that met the cutoff for dependence decreased significantly at follow-up (see Figure 3B.4). A minority of individuals (22.2%) had an alcohol composite score that met the cutoff for dependence at follow-up, and only 7.5% had a drug composite score that met the cutoff for dependence at follow-up. Thus, for the group of individuals who were in a controlled environment all 30 days before entering the program and who used alcohol or drugs at intake, follow-up, or both, the number of individuals with an alcohol composite score that met cutoff for dependence decreased significantly by 71.4% and the number of individuals with a drug composite score that met cutoff for dependence decreased significantly by 87.5%.

FIGURE 3B.4. ASI COMPOSITE SCORES MEETING THE CUTOFF FOR DEPENDENCE AT INTAKE AND FOLLOW-UP



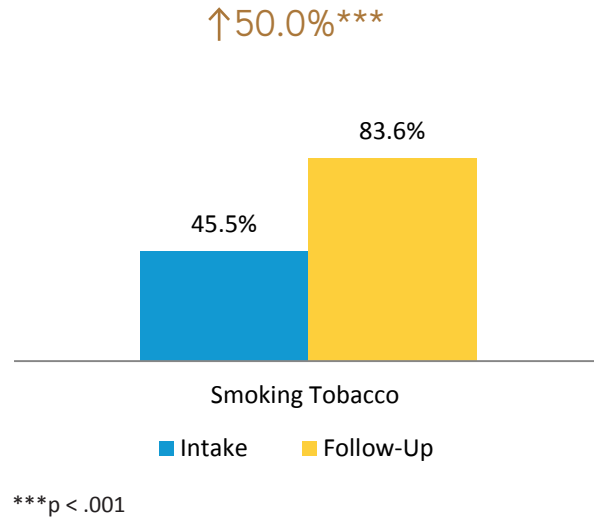
***p < .001.

It was not possible to examine demographic differences between individuals who had alcohol composite scores and drug composite scores indicative of dependence with those who did not at intake or follow-up because the number of individuals in several of the cells of the cross tabulations were less than 5; thus, chi square test of independence is not appropriate.

SMOKING TOBACCO, PAST 30 DAY USE

Among individuals who were in a controlled environment all 30 days before they entered the recovery center, 45.5% reported they had smoked tobacco in those 30 days (see Figure 3B.5). Unlike alcohol and illegal drug use, which decreased from intake to follow-up, there was a significant increase in the number of clients who reported past-30-day tobacco smoking at follow-up to 83.6% (an increase of 50.0%).

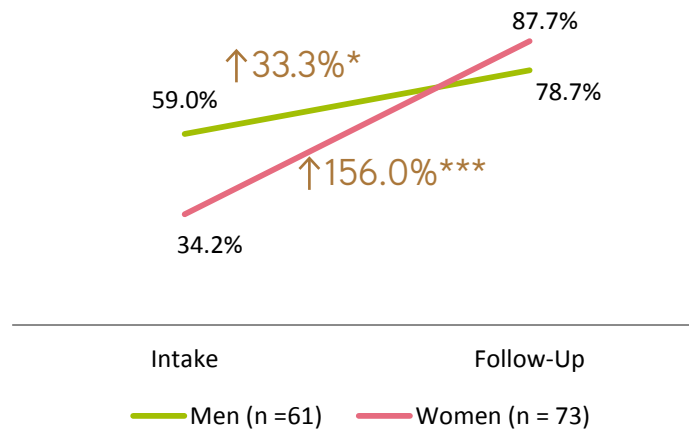
FIGURE 3B.5. PAST-30-DAY TOBACCO SMOKING AT INTAKE AND FOLLOW-UP FOR CLIENTS IN A CONTROLLED ENVIRONMENT



GENDER DIFFERENCES IN PERCENTAGE OF CLIENTS REPORTING TOBACCO SMOKING, PAST 30 DAYS

Among the individuals in a controlled environment all 30 days before intake, significantly more men reported smoking tobacco in the 30 days before they entered the program when compared to women (see Figure 3B.6). However, by follow-up, there was no difference in the percentage of men and women who smoked tobacco.

FIGURE 3B.6. GENDER DIFFERENCE IN 30-DAY TOBACCO SMOKING AT INTAKE AND FOLLOW-UP^a

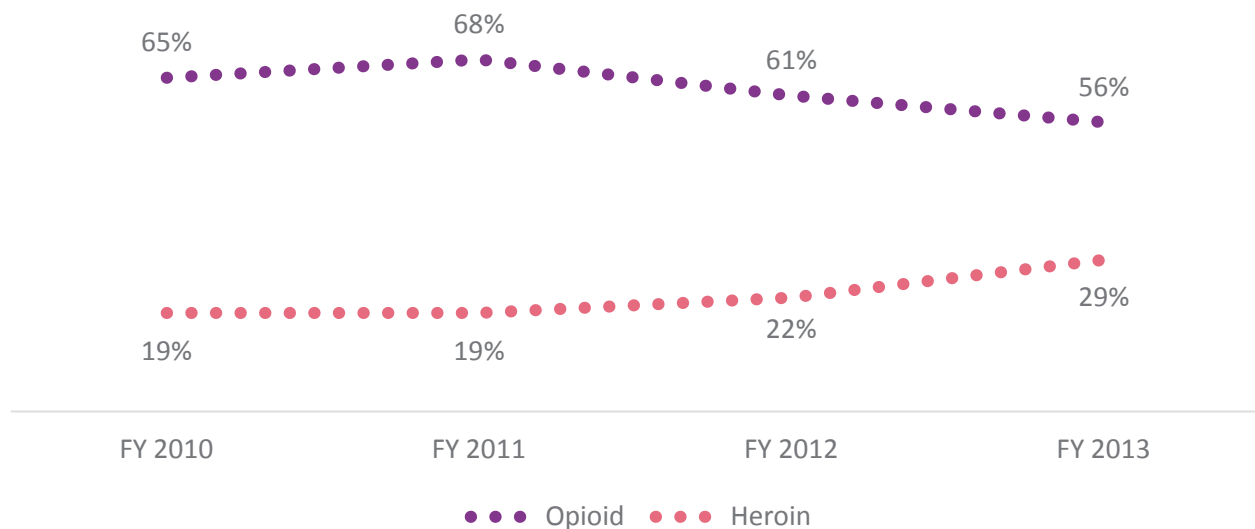


*p < .05, ***p < .001
 a—Significant difference by gender at intake, p < .01.

TREND ALERT

How much has opioid and heroin use changed over time?

This trend analysis examines the percentage of RCOS clients who reported using opioids (including prescription opiates/opioids, methadone, and buprenorphine) and heroin use in the 12 months before entering the program from FY 2010 to FY 2013.²¹ As the figure shows, the use of opioids remained fairly steady in FY 2010 and FY 2011, with two-thirds of clients reporting opioid use. A significant decline in the percentage of clients reporting opioid use began in FY 2012 and continued through FY 2013 (56%).²² In FY 2010, 19% of clients reported heroin use 12 months before entering the recovery center and while this remained unchanged in FY 2011, the percentage of clients reporting heroin use increased slightly to 22% in FY 2012 and increased significantly higher to 29% in FY 2013.



²¹ On average, there were 1,200 intake surveys submitted each fiscal year.

²² A total of 1,952 clients completed an intake survey in FY 2013; of these 1,331 completed the updated version of the survey which asked about substance use for the 6 months before entering the program (to correspond with the follow-up survey period) and 621 completed the older version of the intake survey which asked about the 12 months before entering the program.

SECTION 4

Mental Health, Physical Health, and Stress



This section describes pre-program compared to post-program change on mental health, stress, and physical health including the following factors: (1) depression; (2) generalized anxiety; (3) suicidal thoughts or attempts; (4) number of days physical and mental health were not good; and (5) physiological symptoms of stress. Results for each targeted factor are presented for the overall sample and separately by gender when there were significant differences.²³

DEPRESSION AND/OR ANXIETY SYMPTOMS

To assess depression, participants were first asked two screening questions:

1. “Did you have a two-week period when you were consistently depressed or down, most of the day, nearly every day?” and
2. “Did you have a two-week period when you were much less interested in most things or much less able to enjoy the things you used to enjoy most of the time?”

If participants answered “yes” to at least one of these two screening questions, they were then asked seven additional questions about symptoms of depression (e.g., sleep problems, weight loss or gain, feelings of hopelessness or worthlessness). To meet the study criteria for depression, individuals had to say “yes” to at least one of the two screening questions and at least 4 of the other symptoms.

The percentage of clients meeting criteria for depression decreased 79% at follow-up

About 3 in 5 individuals (59.4%) met study criteria for depression in the 12 (or 6) months before they entered the recovery center (see Figure 4A.1). By follow-up, only 12.4% met criteria for depression, representing a 79.2% significant decrease.

To assess for generalized anxiety, participants were first asked:

1. “Did you have a period lasting 3 months or longer where you worried excessively or were anxious about multiple things on more days than not (like family, health, finances, school, or work difficulties)?”

Participants who answered “yes” were then asked 6 additional questions about anxiety symptoms (e.g., felt restless, keyed up or on edge, have difficulty concentrating, feel irritable). To meet criteria for generalized anxiety, individuals had to answer “yes” to the screening question and to at least 3 of the symptom items.

In the 12 (or 6) months before entering the recovery center, 64.0% reported symptoms that met the study criteria for generalized anxiety and 9.9% reported symptoms at follow-up. This indicates there was an 84.5% significant decrease in the number of clients meeting the study criteria for generalized anxiety.

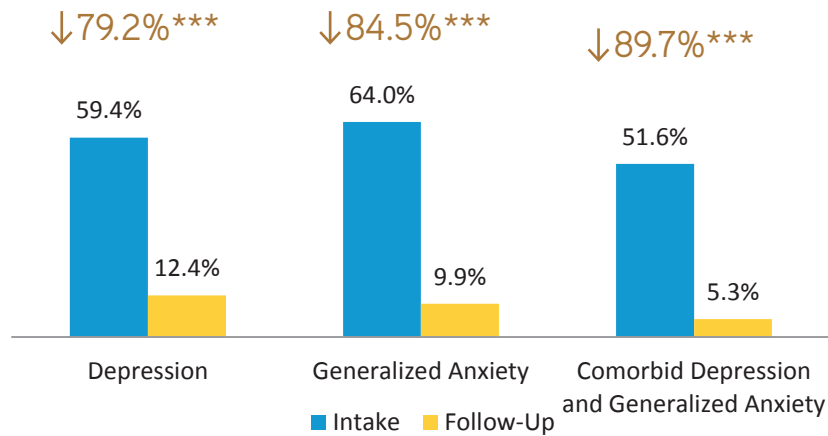
The percentage of clients meeting criteria for generalized anxiety decreased 85% at follow-up

²³ Results are presented as change in the percentage of clients meeting criteria for mental health problems in the 12 (or 6) months before entering the recovery center to the 6 months before follow-up.

The percentage of clients meeting criteria for both depression and generalized anxiety decreased 90% at follow-up

At intake, half of the clients (51.6%) met criteria for both depression and generalized anxiety and at follow-up only 5.3% met criteria for both. There was an 89.7% significant reduction in the number of individuals who reported symptoms that met the criteria for both depression and generalized anxiety at follow-up.

FIGURE 4A.1. CLIENTS MEETING CRITERIA FOR DEPRESSION, GENERALIZED ANXIETY, AND COMORBID DEPRESSION AND GENERALIZED ANXIETY (N = 283)



***p < .001.

GENDER DIFFERENCES IN DEPRESSION AND/OR GENERALIZED ANXIETY

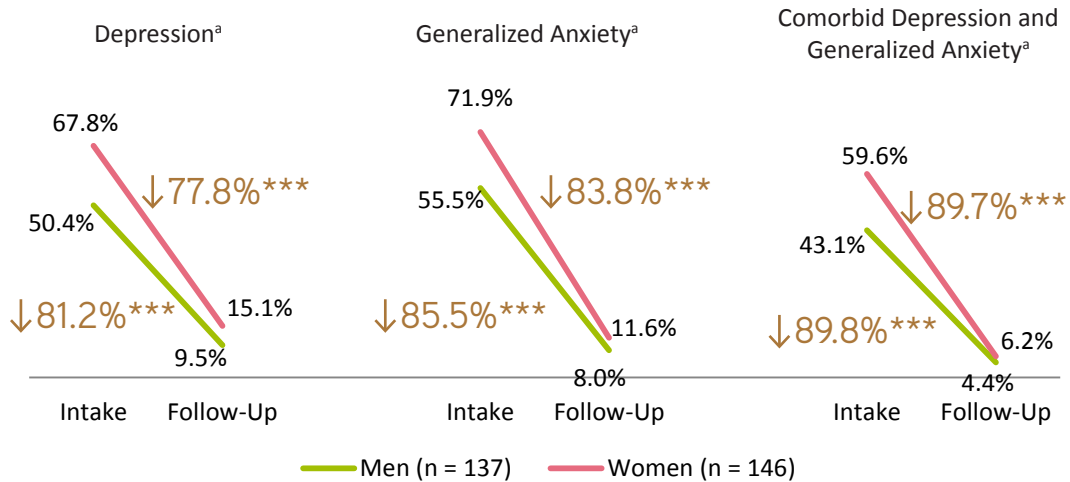
Significantly more women met criteria for depression at intake compared to men (67.8% vs. 50.4%; see Figure 4A.2). By follow-up, only 15.1% of women and 9.5% of men met criteria for depression, which are significant decreases: 77.8% for women and 81.2% for men. At follow-up, there was no significant difference in the percentage of men and women reporting depression. Similarly, significantly more women than men met criteria for generalized anxiety at intake (71.9% vs. 55.5%). There were significant decreases from intake to follow-up in the number of women and men who met criteria for generalized anxiety. At follow-up, there was no significant difference in the percentage of women and men reporting generalized anxiety. Significantly more women than men met criteria for comorbid depression and generalized anxiety at intake (59.6% vs. 43.1%); however, at follow-up there was no difference by gender.



Significantly more women met criteria for depression and generalized anxiety at intake compared to men



FIGURE 4A.2. GENDER DIFFERENCES IN CLIENTS MEETING CRITERIA FOR DEPRESSION AND GENERALIZED ANXIETY AT INTAKE AND FOLLOW-UP^a



***p < .001.

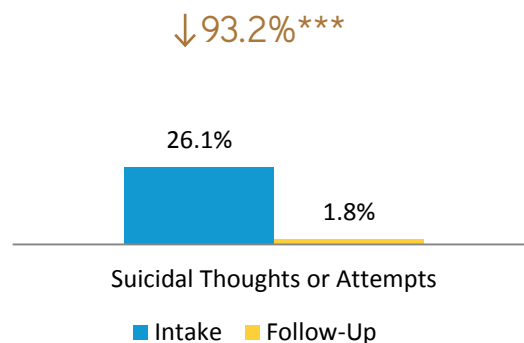
a—Statistical difference by gender at intake (p < .01).

SUICIDE IDEATION AND/OR ATTEMPTS

Suicide ideation and attempts were measured with questions about thoughts of suicide and attempts to commit suicide. About one-fourth of individuals reported thoughts of suicide or attempted suicide in the 12 (or 6) months before entering the program. At follow-up, only 1.8% of individuals reported thoughts of suicide or attempted suicide in the 6 months before follow-up. There was a 93.2% decrease in suicidal ideation and attempts from intake to follow-up (see Figure 4A.3).

The percentage of clients reporting suicidal ideation and/or attempts decreased 93% at follow-up

FIGURE 4A.3. CLIENTS REPORTING SUICIDAL IDEATION AND/OR ATTEMPTS AT INTAKE AND FOLLOW-UP (N = 283)

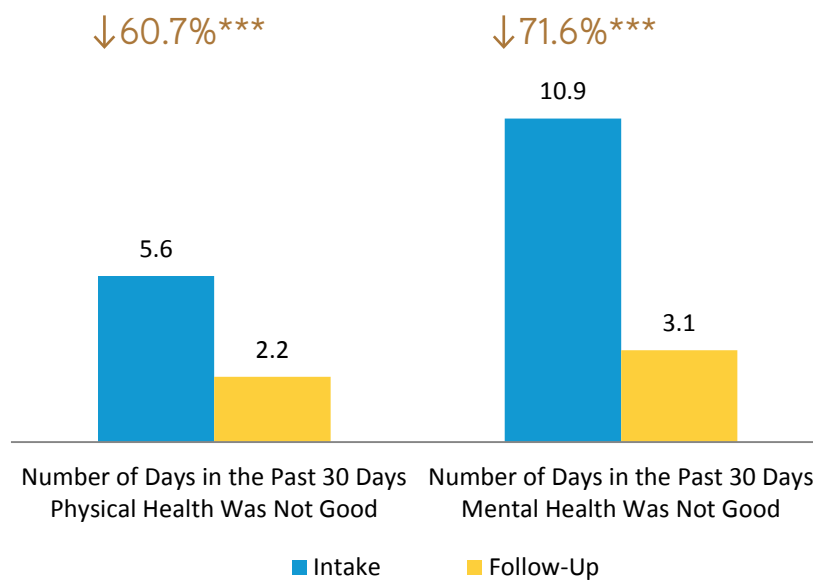


NUMBER OF DAYS PHYSICAL AND MENTAL HEALTH WAS NOT GOOD

The number of days clients' physical and mental health was not good decreased significantly

At intake and follow-up, individuals were asked how many days in the past 30 days their physical and mental health were not good. The number of days individuals reported their physical health was not good decreased significantly by more than half from intake to follow-up (see Figure 4A.4). Also, clients' self-reported number of days their mental health was not good decreased significantly by 71.6%, from intake to follow-up.

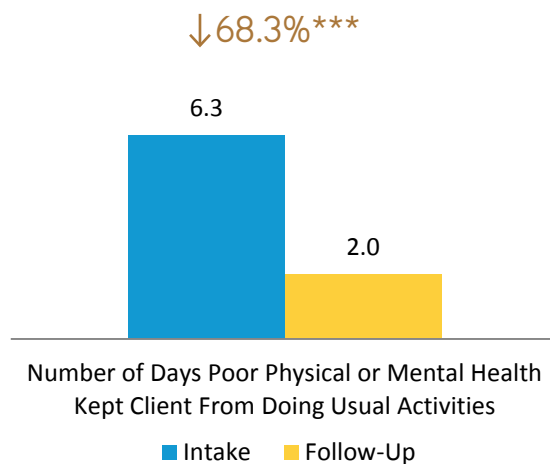
FIGURE 4A.4. PERCEPTIONS OF POOR PHYSICAL HEALTH AND MENTAL HEALTH IN THE PAST 30 DAYS AT INTAKE AND FOLLOW-UP (N = 283)^a



a—Statistical significance tested by paired t-test; ***p < .001.

Individuals were also asked to report the number of days in the past 30 days poor physical or mental health had kept them from doing their usual activities (see Figure 4A.5). The average number of days clients reported their physical or mental health kept them from doing their usual activities decreased significantly from intake to follow-up (6.3 to 2.0).

FIGURE 4A.5. PERCEPTIONS OF POOR PHYSICAL HEALTH AND MENTAL HEALTH LIMITING ACTIVITIES IN THE PAST 30 DAYS (N = 282)



a—Statistical significance tested by paired t-test; ***p < .001.

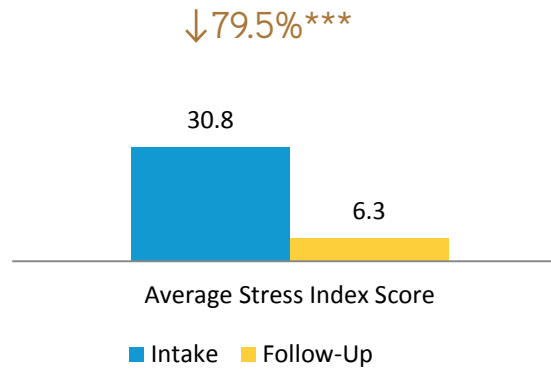
STRESS

Clients were also asked 15 items about their physiological symptoms often associated with higher stress: called the Stress Index.²⁴ The index contains 15 symptoms; the client indicates how often they have experienced each symptom in the past 7 days (e.g., experienced unexplained aches and pains, slept

²⁴ Measure created by Logan, T. and Walker, R. Stress and Allostatic Load.

poorly, experienced an increased heart rate). Higher scores on the Stress Index indicate higher stress and greater physiological indicators of stress. The highest possible score is 75 and the lowest possible score is 0. For the overall sample, scores on the Stress Index decreased significantly from 30.8 at intake to 6.3 at follow-up, representing a decrease of 79.5% (see Figure 4A.6).

FIGURE 4A.6. AVERAGE SCORES ON THE STRESS INDEX AT INTAKE AND FOLLOW-UP (N = 280)^{a,b}

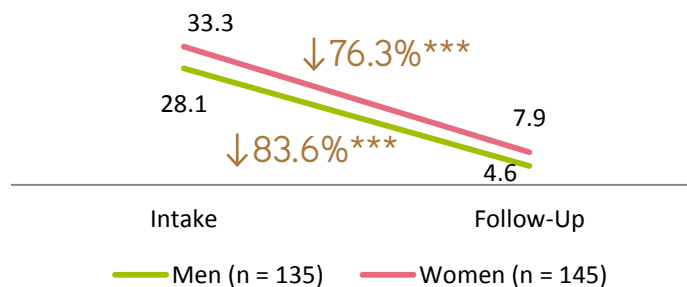


a—Significance tested with paired t-test; ***p < .001.
 b—Three cases had missing values on the scale sum at follow-up.

GENDER DIFFERENCES IN STRESS SYMPTOMS

Figure 4A.7 shows that women’s scores on the Stress Index were significantly higher than men’s scores at intake and follow-up. Both men’s and women’s scores decreased significantly from intake to follow-up.

FIGURE 4A.7. GENDER DIFFERENCES IN AVERAGE SCORES ON THE STRESS INDEX^a



***p < .001.
 a—Statistical difference by gender at intake (p < .05) and follow-up (p < .01).

SECTION 5

Education and Employment



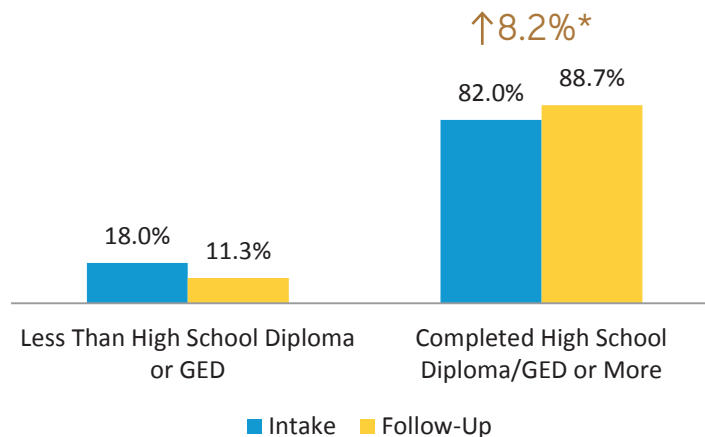
This section examines changes in education and employment from intake to follow-up including: (1) highest level of education completed; (2) the percentage of clients who worked full-time or part-time; (3) the number of months clients were employed full-time or part-time, among those who were employed the year prior to program entry; and (4) expectations to be employed in the next 12 months.

EDUCATION

Overall, the highest number of years of education completed increased significantly from 12.3 at intake to 12.6 at follow-up.²⁵

Another way to examine change in education was to categorize individuals into one of two categories, based on their highest level of education completed: (1) less than a high school diploma or GED, or (2) a high school diploma or GED or higher (see Figure 5.1). At intake, 82.0% of the follow-up sample had a high school diploma or GED or had attended school beyond a high school diploma or GED and at follow-up the percentage had increased significantly by 8.2% to 88.7%. At intake, 18.0% of the follow-up sample reported that they had less than a high school diploma or GED. At follow-up, 11.3% reported that they had completed less than a high school diploma or GED.

FIGURE 5.1. HIGHEST LEVEL OF EDUCATION COMPLETED AT INTAKE AND FOLLOW-UP (N = 283)



*p < .05.

EMPLOYMENT

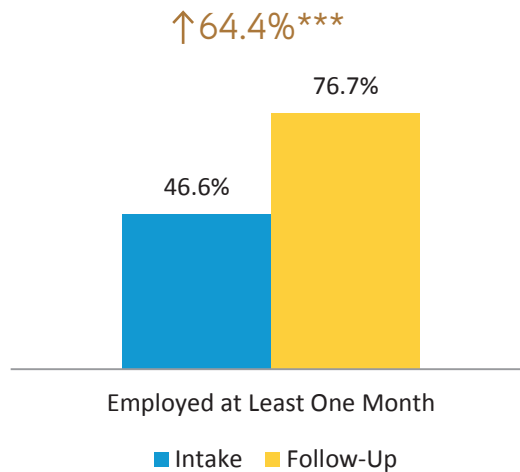
Clients were asked in the intake survey to report the number of months they were employed full-time or part-time in the 12 (or 6) months before they entered the recovery center. At follow-up they were asked to report the number of months they were employed full-time or part-time in the 6 months before the follow-up survey. A little less than one half of clients (46.6%) reported at intake they had worked full-time or part-time at least one month in the 12 (or

The percentage of clients reporting being employed at least one month increased 64% at follow-up

²⁵ Number of years of education was recoded for analysis so that 12 years of education and GED were equal to 12.

6) months before entering the recovery center (see Figure 5.2). At follow-up, 76.7% worked part-time or full-time at least one month in the past 6 months, which was a significant increase of 64.4%.

FIGURE 5.2. EMPLOYED FULL-TIME OR PART-TIME FOR AT LEAST ONE MONTH AT INTAKE AND FOLLOW-UP (N= 283)



***p < .001.

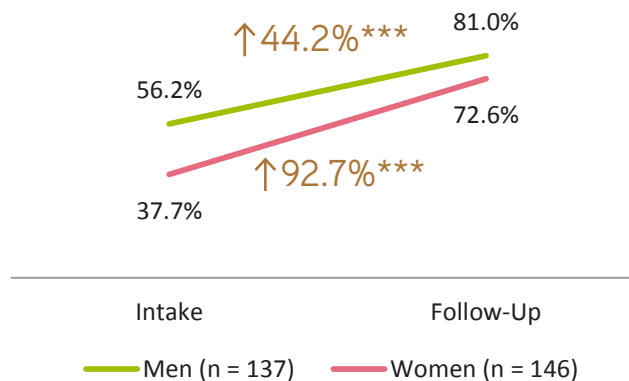
GENDER DIFFERENCES IN THE PERCENTAGE OF INDIVIDUALS EMPLOYED

Significantly more men (56.2%) than women (37.7%) were employed part-time or full-time at least one month before they entered the recovery center (see Figure 5.3). The number of men and women who reported being employed at least one month in the follow-up period increased significantly by 44.2% and 92.7% respectively. Thus, at follow-up, there was no significant difference in the number of men and women who reported they were employed at least one month in the past 6 months.



The number of women employed at least one month increased significantly by 93%

FIGURE 5.3. GENDER DIFFERENCES IN EMPLOYED AT LEAST ONE MONTH AT INTAKE AND FOLLOW-UP (N = 283)^a



***p < .001.

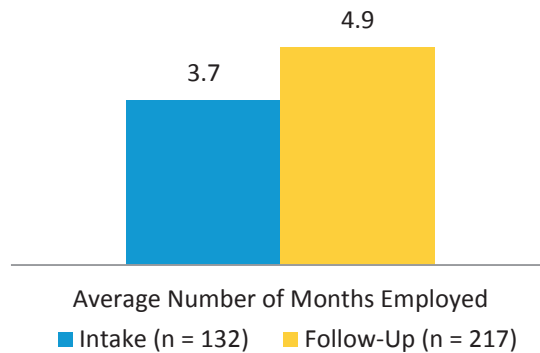
a—Significant difference in the percentage of individuals who were employed part-time or full-time in at least one month at intake by gender; p < .01.

AVERAGE NUMBER OF MONTHS EMPLOYED

As seen in Figure 5.4, among individuals who reported being employed part-time or full-time at all before entering the program (N = 132), the average proportion of months worked was 0.62, which when applied

to a 6 month period equals 3.7 months.²⁶ Among the 217 individuals who worked at all in the 6-month follow-up period, the average number of months they worked was 4.9.

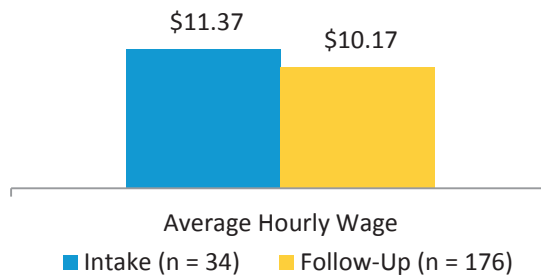
FIGURE 5.4. AVERAGE NUMBER MONTHS EMPLOYED (OUT OF 6) AT INTAKE AND FOLLOW-UP, AMONG THOSE WHO REPORTED BEING EMPLOYED



AVERAGE HOURLY WAGE

At each period, individuals who reported they were currently employed were asked their hourly wage. Only a small percentage of clients reported they were currently employed at intake (n = 40)²⁷ and their average hourly wage was \$11.37 (see Figure 5.5). At follow-up, the average hourly wage was \$10.17.

FIGURE 5.5. AVERAGE HOURLY WAGE AT INTAKE AND FOLLOW-UP, AMONG THOSE WHO REPORTED BEING CURRENTLY EMPLOYED



GENDER DIFFERENCES IN AVERAGE HOURLY WAGE

At intake, women who were working reporting making \$9.00, on average, compared to men who made \$13.46 on average meaning women made .67 cents for every dollar men made (see Figure 5.6). Due to the small numbers this was not statistically significant. At follow-up, men reported significantly higher hourly wages compared to women (\$12.06 for men and \$8.20 for women). At follow-up, employed women made \$0.68 for every dollar employed men made.

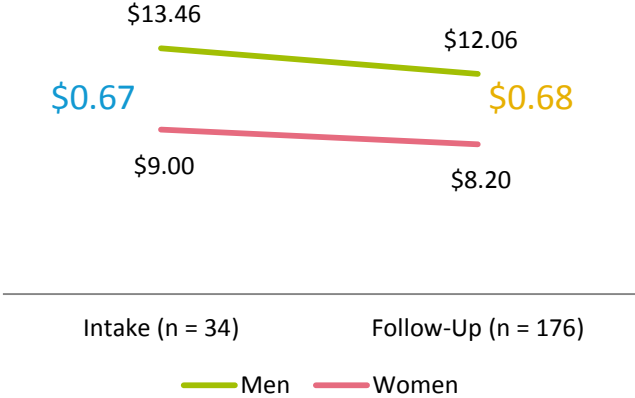


At follow-up, employed women made only \$0.68 for every \$1 employed men made

²⁶ Because the reference period was not the same at intake (i.e., 12 months or 6 months) for all the surveys, the proportion of months the client reported working full-time or part-time for each period was computed to allow for comparison of employment at intake and follow-up. The change in proportion was analyzed to determine if the change was statistically significant. To facilitate interpretation of the results, the average proportion found for the intake period was applied to a 6-month period and is presented as such in Figure 4B.4.

²⁷ Of those who were currently employed at intake (n = 40), six cases had missing values for hourly wage. Of those currently employed at follow-up (n = 184), nine cases had missing values for hourly wage.

FIGURE 5.6. GENDER DIFFERENCES AVERAGE HOURLY WAGE AT INTAKE AND FOLLOW-UP^a

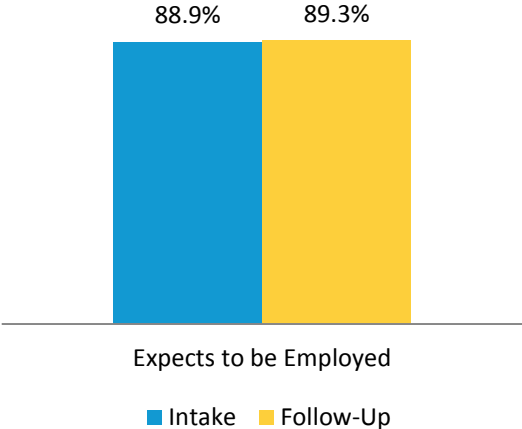


a—Significant difference in hourly wage at follow-up by gender; $p < .001$.

EXPECT TO BE EMPLOYED

The majority of clients reported they expected to be employed in the next 12 (or 6) months at intake and follow-up, with no significant change (see Figure 5.7).

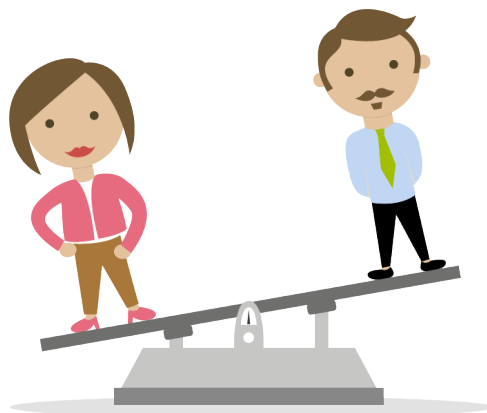
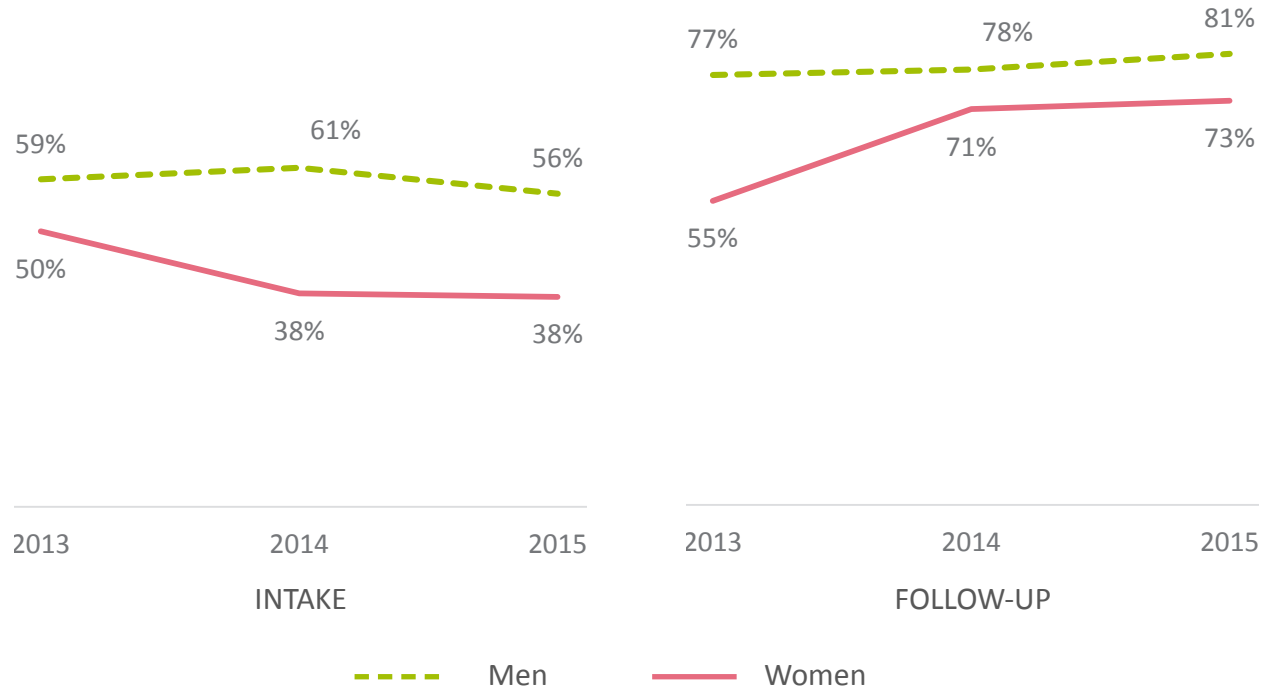
FIGURE 5.7. CLIENT EXPECTS TO BE EMPLOYED IN THE NEXT 12 (OR 6) MONTHS AT INTAKE AND FOLLOW-UP (N = 280)



TREND ALERT

Employment trends by gender

Both in the 2014 RCOS Follow-Up Report and this report, significantly fewer women reported being employed at intake compared to men, but by follow-up the majority of women reported they were employed full-time or part-time. This is a significant improvement for women compared to findings from the RCOS 2013 Report. The number of women who reported being employed at either point, however, was considerably less than for men.



SECTION 6

Homelessness, Living Situation, and Economic Hardship



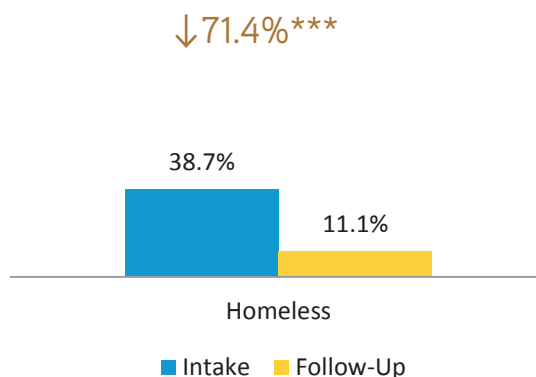
This section of target factors examines the clients' living situation at both intake and follow-up. Specifically, clients are asked at both points: (1) if they consider themselves currently homeless; (2) in what type of situation (i.e., own home or someone else's home, residential program, shelter) they have lived; and (3) economic hardship.

HOMELESSNESS

71% decrease in homelessness at follow-up

○ Clients were asked if they considered themselves currently homeless at intake and at follow-up.²⁸ A little more than one third of clients (38.7%) reported being homeless when they entered the recovery center, and 11.1% reported being homeless at follow-up. This is a significant decrease of 71.4% in the number of clients who reported they were homeless (see Figure 6.1).

FIGURE 6.1. HOMELESSNESS AT INTAKE AND FOLLOW-UP (N = 271)



***p < .001.

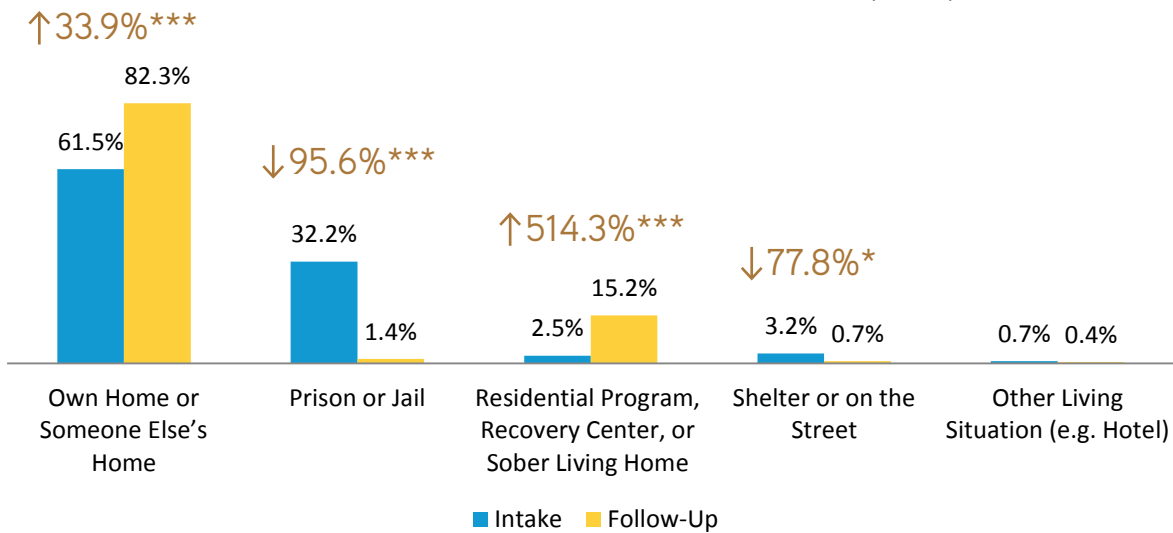
LIVING SITUATION

Change in living situation from intake to follow-up was examined for the RCOS follow-up sample (see Figure 6.2). At intake and follow-up, individuals were asked about where they lived. The majority of individuals reported living in a private residence (i.e., their own home or someone else's home), with a significant increase from intake to follow-up. The number of clients who reported living in a jail or prison decreased significantly by 95.6% from intake (32.2%) to follow-up (1.4%).

Even though individuals were targeted for the follow-up survey 12 months after they completed their intake survey and entry into Phase 1, 15.2% reported living in a recovery center, residential program, or sober living home. Thus, the change in number of individuals in a recovery center, residential program, or sober living home increased significantly by 514.3%. Only a small number of individuals reported living in a shelter or on the street at intake (3.2%) and follow-up (0.7%), with a significant decrease from intake to follow-up.

²⁸ The version of the follow-up that became effective in November 2013 did not ask individuals who said they were currently living at a recovery center whether or not they were homeless.

FIGURE 6.2. LIVING SITUATION AT INTAKE AND FOLLOW-UP (N=283)



*p < .05, ***p < .001.

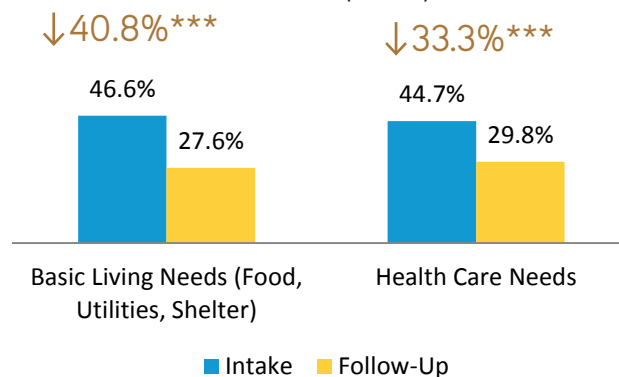
ECONOMIC HARDSHIP

Economic hardship may be a better indicator of the actual day-to-day stressors individuals face than a measure of income. Therefore, the intake and follow-up surveys included several questions about clients' difficulty meeting basic living needs and health care needs (She & Livermore, 2007). Clients were asked eight items, five of which asked about difficulty meeting basic living needs such as food, shelter, utilities, and telephone, and three items asked about difficulty for financial reasons in obtaining health care.

The number of clients who reported difficulty meeting basic living needs and health care needs for financial reason decreased significantly from intake to follow-up

The number of clients who reported having difficulty meeting basic living needs decreased significantly 40.8% from intake (46.6%) to follow-up (27.6%; see Figure 6.3).²⁹ Similarly, the number of clients who reported having difficulty for financial reasons in obtaining health care needs (e.g., doctor visits, dental visits, and filling prescriptions) decreased significantly 33.3%.

FIGURE 6.3. DIFFICULTY MEETING BASIC LIVING AND HEALTH CARE NEEDS FOR FINANCIAL REASONS AT INTAKE AND FOLLOW-UP (N=283)³⁰



***p < .001.

²⁹ The older version of the intake survey used the reference period of the 12 months before entering the recovery center whereas the newer version of the intake survey used the reference period of the 6 months before entering the recovery center for these items.

³⁰ There was missing data on items that comprised the basic living needs for four individuals and the health care needs for one individual.

SECTION 7

Involvement in the Criminal Justice System



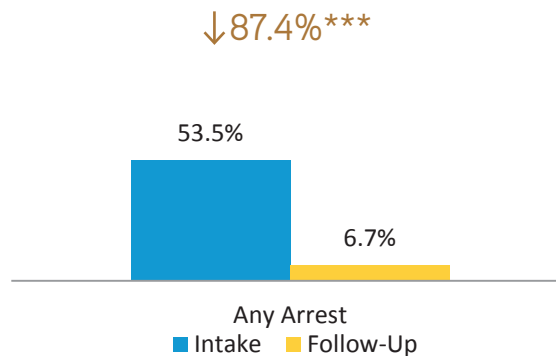
This section describes change in client involvement with the criminal justice system from intake to follow-up.³¹ Specifically, the following targeted factors are presented in this section: (1) arrests; (2) incarceration; and (3) supervision by the criminal justice system.

ARRESTS

At intake individuals were asked about their arrests in the 12 (or 6) months before they entered the recovery center. At follow-up the period shifted to focus on the months between Phase 1 discharge and follow-up; thus individuals were asked about their arrests in the past 6 months. The majority of individuals (53.5%) reported an arrest in the period before entering the recovery center (see Figure 7.1). At follow-up, this percentage had decreased significantly by 87.4% to 6.7%.

The percentage of clients reporting any arrest significantly decreased 87% at follow-up

FIGURE 7.1. CLIENTS REPORTING ANY ARRESTS AT INTAKE AND FOLLOW-UP (N = 282)



*** $p < .001$.

Note. Arrest data at follow-up was missing for one person.

ARRESTS BY OFFENSE TYPE

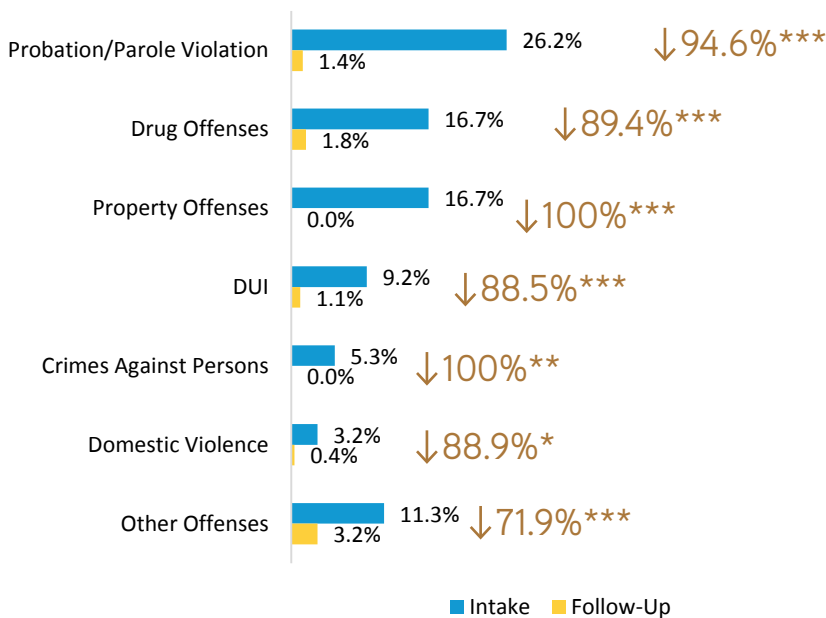
As shown in Figure 7.2, the number of individuals reporting an arrest for a probation/parole violation decreased by 94.6%, from 26.2% at intake to 1.4% at follow-up.³² The percentage of individuals who reported having been arrested for drug offenses decreased by 89.4% from 16.7% at intake to 1.8% at follow-up. Individuals reporting arrests for property offenses decreased by 100%, from 16.7% at intake to 0.0% at follow-up. The percentage of individuals who reported an arrest for a DUI offense decreased by 88.5%. There was a decrease by 100.0% in the number of individuals arrested for crimes against persons from 5.3% at intake to 0.0% at follow-up. Only a small number of individuals reported being arrested for a domestic violence-related offense (i.e., crime against a family member, intimate partner) and this number

³¹ The period examined at intake was 12 months for the older surveys (N = 105) and 6 months for the newer surveys (N = 178) and at follow-up it was 6 months which means there was a greater opportunity for more arrests and more days of incarceration at intake.

³² One case had missing data on arrests for specific types of offenses at follow-up.

decreased significantly at follow-up. The number of individuals arrested for other offenses decreased from 11.3% at intake to 3.2% at follow-up, which was a decrease by 71.9%. The decreases in number of individuals reporting arrests for all the categories of criminal offenses were statistically significant.

FIGURE 7.2. ARRESTS FOR SPECIFIC TYPES OF CRIMINAL OFFENSES AT INTAKE AND FOLLOW-UP (N = 282)



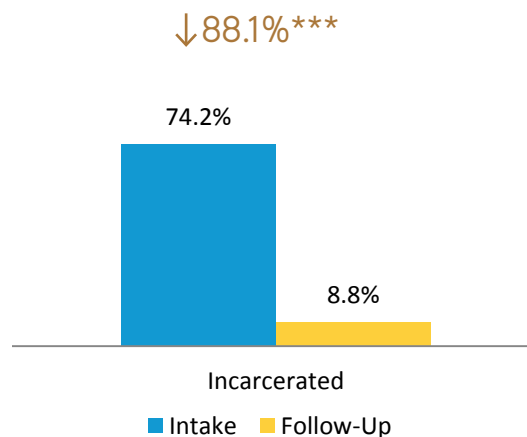
*p < .05, **p < .01, ***p < .001.

INCARCERATION

About three-fourths of individuals (74.2%) reported spending at least one day in jail or prison in the 12 (or 6) months prior to entering the recovery center (see Figure 7.3). At follow-up, only 8.8% reported spending at least one day incarcerated in the past 6 months; a significant decrease of 88.1%.

There was an 88% decrease in the number of individuals who were incarcerated at follow-up

FIGURE 7.3. CLIENTS REPORTING INCARCERATION AT INTAKE AND FOLLOW-UP (N = 283)

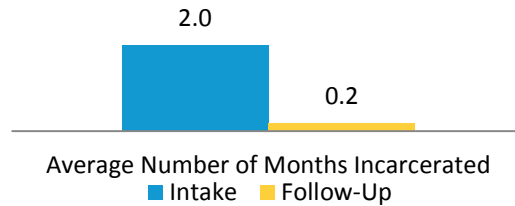


***p < .001.

At intake, the average proportion of time clients reported being incarcerated was one third (0.33), which when applied to a 6 month period equals 2 months. At follow-up, clients reported being incarcerated

an average of 0.03 of the 6-month period, which equals 0.2 months.³³ This decrease was statistically significant.

FIGURE 7.4. AVERAGE NUMBER OF MONTHS INCARCERATED OUT OF A 6-MONTH PERIOD AT INTAKE AND FOLLOW-UP (N = 283)

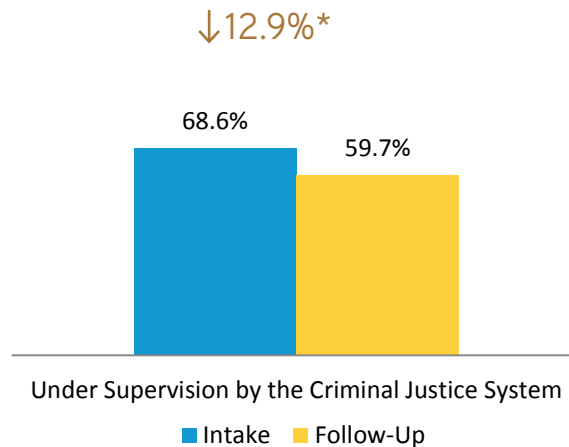


***p < .001.

SELF-REPORTED CRIMINAL JUSTICE SYSTEM SUPERVISION

The majority of clients were under criminal justice system supervision when they entered the recovery center and at follow-up. The number of individuals that self-reported they were under criminal justice system supervision (e.g., drug court, probation, or parole) decreased significantly by 12.9% (see Figure 7.5).

FIGURE 7.5. CLIENTS REPORTING SUPERVISION BY THE CRIMINAL JUSTICE SYSTEM AT INTAKE AND FOLLOW-UP (N = 283)



*p < .05.

33 Because individuals who completed intake surveys before November 2012 were asked questions about the 12 months before entering the program and intake surveys completed thereafter were asked questions about the 6 months before entering the program, the proportion of the reference period (i.e., 12 or 6 month) clients reported they were incarcerated at intake and follow-up was calculated and examined for significant change over time.

SECTION 8

Recovery Supports



This section focuses on three main changes in recovery supports: (1) percentage of clients attending mutual help recovery group meetings; (2) recovery supportive interactions with family/friends in the past 30 days; and (3) the number of people the individual said they could count on for recovery support.

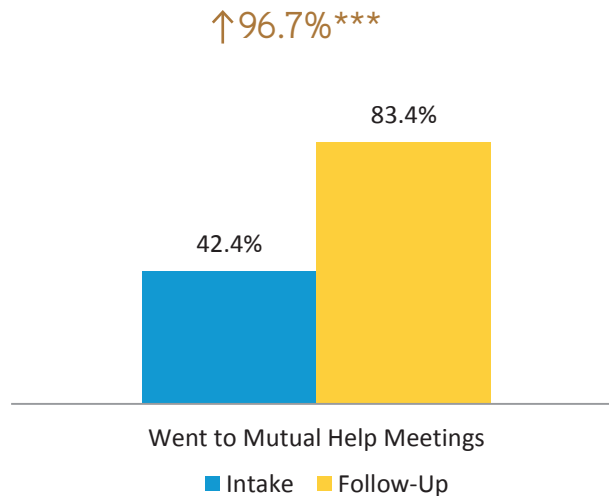
MUTUAL HELP RECOVERY GROUP MEETINGS

At intake, 42.4% of individuals reported going to mutual help recovery group meetings (e.g., AA, NA, or faith-based) in the 30 days before they entered the recovery center (see Figure 8.1). At follow-up, there was a significant increase of 96.7%, with 83.4% of individuals reporting they had gone to mutual help recovery group meetings in the past 30 days.

There was a 97% increase in the percentage of clients reporting attending mutual help recovery groups

To have a better idea how often individuals attended mutual-help recovery group meetings before entering the recovery center and follow-up, the average number of meetings attended was examined. The number of meetings attended increased significantly from 5.9 at intake to 13.5 at follow-up; a 128.8% increase for the overall sample (see Figure 8.1).

FIGURE 8.1. RECOVERY SUPPORTS AT INTAKE AND FOLLOW-UP (N=283)



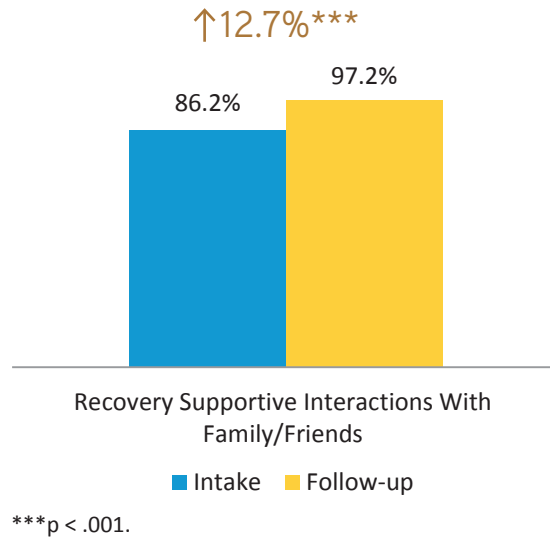
***p < .001.

RECOVERY SUPPORTIVE INTERACTIONS WITH FAMILY/FRIENDS

As seen in Figure 8.2, at follow-up, significantly more individuals (97.2%) reported that they had interactions with family and friends who were supportive of their recovery in the past 30 days compared to intake (86.2%).



FIGURE 8.2. RECOVERY SUPPORTIVE INTERACTIONS WITH FAMILY/FRIENDS IN THE PAST 30 DAYS (N = 283)



AVERAGE NUMBER OF PEOPLE THE CLIENT COULD COUNT ON FOR RECOVERY SUPPORT

The average number of people individuals reported that they could count on for support increased significantly by 93.0%, from 15.7 people at intake to 30.3 people at follow-up (see Figure 8.3).³⁴

FIGURE 8.3. AVERAGE NUMBER OF PEOPLE CLIENTS SAID THEY COULD COUNT ON FOR RECOVERY SUPPORT AT INTAKE AND FOLLOW-UP (N = 278)**



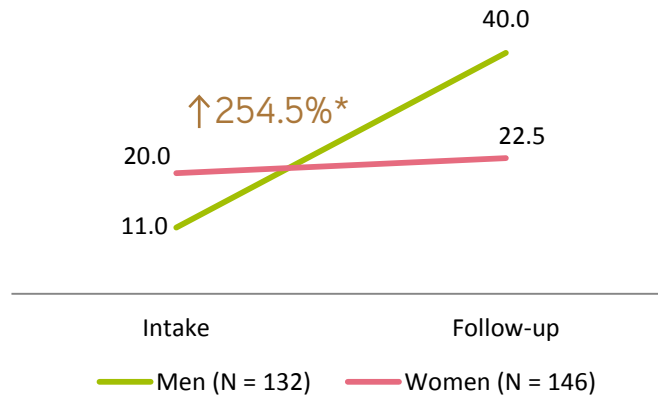
**p < .01.

GENDER DIFFERENCES IN NUMBER OF PEOPLE THE CLIENT COULD COUNT ON FOR RECOVERY SUPPORT

At intake, women reported a significantly higher average number of people they could count on for recovery support compared to men (20.0 vs. 11.0; see Figure 8.4). The average number of recovery supportive people men stated they could count on increased significantly to 40.0 at follow-up, while women’s average number of recovery supportive persons did not significantly change from intake to follow-up.

³⁴ Five cases had missing values at follow-up; 4 answered “Don’t know” and 1 had an extreme value that was an outlier.

FIGURE 8.4. GENDER DIFFERENCES IN THE AVERAGE NUMBER OF PEOPLE THE CLIENT COULD COUNT ON FOR RECOVERY SUPPORT (N = 278)^a



*p < .05.

^a—Significant difference at intake by gender; p < .01.

SECTION 9

Cost and Implications for Kentucky



This section examines cost reductions or avoided costs to society after Recovery Kentucky Program participation. Using the number of individuals who reported drug or alcohol use at intake and follow-up, a national per/person cost was applied to the sample used in this study to estimate the cost to society for the year before individuals were in recovery and then for the same individuals during the period after leaving Phase I. The cost savings was then divided by the cost of providing Recovery Kentucky Program services, yielding a return of \$3.56 for every dollar spent on recovery programs.

COST SAVINGS FROM RECOVERY KENTUCKY PROGRAMS

There is great policy interest in examining cost reductions or avoided costs to society after Recovery Kentucky participation. Thorough analysis of cost savings, while increasingly popular in policy making settings, is extremely difficult and complex. Immediate proximate costs can be examined relatively easily; however a thorough assessment requires a great number of econometrics. In order to accommodate these complexities at an aggregate level, data were extrapolated from a large federal study that was published in 1998 to estimate separate annual costs of alcohol abuse and drug abuse in the United States (Harwood et al., 1998). In 2000 the estimated costs of alcohol abuse in the United States was updated (Harwood et al., 2000) and in 2011 the National Drug Intelligence Center updated the estimates of drug abuse in the United States for 2007 (National Drug Intelligence Center, 2011). These updated costs were used in the calculations for the cost savings analysis in this RCOS follow-up report.

Most studies on the estimates of cost offsets from interventions with substance abuse focus on savings in various forms after substance abuse treatment participation. Recovery services are not treatment and thus call for separate analysis. Among the recovery centers sponsored by Recovery Kentucky and the Kentucky Housing Corporation, daily cost of care is very low. Recovery centers use considerable volunteer effort from residents and peer mentors who assist in running day-to-day activities such as housekeeping, kitchen work, and other duties. However, individuals stay in residential care for extended periods of time and these two factors mark the Recovery Kentucky Program as very different from treatment programs where residential stays average less than 20 days statewide.

METHOD

The national cost reports factored in many explicit and implicit costs of alcohol and drug abuse to the nation, such as the costs of lost labor due to illness, accidents, the costs of crime to victims, costs of incarceration, hospital and other medical treatment, social services, motor accidents, and other costs (Harwood et al., 1998; 2000; National Drug Intelligence Center, 2011). Thus, these reports consider both the hidden and obvious costs of substance abuse. For this analysis, the national estimates of the costs of drug and alcohol abuse/dependence were converted to 2013 dollars using a CPI indexing from a federal reserve bank (<http://www.minneapolisfed.org>).

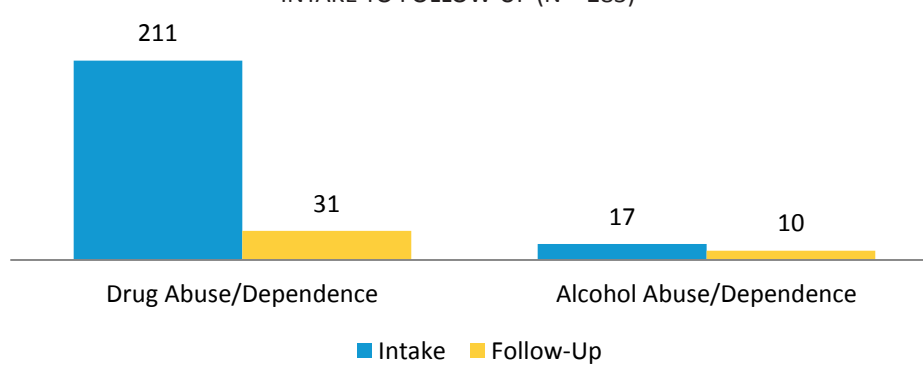
In order to calculate the estimate of the cost per alcohol user or drug user, the updated national cost estimates were divided by the estimate of the number of individuals with alcohol abuse/dependence (or drug abuse/dependence). Before we could do this we had to account for the estimate of 2.6 million

individuals who had alcohol and drug abuse/dependence because the national costs of substance abuse are estimated separately for alcohol and drugs (SAMHSA, 2014). In other words, we could not count the cross addicted individuals in both categories when figuring out per person costs of alcohol and drug abuse, nor could we ignore the cross addicted individuals in our calculations. Therefore, the 2.6 million individuals who were alcohol and drug misusers were assigned to either the alcohol abuse/dependent category or the drug abuse/dependent category to figure out the estimated cost of alcohol abuse/dependence and drug abuse/dependence per person.³⁵ Once the cross addicted individuals were assigned to one of the categories the total number of individuals in the alcohol abuse/dependence category was 16,711,579 individuals and the number of individuals in the drug abuse/dependence category was 4,888,421. Specifically, the estimate of the cost to society of alcohol abuse/dependence was \$263,911,342,862, after conversion to 2013 dollars. This amount was then divided by the 16,711,579 individuals, yielding a cost per person of alcohol abuse of \$15,792 (after rounding to a whole dollar). The estimate of the cost to society of drug abuse/dependence was \$216,994,235,024 after conversion to 2013 dollars. This amount was then divided by the 4,888,421 individuals, yielding a cost per person of alcohol abuse of \$44,389 (after rounding to a whole dollar).

Given the high prevalence of severe substance abuse among the individuals entering recovery centers, analyses hinged on estimating the differences in cost to society between persons who are in active addiction compared to those who are abstinent from drug and/or alcohol use. Thus the role that abstinence plays in reducing costs to society was examined because abstinent individuals are far less likely to be arrested, more likely to be employed or spending time volunteering, less likely to be drawing down social services supports, and less likely to be dependent on other family members. These per person costs were then applied to the follow-up sample used in this study to estimate the cost to society for the year before individuals were in Recovery Kentucky programs and then for the same individuals during the period after leaving Phase I.

Figure 9.1 shows the change in the number of individuals who used illegal drugs and the number of individuals who used alcohol but not illegal drugs at intake and follow-up. Individuals who reported any illegal drug use in the corresponding period were classified in the drug abuse/dependent category. Individuals who reported using alcohol but not using illegal drugs were classified in the alcohol abuse/dependent category. The change from intake to follow-up is very dramatic. At intake 211 of the 283 RCOS clients were classified in the drug abuse/dependent category and 17 in the alcohol abuse/dependent category. At follow-up, only 31 individuals were classified in the drug abuse/dependent category and 10 individuals in the alcohol abuse/dependent category.

FIGURE 9.1 CHANGE IN THE NUMBER OF INDIVIDUALS WHO WERE ACTIVE DRUG ABUSERS OR ALCOHOL ABUSERS FROM INTAKE TO FOLLOW-UP (N = 283)



³⁵ To reclassify the cross addicted individuals, the proportion of individuals who were not in the alcohol and drug abuse/dependent category who were in the alcohol category (0.77) and the drug category (0.23) was extracted. Then the 2.6 million cross-addicted individuals were assigned to the appropriate categories based on the above proportions.

When the estimated cost per individual drug user was applied to the 211 individuals who were active drug users at intake, the annual estimated cost to society for the RCOS study individuals 12 months before entry into the recovery center was \$9,366,079. When the average annual cost per individual alcohol user was applied to the 17 individuals who were active alcohol users at intake, the estimated cost to society was \$268,464. The total estimated cost of drug and alcohol abuse applied to the sample of individuals in RCOS in the 12 months before intake was \$9,634,543. By follow-up, the estimated cost of the 31 individuals who were still active drug abusers was \$1,376,059 and the estimated cost of the 10 individuals who were active alcohol abusers was \$157,920, for a total of \$1,533,979. Thus, as shown in Figure 9.2, after participation in a Recovery Kentucky program, the aggregate cost to society for the RCOS follow-up sample was reduced by \$8,100,564.

FIGURE 9.2. CHANGE IN COST TO SOCIETY AT INTAKE AND FOLLOW-UP (AMOUNTS IN MILLIONS OF DOLLARS) (N = 283)



The daily cost of participation in a Recovery Kentucky program in FY 2013 was \$32.00 per person (Kentucky Housing Corporation communication). Funding sources for the per diem cost includes the Kentucky Department of Corrections, Supplemental Nutrition Assistance Program (SNAP), Section 8 Housing Assistance, and the Community Development Block Grant (CDBG). The total number of days clients in the follow-up sample participated in Recovery Kentucky programs was obtained for each individual. The number of days of participation was multiplied by the daily cost of \$32.00 for a total cost of \$2,275,040 for the 283 individuals included in this report.³⁶ When the cost of Recovery Kentucky programs is subtracted from the cost savings from increased alcohol and drug abstinence, there is an estimated net savings to society of \$8,100,564 for serving this sample of 283 individuals. Examining the total avoided costs in relation to expenditures on recovery services, these figures suggest that for **every dollar spent on recovery, there was a \$3.56 return in avoided costs.**

³⁶ There were some outliers for number of days of service. To keep the outliers from having too large of an effect on the calculation of cost of services, the value at the 94.9 percentile of the distribution for days of service was applied to the top 5% of cases (i.e., outliers). Once this was done the average number of days of service was 251 days. Also, there were 7 cases with missing data on days of service. The average value of days of service was input for these 7 cases.

SECTION 10

Conclusion



This section summarizes the report findings and discusses some major implications within the context of the limitations of the outcome evaluation study.

This report describes outcomes for 283 men and women who participated in a Recovery Kentucky program and who completed an intake interview at entry to Phase 1 and a follow-up telephone interview about 12 months after the intake survey was submitted to UK CDAR. Evaluation results indicate that Recovery Kentucky programs have been successful in facilitating substantial positive changes in clients' lives.

First, clients reported very high levels of satisfaction with Recovery Kentucky programs. Specifically, the vast majority indicating that the services helped them get better and feel better about themselves, they were treated with respect and they understood what was expected of them in the program. They also reported major life improvements, reductions in substance use, more positive interactions and relationships with other people, and improved mental health. Clients reported more frequent positive feelings and at the same time less frequent negative feelings at follow-up when compared to intake. Further, individuals who completed follow-up interviews reported their quality of life as well as their satisfaction with their lives were significantly higher at follow-up compared to intake. No doubt helping with this increased satisfaction with life was the fact that there was an increase in the percentage of clients who felt they had people in their lives who were supportive of their recovery.

Second, Recovery Kentucky clients reported significant reductions in substance use after entering the program. While reported substance use was high in the 12 (or 6) months prior to entry, by follow-up a small minority of clients reported any substance use. Not only did the number of individuals who reported any alcohol or drug use decrease significantly, but also the number of individuals who met criteria for alcohol dependence and drug dependence decreased significantly from intake to follow-up.

Clients also made dramatic improvements in reported mental health symptoms and stress. Before entering the program, the majority of clients had reported depression and/or anxiety; however, at follow-up, only 12.4% reported depression and 9.9% reported anxiety. About 1 in 4 clients (26.1%) reported suicidal ideation or attempts in the 12 months before entering the program, with a significant decrease of 93.2% at follow-up. Clients self-reported physiological consequences of stress decreased by 80% from intake to follow-up.

Further, consistent with these findings, clients reported significantly fewer days their mental and physical health was not good, and fewer days their activities were limited by poor physical or mental health. Clients were asked how many days out of the past 30 days their physical and mental health was not good. These questions are asked on an annual basis across the nation. In the 2011 Behavioral Risk Factor Surveillance System (BRFSS) Kentuckians reported 4.5 days their mental health not good (the highest across all the states with the national average at 3.7) and 4.9 days their physical health was not good (ranking 47 highest with the national average at 3.9 days; United Health Foundation, 2014). The RCOS clients reported, on average, 10.9 days their mental health was not good in the 30 days before they entered the program and 3.1 days at the follow-up. Similarly, clients reported 5.6 days their health was not good the 30 days before entering the program and 2.2 days their health was not good at follow-up.

Third, Recovery Kentucky Program clients had more success with employment at follow-up with a significant increase of 64% in the number of clients who reported full-time or part-time employment at follow-up. The majority of clients expected to be employed in the next six months after follow-up. In the 2013 RCOS Follow-Up Report, significantly fewer women reported being employed at both intake and follow-up compared to men. In the 2014 RCOS Follow-Up Report and this report, significantly fewer women reported being employed at intake compared to men, but by follow-up the majority of women reported they were employed full-time or part-time. This is a significant improvement for women compared to findings from the RCOS 2013 report. Nonetheless, compared to employed men's, employed women's average hourly wage was significantly lower. Not only were clients employed for more months and expected to work in the future, but fewer clients considered themselves homeless at follow-up as well.

Moreover, fewer RCOS clients reported economic hardship at follow-up than at intake. Specifically, nearly half of clients reported at intake they had difficulty meeting basic living needs (e.g., food, shelter, utilities, telephone) in the 12 months before entering the recovery center; however, the number decreased 40.8% at follow-up. Similarly, the number of individuals who reported having difficulty for financial reasons obtaining health care (e.g., doctor, dental, and prescription medications) decreased 33.3% from intake to follow-up.

Fourth, evaluation results show that clients were less involved with the criminal justice system at follow-up. The number of clients who reported they were arrested greatly diminished from intake to follow-up as did the number of clients who reported spending any time in jail or prison. There was also a small, but significant decrease in self-reported criminal justice system supervision for clients with 68.6% reporting some kind of criminal justice supervision at intake and 59.7% at follow-up, which was a 12.9% decrease.

Thus overall, the Recovery Kentucky Program clients made significant strides in all of the targeted areas, client were extremely satisfied and appreciative of the services they received through the recovery centers, and the Recovery Kentucky Program saved taxpayer dollars through avoided costs to society or costs that would have been expected based on the rates of drug and alcohol use prior to entry into the Recovery Center. The overall quality of life ratings suggest that client's lives have improved meaningfully and significantly. The finding of reductions in costs related to increased abstinence suggests that commitment of public funds to recovery centers is a solid investment in the futures of many Kentucky citizens. While this study was not resourced to examine net effects of human capital investment, the past research suggests that individuals who commit themselves to recovery and abstinence go on to have gainful employment and reduced involvement with public sector services in their future years.

These findings suggest that both the behavioral outcomes and cost savings from recovery services are parallel to the outcomes from substance abuse treatment. The fact that recovery centers focus on individuals needing longer term residential support means that they add an important new component to the array of publicly supported substance abuse interventions. State-funded treatment programs typically focus on shorter residential stays and a wide array of outpatient services. Recovery centers complement these services with longer term residential care.

There were a few areas where the data results suggest additional attention may be warranted. Specifically,

- Tobacco use, in particular smoking, is very high among Recovery Kentucky clients at intake (87.5%) and follow-up (86.2%).
- Similar to national and statewide trends, the number of individuals who report using heroin has increased significantly from over the four fiscal years RCOS reports have been conducted.
- Women reported significantly higher levels of physiological consequences of stress at intake and

follow-up compared to men

- Compared to men, significantly fewer women reported they were employed in the 12 months before intake and among the currently employed, women had significantly lower wages at follow-up. In fact, at intake, employed women made \$0.67 for every \$1.00 employed men made and at follow-up employed women made \$0.68 for every \$1.00 employed men made.
- Significantly more women reported depression, generalized anxiety, and comorbid depression and generalized anxiety at intake. However, by follow-up, similarly small percentages of women and men reported these mental health symptoms.
- Compared to women, men had higher rates of alcohol use, including alcohol use to intoxication and binge drinking at intake and follow-up.

STUDY LIMITATIONS

The study findings must be considered within the context of the project's limitations. First, the data included in this write-up were self-reported by Recovery Kentucky clients. There is reason to question the validity and reliability of self-reported data, particularly with regard to sensitive topics, such as illegal behavior and stigmatizing issues such as mental health and substance use. However, recent research has supported findings about the reliability and accuracy of individuals' reports of their substance use (Del Boca & Noll, 2000; Harrison, Marin, Enev, & Harrington, 2007; Rutherford, Cacciola, Alterman, McKay, & Cook, 2000; Shannon, Mathias, Marsh, Dougherty, & Liguori, 2007). Earlier studies found that the context of the interview influences reliability (Babor, Stephens, & Marlatt, 1987). During the informed consent process at the beginning of the follow-up survey, interviewers tell participants that the research team operates independently from the recovery centers and individuals' responses will be reported in group format and will not be identifiable at the individual level. These assurances of confidentiality and lack of affiliation with the data collectors may minimize individuals' concern about reporting stigmatizing behavior or conditions.

Even though the project sample is limited due to budget constraints to about 280 follow-up surveys to complete in a fiscal year, comparisons of clients who completed a follow-up survey and clients who did not complete a follow-up survey show no differences in demographic factors, substance use, mental health and stress, homelessness, and criminal justice system involvement. Thus, this bolsters confidence that the sample of individuals who are included in this report are representative of individuals who complete a baseline survey for RCOS. Also, the follow-up period is limited at 12 months after Phase 1 intake, which for the typical client is about 4 months after they leave the program. A longer-term follow-up would provide more information about the impact of the Recovery Kentucky Program on longer time life changes and events.

These findings are encouraging and continue the first multi-year systematic evaluation of long-term residential recovery supports in the United States. Further study will lead to more research to validate the continuing value of recovery services as a key part of state commitment to intervening with the growing problem of substance abuse in Kentucky.

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APPENDIX A

Methods

A total of 1,952 individuals had an intake survey submitted from July 1, 2012 through June 30, 2013. The target month for the follow-up survey was 12 months after the baseline survey was submitted. Cases were randomly selected into the follow-up sample by two strata (i.e., gender [male, female] and Department of Corrections referral [yes/no]) so that equal numbers of individuals fell into the following categories: DOC-referred men, DOC-referred women, non-DOC referred men, and non-DOC referred women.³⁷ The window for completing a follow-up survey with an individual selected into the follow-up sample began one month before the target month and spanned until two months after the target month. For example, if an individual was eligible for the follow-up survey in May (i.e., target month was May), then the interviewers would attempt to complete the follow-up survey beginning in April and ending in July.

A total of 527 individuals were selected into the sample of individuals to be followed up from July 2013 to June 2014. Of these individuals 90 were ineligible for the follow-up survey at the time of their follow-up; thus these cases are not included in the calculation of the follow-up rate (see Table AA.1). Of the remaining 437 individuals, interviewers completed follow-up surveys with 283 individuals, representing a follow-up rate of 64.8% (see Table AA.1). Of the eligible individuals, 153 were never successfully contacted or if they were contacted, interviewers were not able to complete a follow-up survey with them during the follow-up period: these cases are classified as expired. Of the eligible individuals, 35.0% were expired cases. One individual refused to complete the follow-up survey when the interviewer contacted him/her. The refusal rate was 0.2%. The project interviewers' efforts accounted for 71.0% of the cases (N = 374) included in the follow-up sample. The only cases not considered accounted for are those individuals who are classified as expired.

TABLE AA.1. FINAL CASE OUTCOMES FOR FOLLOW-UP EFFORTS

	Number of Records (N = 527)	Percent
Ineligible for follow-up survey	90	17.1%
	Number of cases eligible for follow-up (N = 437)	
Completed follow-up surveys	283	
Follow-up rate is calculated by dividing the number of completed surveys by the number of eligible cases and multiplying by 100		64.8%
Expired cases (i.e., never contacted, did not complete the survey during the follow-up period)	153	
Expired rate ((the number of expired cases/eligible cases)*100)		35.0%
Refusal	1	
Refusal rate ((the number of refusal cases/eligible cases)*100)		0.2%
Cases accounted for (i.e., records ineligible for follow-up + completed surveys + refusals)	374	
Percent of cases accounted for ((# of cases accounted for/total number of records in the follow-up sample)*100)		71.0%

³⁷ There were too few cases to sample an equal number of individuals in each of the four strata for the June sample.

Individuals were considered ineligible for follow-up if they were living in a controlled environment during the follow-up period (see Table AA.2). Of the 90 cases that were ineligible for follow-up, the majority (90.0%) were ineligible because they were incarcerated during the follow-up period. Five individuals were ineligible because they were in residential treatment at the time of follow-up. Other reasons a small number of individuals were ineligible for follow-up were because of death, hospitalization, and being out of the country.

TABLE AA.2. REASONS CLIENTS WERE INELIGIBLE FOR FOLLOW-UP (N = 90)

	Number	Percent
Incarcerated	81	90.0%
In residential treatment	5	5.6%
Deceased	2	2.2%
Hospitalized	1	1.1%
Out of the country	1	1.1%

APPENDIX B

Client Characteristics at Intake for Those with Completed Follow-up Interviews and Those Without Completed Follow-up Interviews

Individuals who completed a follow-up interview are compared in this section with individuals who did not complete a follow-up interview for any reason (e.g., not selected into the follow-up sample, ineligible for follow-up, and interviewers were unable to locate the client for the follow-up survey).³⁸

DEMOGRAPHIC CHARACTERISTICS

The average client age was in the early 30s. The majority of the sample for this annual report was White and a small minority of clients was African American (see Table AB.1). The follow-up sample was stratified by gender; thus, approximately half of the sample was male and half female. Fewer clients were married or cohabiting than clients reporting they were never married or divorced. There were no significant differences on demographics between clients who completed a follow-up survey and those who did not.

TABLE AB.1. COMPARISON OF DEMOGRAPHICS FOR CLIENTS WHO WERE FOLLOWED UP AND CLIENTS WHO WERE NOT FOLLOWED UP

	FOLLOWED UP	
	NO n = 1669	YES n = 283
AGE	33.0 years	33.6 years
GENDER		
Female	48.5%	51.6%
RACE		
White	90.3%	91.2%
African American	7.5%	8.1 %
Other or multiracial	2.2%	0.7%
MARITAL STATUS		
Never married	49.0%	49.8%
Married or cohabiting	14.2%	11 .0%
Separated or divorced	34.8%	37.8%
Widowed	2.1%	1.4%

SOCIO-ECONOMIC STATUS INDICATORS

Table AB.2 describes clients' level of education when entering the recovery center. A minority of individuals had less than a high school diploma or GED. About four-fifths of clients in both groups had a GED or high school diploma or higher level of education at intake to Phase I.

³⁸ Significance is reported for p<.01.

TABLE AB.2. CLIENTS' HIGHEST LEVEL OF EDUCATION COMPLETED AT INTAKE

	FOLLOWED UP	
	NO n = 1669	YES n = 283
HIGHEST LEVEL OF EDUCATION COMPLETED		
Less than GED or high school diploma	20.7%	18.0%
GED/high school diploma or higher	79.3%	82.0%

There were no differences in usual employment status at intake by follow-up status (see Table AB.3). More than half of followed up and not followed up clients were unemployed, either because they were not looking for work due to being a student, homemaker, retired, disabled, or in a controlled environment or they were looking for work. Of the individuals who reported working at least part-time in the 12 months before entering the recovery center, the mean proportion of months worked was .59 and .62 for clients not followed up and for clients followed up respectively.

TABLE AB.3. EMPLOYMENT IN THE 12 (OR 6) MONTHS BEFORE ENTERING THE RECOVERY CENTER

	FOLLOWED UP	
	NO n = 1669	YES n = 283
USUAL EMPLOYMENT STATUS		
Employed full-time		
Employed part-time (including seasonal, occasional work)	54.5%	50.9%
Unemployed and not looking for work due to being a student, homemaker, retired, disabled, or in a controlled environment	20.5%	21.9%
Unemployed	25.0%	27.2%
AMONG THOSE WHO WERE EMPLOYED, PROPORTION OF MONTHS CLIENT WAS EMPLOYED ^a	.59 3.5 months	.62 3.7 months

a—Because of the different reference periods (i.e., 12 months or 6 months) the statistic was calculated on the proportion of the reference period the client reported being employed (full-time or part-time) and then the number of months was projected for a 6 month-reference period.

The majority of individuals reported their usual living arrangement in the 12 months before entering the recovery center was in a private residence (i.e., their own home or apartment or someone else's home or apartment; see Table AB.4). About one in three individuals were living in a correctional facility (i.e., jail or prison) before entering the recovery center. A small number of individuals reported their usual living arrangement had been in a shelter or on the street. Small numbers of individuals reported their usual living situation was in a non-correctional facility controlled environment such as a recovery center, residential treatment, sober living home, or hospital. At the time individuals entered recovery centers, nearly two-fifths of clients considered themselves to be homeless, with many of those individuals stating that they had lived in a shelter, they were temporarily living with family or friends, or they had no home to go to after leaving the recovery center (see Table AB.4). There were no significant differences in living situation at intake between individuals who completed a follow-up interview and individuals who did not.

TABLE AB.4 LIVING SITUATION OF CLIENTS BEFORE ENTERING THE RECOVERY CENTER

	FOLLOWED UP	
	NO n = 1669	YES n = 283
USUAL LIVING ARRANGEMENT IN THE 12 (or 6) MONTHS BEFORE ENTERING THE PROGRAM		
Own or someone else's home or apartment	53.7%	61.5%
Jail or prison	38.3%	32.2%
Shelter or on the street	5.0%	3.2%
Residential program, hospital, recovery center, or sober living home	2.3%	2.5%
Other living situation	0.6%	0.7%
CONSIDERS SELF TO BE CURRENTLY HOMELESS ^a		
Why the individual considers himself/herself to be homeless	(n = 640)	(n = 113)
Staying in a shelter	27.2%	37.2%
Staying temporarily with friends or family	35.2%	33.6%
Have no home to go to after leaving the recovery center	27.2%	19.5%
Staying on the street or living in a car	10.2%	8.8%

a—Three individuals responded with “other reason”.

Among those clients who were not incarcerated the entire period before entering the program, the majority reported they had difficulty meeting any basic needs in the 12 (or 6) months before entering the program, with no significant difference by follow-up status (see Table AB.5). Similar percentages of clients who were followed up and clients who were not followed up reported they had difficulty meeting basic living needs or health care needs.

TABLE AB.5. AMONG THOSE WHO WERE NOT INCARCERATED THE ENTIRE PERIOD, DIFFICULTY MEETING BASIC NEEDS BEFORE ENTERING THE RECOVERY CENTER

	FOLLOWED UP	
	NO n = 1280	YES n = 235
CLIENT'S HOUSEHOLD HAD DIFFICULTY MEETING ANY NEEDS IN THE 12 (OR 6) MONTHS BEFORE ENTERING THE PROGRAM		
Basic living needs (e.g., housing, utilities, telephone service, food)	48.8%	51.9%
Health care needs	45.6%	47.7%
Average number of needs had difficulty meeting	2.4	2.4

Table AB.6 presents comparison of physical health status of clients who were not followed up with clients who were followed up. There were no significant differences by follow-up status. A sizable minority of clients reported they had ever been told by a doctor they had a chronic health problem, such as hepatitis C, cardiovascular disease, arthritis, asthma, severe dental problems, and diabetes. A little less than one half of clients in each group reported they had experienced chronic pain in the 12 (or 6 months) before intake. About two-fifths reported they had ever experienced a traumatic brain injury in their lifetime. When asked about the 30 days before they entered the Recovery Center, clients who were followed up and those who were not reported similar average number of days their physical health and mental health were not good.

TABLE AB.6. CLIENT'S PHYSICAL HEALTH STATUS AT INTAKE

	FOLLOWED UP	
	NO n = 1669	YES n = 283
Client was ever told by a doctor that client had a chronic medical problem	43.0%	45.9%
Experienced chronic pain (pain lasting 3 months or more)	24.1%	24.7%
Ever had a head injury that caused loss of consciousness or resulted in hospitalization	38.9%	41.7%
Average number of needs had difficulty meeting	2.1	2.2
In the 30 days before entering the program:		
Average number of days physical health was not good	6.0	5.6
Average number of days mental health was not good	11.9	10.9

SUBSTANCE USE AT INTAKE

Use of illegal drugs, alcohol, and tobacco in the 12 (or 6) months before entering the recovery center is presented by follow-up status in Table AB.7 for those clients who were not incarcerated the entire period. There were no significant differences in the percentage of individuals who reported using different types of illegal drugs by follow-up status. The majority of the clients reported using any illegal drug in the 12 (or 6) months before entering the program. The drug class used by the greatest percentage of clients was prescription opiates/opioids. The majority of followed up clients (60.4%) and clients who did not complete a follow-up survey (53.8%) reported using marijuana. About half of clients reported using other illegal drugs. Sizable minorities of followed up and not followed up clients used CNS depressants. A little more than one third of clients used amphetamines (e.g., methamphetamine, ecstasy, prescription amphetamines). About three-fifths of clients reported using any alcohol at intake. The vast majority of clients reported using tobacco (smoking or smokeless) in the 12 (or 6) months before entering the program.

TABLE AB.7. PERCENTAGE OF INDIVIDUALS REPORTING ILLEGAL DRUG USE, ALCOHOL, AND TOBACCO IN THE 12 (OR 6) MONTHS BEFORE ENTERING THE RECOVERY CENTER

SUBSTANCES	FOLLOWED UP	
	NO n = 1280	YES n = 235
Any illicit drug	86.8%	87.2%
Prescription opiates/opioids (including methadone and buprenorphine)	67.7%	66.0%
Marijuana	53.8%	60.4%
CNS depressants	46.3%	45.5%
Heroin	37.3%	32.3%
Amphetamines	35.5%	34.9%
Other illegal drugs (cocaine, synthetic drugs, hallucinogens, inhalants)	51.8%	50.2%
Alcohol	61.4%	62.6%
Smoked tobacco	86.1%	87.7%

Similar patterns were found in the past 30-days substance use measure with fewer individuals reporting use of each substance (not depicted in a Table or Figure).

Alcohol and drug composite severity scores were calculated from items included in the intake survey. Because the ASI composite severity scores are based on past-30-day measures, it is important to take into account clients being in a controlled environment all 30 days when examining composite severity scores. Thus, alcohol and drug severity composite scores are presented in Table AB.8 separately for those individuals who were not in a controlled environment all 30 days before entering the recovery center and individuals who were in a controlled environment all 30 days before entering the recovery center. The highest composite score is 1.0 for each of the two substance categories.

Of the individuals who were not in a controlled environment all 30 days the majority met or surpassed the Addiction Severity Index (ASI) composite score (CS) cutoff for alcohol and/or drug use disorder, with no difference by follow-up status (89.0% for not followed up and 89.9% for followed up; see Table AB.8). Among individuals who were not in a controlled environment all 30 days before entering the program, the average score on the alcohol severity composite score was .36 for individuals who were not followed up and for individuals who were followed up. Among clients who were not in a controlled environment all 30 days before entering the program, the average score for the drug severity composite score was .31 for individuals who did not complete a follow-up interview and .28 for clients who did complete a follow-up interview. These average cutoff scores include individuals with scores of 0 on the composites.

Of the individuals who were in a controlled environment all 30 days before entering the recovery center, a large minority met or surpassed the cutoff for the ASI CS for alcohol and/or drug dependence, with no difference by follow-up status (see Table AB.8). Among individuals who were in a controlled environment all 30 days before entering the program, the average scores for the alcohol severity composite score for the two groups were .17 and .16. Of clients who were in a controlled environment all 30 days, the means for the drug severity composite scores were .16 for those who were not followed up and .15 for those who were followed up. The percentage of individuals who met or surpassed the cutoff for the ASI CS for drug dependence did not differ significantly by follow-up status.

TABLE AB.8. SELF-REPORTED ALCOHOL AND DRUG USE SEVERITY AT INTAKE

Recent substance use problems among individuals who were....	Not in a controlled environment all 30 days before entering the recovery center		In a controlled environment all 30 days before entering the recovery center	
	FOLLOWED UP		FOLLOWED UP	
	NO (n = 809)	YES (n = 149)	NO (n = 860)	YES(n = 134)
Percent of Individuals with ASI composite score equal to or greater than cutoff score for ...				
alcohol or drug dependence	89.0%	89.9%	49.8%	42.5%
alcohol dependence	58.0%	55.7%	29.1%	26.1%
drug dependence	75.9%	75.8%	37.3%	29.1%
Average ASI composite score for alcohol use ^{-a}	.36	.36	.17	.16
Average ASI composite score for drug use ^{-b}	.31	.28	.16	.15

-a Score equal to or greater than .17 is indicative of alcohol dependence.

-b Score equal to or greater than .16 is indicative of drug dependence.

SUBSTANCE ABUSE TREATMENT

The majority of RCOS clients reported ever having been in substance abuse treatment in their lifetime, with no difference by follow-up status (see Table AB.9). Among clients who reported a history of substance abuse treatment, the average number of lifetime treatment episodes was 3.3 for individuals who did not complete a follow-up interview and 2.8 for individuals who did complete a follow-up interview.

TABLE AB.9. HISTORY OF SUBSTANCE ABUSE TREATMENT IN LIFETIME

	FOLLOWED UP	
	NO n = 1669	YES n = 283
Ever been in substance abuse treatment in lifetime	65.1%	65.7%
Among those who had ever been in substance abuse treatment in lifetime,	(n = 1087)	(n = 186)
Average number of times in treatment	3.3	2.8

MENTAL HEALTH AT INTAKE

The mental health questions included in the RCOS intake and follow-up surveys are not clinical measures, but instead are research measures. A total of 9 questions were asked to determine if they met DSM-IV criteria for depression, including the two screening questions: (1) “Did you have a two-week period when you were consistently depressed or down, most of the day, nearly every day?” and (2) “Did you have a two-week period when you were much less interested in most things or much less able to enjoy the things you used to enjoy most of the time?” The majority of clients who were followed up and clients who were not followed up reported symptoms that met criteria for depression, with no significant difference by follow-up status (see Table AB.10).

A total of 7 questions were asked to determine if individuals met criteria for Generalized Anxiety, including the screening question: “In the 12 (or 6) months before you entered this recovery center, did you have a period lasting 3 months or longer where you worried excessively or were anxious about multiple things on more days than not (like family, health, finances, school, or work difficulties). The majority of clients reported symptoms that met the criteria for Generalized Anxiety, with no significant difference by follow-up status.

Two questions were included in the intake survey that asked about thoughts of suicide and attempted suicide in the 12 months before clients entered recovery centers. About one fourth of individuals who did not complete a follow-up interview (27.6%) and 26.1% of individuals who did complete a follow-up interview reported suicide ideation and/or attempts, with no difference by follow-up status (see Table AB.10).

TABLE AB.10. PERCENTAGE OF INDIVIDUALS REPORTING MENTAL HEALTH PROBLEMS IN THE 12 (OR 6) MONTHS BEFORE ENTERING THE RECOVERY CENTER

	FOLLOWED UP	
	NO n = 1669	YES n = 283
Depression	63.6%	59.4%
Generalized Anxiety	68.7%	64.0%
Suicidality (e.g., thoughts of suicide or suicide attempts)	27.6%	26.1%

CRIMINAL JUSTICE SYSTEM INVOLVEMENT AT INTAKE

The majority of individuals in the sample reported being referred to the recovery center by the criminal justice system, with no difference between those who were not followed up and those who were followed up (72.5% vs. 68.2% respectively; not depicted in a Table or Figure). Not all of those referred by the criminal justice system were considered DOC cases whose costs were covered by the Department of Corrections.

The majority of individuals (51.6% of those not followed up and 53.4% of those followed up) reported they had been arrested in the 12 (or 6) months before entering the recovery center (see Table AB.11). Three-fourths of clients who were not followed up and 68.6% clients who were followed up were under supervision by the criminal justice system (e.g., in Drug Court, on probation or parole) when they entered the recovery center. There were no significant differences by follow-up status.

TABLE AB.11. CRIMINAL JUSTICE SYSTEM INVOLVEMENT WHEN ENTERING THE RECOVERY CENTER

	FOLLOWED UP	
	NO n = 1669	YES n = 283
Arrested for any charge in the 12 months before entering the recovery center	51.6%	53.4%
Currently under supervision by the criminal justice system	75.3%	68.6%
In Drug Court	5.7%	5.3%
On probation	46.4%	43.1%
On parole	28.2%	25.1%

Table AB.12 displays the percentage of individuals arrested and charged with different types of criminal charges among those who reported being arrested in the period before entering the recovery center. There were no significant differences in the percentage of individuals arrested for different types of criminal charges between those who were followed up and those who were not followed up. The criminal offenses reported by the largest percentage of clients were probation or parole violations, followed by drug offenses (e.g., trafficking, possession). Property crime offenses were reported by about 3 in 10 individuals. About 1 in 6 RCOS clients reported an arrest for a DUI offense. The criminal offense category reported by the smallest number of clients in both groups was crimes against persons. Other criminal offenses were reported by 24.5% of individuals who were not followed up and 21.2% of individuals who were followed up.

TABLE AB.12. AMONG THOSE WHO REPORTED BEING ARRESTED IN THE 12 (OR 6) MONTHS BEFORE ENTERING THE RECOVERY CENTER, PERCENTAGE OF INDIVIDUALS ARRESTED AND CHARGED WITH TYPES OF CRIMINAL OFFENSES

	FOLLOWED UP	
	NO n = 862	YES n = 151
TYPES OF CRIMINAL CHARGES		
Probation or parole violation	49.7%	49.0%
Drug charge	35.2%	31.1%
Property crime	32.4%	31.1%
DUI	16.1%	17.2%
Crimes against a person	10.1%	9.9%
Other crimes (e.g. contempt, criminal mischief, disorderly conduct, endangering minor, failure to pay child support, failure to comply with court order, moving violations, public intoxication, trespassing, resisting arrest)	24.5%	21.2%

About three-fourths of the clients in each group reported being incarcerated for at least one day in the past 12 (or 6) months before entering the program (See Table AB.13).

TABLE AB.13. INCARCERATION HISTORY IN THE 12 (OR 6) MONTHS BEFORE ENTERING THE RECOVERY CENTER

	FOLLOWED UP	
	NO n = 1669	YES n = 283
Incarcerated at least one day	80.2%	83.0%

APPENDIX C

Change in Use of Specific Classes of Drugs from Intake to Follow-up

CHANGE IN 12-MONTH/6-MONTH DRUG USE FROM INTAKE TO FOLLOW-UP FOR INDIVIDUALS NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD BEFORE ENTERING THE RECOVERY CENTER

MARIJUANA, PAST 12-MONTH/6-MONTH USE

Clients' self-reported marijuana use decreased significantly by 89.2% from the 12 (or 6) months before entering the program to the 6 months before follow-up (see Table AC.1). There was no significant difference in use of marijuana at intake or follow-up by gender.

TABLE AC.1. MARIJUANA USE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD BEFORE ENTERING THE RECOVERY CENTER

	USE AT INTAKE		USE AT FOLLOW-UP		PERCENT CHANGE ^a
	n	Valid %	n	Valid %	
MARIJUANA					
Men (n =115)	68	59.1%	9	7.8%	-86.8%***
Women (n = 120)	74	61.7%	6	5.0%	-91.9%***
Total (n = 235)	139	60.4%	15	6.4%	-89.2%***

a—Significance established using z-test for proportions; ***p < .001.

OPIOIDS (EXCLUDING HEROIN), PAST 12-MONTH/6-MONTH USE

Individuals' self-reported use of opioids including prescription opiates, methadone, and buprenorphine decreased significantly by 90.3% in the 12 (or 6) months before entering the recovery center and the 6 months before follow-up (see Table AC.2). There was no significant difference in use of opioids (excluding heroin) at intake or follow-up by gender.

TABLE AC.2. OPIOID USE (EXCLUDING HEROIN) FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD BEFORE ENTERING THE RECOVERY CENTER

	USE AT INTAKE		USE AT FOLLOW-UP		PERCENT CHANGE ^a
	n	Valid %	n	Valid %	
OPIOID (EXCLUDING HEROIN)					
Men (n =115)	69	60.0%	9	7.8%	-87.0%***
Women (n = 120)	86	71.7%	6	5.0%	-93.0%***
Total (n = 235)	155	66.0%	15	6.4%	-90.3%***

a—Significance established using z-test for proportions; ***p < .001.

HEROIN, PAST 12-MONTH/6-MONTH USE

The number of individuals who reported using heroin decreased significantly by 86.8% in the period before entering the recovery center to the 6 months before follow-up (see Table AC.3). There was no significant difference in use of heroin at intake or follow-up by gender.

TABLE AC.3. HEROIN USE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD BEFORE ENTERING THE RECOVERY CENTER

	USE AT INTAKE		USE AT FOLLOW-UP		PERCENT CHANGE ^a
	n	Valid %	n	Valid %	
HEROIN					
Men (n =115)	41	35.7%	6	5.3%	-85.4%***
Women (n = 120)	35	29.2%	4	3.3%	-88.6%***
Total (n = 235)	76	32.3%	10	4.3%	-86.8%***

a—Significance established using z-test for proportions; ***p < .001.

CENTRAL NERVOUS SYSTEM (CNS) DEPRESSANTS, PAST 12-MONTH/6-MONTH USE

The number of individuals who reported using CNS depressants (e.g., tranquilizers, barbiturates, benzodiazepines, sedatives) decreased significantly by 93.5% in the 12 (or 6) months before entering the recovery center to the 6 months before follow-up (see Table AC.4). Significantly more women than men reported using CNS depressants in the period before intake; however, at follow-up there was no significant difference by gender.

TABLE AC.4. CNS DEPRESSANT USE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD BEFORE ENTERING THE RECOVERY CENTER

	USE AT INTAKE		USE AT FOLLOW-UP		PERCENT CHANGE ^a
	n	Valid %	n	Valid %	
CNS DEPRESSANTS					
Men (n =115)	41	35.7%	3	2.6%	-92.7%***
Women (n = 120)	66	55.0%	4	3.3%	-93.9%***
Total (n = 235)	107	45.5%	7	3.0%	-93.5%***

a—Significance established using z-test for proportions; ***p < .001.

b—Significant difference by gender at intake; tested with chi square test of independence (p < .01).

STIMULANTS, PAST 12-MONTH/6-MONTH USE

The number of individuals who reported using stimulants (e.g., amphetamine, methamphetamine, ecstasy, Ritalin) decreased significantly by 96.3% in the period before entering the recovery center to the 6 months before follow-up (see Table AC.5). There was no significant difference in use of stimulants at intake or follow-up by gender.

TABLE AC.5. STIMULANT USE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD BEFORE ENTERING THE RECOVERY CENTER

	USE AT INTAKE		USE AT FOLLOW-UP		PERCENT CHANGE ^a
	n	Valid %	n	Valid %	
STIMULANTS					
Men (n =115)	33	28.7%	2	1.7%	-93.9%***
Women (n = 120)	49	40.8%	1	0.8%	-98.0%***
Total (n = 235)	82	34.9%	3	1.3%	-96.3%***

a—Significance established using z-test for proportions; ***p < .001.

OTHER DRUGS, PAST 12-MONTH/6-MONTH USE

The number of individuals who reported using other illegal drugs (e.g., cocaine, inhalants, hallucinogens, synthetic marijuana) decreased significantly by 95.8% (see Table AC.6). There were no gender differences in the percentage of clients who reported using other illegal drugs at intake or follow-up.

TABLE AC.6. USE OF OTHER DRUGS FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD BEFORE ENTERING THE RECOVERY CENTER

	USE AT INTAKE		USE AT FOLLOW-UP		PERCENT CHANGE ^a
	n	Valid %	n	Valid %	
OTHER DRUGS					
Men (n =115)	61	53.0%	4	3.5%	-93.4%***
Women (n = 120)	57	47.5%	1	0.8%	-98.2%***
Total (n = 235)	118	50.2%	5	2.1%	-95.8%***

a—Significance established using z-test for proportions; ***p < .001.

CHANGE IN 30-DAY DRUG USE FROM INTAKE TO FOLLOW-UP FOR INDIVIDUALS NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE ENTERING THE RECOVERY CENTER

MARIJUANA, PAST 30 DAY USE

About half of individuals who were not in a controlled environment all 30 days before entering the recovery center (49.0%) reported they had used marijuana in the 30 days before entering the recovery center (see Table AC.7). By follow-up, only 5.4% of individuals reported they had used marijuana, which represents an 89.0% significant decrease. There was no significant difference in the percentage of men and women who reported past-30-day use of marijuana at intake or follow-up.

TABLE AC.7. MARIJUANA USE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE ENTERING THE RECOVERY CENTER

	USE AT INTAKE		USE AT FOLLOW-UP		PERCENT CHANGE ^a
	n	Valid %	n	Valid %	
MARIJUANA					
Men (n =76)	38	50.0%	6	7.9%	-84.2%***
Women (n = 73)	35	47.9%	2	2.7%	-94.3%***
Total (n = 149)	73	49.0%	8	5.4%	-89.0%***

a—Significance established using z-test for proportions; ***p < .001.

OPIOIDS (EXCLUDING HEROIN), PAST 30 DAY USE

Opioid use (other than heroin) decreased significantly by 96.3% from intake to follow-up (see Table AC.8). Significantly more women than men reported past-30-day use of opioids at intake. The number of women who reported past-30-day use of opioids decreased by 97.9% and the number of men who reported past-30-day use of opioids decreased by 94.1%.

TABLE AC.8. OPIOID USE (EXCLUDING HEROIN) FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE ENTERING THE RECOVERY CENTER

	USE AT INTAKE		USE AT FOLLOW-UP		PERCENT CHANGE ^a
	n	Valid %	n	Valid %	
OPIOID (EXCLUDING HEROIN) ^b					
Men (n =76)	34	44.7%	2	2.6%	-94.1%***
Women (n = 73)	47	64.4%	1	1.4%	-97.9%***
Total (n = 149)	81	54.4%	3	2.0%	-96.3%***

a—Significance established using z-test for proportions; ***p < .001.

b—Significant difference by gender at intake; tested with chi square test of independence (p < .05).

HEROIN, PAST 30 DAY USE

Overall 23.0% of individuals reported using heroin in the 30 days before they entered the recovery center (see Table AC.9). At follow-up, only 2.0% of individuals reported heroin use in the past 30 days—a significant decrease of 91.2% for the overall sample. There was a decrease of 85.7% for men and 100.0% for women in heroin use.

TABLE AC.9. HEROIN USE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE ENTERING THE RECOVERY CENTER

	USE AT INTAKE		USE AT FOLLOW-UP		PERCENT CHANGE ^a
	n	Valid %	n	Valid %	
HEROIN					
Men (n =75)	21	28.0%	3	4.0%	-85.7%***
Women (n = 73)	13	17.8%	0	0.0%	-100.0%***
Total (n = 148)	34	23.0%	3	2.0%	-91.2%***

a—Significance established using z-test for proportions; ***p < .001.

Note. One case had a missing value for heroin use at follow-up.

CNS DEPRESSANTS, PAST 30 DAY USE

Significantly more women (46.6%) than men (26.3%) reported using CNS depressants in the 30 days before intake. There were significant reductions in the number of men and women who reported using CNS depressants at follow-up (see Table AC.10).

TABLE AC.10. CNS DEPRESSANT USE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE ENTERING THE RECOVERY CENTER

	USE AT INTAKE		USE AT FOLLOW-UP		PERCENT CHANGE ^a
	n	Valid %	n	Valid %	
CNS DEPRESSANTS					
Men (n =76)	20	26.3%	1	1.3%	-95.0%***
Women (n = 73)	34	46.6%	2	2.7%	-94.1%***
Total (n = 149)	54	36.2%	3	2.0%	-94.4%***

a—Significance established using z-test for proportions; ***p < .001.

AMPHETAMINES, PAST 30 DAY USE

About one fourth of clients reported using amphetamines (e.g., speed, methamphetamine, Ritalin) in the 30 days before they entered the recovery center, with significantly more women than men reporting amphetamine use (see Table AC.11). At follow-up, no clients reported using amphetamines in the past 30 days.

TABLE AC.11. AMPHETAMINE USE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE ENTERING THE RECOVERY CENTER

	USE AT INTAKE		USE AT FOLLOW-UP		PERCENT CHANGE ^a
	n	Valid %	n	Valid %	
AMPHETAMINE					
Men (n =76)	13	17.1%	0	0.0%	-100%***
Women (n = 73)	23	31.5%	0	0.0%	-100%***
Total (n = 149)	36	24.2%	0	0.0%	-100%***

OTHER DRUGS, PAST 30 DAY USE

A little more than one third of individuals (36.3%) who were not in a controlled environment all 30 days reported they had used other illegal drugs (i.e., cocaine, hallucinogens, inhalants, and synthetic marijuana) in the 30 days before they entered the recovery center (see Table AC.12). At follow-up, only one individual had used other illegal drugs in the past 30 days, which was a significant decrease of 98.1%.

TABLE AC.12. CHANGE IN OTHER DRUG USE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT ALL 30 DAYS BEFORE ENTERING THE RECOVERY CENTER

	USE AT INTAKE		USE AT FOLLOW-UP		PERCENT CHANGE ^a
	n	Valid %	n	Valid %	
OTHER DRUG USE					
Men (n =75)	29	38.7%	1	1.3%	-96.6%***
Women (n = 71)	24	33.8%	0	0.0%	-100.0%***
Total (n = 146)	53	36.3%	1	0.7%	-98.1%***

a—Significance established using z-test for proportions; ***p < .001.

APPENDIX D

Length of Service, Doc-referral Status, and Targeted Outcomes

This section describes the relationship between the length of service (i.e., number of days between entry into the program and discharge), DOC referral status, and targeted outcomes at follow-up: (1) illegal drug or alcohol use (yes/no) and as average ASI alcohol and drug composite scores; (2) mental health (e.g., meeting criteria for depression or anxiety); (3) employment status (e.g., employed or unemployed), and (4) criminal justice system involvement (e.g., arrested at least once, spent at least one night incarcerated).

In the interest of examining how DOC-referral status and length of service may be related to one another and with program outcomes, we conducted multivariate analysis to examine these associations.

Individuals who were referred to the Recovery Kentucky programs by the DOC (249.5 days) did not have significantly different lengths of service in the programs compared to individuals who were not referred to the program by DOC (252.9 days; $t(1,276) = .288, p > .05$).

To better understand the relationship between DOC referral status, length of service in the recovery centers, and outcomes at follow-up, we conducted multivariate analyses. We ran several logistic regression models with separate binary outcomes as the dependent variable for each model. The outcomes examined were substance use (i.e., alcohol and/or drug use), meeting criteria for depression, meeting criteria for anxiety, employment status (yes/no), arrests, and incarcerated in the 6 months before follow-up. Gender, DOC-referral status, and length of service (in days) were included in the models as predictor variables. OLS regression was used to examine the relationship between the predictor variables (e.g., gender, DOC-referral status, and length of service) and outcomes that were continuous variables: the ASI Alcohol composite score, the ASI Drug composite score, and number of months employed in the 6 months before follow-up.

There were few statistically significant associations between the predictor and outcome variables. First, length of service was significantly associated with the odds of using alcohol or drugs in the 6 months before follow-up, such that shorter lengths of service were associated with greater odds of using alcohol or drugs in the 6 months before follow-up ($OR_{adj} = .991, p < .001$). Second, length of service was significantly associated with the odds of reporting generalized anxiety in the 6 months before follow-up. Shorter lengths of service were associated with greater odds of reporting generalized anxiety at follow-up ($OR_{adj} = .993, p < .01$).

Individuals who were referred to the Recovery Kentucky programs by DOC reported significantly fewer months of employment in the 6 months before follow-up. There were no significant associations between DOC-referral status or length of service and number of months employed in the 6 months before follow-up or the ASI Alcohol composite score and ASI Drug composite score at follow-up.

In conclusion, DOC-referral status and length of service were associated with few outcomes:

- Shorter length of service was associated with greater odds of using alcohol or drugs in the 6 months before follow-up;
- Shorter length of service was associated with greater odds of reporting generalized anxiety in the 6 months before follow-up.