FINDINGS FROM THE RECOVERY CENTER OUTCOME STUDY

2023 Annual Report

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Executive Summary

Recovery Kentucky was created to help individuals who are homeless or at risk of becoming homeless with recovery from substance abuse. There are currently 18 Recovery Kentucky centers across the Commonwealth, providing housing and recovery services for up to 2,200 persons simultaneously. The follow-up sample included in this report was comprised of clients from the 18 Recovery Kentucky centers.

Recovery Kentucky is a joint effort by the Kentucky Department for Local Government, the Department of Corrections, and Kentucky Housing Corporation. Local governments and communities at each Recovery Kentucky center location have also contributed greatly to making these centers a reality. This is the twelfth 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).

This 2023 report presents: (1) demographics and targeted factors for 1,548 individuals who entered Phase 1 in one of 18 Recovery Kentucky programs, agreed to participate in RCOS, who completed an RCOS intake interview in FY 2021; and (2) outcomes for 283 men and women who were randomly selected and completed a 12-month follow-up survey between July 2021 and June 2022 (FY 2022). In addition, this report includes analysis and estimates of avoided costs to society in relation to the cost of recovery service programs.

Overall, in FY 2021, 1,548 clients from 18 participating Recovery Kentucky programs across the state completed the RCOS intake interview. Information from those intakes indicates that clients were an average of 36 years old ranging from 19 to 72 years old. More than half of clients were male (62.6%) and 37.3% were female, which has been the case for the 2019, 2020, and 2021 reports as well, because a larger number of centers are for male clients.[1] The majority of clients (82.3%) self-reported they were referred to the recovery center by the criminal justice system (e.g., judge, probation officer, Department of Corrections).

Comparisons of clients who completed a follow-up survey and clients who did not for any reason (e.g. not selected into the follow-up sample, never successfully contacted to complete the follow-up survey) on intake information was conducted. Results show there was only two significant differences in this year's report data and one was a result of the stratification by gender when selecting the follow-up sample: significantly more clients who completed a follow-up interview were female compared to clients who did not complete

[1] Of the 18 Recovery Kentucky programs included in the intake sample, 10 provided services to men and 8 to women.

a follow-up interview. Second, significantly more followed-up clients reported using opioids in the 6 months before entering the program compared to clients who did not complete a follow-up interview.

Substance Use

RCOS clients are predominately polysubstance users when they enter Recovery Kentucky programs with a history of prior substance abuse treatment. Only 34.7% of clients who completed an intake interview reported the following: no substance use, alcohol use only, or alcohol use and only one drug class in the 6 months before they entered the program.[2] Nearly one-half of clients who were not in a controlled environment 180 days before entering the program (47.5%) reported using 3 or more drug classes with or without alcohol alcohol in the 6-month period.

A trend analysis shows that the age of first use of alcohol, illegal drugs, and smoking tobacco has remained steady for the past ten fiscal years. Clients' average age of first alcoholic drink is consistently younger than the age reported for illegal drug and tobacco use while smoking and drug use tend to co-occur at similar ages.

A trend analysis from FY 2010 to FY 2020 intake data examining substance use patterns before entering the program shows that even though a higher percentage of clients reported using opioids than using heroin each fiscal year, the percent of clients reporting they misused prescription opioids and non-prescribed methadone has decreased while the percentages of clients that used heroin and methamphetamine have increased. In FY 2018, the percent of clients who had reported they had used prescription opioids and methamphetamine were the same: 54%.

"I owe that place my life. There's nothing those people have done wrong by me. Very special place for me. Changed my life."

- RCOS FOLLOW-UP CLIENT

In FY 2019 a higher percent of RCOS clients reported they had used methamphetamine in the past 6 months than had used prescription opioids, which was the first year this has happened in the RCOS sample. This pattern continued into FY 2021, with 56% of clients reporting methamphetamine use and 41% reporting prescription opioid use in the 6 months before entering the program. This trend corresponds to other data sources, including the National Drug Use and Health Survey.[3]

Decreases in substance use from intake to follow-up were statistically significant. Specifically, 88.6% of clients indicated they used illegal drugs in the 6 months before entering the recovery center and during the 6-month follow-up period, 14.6% of clients reported using

[2] This is the percent among individuals who were not in a controlled environment all 180 days before entering the program.

[3] Substance Abuse and Mental Health Services Administration. (September, 2020). *Key substance use and mental health indicators in the United States: Results from the 2019 National Survey on Drug Use and Health* (HHS Publication No. PEP20-07-01-001, NSDUH Series H-55). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. https://www.samhsa.gov/data.

illegal drugs. There was a similar trend for alcohol use as 41.1% of clients reported using alcohol in the 6 months before entering the recovery center and only 8.2% reported using alcohol during the follow-up period. Furthermore, the percent of individuals who met criteria for severe substance use disorder (SUD) decreased significantly from 79.6% at intake to 6.9% at follow-up.

Mental Health

There were also significant improvements in mental health over time for clients. The majority of clients (75.4%) met study criteria for either depression or generalized anxiety at intake. By follow-up, only 26.3% met study criteria for either depression or anxiety. The majority of clients (59.1%) met study criteria for depression at intake and at follow-up, there was a significant decrease to 13.5%. At intake, around 7 in 10 (67.6%) of clients reported symptoms that met study criteria for generalized anxiety and at follow-up, 23.4% of clients met study criteria for generalized anxiety. In addition, there was a significant decrease in the number of clients who met study criteria for comorbid depression and generalized anxiety from 51.3% at intake to 10.5% at follow-up.

The percent of clients reporting suicide ideation and/or attempts decreased significantly from 24.4% at intake to 2.5% at follow-up. Three in 10 clients (30.3%) screened positive for PTSD at intake. At follow-up, only 13% individuals screened positive for PTSD, which was a significant decrease.

Physical Health

General health status also improved from intake to follow-up. Only 24.7% of clients reported their health was very good or excellent at intake. By follow-up that percent had increased to 72.4%. The average number of days of poor physical or mental health clients reported in the prior 30 days significantly decreased from intake to follow-up. One-fifth of clients (20.8%) reported chronic pain at intake and that number decreased to 13.8% at follow-up.

Overall, Recovery Kentucky clients made significant strides in all of the targeted areas

REPORTED ANY ILLEGAL DRUG USE***

91% at intake | **19%** at follow-up

MET STUDY CRITERIA FOR EITHER DEPRESSION OR GENERALIZED ANXIETY***

77% at intake | **36%** at follow-up

CURRENTLY HOMELESS***

31% at intake | **4%** at follow-up

ATTENDED MUTUAL HELP RECOVERY MEETINGS***

28% at intake | **72%** at follow-up

Criminal Justice Involvement

The percent of clients who reported being arrested decreased significantly from before entering the recovery center (55.8%) to after involvement in the program (9.5%). Likewise, the percent of clients reporting they spent at least one day in jail or prison decreased from 78.8% at intake to 11.3% at follow-up. Additionally, the percent of individuals who reported they had been convicted for a misdemeanor and felony decreased significantly from intake to follow-up. About 77.7% of clients were under criminal justice system supervision at intake and that percent decreased significantly to 60.1% at follow-up.

Quality of Life

Clients reported a significantly higher quality of life after the program. On a scale of 1 (worst imaginable) to 10 (best imaginable), the average quality of life rating at intake was a 3.9. This increased significantly to 8.6 at follow-up.

Education and Employment

Education and employment improved from intake to follow-up. At intake, 81.2% of clients had a high school diploma/GED or higher degree and this increased to 87.0% at follow-up. Half of clients (43.5%) reported working at least 1 month in the 6 months before program entry and 82.7% reported working at least 1 month during the follow-up period, representing a 39.2% increase.

Living Situation

The percent of clients who considered themselves currently homeless decreased from 29.1% at intake to 10.8% at follow-up. Similar percentages of clients reported their usual living situation in the 6 months before entering the program was in jail or prison (44.2%) and in a private residence (their own home or someone else's home; 44.5%). At follow-up, the majority of clients (76.3%) reported their usual living situation was a private residence and only 0.4% of the clients reported their usual living situation had been in jail or prison at follow-up. For those who completed a follow-up, 7.4% (n = 21) were still involved with the program at the time of the follow-up, [4] with 57.9% of those clients in Phase II, 10.5% in Phase I, 15.8% in Motivational Track, and 15.8% in Safe Off the Streets.

Further, at intake 32.7% of clients reported they had difficulty meeting basic living needs (e.g., food, shelter, utilities, telephone). By follow-up, this number had decreased significantly to 19.6%. The percent of individuals who reported having difficulty obtaining health care for financial reasons (e.g., doctor, dental, and prescription medications) was 21.0% at intake and decreased slightly, but not significantly to 14.6% at follow-up.

Recovery Support

At follow-up, there was a significant increase in the percent of individuals reporting they had gone to mutual help recovery group meetings in the past 30 days, from 29.2% at intake to 81.1% at follow-up. Further, of

[4] Two individuals had missing data on which phase of the program they were currently in.

those who did not attend meetings at intake (n = 199), 78.4% did attend meetings at follow-up.

There was a significant increase in the percent of clients who had interactions with family and friends who were supportive of their recovery as well as the percent of clients who had supportive interactions with an AA/NA sponsor. The average number of people individuals reported they could count on for recovery support significantly increased from intake (6.3) to follow-up (19.1). Additionally, the majority of clients (92.6%) reported they felt their chances of getting off and staying off drugs or alcohol was moderately or very good at follow-up.

Multidimensional Recovery

In the follow-up sample, only 1.4% of the clients had all positive dimensions of recovery at intake. By follow-up, 62.7% of clients had all positive dimensions of recovery.

Program Satisfaction

Results show that clients were largely satisfied (overall average of 8.5 out of 10 as the highest possible score) with their Recovery Kentucky program experience. The majority of clients agreed with a number of statements about positive aspects of the recovery program experience. For example, the majority of clients reported that: program staff believed in them and that the program would work for them, they felt the program staff cared about them and their progress, they worked on and talked about the things that were most important to them, their expectations and hopes for the program and recovery were met, they had input into their goals and how they were progressing over time, they had a connection with a staff person during the program, the program approach and method was a good fit for them, and when clients spoke about personal things they felt listened to by their counselors and staff. Nearly 7 in 10 (69.1%) reported the program length was just right as opposed to too short or too long (30.9%). The majority of clients stated that the beginning of the program was good for them, but an even higher percent reported the program ending was good for them. The majority of clients stated the program worked extremely well (69.1%) or pretty well (20.9%) for them. Only a small minority reported the program worked somewhat for them (6.4%), and 3.5% reported the program did not work at all for them. Clients reported the biggest benefits of the program were their reduced substance use, positive interactions and relationships with other people, improved mental health and feelings about self, major positive life changes, and spirituality.

Analysis of Relapse

Using a logistic regression, targeted factors were examined in relation to having reported drug and/or alcohol use in the 6 months before follow-up. Results of the analysis show when controlling for intake variables in the model, number of nights incarcerated and number of months in the program were associated with relapse during the

follow-up period.

Length of Service

Overall, the clients who were followed up received, on average, about 7.6 months of services from the recovery centers. Clients who were referred to the program by DOC had significantly longer stays in the recovery centers compared to clients who were not referred by DOC (240.8 days vs. 211.0 days, $t(280) = -2.424$, $p < .05$).

Multivariate analysis examining the relationship between length of service, DOC referral status, and several targeted outcomes showed no significant associations between DOC referral status and the outcomes, but significant associations were found between length of service and five outcomes at follow-up. Specifically, lower length of service was associated with greater odds of:

- using drugs or alcohol in the preceding 6 months
- meeting criteria for depression or anxiety
- being arrested in the preceding 6 months
- being incarcerated in the preceding 6 months

Greater length of service was associated with greater odds of:

- being employed full-time or part-time.

Cost Estimate

Examining the total costs of drug and alcohol abuse to society in relation to expenditures on recovery services, estimates suggest that for every dollar invested in Recovery Kentucky programs there was a $2.00 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).

Overall, evaluation results indicate that Recovery Kentucky programs have been successful in facilitating positive changes in clients' lives in a variety of areas including decreased substance use, improved mental health and physical health, decreased involvement in the criminal justice system, improved education and employment situations, and improved living circumstances. These trends in decreases in substance use, mental health symptoms, physical health problems, homelessness, economic hardship, and involvement in the criminal justice system as well as increases in quality of life, employment, and recovery supports have remained consistent over time across multiple annual reports. For example, trends show the vast majority of clients have reported illegal drug use in the 6 months before entering the program, with only 5.0% to 19.3% reporting illegal drug use at follow-up across the 12 years examined. Moreover, examining RCOS clients' multiple dimensions of recovery, the majority reported having all positive dimensions of recovery at follow-up. Results also suggest clients appreciate their experiences in the recovery centers and believe the program was helpful, worked for them, and was a good fit for them.

Overview of Report

Recovery Kentucky was created to help vulnerable Kentuckians recover from substance abuse. In particular, Recovery Kentucky was designed to serve those who are homeless or at risk of becoming homeless who want to address their addiction. There are currently 18 Recovery Kentucky centers across the Commonwealth, providing housing and recovery services for up to 2,200 persons simultaneously.

Recovery Kentucky is a joint effort by the Kentucky Department for Local Government, the Department of Corrections, and Kentucky Housing Corporation. Local governments and communities at each Recovery Kentucky center location have also contributed greatly to making these centers a reality.[5]

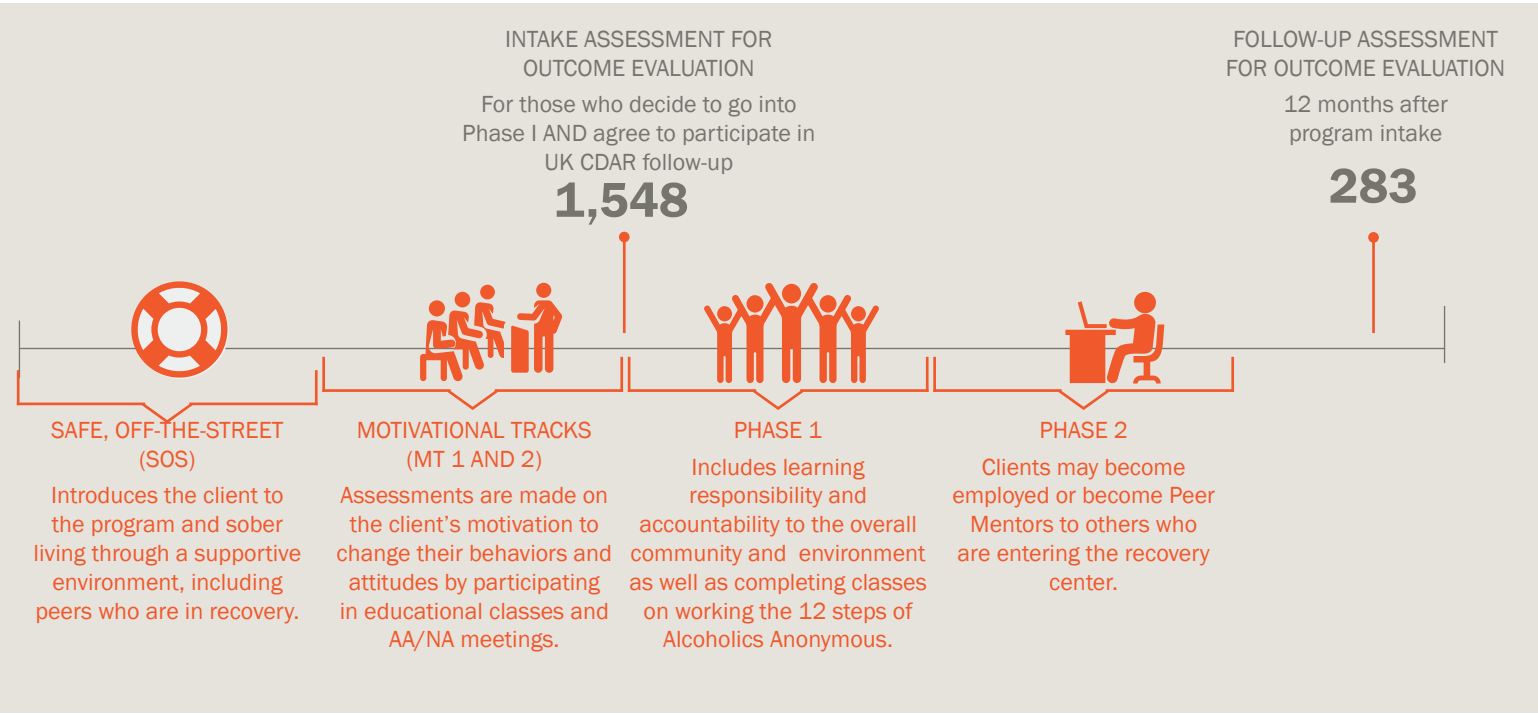
This is the twelfth annual Recovery Center Outcome Study (RCOS) follow-up report conducted by the Behavioral Health Outcome Study team at the University of Kentucky Center on Drug and Alcohol Research (UK CDAR). All 18 currently established Recovery Kentucky programs participated in this year's Recovery Center Outcome Study (RCOS) by having clients who completed intake and follow-up interviews for this year's report.[6]

Figure 1 below shows the program modules and how the RCOS fits into the timing of the program modules. The first component of the program is the Safe, Off-the-Street (SOS) program which lasts about 3-7 days. Once clients successfully complete SOS they move into the Motivational Tracks which includes assessments of a client's readiness for recovery. Motivational Tracks I and II last approximately 5-6 weeks. After SOS and the Motivational Tracks are completed clients enter Phase I. Phase I lasts about 5 months on average, and then clients can move to Phase 2 which can last 6 months or more. If clients drop out of the program during the motivational tracks or Phase I, they may reenter the program but will restart the SOS program.

[5] For more information about Recovery Kentucky, contact KHC's Mike Townsend toll-free in Kentucky at 800-633-8896 or 502-564-7630, extension 715; TTY711; or email MTownsend@kyhousing.org.

[6] 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; and Sky Hope Recovery Center.
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; Hickory Hill Recovery Center – Knott County; Men's Addiction Recovery Campus—Bowling Green; and Genesis Recovery Kentucky Center--Grayson.

FIGURE 1. PROCESS OF RECOVERY KENTUCKY PROGRAM PARTICIPATION



Recovery Kentucky staff conduct a face-to-face interview with clients as they enter Phase 1; thus, only individuals who have progressed through Safe, Off-the-Street, Motivational Tracks 1 and 2, and have entered Phase 1 are offered the opportunity to participate in the outcome evaluation. At the Phase 1 intake, an evidence-based assessment is used to inform about substance use, mental health symptoms, adverse childhood experiences and victimization experiences, health and stress, criminal justice involvement, quality of life, education and employment status, living situation, and recovery supports prior to entering the recovery center.[7] Most items in the intake interview ask about the 6 months or 30 days before clients entered the recovery center. Then, an evidence-based follow-up interview is conducted with a selected sample of clients about 12 months after the intake interview is completed (see Figure 1). Follow-up interview items ask about the past-6-month or past-30-day periods. Interviewers at UK CDAR conduct the follow-up interviews over the telephone. Clients' responses to the follow-up interviews are kept confidential to help facilitate an honest evaluation of client outcomes and satisfaction with program services and in accord with human participations protections guidelines.

Trends across report years are presented throughout this report. Statistical tests of significant change across report years were not conducted. Descriptions of changes in percentages of individuals across report years are descriptive only. However, changes from intake to follow-up were analyzed with statistical tests of significance. Results are presented for the overall sample and by gender when there were statistically significant gender differences. There are thirteen main sections including:

[7] Logan, T., Cole, J., Miller, J., Scrivner, A., & Walker, R. (2020). Evidence Base for the Recovery Center Outcome Study Assessment and Methods. Lexington, KY: University of Kentucky, Center on Drug and Alcohol Research. (Available upon request).

Section 1. Overview of RCOS Methods and Client Characteristics. This section briefly describes the Recovery Center Outcome Study (RCOS) method including how clients are selected into the follow-up sample for 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, 2020 and June 30, 2021. This section also describes characteristics for clients who completed a 12-month follow-up survey conducted by UK CDAR between July 1, 2021 and June 30, 2022.

Section 2. Substance Use. This section describes change in illegal drug, alcohol, tobacco and vaporized nicotine use for clients. Past-6-month 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.

Section 3. Mental Health and Physical Health. This section describes change in mental health, stress, and physical health including the following factors: (1) depression, (2) generalized anxiety, (3) comorbid depression and generalized anxiety, (4) suicidal thoughts or attempts, (5) posttraumatic stress symptoms, (6) general health status, and (7) chronic pain.

Section 4. 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, (3) self-reported misdemeanor and felony convictions, and (4) self-reported supervision by the criminal justice system.

Section 5. Quality of Life Ratings. This section shows change over time for one measure of quality of life from intake to follow-up.

Section 6. Education and Employment. This section examines changes in education and employment including: (1) highest level of education completed, (2) the percent 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 6 months prior to program entry, (4) median hourly wage among employed individuals, and (5) the percent of clients who expect to be employed in the next 6 months.

Section 7. Living Situation. This section examines the clients' living situation before they entered the program and at 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) about economic hardship.

Section 8. Multidimensional Recovery. This section describes change from intake to follow-up in a measure of multiple dimensions of recovery that is based on: having no substance use disorder, being employed full-time or part-time, not being homeless, having no arrests or incarceration, having no suicidal thoughts or attempts, having fair to excellent health, having recovery support, and having a mid to high quality of life. Change in the multidimensional measure of recovery from intake to follow-up is presented.

Furthermore, a multivariate analysis was conducted to examine the intake indicators of having all positive dimensions of recovery at follow-up.

Section 9. Recovery Supports. This section focuses on five main changes in recovery supports: (1) attending mutual help recovery group meetings, (2) recovery supportive interactions in the past 30 days, (3) the number of people the individual said they could count on for recovery support, (4) what will help them stay off drugs or alcohol, and (5) how good their chances are of staying off drugs or alcohol.

Section 10. Client Satisfaction with Recovery Kentucky Programs. This section describes three aspects of client satisfaction: (1) overall client satisfaction, (2) client ratings of program experiences, and (3) client ratings of most positive outcomes of program participation.

Section 11. Multivariate Analysis of Relapse. This section presents a comparison of those who reported drug and/or alcohol use at follow-up and those who did not on targeted factors. It also focuses on a multivariate analysis examining factors related to relapse in the 2023 RCOS follow-up sample.

Section 12: 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 of drug and alcohol use for the year before individuals were in recovery and then for the same individuals in the year following entry to Phase I.

Section 13. 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 I of a recovery center program and participated in RCOS between July 1, 2020 and June 30, 2021.

RCOS Intake Sample

RCOS is comprised of a face-to-face intake interview using an evidence-based assessment conducted by recovery center staff with clients as they enter Phase I. This interview includes demographic questions as well as questions in four main targeted factors (substance use, mental health symptoms, criminal justice system involvement, and quality of life) and four supplemental areas (health and stress-related health consequences, adverse childhood experiences and victimization experiences, economic and living circumstances, and recovery supports).[8] Intake interviews are conducted with clients as they enter Phase I of the recovery center programs. Items related to adverse childhood experiences and interpersonal victimization experiences and overdose ask about lifetime experiences. However, most intake interview items ask about the 6 months or 30 days before clients entered the recovery center (i.e., intake). This report examines responses on intake interviews conducted between July 1, 2020 and June 30, 2021 (i.e., FY 2021) for 1,548 clients.[9]

Because some of the clients included in this year's report were reporting on conditions and experiences that occurred before the COVID pandemic shutdowns began on March 16, 2020 in Kentucky, we conducted an analysis comparing intake characteristics and factors of clients who were reporting fewer than 3 of the 6 months overlapping with the pandemic shutdown (n = 182, 11.8%) and clients who had more than 3 of the 6 months they reported on happening during the pandemic (n = 1,366, 88.2%). Results of this analysis showed only a couple differences between clients. Specifically, significantly fewer of the clients who were in the pandemic period were female; significantly more of the pandemic period clients had children under the age of 18 living with them, and pandemic period clients reported attending significantly fewer mutual help recovery meetings before entering the program compared to clients in the pre-pandemic period. A more detailed report of the findings will be developed on a merged data set of multiple reports' data.

[8] For more information about the evidence-based assessment, see: Logan, T., Cole, J., Miller, J., Scrivner, A., & Walker, R. (2020). *Evidence Base for the Recovery Center Outcome Study Assessment and Methods*. Lexington, KY: University of Kentucky, Center on Drug and Alcohol Research. (Available upon request).

[9] 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.

Characteristics of RCOS Clients at Phase I Intake

Demographics

Table 1.1 presents demographic information on clients with an intake survey completed in FY 2021. Clients' average age was 36.3 years old and men made up 62.6% of the sample. The majority of clients (91.0%) were White and 6.3% were Black, 0.4% were Hispanic, 1.9% were multiracial, and the remaining 0.4% reported they were American Indian or Asian or Pacific Islander. Less than half of the RCOS clients reported they had never been married and were not cohabiting at intake (43.9%), 32.8% were separated or divorced, 21.2% were married or cohabiting, and 2.1% were widowed. The majority of RCOS clients (57.2%) had children under the age of 18. A small minority of individuals (2.6%) reported they were currently serving in the military or a veteran.

TABLE 1.1. DEMOGRAPHICS FOR ALL RCOS CLIENTS AT PHASE I INTAKE IN FY 2021 (N = 1,548)[10]

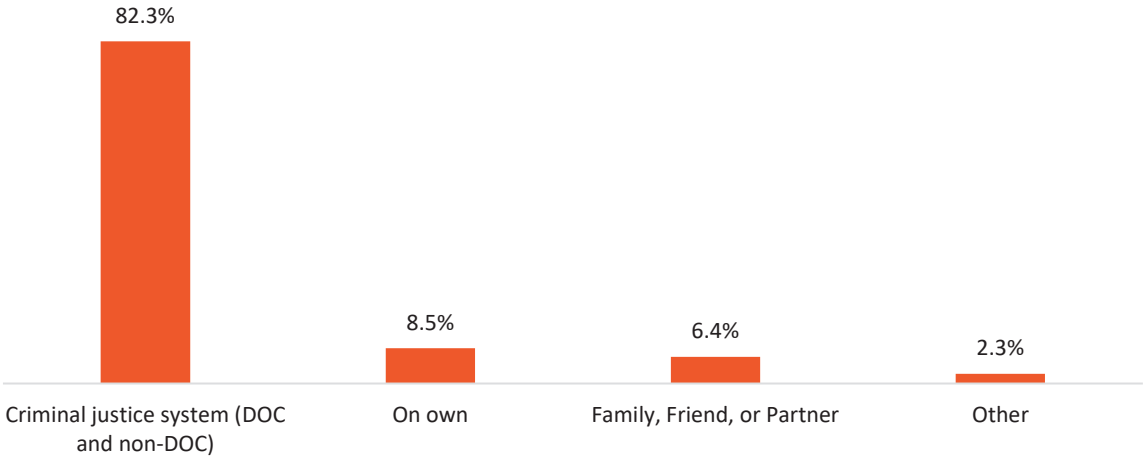
Age	36.3 *(Min. = 19, Max. = 72)*
Gender	
Male	62.6%
Female	37.3%
Transgender	0.1%
Race	
White	91.0%
Black/African American	6.3%
Hispanic	0.4%
Asian, Pacific Islander, or American Indian	0.4%
Multiracial	1.9%
Marital Status	
Never married (and not cohabiting)	43.9%
Separated or divorced	32.8%
Married or cohabiting	21.2%
Widowed	2.1%
Has children under 18 years old	57.2%
Active duty or military veteran	2.6%

[10] Fourteen clients had missing or invalid data for date of birth; thus, their age was not calculated. One client had missing data about their race/ethnicity, and five clients had missing information about the number of their children under the age of 18.

Self-reported Referral Source

Figure 1.1 shows the self-reported referral source for RCOS clients. Four-fifths of clients (82.3%) self-reported they were referred to the recovery center by the criminal justice system (e.g., judge, probation officer, Department of Corrections). The next two largest referral categories were the client decided to get help on his/her own (8.5%) and the client was referred to the recovery center by a relative, friend, or partner (6.4%). The remaining 2.3% indicated another referral source such as a treatment program, a health care provider, a mental health care provider, or another recovery center. In a separate question, 77.6% of clients reported that the court or other state agency ordered them to participate in a recovery center program (not depicted in a figure).

FIGURE 1.1. REFERRAL SOURCE FOR ALL RCOS CLIENTS (N = 1,548)



Substance Use

The majority of clients reported using illegal drugs and smoking tobacco in the 6-month period before entering the recovery center (see Figure 1.2). About two-fifths of clients reported any alcohol use and more than one-third of clients reported using vaporized nicotine in the 6 months before entering the program.[11] 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.[12]

[11] Because being in a controlled environment reduces access to alcohol and illegal drugs, individuals who were in a controlled environment the entire intake 6-month period of the study (n = 354) were not included in the analysis of substance use during that period.

[12] Because being in a controlled environment reduces access to alcohol and illegal drugs, individuals who were in a controlled environment the entire intake 30-day period assessed for the study (n = 805) are not included in the analysis of substance use during that period.

FIGURE 1.2. ALCOHOL, DRUG AND TOBACCO USE 6 MONTHS AND 30 DAYS BEFORE ENTERING RECOVERY CENTER

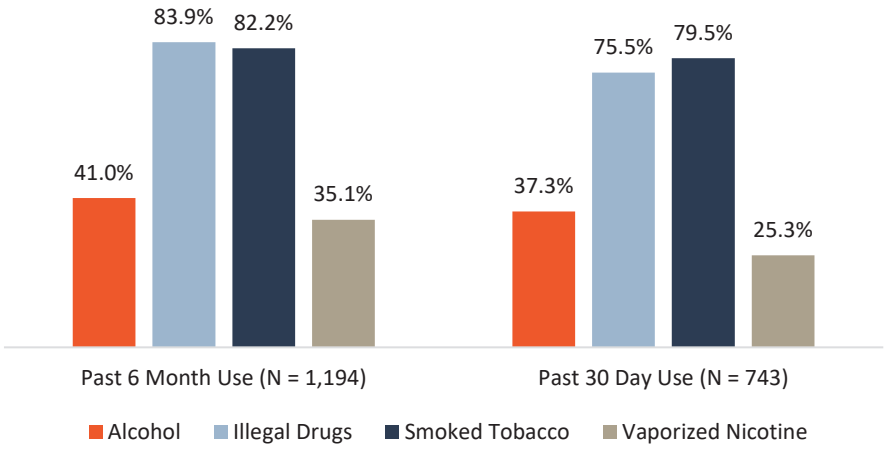


Figure 1.3 presents the percent distribution of individuals who used alcohol and/or illegal drugs in the 6 months before entering the program. The largest percentage of clients reported using illegal drugs solely (41.9%), and an additional 28.2% reported alcohol and illegal drug use. Among the individuals who were not incarcerated all 180 days before entering the program, 48% reported illegal drug use solely and 35.9% reported alcohol and illegal drug use.

FIGURE 1.3. PAST-6-MONTH ALCOHOL AND ILLEGAL DRUG USE AT INTAKE FOR THE TOTAL SAMPLE (N = 1,548) AND FOR THOSE NOT INCARCERATED ALL 180 DAYS BEFORE ENTERING THE PROGRAM (N = 1,194)

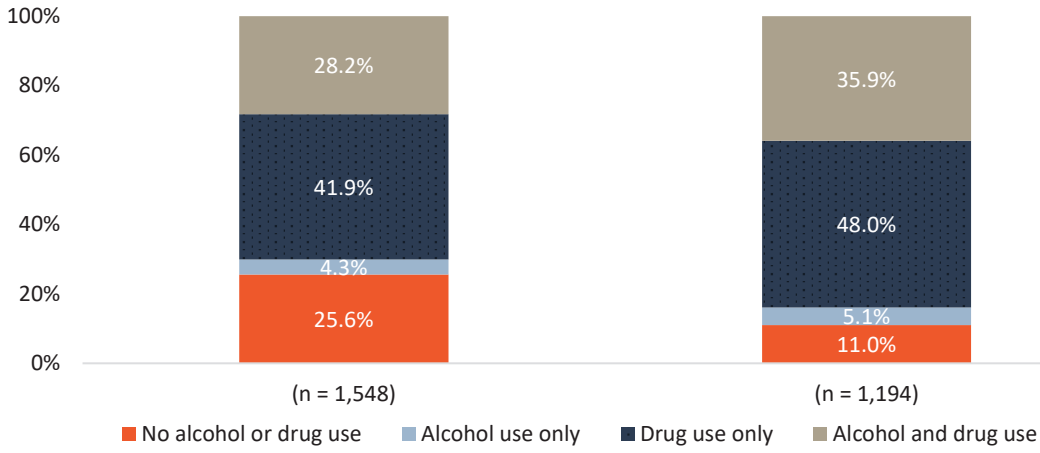
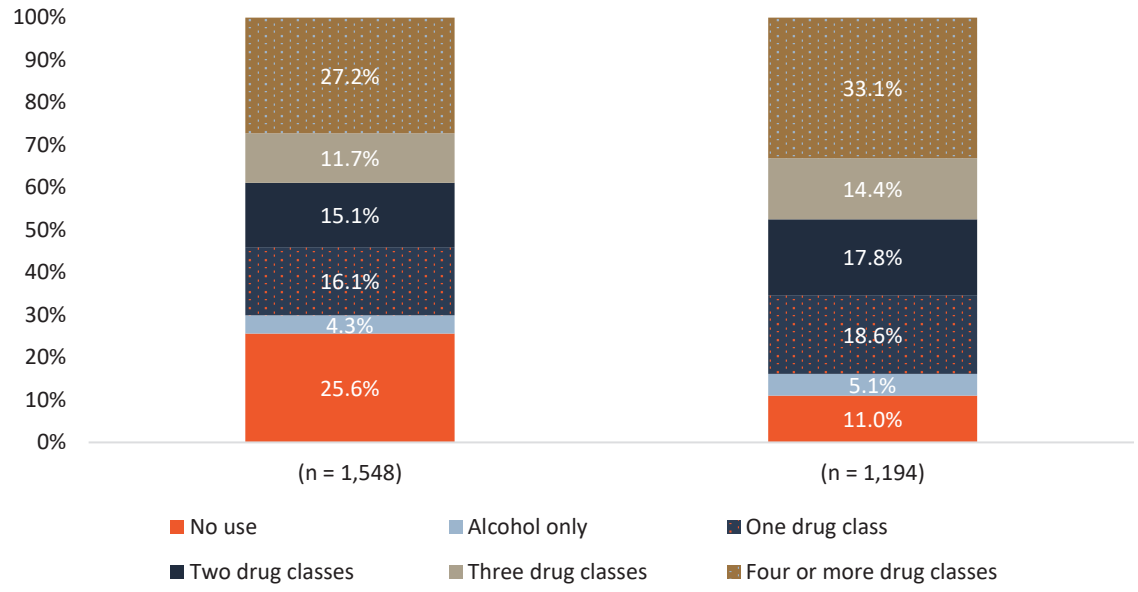


Figure 1.4 presents the percentages of RCOS clients who reported using no drugs, alcohol only, and then various numbers of drug classes from the following: marijuana, opioids (including prescription opioids, buprenorphine, methadone), heroin, CNS depressants (such as benzodiazepines, sedatives, barbiturates), stimulants (including amphetamines and cocaine), and other classes such as hallucinogens, synthetic marijuana, and inhalants. RCOS clients are predominately polysubstance users when they enter programs. Among

clients who were not in a controlled environment 180 days before entering the program, only 34.7% of clients reported either no substance use, alcohol use only, or alcohol use with only one drug class while over half reported using 2 or more drug classes (65.3%). In fact, about one-third of clients (33.1%) reported using 4 or more drug classes in the 6 months before entering the program.

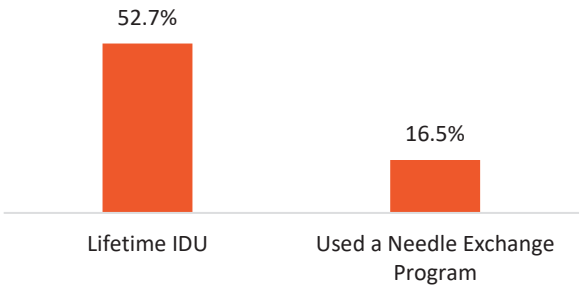
FIGURE 1.4. PAST-6-MONTH POLYSUBSTANCE USE AT INTAKE FOR THE TOTAL SAMPLE (N = 1,548) AND FOR THOSE NOT INCARCERATED ALL 180 DAYS BEFORE ENTERING THE PROGRAM (N = 1,194)



Nearly three-fourths of clients (73.5%) reported they had ever attended substance abuse treatment in their lifetime.

More than half of clients (52.7%) had injected drugs in their lifetime. About 16.5% of the entire sample (or 31.3% of those who had ever reported they had injected drugs) reported they had used a Needle Exchange program in Kentucky (see Figure 1.5).

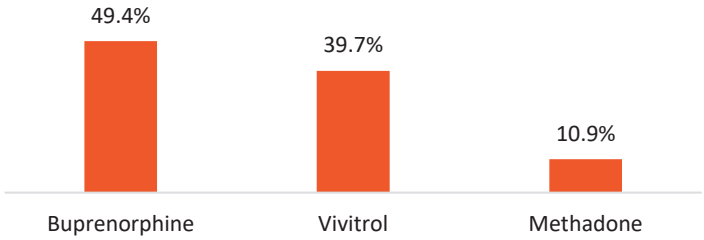
FIGURE 1.5. LIFETIME INJECTING DRUG USE AND USED NEEDLE EXCHANGE PROGRAM (n = 1,548)



Among the 1,548 individuals who were asked about lifetime participation in MAT, 28.5% (n = 441) reported they had ever participated in MAT in their lifetime.

At intake, 13.9% (n =215) of clients reported they had participated in medication-assisted treatment (MAT) in the 6 months before entering the recovery center. Among the 441 clients who reported they had ever in their lifetime participated in MAT, the most recently taken medication was: buprenorphine (e.g., Suboxone, Subutex) for 49.4%, Vivitrol for 39.7%, and methadone for 10.9% (see Figure 1.6).

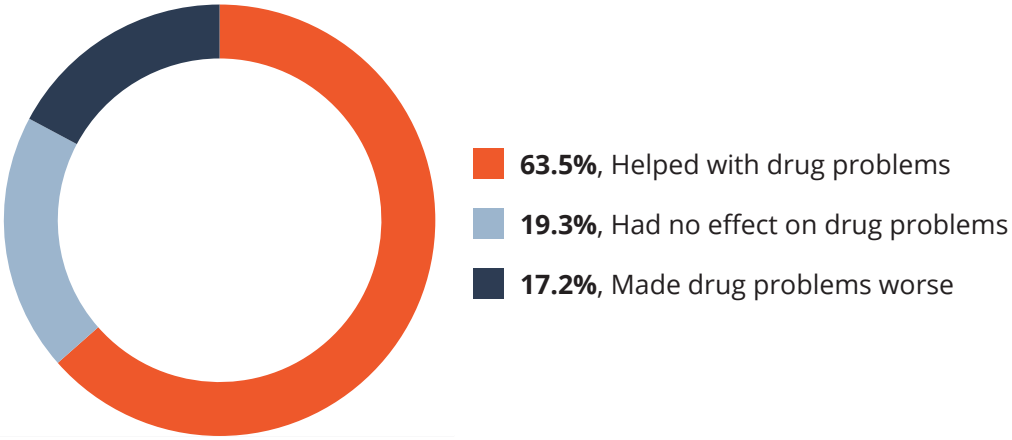
FIGURE 1.6. MEDICATIONS MOST RECENTLY TAKEN IN MEDICATION-ASSISTED TREATMENT AMONG CLIENTS WHO REPORTED LIFETIME PARTICIPATION IN MAT (n = 441)



Among the 215 individuals who reported they had participated in MAT in the 6 months before entering the recovery center, individuals reported using a medication prescribed for them in MAT for an average of 2.9 months out of the past 6 months and an average of 10.3 days out of the past 30 days (not depicted in a figure). Of the individuals who reported participating in MAT in the 6 months before entering the recovery program (n = 215), 32.4% obtained the medication from a physician in a general medical practice, 40.4% obtained the medication from a physician in a specialty clinic, and 27.2% obtained the medication from an OTP clinic. Of the individuals who reported participating in MAT in the 6 months before entering the recovery program, the majority stated the prescribed medication had helped with their drug problem (63.5%), 17.2% stated the medication made their drug problem worse, and 19.3% stated the medication had no effect on their drug problems (see Figure 1.7).[13] Of clients who reported past-6-month participation in MAT, 15.4% reported they had received a prescribed medication within the past 48 hours.

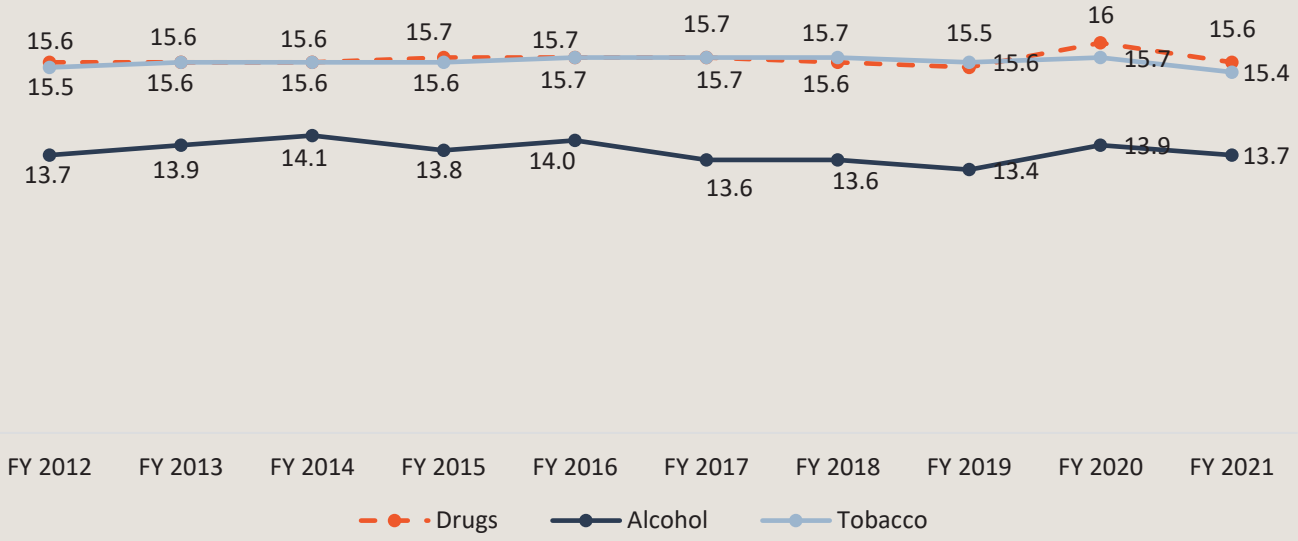
[13] One client had a missing value for the question about the degree to which the prescribed medication helped their drug problem.

FIGURE 1.7. CLIENTS' PERCEPTION OF HOW HELPFUL THE PRESCRIBED MEDICATION WAS FOR THEIR DRUG PROBLEMS (n = 215)



TREND ALERT: AGE OF FIRST USE

Clients were asked, at intake, how old they were when they first began to use illegal drugs, when they had their first alcoholic drink (more than a few sips), and when they began smoking regularly.[14] The age of first use for each substance has remained steady for the first eight fiscal years. In FY 2020, the average age of first use of illegal drugs (15.6) was higher than in previous years. Clients' average age of first alcoholic drink is consistently younger than the age reported for illegal drug and tobacco use while initiation of smoking regularly and drug use tend to co-occur at similar ages.

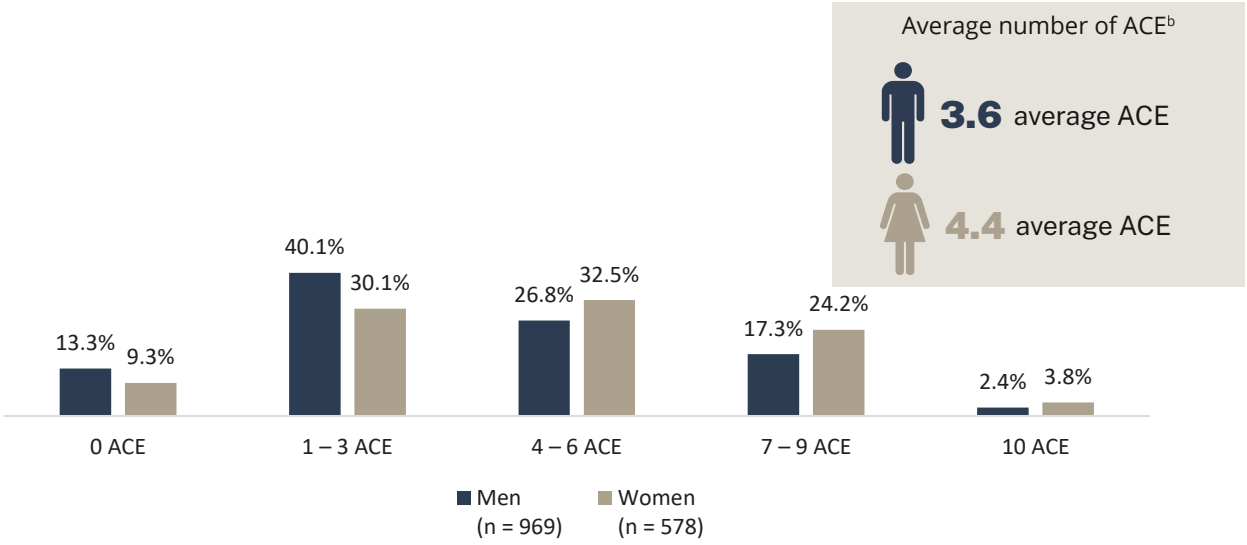


[14] The data reported here is for the entire RCOS intake sample over the past ten fiscal years of intake data, regardless of whether or not they were in a controlled environment.

Adverse Childhood Experiences

Items about ten adverse childhood experiences from the Adverse Childhood Experiences Study (ACE) were included in the intake interviews.[15, 16, 17] In addition to providing the percent of men and women who reported each of the 10 types of adverse childhood experiences before the age of 18 years old captured in ACE, the number of types of experiences was computed such that items individuals answered affirmatively were added to create a score equivalent to the ACE score. A score of 0 means the participant answered "No" to the five abuse and neglect items and the five household dysfunction items in the intake interview. A score of 10 means the participant reported all five forms of child maltreatment and neglect, and all 5 types of household dysfunction before the age of 18. The average number of ACE clients reported was 3.9 (not depicted in figure). Figure 1.8 shows that 13.3% of men and 9.3% of women reported experiencing none of the ACE included in the interview. Two-fifths of men reported experiencing 1 to 3 ACE, a little more than one-fourth of men reported experiencing 4 – 6 ACE, and 17.3% of men reported 7 – 9 ACE. A very small percent reported experiencing all 10 types of adverse childhood experiences. Significantly more men than women reported experiencing 0 types of ACE, and 1 – 3 types of ACE, whereas significantly more women than men reported experiencing 7 – 9 types of ACE (24.2% vs. 17.3%).

FIGURE 1.8. NUMBER OF TYPES OF ADVERSE CHILDHOOD EXPERIENCES BY GENDER (n = 1,547)[18]



a—Statistically significant difference by gender, tested with chi square ($p < .001$).
b—Statistically significant difference by gender, tested with student t-test ($p < .001$).

[15] Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine, 14*(4), 245-258.

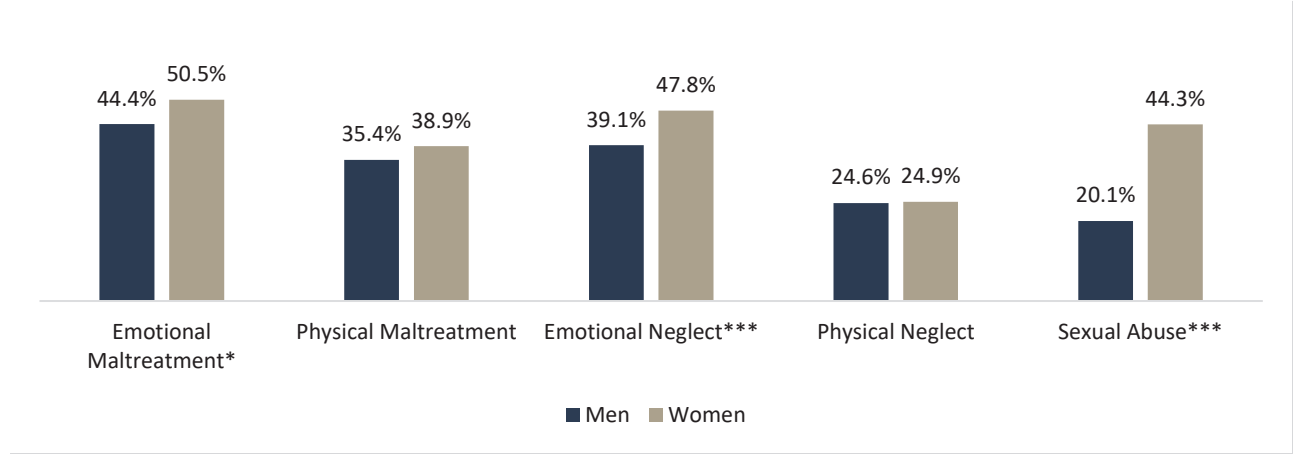
[16] Centers for Disease Control and Prevention. (2014). *Prevalence of individual adverse childhood experiences*. Atlanta, GA: National Center for Injury Prevention and Control, Division of Violence Prevention. http://www.cdc.gov/violenceprevention/acestudy/prevalence.html.

[17] The intake assessment asked about 10 major categories of adverse childhood experiences: (a) three types of abuse (e.g., emotional maltreatment, physical maltreatment, and sexual abuse), (b) two types of neglect (e.g., emotional neglect, physical neglect), and (c) five types of family risks (e.g., witnessing partner violence victimization of parent, household member who was an alcoholic or drug user, a household member who was incarcerated, a household member who was diagnosed with a mental disorder or had committed suicide, and parents who were divorced/separated).

[18] Data on ACE for one client who reported being transgender are not presented in Figure 1.8.

Half of women (50.5%) and 44.4% of men reported they had experienced emotional maltreatment in their childhood (see Figure 1.9). Around one-third of men and nearly two-fifths of women reported physical maltreatment, and about one-fourth of men and women reported physical neglect in their childhood. Significantly more women than men reported emotional maltreatment, emotional neglect, and sexual abuse in their childhood. One in 5 men (20.1%) and 44.3% of women reported they had experienced sexual abuse.

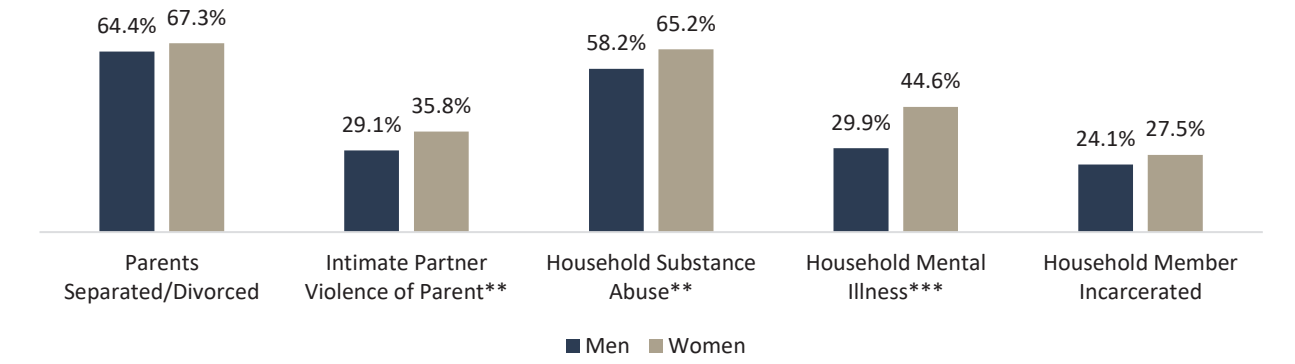
FIGURE 1.9. MALTREATMENT AND ABUSE EXPERIENCES IN CHILDHOOD BY GENDER (n = 1,547)[19]



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

The majority of individuals reported their parents were divorced or lived separately and had a household member with a substance abuse problem (see Figure 1.10). Significantly more women than men reported they had witnessed intimate partner violence of a parent, a household member had a substance abuse problem, and a household member with a mental illness or had committed suicide. About one-fourth of individuals reported a household member had been incarcerated, with no difference by gender.

FIGURE 1.10. HOUSEHOLD RISKS IN CHILDHOOD BY GENDER (n = 1,547)[20]



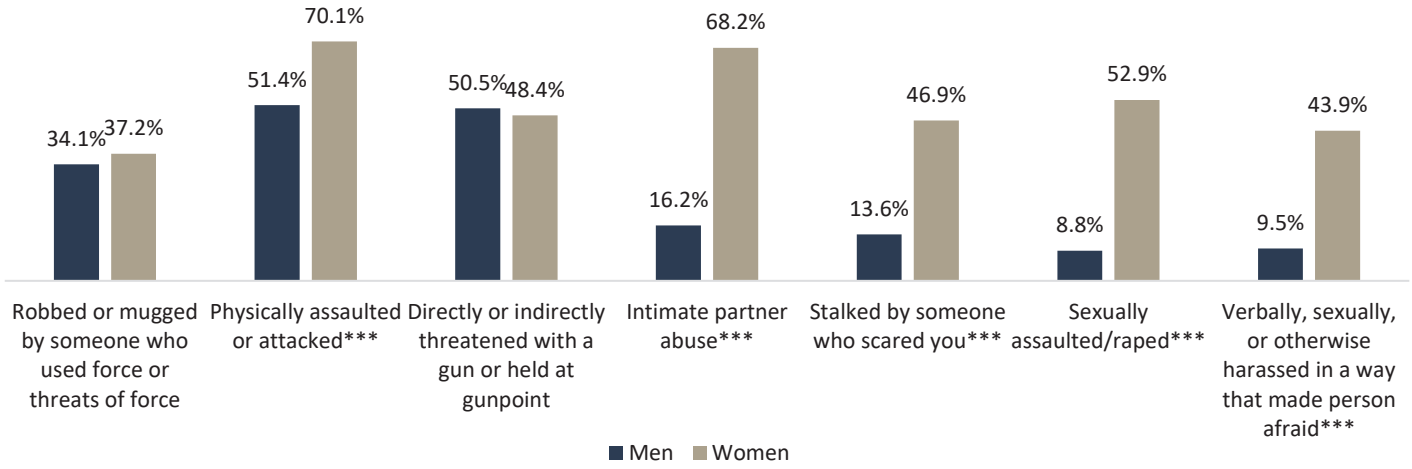
**p < .01, ***p < .001.

[19] One transgender individual was not represented in the data presented by gender.

[20] One transgender individual was not represented in the data presented by gender.

Individuals were also asked about victimization experiences (including when they may have been the victim of a crime, harmed by someone else, or felt unsafe) they had in their lifetime and in the 6 months before entering the recovery center program. The results for lifetime experiences of interpersonal victimization are presented by gender in Figure 1.11. Similar percentages of men and women reported ever being robbed or mugged and ever being directly or indirectly threatened with a gun or held at gunpoint; half of clients were ever directly or indirectly threatened with a gun or held at gunpoint. Compared to men, significantly higher percentages of women reported ever being physically assaulted/attacked, abused by an intimate partner (including controlling behavior), stalked by someone who scared them, sexually assaulted or raped, and verbally, sexually, or otherwise harassed in a way that made him/her afraid.

FIGURE 1.11. LIFETIME CRIME AND INTERPERSONAL VICTIMIZATION BY GENDER (n = 1,547)[21]

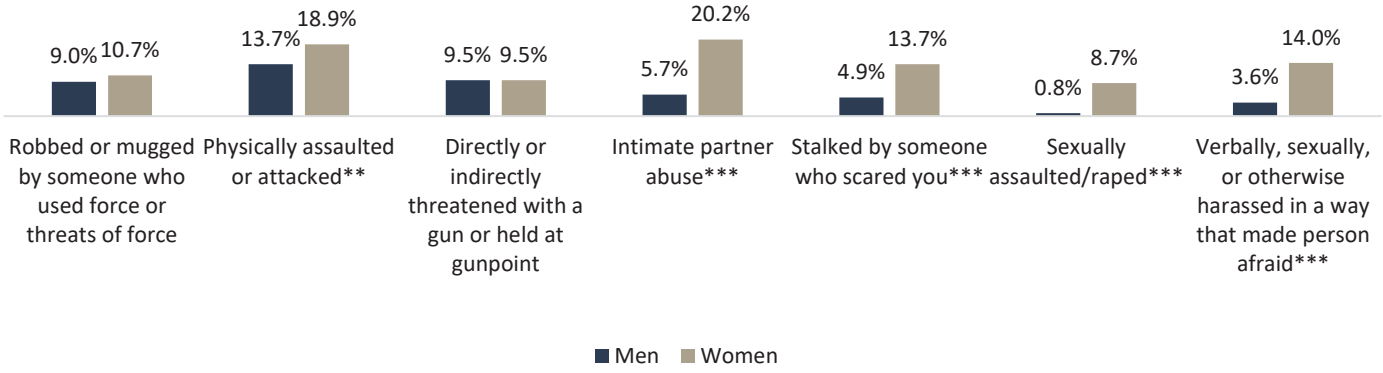


***p < .001.

Smaller percentages of clients reported experiencing crime and interpersonal victimization in the 6 months before entering programs than in their lifetime (see Figure 1.12). The pattern of gender differences was similar for the 6-month-period as it was for lifetime prevalence percentages. Significantly higher percentages of women than men reported they had been physically assaulted or attacked, abused by an intimate partner (including controlling behavior), stalked by someone who scared them, sexually assaulted or raped, and verbally, sexually, or otherwise harassed.

[21] One transgender individual was not represented in the data presented by gender.

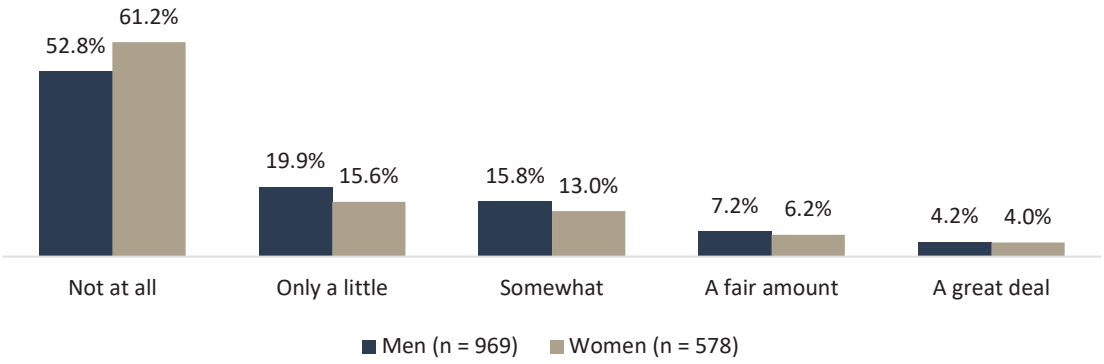
FIGURE 1.12. PAST-6-MONTH CRIME AND INTERPERSONAL VICTIMIZATION BY GENDER (n = 1,547) [22]



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

Nearly half of the sample reported they did not worry at all about their personal safety, with a significant difference by gender (see Figure 1.13). Interestingly, significantly more women than men reported they worried not at all about their personal safety (61.2% vs. 52.8%, p < .05). Only about 1 in 20 (4.1%) of the sample reported they worried a great deal.

FIGURE 1.13. WORRY ABOUT PERSONAL SAFETY (n = 1,547)[23]



Mental Health

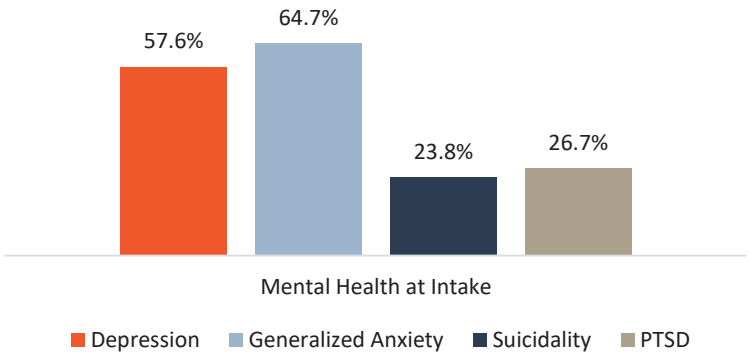
At intake, the majority of RCOS clients met study criteria for depression in the past 6 months (see Figure 1.14). Additionally, 64.7% of RCOS clients met study criteria for

[22] One transgender individual was not represented in the data presented by gender.

[23] One transgender individual was not represented in the data presented by gender.

generalized anxiety at intake. Almost one-fourth (23.8%) reported suicidal thoughts or attempts in the 6 months before entering the recovery center. More than one-fourth of clients had PTSD scores that indicated a risk of PTSD.

FIGURE 1.14. DEPRESSION, GENERALIZED ANXIETY, SUICIDALITY, AND POST TRAUMATIC STRESS DISORDER IN THE PAST 6 MONTHS AT INTAKE (N = 1,548)



Physical Health

At intake, clients reported an average of 7.6 days of poor physical health in the past 30 days and an average of 15.2 days of poor mental health in the past 30 days (see table 1.2). Less than one-fourth of RCOS clients reported chronic pain in the 6 months before entering the recovery center. Among the 340 individuals who reported chronic pain at intake, they reported experiencing chronic pain an average of 5.4 months out of the 6 months before entering the program, 24.8 days out of the 30 days before entering the recovery center, with an average pain level of 6.0 (with 10 as the maximum rating), and they reported first experiencing chronic pain at 26.5 years old, on average (see Table 1.2). The majority of individuals (60.3%) reported they had at least one of the 16 chronic health problems listed on the intake interview. The most common medical problems were hepatitis C, arthritis, cardiovascular disease, asthma, severe dental problems, and sexually transmitted infections.

"When you go in there you're completely broken, they give you the tools to stay sober."

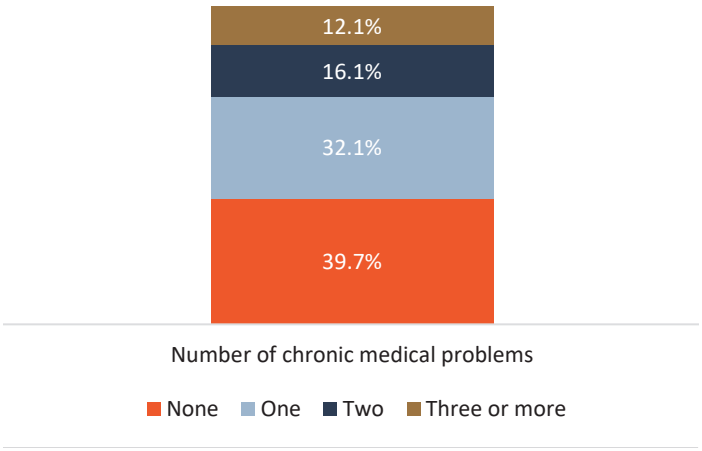
- RCOS FOLLOW-UP CLIENT

TABLE 1.2. HEALTH-RELATED CONCERNS FOR ALL RCOS CLIENTS AT INTAKE (N = 1,548)

Average number of poor health days in past 30 days	7.6
Average number of poor mental health days in past 30 days	15.2
Chronic pain	**22.0%**
Among those who reported chronic pain	(n = 340)
Average number of months experienced chronic pain in the 6 months before entering the program	1.1
Average number of days experienced chronic pain in the 30 days before entering the program	24.8
Average age first began having chronic pain	26.5
Average intensity of pain in the 30 days before entering the recovery program [0 = No pain, 10 = Pain as bad as you can imagine]	6.0
At least one chronic medical problem	60.3%
Hepatitis C	27.2%
Arthritis	14.8%
Cardiovascular/heart disease	12.5%
Asthma	12.1%
Severe dental problems	10.7%
Sexually transmitted infections (other than HIV)	10.3%

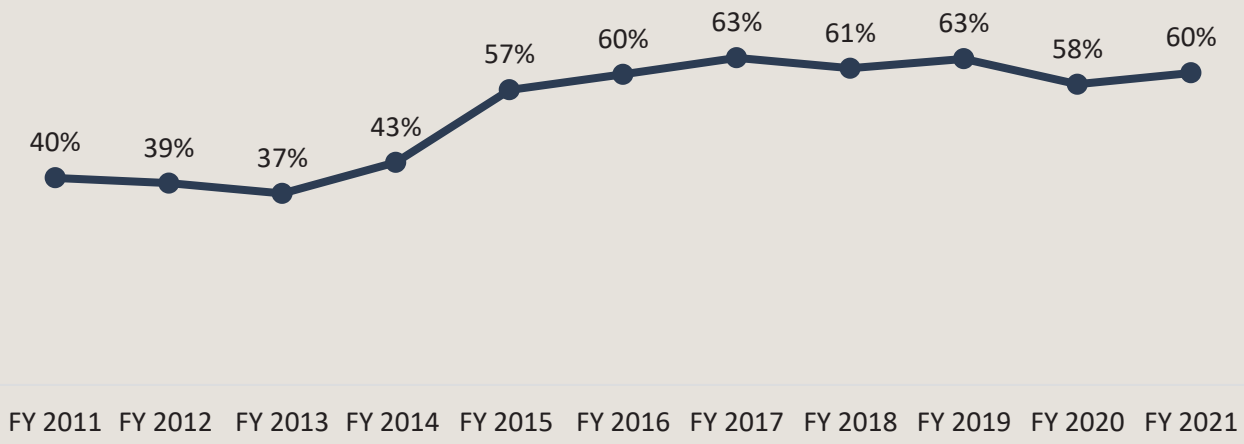
Figure 1.15 shows the percent of clients who reported having different numbers of chronic medical problems at intake. Two-fifths reported no problems, and almost one-third reported one chronic medical problem.

FIGURE 1.15. NUMBER OF CHRONIC MEDICAL PROBLEMS AT INTAKE FOR TOTAL SAMPLE (N = 1,548)



TREND ALERT: CHRONIC MEDICAL PROBLEMS AT INTAKE

At intake, clients were asked if, in their lifetime, they have been told by a doctor they have any of the chronic medical problems listed (e.g., diabetes, arthritis, asthma, heart disease, chronic obstructive pulmonary disease, seizures, kidney disease, cancer, hepatitis B, hepatitis C, pancreatitis, tuberculosis, severe dental problems, cirrhosis of the liver, HIV/AIDS, and other sexually transmitted infections). The number of RCOS clients reporting at least one chronic health problem in their lifetime remained steady from FY 2011 (40%) to FY 2013 (37%) and has increased from FY 2013 to between 57% and 63%, beginning in FY 2015.



The most common insurance provider reported at intake was Medicaid (62.8%; see Table 1.3). One-fifth did not have any insurance. Small numbers of clients had insurance through an employer, including through a spouse, partner, or self-employment, Medicare, and through the Health Exchange.

TABLE 1.3. SELF-REPORTED INSURANCE FOR ALL RCOS CLIENTS AT INTAKE (N = 1,545)[24]

No insurance	20.1%
Medicaid	62.8%
Through employer (including own or spouse's employer, parents' employer)	5.0%
Medicare	9.3%
Through Health Exchange	0.3%
Private insurance	1.2%
Could not be classified[25]	0.9%
VA/Champus/Tricare	0.5%

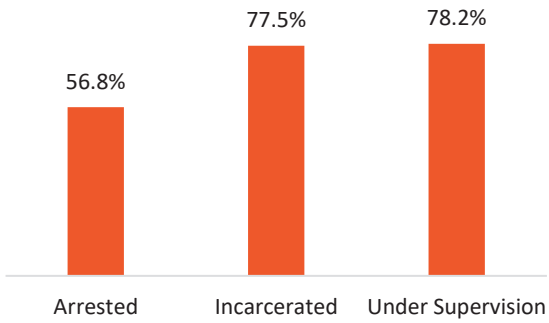
[24] Three individuals had missing values for medical insurance.

[25] Seventeen individuals provided answers that could not be classified into categories because they mentioned an insurance carrier but it was not clear the mechanism through which the client had the insurance (employer, family member, private, health exchange).

Criminal Justice Involvement

The majority of individuals reported they had been arrested at least once (56.8%) and about four-fourths reported they had been incarcerated at least one night (77.5%) in the 6 months before they entered the recovery center (see Figure 1.16). Additionally, 78.2% of clients reported they were currently under criminal justice supervision (i.e., probation, parole) at intake.

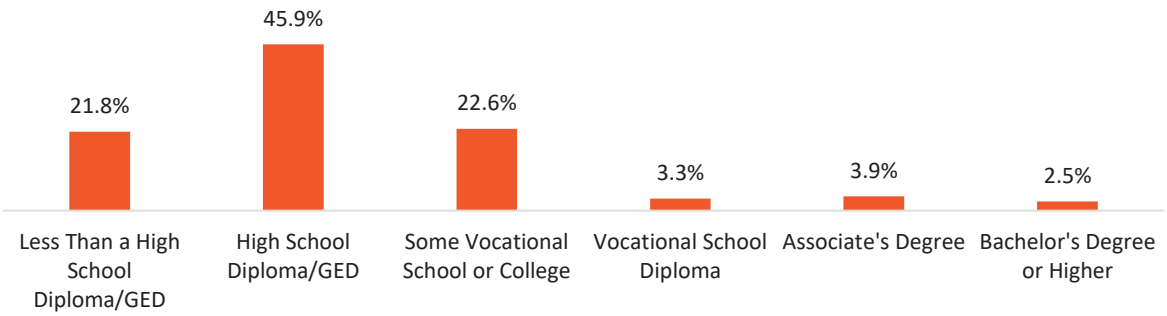
FIGURE 1.16. CRIMINAL JUSTICE INVOLVEMENT BEFORE ENTERING THE RECOVERY CENTER (N = 1,548)



Education and Employment Status

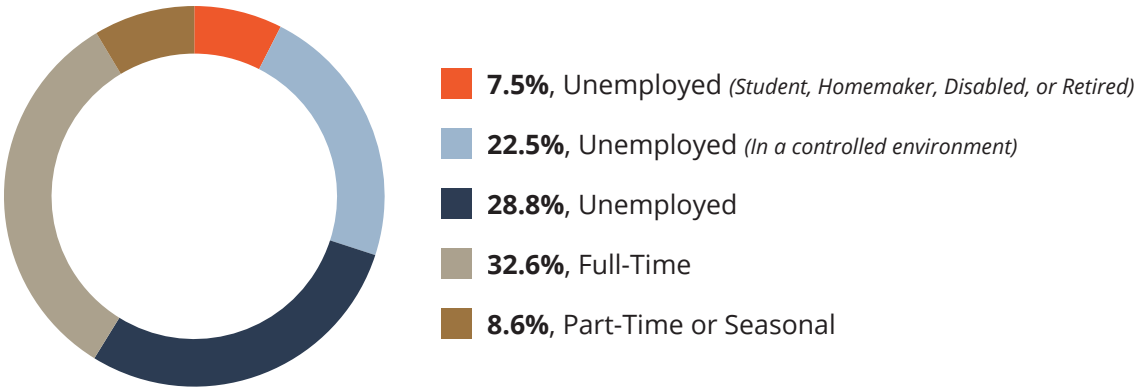
About one-fifth of clients (21.8%) had less than a high school diploma or GED at intake (see Figure 1.17). Less than half of clients had a high school diploma or GED (45.9%), 22.6% had completed some vocational/technical school or college as their highest level of education. Only a minority of clients had completed vocational/technical school (3.3%), an associate's degree (3.9%), or a bachelor's degree or higher (2.5%).

FIGURE 1.17. EDUCATION BEFORE ENTERING THE RECOVERY CENTER (N = 1,548)



About one-third of clients (32.6%) reported their usual employment status in the 6 months before they entered the recovery center was full-time employment and 8.6% reported part-time or seasonal work (see Figure 1.18). Less than 10% reported they were unemployed because they were a full-time student, parent/homemaker, retired, or disabled. Less than 1 in 4 (22.5%) were unemployed because they were in a controlled environment and 28.8% reported they were unemployed for some other reason (i.e., looking for work).

FIGURE 1.18. USUAL EMPLOYMENT STATUS AT INTAKE (N = 1,548)

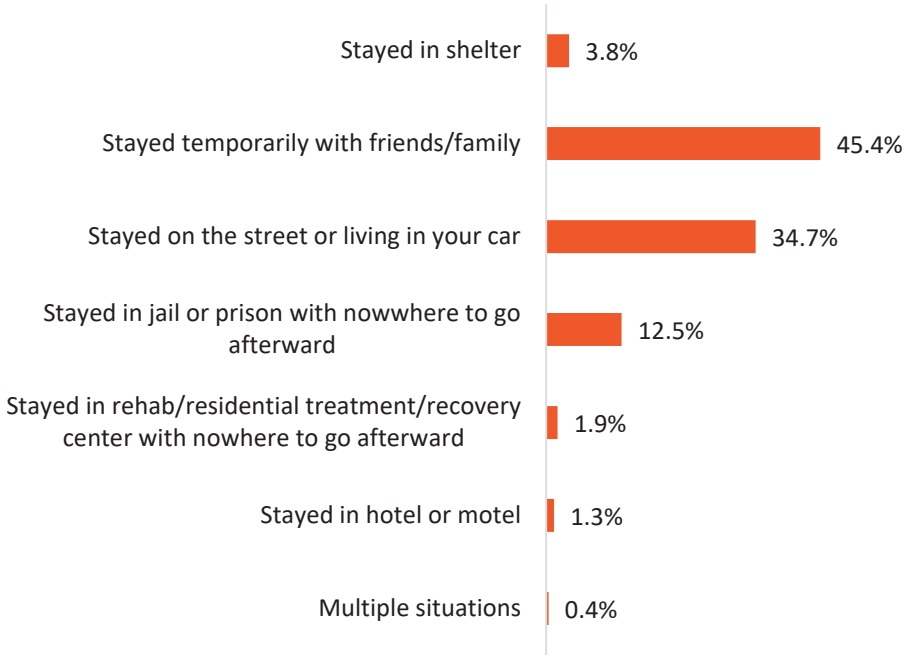


Homelessness

In the 6 months before entering the recovery center, 34.3% (n = 531) of individuals considered themselves homeless. Of those clients (n = 522)[26], 45.4% reported they were staying temporarily with friends/family and 34.7% reported they were staying on the street or living in their car. One in 8 homeless clients (12.5%) stayed in jail or prison with nowhere to go afterward, 3.8% stayed in a shelter. Very few clients were staying in rehabilitation/residential treatment/recovery center with nowhere to go afterward (1.9%), or staying in a hotel or motel (1.3%), and 0.4% reported multiple situations.

[26] Nine clients had missing data for why the individual considered themselves homeless at intake.

FIGURE 1.19. REASONS INDIVIDUAL CONSIDERED THEMSELVES HOMELESS AT INTAKE (N = 522)



RCOS Follow-up Sample

The following sections of this report describe outcomes for 283 men and women who completed both an intake and a follow-up interview about 12 months (average of 344.4 days) after the intake survey was completed.

Data from Kentucky Housing Corporation shows that the average length of service for the program participants included in this report was 7.6 months, which includes time in Safe Off the Streets, Motivational Tracks, Phase 1 and Phase 2. In the follow-up interview, interviewers asked individuals how many months they were in the recovery center program (not counting Phase 2); the average months clients reported they were in the recovery program through Phase 1 was 7.2, with a minimum of 1 and a maximum of 22.[27] About four-fifths of individuals (81.6%) reported at the follow-up that they had completed Phase 1 of the program. At follow-up, 7.4% (n = 21) individuals reported they were currently in a recovery center.

In the follow-up interview, individuals were asked several questions about their participation in different aspects of recovery center programs. While in the program, 44.9% of clients reported they had participated in extra educational classes and 52.3% participated in volunteer projects. Nineteen individuals (6.7%) were working as assistant

[27] Comparison of the admission date reported in the intake survey with the admission date from the HMIS data matched to the follow-up cases found that 80.6% of the 283 cases had the exact same date. Discrepancies between the HMIS start date and the admission date in the RCOS intake survey were the following: 7.4%, a start date in HMIS that was 31 days or more before the admission date in the RCOS intake; 0.4%, a start date in HMIS that was 8 to 30 days before the admission date in the RCOS intake survey; 1.8%, a start date in HMIS that was 1 to 7 days before the admission date in the RCOS intake survey; 9.2%, a start date in HMIS that was 1 to 7 days after the admission date in the RCOS intake survey; 0.4%, a start date in HMIS that was 8 to 30 days after the admission date in the RCOS intake survey; and 0.4%, a start date in HMIS that was more than 30 days after the admission date in the RCOS intake survey data.

staff at follow-up, for an average of 4.5 months. Individuals were also asked to report the length of time since they left Phase 1 of the program, which was an average of 7.5 months, including the 21 individuals who were still involved in the program.[28] When individuals who were still involved in the recovery center program were excluded from the analysis, the average number of months between when they left the program and the follow-up interview was 7.6.

Detailed information about the methods can be found in Appendix A. Individuals who gave at least one mailing address and one phone number, or two phone numbers if they did not have a mailing address in their locator information, were eligible for selection into the 12-month follow-up component of the study.[29] The follow-up interviews were conducted over the telephone by an interviewer at UK CDAR with eligible individuals. Client responses to the follow-up interview were kept confidential to help facilitate an accurate and unbiased evaluation of client outcomes and satisfaction with program services. Overall, 24 completed follow-ups are targeted for each month. Due to the cost of the follow-up component of the study, the follow-up sample is targeted for as close to 280 follow-up interviews as possible.

This report's sample was stratified by target month (i.e., 12 months after intake is the target month for each client) and gender. Samples in the reports predating the 2020 report were stratified by target month, gender, and DOC status. The primary reason the prior years' samples were 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 in past years' reports showed that DOC referral status was not associated with any of the targeted outcomes, while length of service was associated with several targeted outcomes.

See Appendix B for detailed information about clients who were followed up (n=283) compared to clients who were not followed up (n = 1,265). The only significant differences between individuals who were followed-up and individuals who were not followed-up were gender and use of opioids in the 6 months before entering the program. A significantly higher percent of women completed a follow-up than did not. The percent of clients who reported using opioids was higher in the follow-up group compared to the not followed up group. There were no significant differences in other sociodemographic, substance use, mental health, physical health, living situation, education, and employment at intake by follow-up status.

Of the 283 individuals who completed a follow-up survey, 7.4% (n = 21) reported they were still involved in the recovery center at the time of the follow-up. For those clients who were in the recovery center at the time of the follow-up, 11 clients were in Phase 2, 2 were in Phase 1, 3 were in Safe Off the Streets, and three were in Motivational Track.[30] Analysis of substance use at follow-up showed no difference when individuals who were still involved in the recovery center program at follow-up were included or excluded from

[28] Thirty-nine individuals could not remember the month they left Phase 1, so these 39 cases have missing values for length of time since leaving Phase 1.

[29] 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.

[30] Two cases had missing data for this item.

the analysis.

ABOUT RCOS LOCATING EFFORTS

In 2014, 527 cases that were included in the follow-up sample were used to examine efforts in locating and contacting participants. In 2019, 2020, and 2021, the research team repeated these efforts to compare how locating efforts and the quality of contact information provided at the end of intake interviews have changed over time.[31]

LOCATOR EFFORTS

	2014 (n = 527)	2019 (n = 521)[32]	2020 (n = 526)	2021 (n = 534)
Phone Calls				
Average number of outgoing calls to reach client	3.3 (0-28 calls)	6.4 (0-32 calls)	7.5 (0-30)	4.4 (0-24)
Average number of outgoing calls to reach any contact	2.3 (0-37 calls)	2.6 (0-35 calls)	1.0 (0-24)	1.3 (0-15)
Total number of outgoing calls to reach client or any contact.....	2,958 calls	4,715 calls	4,482	3,047
Average outgoing calls for each completed follow-up	10.5	16.8	15.8	10.8
Mail				
Average number of mailings sent (to client/contact/other)	1.7 (0-7 mailings)	2.5 (0-5 mailings)	3.0 (1-6 mailings)	1.9 (1-6 mailings)
Total number of mailings sent (to client/contact/other)	896 mailings	1,286 mailings	1,587	992
Average outgoing mail for each completed follow-up	3.2	4.6	5.6	3.5

[31] The number of clients included in the sample of individuals to contact to complete the follow-up surveys were the following by year: n = 527 for 2014, n = 521 for 2019, n = 526 for 2020, and n = 534 for 2021.

[32] There were 7 missing files when the extraction project was completed.

QUALITY OF CONTACT INFORMATION

	2014 (n = 527)	2019 (n = 521)	2020 (n = 526)	2021 (n = 534)
First Contact Locator Number				
None listed, or number listed was already listed as the client's number	31.9%	42.0%	55.7%	53.6%
Number worked	25.4%	17.9%	6.3%	12.7%
Number worked but not successful	15.0%	17.1%	12.5%	17.6%
Number was disconnected	7.8%	5.2%	1.3%	3.0%
Number listed but never called	19.9%	17.9%	24.1%	13.1%
Second Contact Locator Number				
None listed, or number listed was already listed as the client's or first contact person's phone number	57.0%	76.2%	69.8%	64.8%
Number worked	10.6%	4.6%	3.2%	6.2%
Number worked but not successful	10.6%	5.6%	4.7%	10.5%
Number was disconnected	1.9%	2.1%	.9%	1.3%
Number listed but never called	19.8%	11.5%	21.3%	17.2%
Phone number listed but not unique to contact	---	---	12.9%	9.9%

Efforts to locate and contact potential follow-up clients increased from 2014 to 2020 for two main reasons. First, because of the increase in robo and other scam calls people are more hesitant to pick up their phones and more skeptical when they do. Second, the quality of locator information is lower in recent years making it more difficult to find correct information for clients. Comparison of the efforts interviewers put into conducting the follow-up interviews from 2014 to 2020 shows that the average number of calls had almost doubled, and the average number of mailings had almost doubled.

Characteristics of RCOS Follow-up Clients at Intake

Demographics

Table 1.4 presents demographic information on clients with an intake survey submitted in FY 2021 and a follow-up interview completed between July 2021 and June 2022. Clients' average age was 35.3 years old and men made up 45.6% of the sample. The majority of clients (92.2%) were White and 5.3% were Black. The largest percentage of RCOS follow-up clients reported they had never been married (and were not cohabiting) at intake (42.8%), 31.1% were separated or divorced, and 23.3% were married or cohabiting. The majority of RCOS clients had children under the age of 18. A small percentage (2.8%) reported they were currently serving in the military or a veteran.

TABLE 1.4. DEMOGRAPHICS FOR FOLLOWED-UP RCOS CLIENTS AT PHASE I INTAKE IN FY 2021 (N = 283)

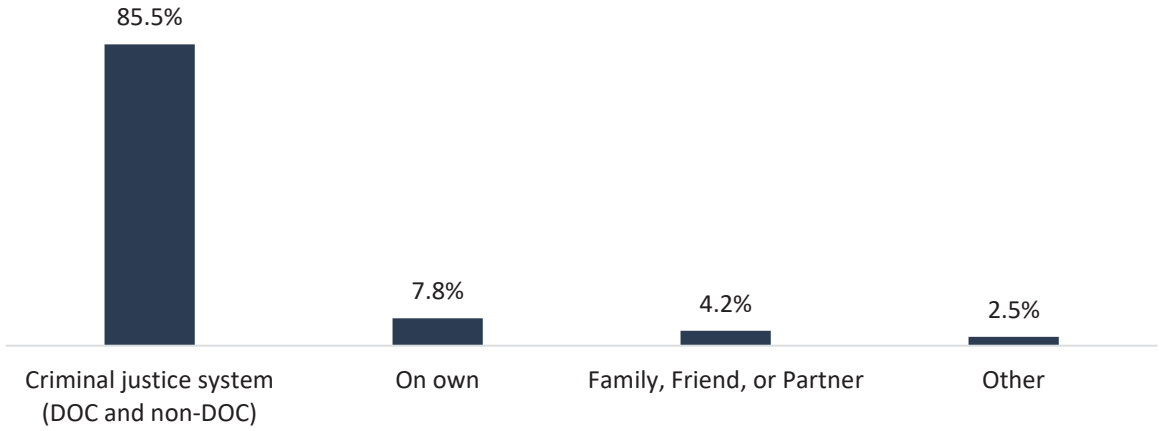
Age	35.3 *(Min. = 19, Max. = 60)*
Gender	
Male	45.6%
Female	54.4%
Race	
White	92.2%
Black/African American	5.3%
Other or multiracial	2.5%
Marital Status	
Never married (and not cohabiting)	42.8%
Separated or divorced	31.1%
Married or cohabiting	23.3%
Widowed	2.8%
Has children under 18 years old	62.1%
Active duty or military veteran	2.8%

Self-reported Referral Source

Figure 1.20 shows the self-reported referral source for RCOS clients in the follow-up sample. The majority of clients (85.5%) self-reported they were referred to the recovery center by the criminal justice system (e.g., judge, probation officer, Department of Corrections). Only 7.8% reported they entered the program on their own, and 4.2% were referred to the program by a family member, friend, or partner. The remaining 2.5% indicated another referral source such as a treatment program or none of the other categories.

A separate question asked participants if they were ordered to the recovery program by the court or other state agency: 80.9% stated at intake that they were ordered to the program (not depicted in a figure).

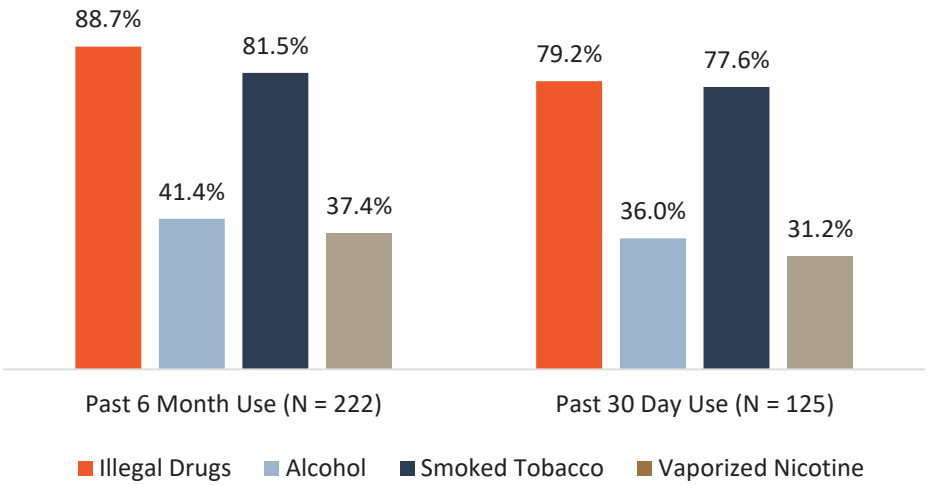
FIGURE 1.20. SELF-REPORTED REFERRAL SOURCE FOR FOLLOWED-UP RCOS CLIENTS (N = 283)



Substance Use

The majority of the follow-up sample reported using illegal drugs and smoking tobacco and less than half of clients reported using alcohol and using vaporized nicotine in the 6-month period before entering the recovery center (see Figure 1.21).[33] A similar pattern, but with smaller percentages, was 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.[34]

FIGURE 1.21. FOLLOW UP SAMPLE ALCOHOL, DRUG AND TOBACCO USE 6 MONTHS AND 30 DAYS BEFORE ENTERING RECOVERY CENTER



[33] Because being in a controlled environment reduces access to alcohol and illegal drugs, individuals who were in a controlled environment the entire intake 6-month period of the study (n = 61) were not included in the analysis of substance use during that period.

[34] Because being in a controlled environment reduces access to alcohol and illegal drugs, individuals who were in a controlled environment the entire intake 30-day period assessed for the study (n = 158) are not included in the analysis of substance use during that period.

Figure 1.22 presents the percent distribution of individuals who used alcohol and/or illegal drugs in the 6 months before entering the program. Among the follow-up sample, 43.5% reported illegal drug use solely and an additional 29.3% reported alcohol and illegal drug use. Among the individuals who were not incarcerated all 180 days before entering the program, more the half (51.4%) reported illegal drug use solely and 37.4% reported alcohol and illegal drug use.

FIGURE 1.22. PAST-6-MONTH ALCOHOL AND ILLEGAL DRUG USE AT INTAKE FOR THE FOLLOW-UP SAMPLE (N = 283) AND FOR THOSE NOT INCARCERATED ALL 180 DAYS BEFORE ENTERING THE PROGRAM (N = 222)

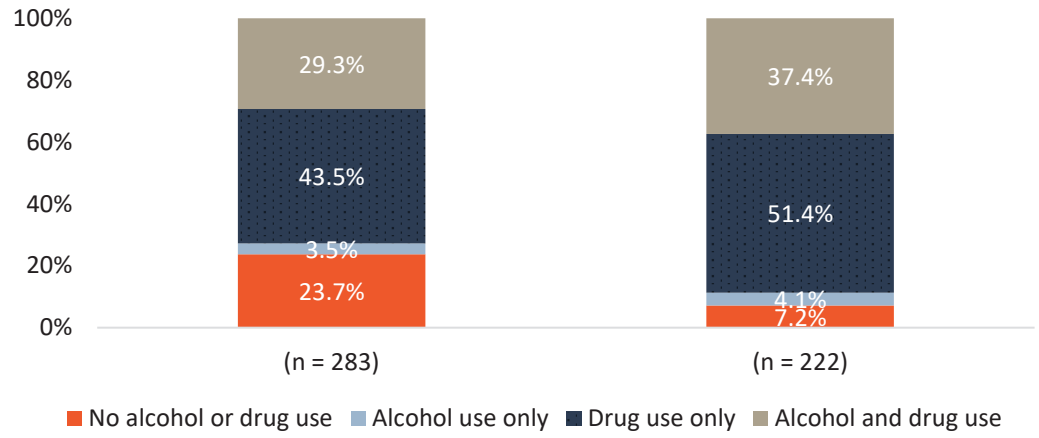
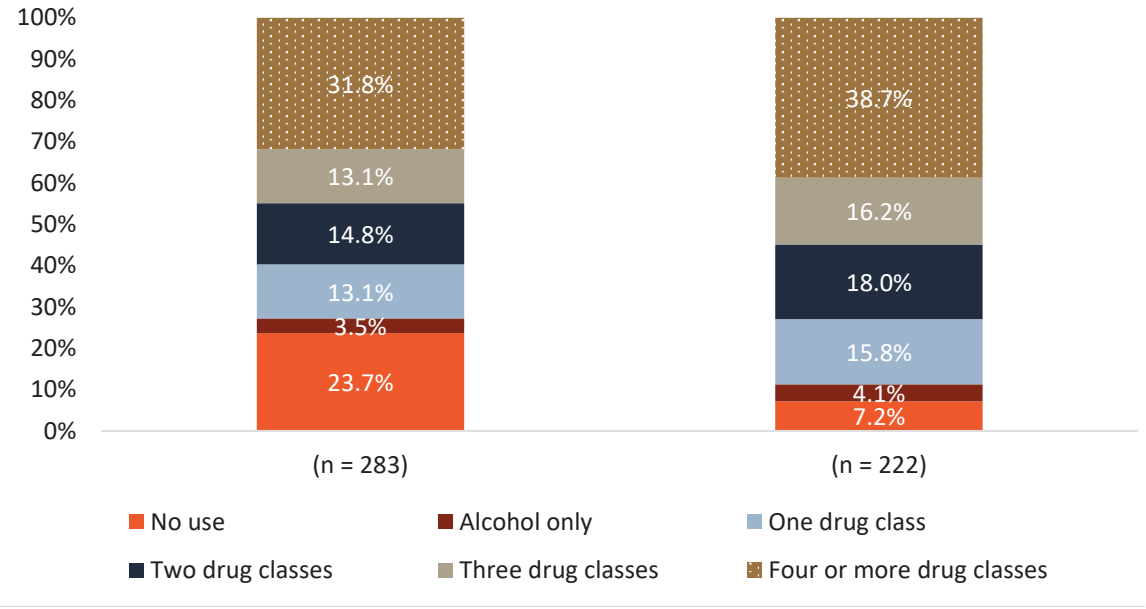


Figure 1.23 presents the percentages of RCOS clients who reported using no drugs, alcohol only, and then various numbers of drug classes from the following: marijuana, opioids (including prescription opioids, buprenorphine, methadone), heroin, CNS depressants (such as benzodiazepines, sedatives, barbiturates), stimulants (including amphetamines and cocaine), and other classes such as hallucinogens, synthetic marijuana, and inhalants. RCOS follow-up clients are predominately polysubstance users when they enter programs. Among clients who were not in a controlled environment 180 days before entering the program, only 27.1% of clients reported either no substance use, alcohol use only, or alcohol use with only one drug class while over half reported using 3 or more drug classes (54.9%).

"They're always there for what you need. I've been to several recovery programs and I learned more there in 7.5 months than I have in the last 15-16 years. When I left I felt good about myself and love myself again. A bunch of great compassionate people there."

- RCOS FOLLOW-UP CLIENT

FIGURE 1.23. PAST-6-MONTH POLYSUBSTANCE USE AT INTAKE FOR THE FOLLOW-UP SAMPLE (N = 283) AND FOR THOSE NOT INCARCERATED ALL 180 DAYS BEFORE ENTERING THE PROGRAM (N = 222)

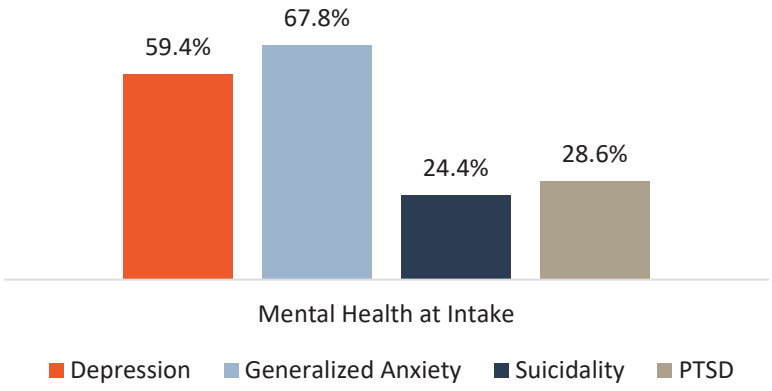


In the follow-up sample, 9.9% (n = 28) reported at follow-up that they had been in a treatment program since leaving the recovery center program. The majority of the 28 individuals (92.9%) reported they had had one treatment episode since leaving the recovery center, 3.6% had two, and 3.6% had four episodes (not depicted in a figure).

Mental Health

At intake, 59.4% of RCOS clients in the follow-up sample met study criteria for depression in the past 6 months (see Figure 1.24). The majority of followed-up clients (67.8%) met study criteria for generalized anxiety at intake. About one-fourth (24.4%) reported suicidal thoughts or attempts in the 6 months before entering the recovery center, and 28.6% had PTSD scores that indicated a risk of PTSD.

FIGURE 1.24. DEPRESSION, GENERALIZED ANXIETY, SUICIDALITY, AND POST TRAUMATIC STRESS DISORDER IN THE PAST 6 MONTHS AT INTAKE FOR FOLLOWED-UP RCOS CLIENTS (N = 283)



Physical Health

At intake, clients in the follow-up sample reported an average of 6.9 days of poor physical health in the past 30 days and an average of 14.9 days of poor mental health in the past 30 days (see Table 1.5). Around 1 in 5 (20.8%) RCOS followed-up clients reported chronic pain in the 6 months before entering the recovery center. The majority of individuals in the follow-up sample (60.8%) reported they had at least one of the 15 chronic health problems listed on the intake interview. The most common medical problems were hepatitis C, arthritis, sexually transmitted diseases, asthma, cardiovascular disease, and severe dental problems.

TABLE 1.5. HEALTH-RELATED CONCERNS FOR FOLLOWED-UP RCOS CLIENTS AT INTAKE (N = 283)

Average number of poor health days in past 30 days	6.9
Average number of poor mental health days in past 30 days	14.9
Chronic pain	22.0%
At least one chronic medical problem	60.8%
Hepatitis C	29.7%
Arthritis	14.8%
Sexually transmitted infections (e.g., chlamydia, gonorrhea, genital herpes, syphilis)	14.5%
Asthma	13.8%
Cardiovascular/heart disease	12.0%
Severe dental problems	10.2%

Figure 1.25 shows the percent of followed-up clients who reported having different numbers of chronic medical problems at intake. About two-fifths (39.2%) reported no problems, 31.8% reported having one chronic medical problem, 15.5% reported two problems, and 13.4% had three or more chronic medical problems.

FIGURE 1.25. NUMBER OF CHRONIC MEDICAL PROBLEMS AT INTAKE FOR FOLLOW-UP SAMPLE (N = 283)

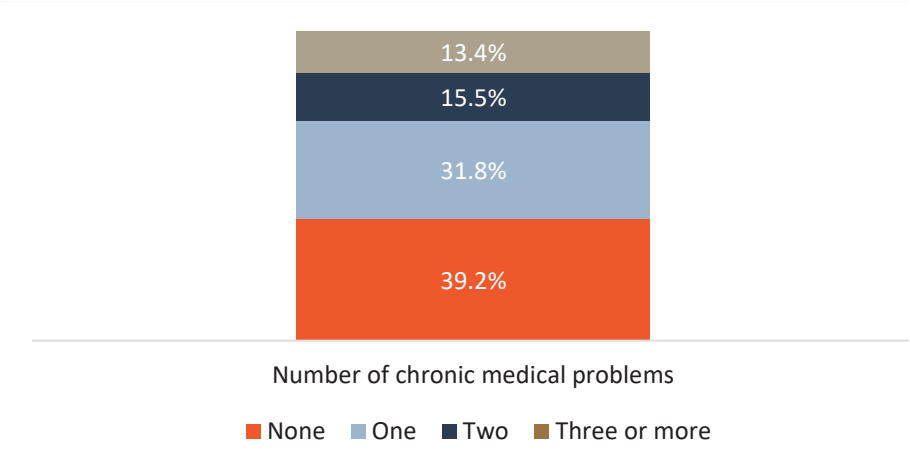


Table 1.6 shows the percent of followed-up clients who reported having different types of medical insurance at intake. At intake, the majority of the follow-up sample reported they had Medicaid, 16.3% reported they had no medical insurance, and 6.7% had Medicare. A small percent had medical insurance through their employer or a family member's employer, or private insurance.

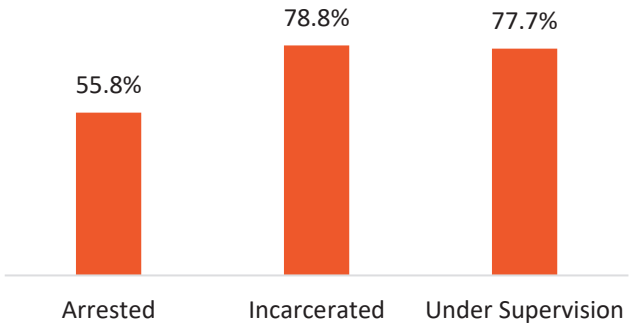
TABLE 1.6. TYPE OF MEDICAL INSURANCE AT INTAKE FOR FOLLOW-UP SAMPLE (N = 283)

No insurance	16.3%
Medicaid	68.6%
Through employer (including own or spouse's employer, parents' employer)	5.6%
Medicare	6.7%
Private insurance	1.1%
Could not be classified[35]	1.1%
VA/Champus/Tricare	0.7%

Criminal Justice Involvement

More than half of followed-up individuals reported they had been arrested at least once (55.8%) and the majority reported they had been incarcerated at least one night (78.8%) in the 6 months before they entered the recovery center (see Figure 1.26). Additionally, 77.7% of clients reported they were currently under criminal justice supervision (i.e., probation, parole) at intake.

FIGURE 1.26. CRIMINAL JUSTICE INVOLVEMENT BEFORE ENTERING THE RECOVERY CENTER FOR FOLLOW UP SAMPLE (N = 283)



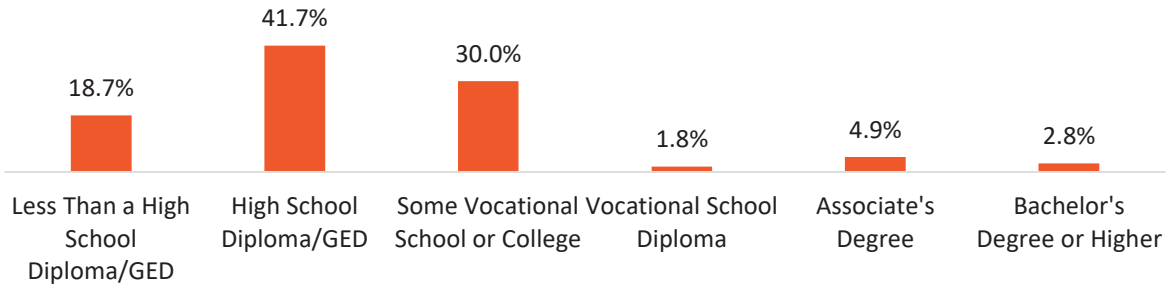
Education and Employment Status

A sizeable minority of followed-up clients (18.7%) had less than a high school diploma or

[35] Two individuals provided answers that could not be classified into categories because they mentioned an insurance carrier but it was not clear the mechanism through which the client had the insurance (employer, family member, private, health exchange).

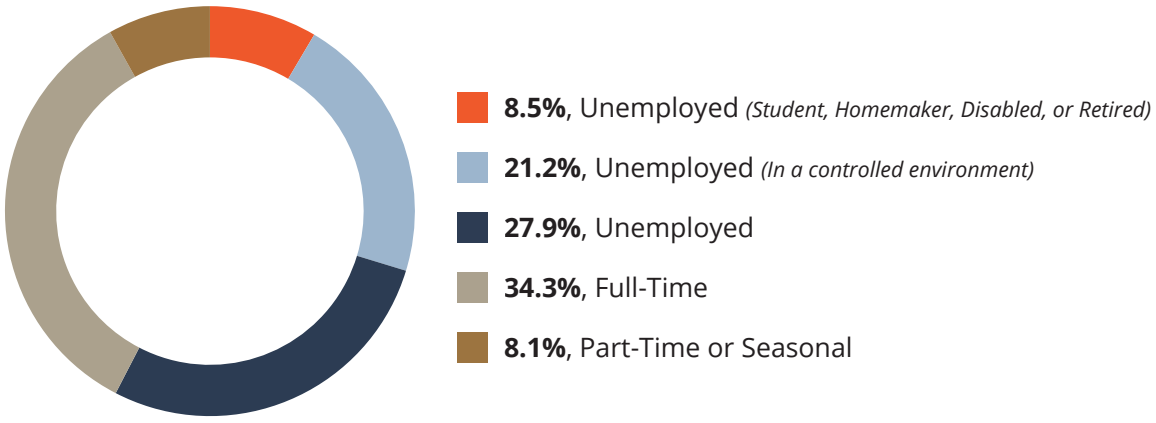
GED, and 41.7% had a high school diploma or GED as their highest level of education at intake (see Figure 1.27). Thirty percent had attended some vocational/technical school or college. Only a minority of clients had completed vocational/technical school (1.8%), an associate's degree (4.9%), or a bachelor's degree or higher (2.8%).

FIGURE 1.27. HIGHEST LEVEL OF EDUCATION COMPLETED BY FOLLOW-UP SAMPLE AT INTAKE (N = 283)



About one-third of followed-up clients (34.3%) reported their usual employment status in the 6 months before they entered the recovery center was full-time employment and 8.1% reported part-time or seasonal work (see Figure 1.28). A minority (8.5%) reported they were unemployed because they were a full-time student, parent/homemaker, retired, or disabled. Around 1 in 5 clients 21.2% reported their usual employment status was unemployed because they were in a controlled environment and (27.9%) reported they were unemployed for some other reason (i.e., looking for work).

FIGURE 1.28. USUAL EMPLOYMENT STATUS FOR FOLLOW-UP SAMPLE AT INTAKE (N = 283)

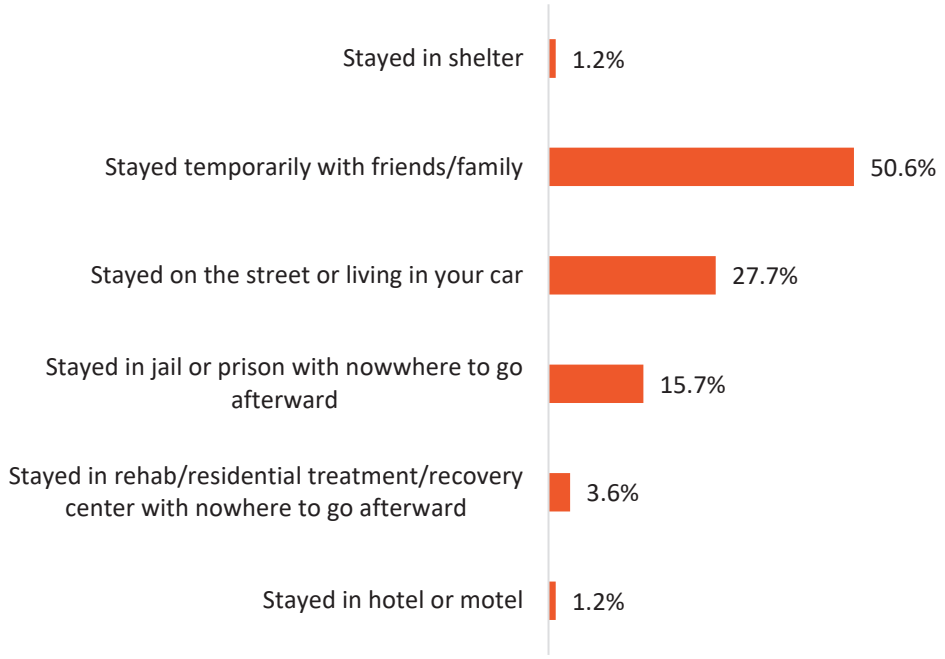


Homelessness

In the 6 months before entering the recovery center, 29.3% of individuals considered themselves homeless. Of those clients (n = 83), half (50.6%) reported they were staying

temporarily with friends/family and 27.7% reported they were staying on the street or living in their car (see Figure 1.29). A minority of clients were staying in jail or prison with nowhere to go afterward (15.7%). Very few clients were staying in rehabilitation/ residential treatment/recovery center with nowhere to go afterward (3.6%), were staying in a shelter (1.2%), or staying in a hotel or motel (1.2%).

FIGURE 1.29 REASONS INDIVIDUAL CONSIDERED THEMSELVES HOMELESS FOR FOLLOW-UP SAMPLE AT INTAKE (N = 83)



Section 2. Substance Use

This section describes intake (before entry into SOS) compared to follow-up (i.e., 6 months and 30 days before the follow-up interview) change in illegal drug, alcohol, and tobacco use.[36] Both past-6-months substance use and past 30-day substance use is examined separately for clients who were not in a controlled environment the entire period before entering a recovery program and clients who were in a controlled environment the entire period before entering the program (for the 30 day use). Results for each analysis are presented for the overall sample and then by gender if there were significant gender differences.

Section 2A examines change in the use of (1) any illegal drugs, (2) alcohol,[37] and (3) tobacco before entering the recovery center and before the follow-up for clients who were not in a controlled environment the entire period before entering the program (i.e., 6 months or 30 days).[38] Results and significant gender differences are presented for each substance group in four main subsections:

1. **Change in 6-month substance use from intake to follow-up for clients not in a controlled environment.** Comparisons of use of substances (any illegal drug use, alcohol use, and tobacco use) in the 6 months before the client entered the program and use of substances during the 6-month follow-up period are presented (n = 219). 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 the substances, the number of months they used the substance before program entry and during the follow-up period are analyzed.

3. **Change in 30-day substance use from intake to follow-up for clients not in a controlled environment.**[39] 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 environment all 30 days before entering the recovery center (n = 120) are presented.

4. **Change in self-reported severity of substance use disorder from intake to follow-up.** There are two indices of substance use severity presented in this report. One way to examine overall change in degree of severity of substance use is to ask participants to self-report whether they met the 11 criteria included in the DSM-5

[36] 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 clients 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.

[37] 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).

[38] McNemar's test 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.

[39] Sixty-four individuals were not included in the analysis of change in substance use from the 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 = 61) or the entire 6-month period before the follow-up (n = 3).

for diagnosing substance use disorder in the past 6 months. Under DSM-5 anyone meeting any two of the 11 criteria during the same 6-month period would receive a diagnosis of substance use disorder (SUD) if their symptoms were causing clinically significant impairments in functioning. The severity of the substance use disorder in this report (i.e., none, mild, moderate, or severe) is based on the number of criteria met. The percent of individuals in each of the four categories at intake and follow-up is presented.[40]

The Addiction Severity Index (ASI) composite scores are examined for change over time among individuals who reported any illegal drug use (n = 96), among individuals who reported using any alcohol (n = 44) and those who reported both alcohol and/or illegal drug use (n = 103). The ASI composite score assesses self-reported addiction severity even among those reporting no substance use in the past 30 days. The alcohol and drug composite scores are computed from items about 30-day alcohol (or drug) use and the number of days individuals used multiple drugs in a day, as well as the impact of substance use on the individual's life, such as money spent on alcohol, number of days individuals had alcohol (or drug) problems, how troubled or bothered individuals were by their alcohol (or drug) problems, and how important treatment was to them.

Section 2B presents results for each substance group 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 or follow-up (n = 158) are presented.

2. **Change in self-reported severity of substance use disorder for clients who were in a controlled environment all 30 days before entering the recovery center.** ASI alcohol and drug severity composite scores are 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 = 79) at intake and/or follow-up.

[40] 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. A total of 158 individuals were in a controlled environment all 30 days before entering the program, and 5 additional individuals were in a controlled environment all 30 days before follow-up.

2a. Substance Use for Clients Who Were Not in a Controlled Environment

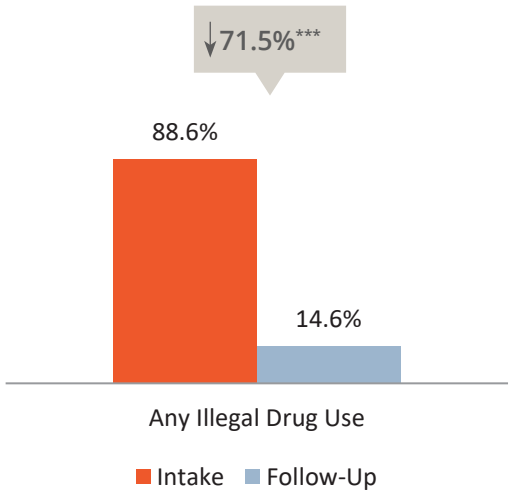
Past-6-month Illegal Drug Use

At intake, 88.6% of clients reported using any illegal drugs (including prescription drug misuse and other illegal drugs) in the 6 months before entering the recovery center. At follow-up, 14.6% of clients reported using illegal drugs in the 6 months before follow-up (a significant decrease of 74.0%; see Figure 2A.1).

At intake, clients were asked how old they were when they first used any illegal drug. RCOS follow-up clients, on average, reported they were 15.7 years old when they first used an illegal drug.[a]

a—Eleven clients had missing data for this question

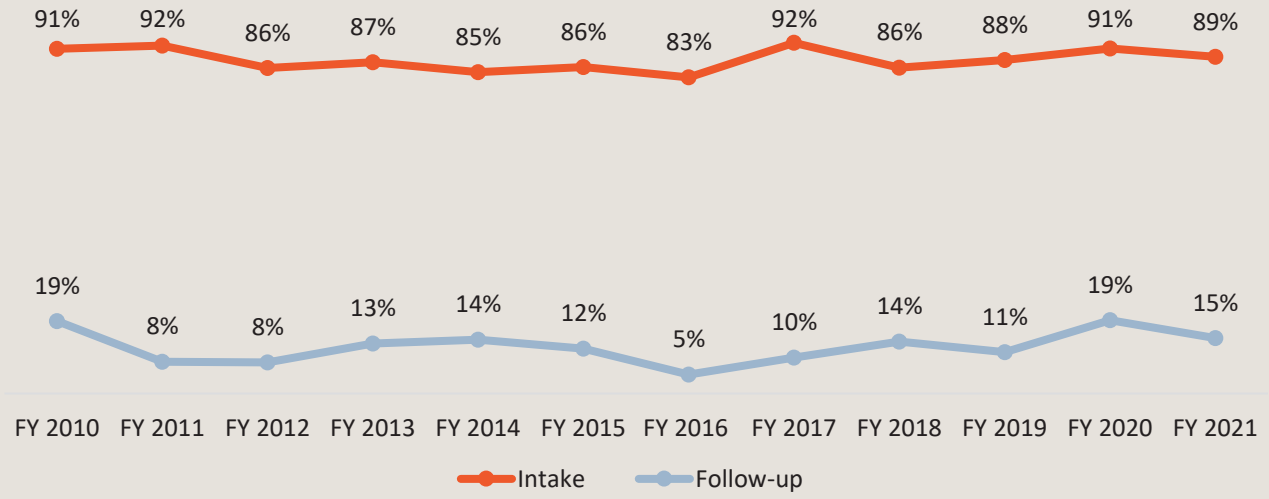
FIGURE 2A.1 ANY ILLEGAL DRUG USE AT INTAKE AND FOLLOW-UP (N = 219)



***p < .001.

TRENDS IN PAST-6-MONTH ILLEGAL DRUG USE

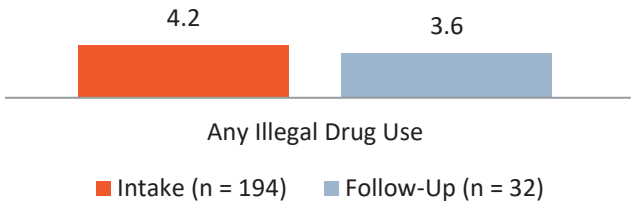
The number of RCOS clients reporting illegal drug use in the 6 months before intake was consistently high. Each year, the percent of clients reporting illegal drug use was significantly lower at follow-up than at intake.



AVERAGE NUMBER OF MONTHS USED ANY ILLEGAL DRUGS

Among clients who reported illegal drug use in the 6 months before entering the program (n = 194), they reported using drugs an average of 4.2 months (see Figure 2A.2). Among individuals who reported using illegal drugs at follow-up (n = 30)[41], they reported using an average of 3.6 months.

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



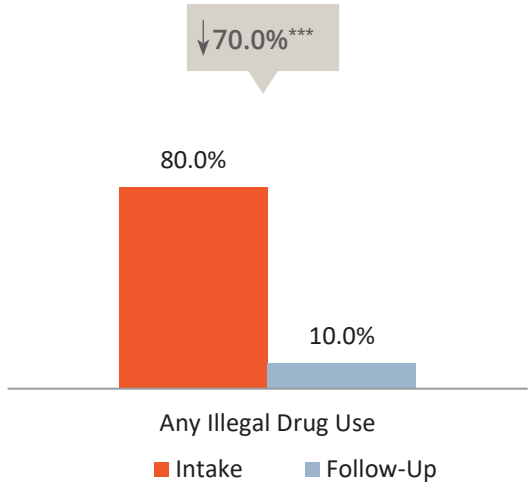
Past-30-day Illegal Drug Use

Four-fifths of individuals (80%) 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 2A.3). At follow-

[41] Two individuals did not report number of months that a drug was used and were excluded from this analysis.

up, only 10% of individuals reported they had used illegal drugs in the past 30 days—a significant decrease by 70%.

FIGURE 2A.3. PAST 30-DAY USE OF ANY ILLEGAL DRUG USE AT INTAKE TO FOLLOW-UP (n = 120)



***p < .001.

"They saved my life. The women there were so great, I learned how to work my 12 steps and I now believe in a higher power."

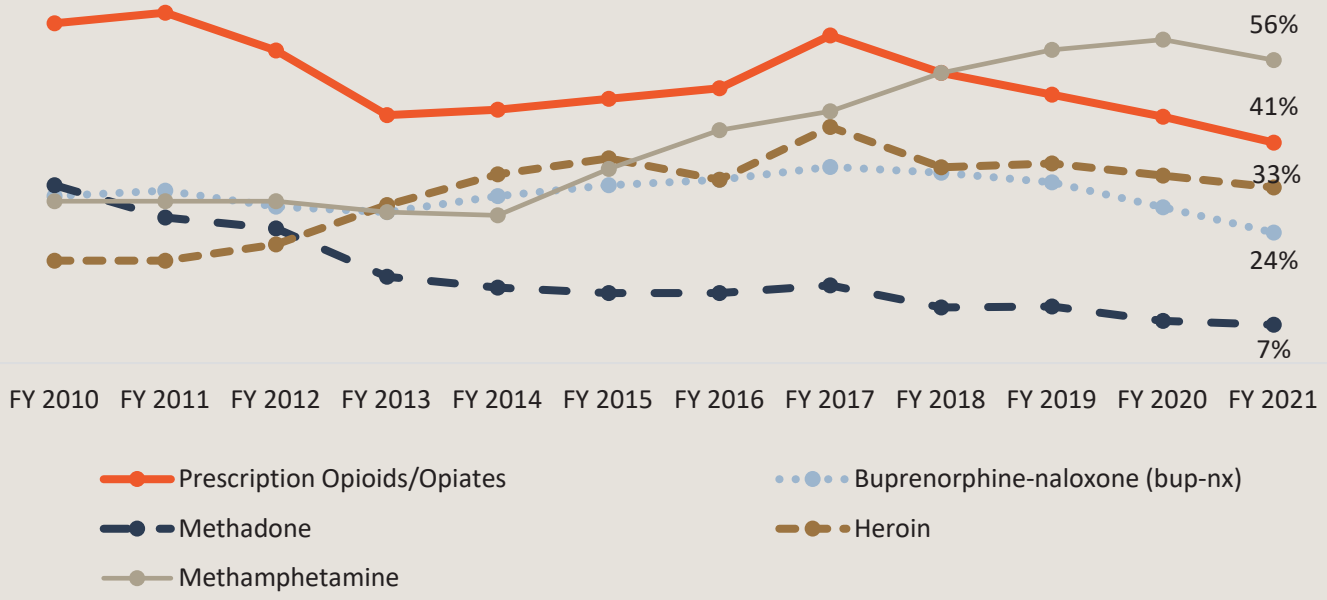
- RCOS FOLLOW-UP CLIENT

TREND ALERT: HOW MUCH HAS OPIOID AND METHAMPHETAMINE USE CHANGED OVER TIME?

This trend analysis examines the percent of RCOS clients who reported misusing prescription opiates/opioids, non-prescribed methadone, non-prescribed buprenorphine-naloxone (bup-nx), heroin, and methamphetamine in the 6 months before entering the program from FY 2010 to FY 2021. This analysis examined data among the RCOS clients who completed an intake interview each fiscal year. Individuals who were incarcerated all 6 months before entering the program are excluded from this analysis.

As the figure shows, about two-thirds of clients reported misusing prescription opioids in FY 2010 and FY 2011. A significant decline in the percent of clients reporting opioid misuse began in FY 2012 (58%) and continued through FY 2013 (46%). This number began to slightly rise again in FY 2014 (47%) and continued until FY 2017 (61%). In FY 2018, the number of clients reporting misusing prescription opioids decreased to 54% the decrease continued to 41% in FY 2021.

The number of clients reporting non-prescribed bup-nx has remained relatively stable over the years, dipping to its lowest in FY 2012 (29%) and peaking in FY 2017 and FY 2018 (36%). The percent of individuals reporting non-prescribed methadone use has steadily decreased from FY 2010 (33%) to FY 2018 (10%) and a slight increase in FY 2019 (11%). Heroin use, however, increased from 19% in FY 2010 to a high of 44% in FY 2017, before beginning a gradual decline to 33% in FY 2021. The percent of clients reporting methamphetamine use began increasing in FY 2015 (36%), with the highest percentage in FY 2020 (60%).



Past-6-month Alcohol Use

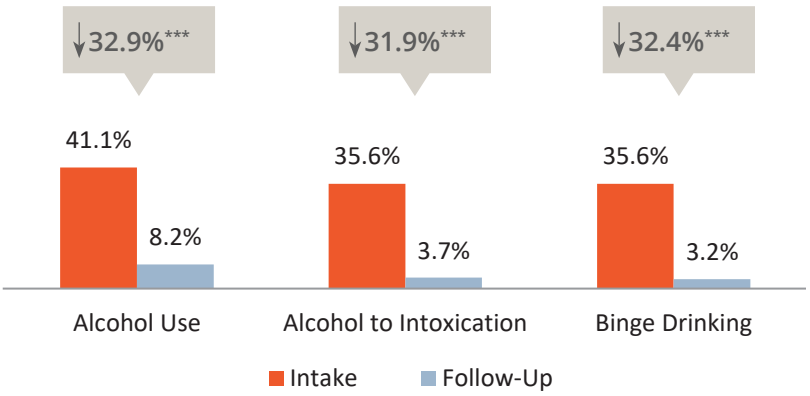
Alcohol use was asked three main ways: (1) how many months/days did you drink any alcohol (i.e., alcohol use), (2) how many months/days did you drink alcohol to intoxication (i.e., alcohol to intoxication), and (3) how many months/days did you have 5 or more (4 or more if female) alcoholic drinks in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

At intake, clients were asked how old they were when they had their first alcoholic drink (other than a few sips). RCOS follow-up clients, on average, reported they were 13.9 years old when they began drinking.[a]

a—Three clients reported never using alcohol so they are not included.

About two-fifths of clients (41.1%) reported using alcohol in the 6 months before entering the recovery center while 8.2% of clients reported alcohol use in the 6 months before follow-up. There was a 32.9% decrease in the number of individuals reporting alcohol use (see Figure 2A.4). Overall, 35.6% of individuals reported using alcohol to intoxication before entering the recovery center and 3.7% reported using alcohol to intoxication at follow-up—a 31.9% decline. Also, 35.6% of individuals reported binge drinking in the 6 months before program entry and only 3.2% reported binge drinking in the follow-up period—a 32.4% decrease.

FIGURE 2A.4. PAST-6-MONTH ALCOHOL USE AT INTAKE AND FOLLOW-UP (N = 219)

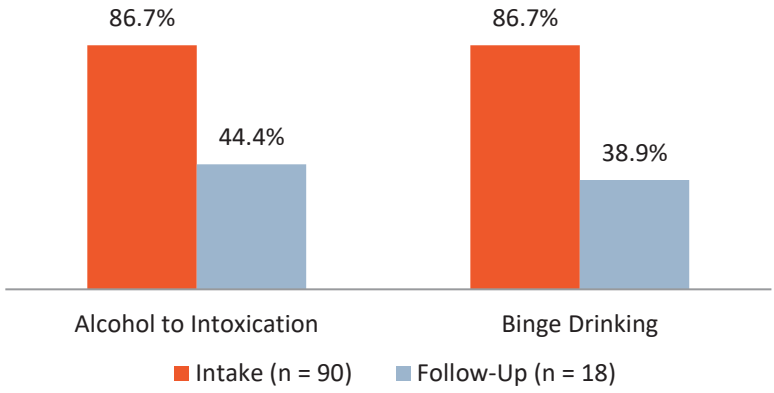


***p < .001.

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

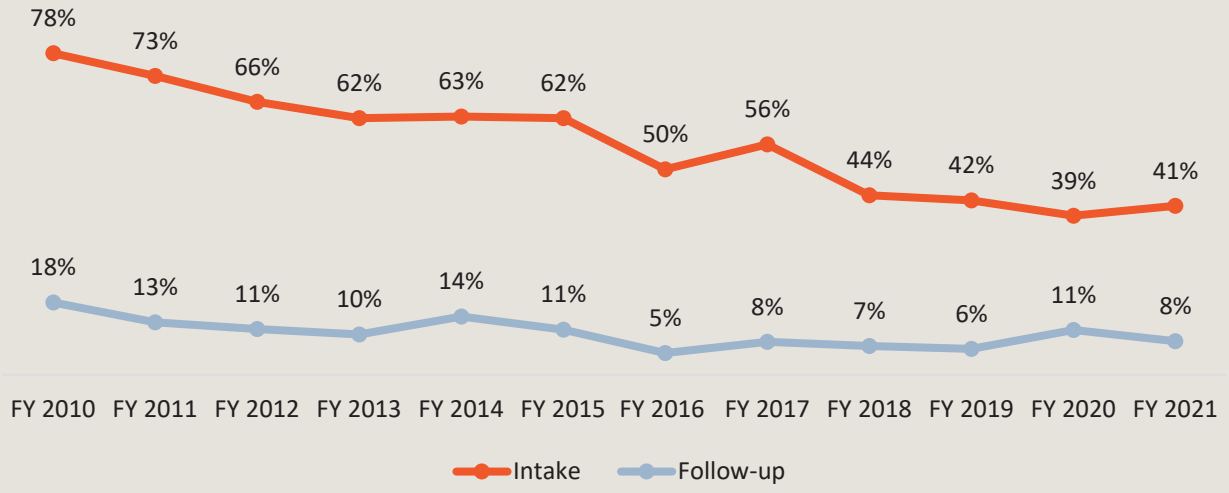
Of the individuals who used alcohol in the 6 months before entering the recovery center (n = 90), 86.7% used alcohol to intoxication and 86.7% binge drank alcohol (see Figure 2A.5). Of the individuals who used alcohol in the 6 months before follow-up (n = 18), only 44.4% of clients reported alcohol use to intoxication and 38.9% reported binge drinking.

FIGURE 2A.5. PAST-6-MONTH ALCOHOL USE TO INTOXICATION AND BINGE DRINKING AT INTAKE TO FOLLOW-UP, AMONG THOSE REPORTING ALCOHOL USE AT EACH POINT



TRENDS IN ALCOHOL USE

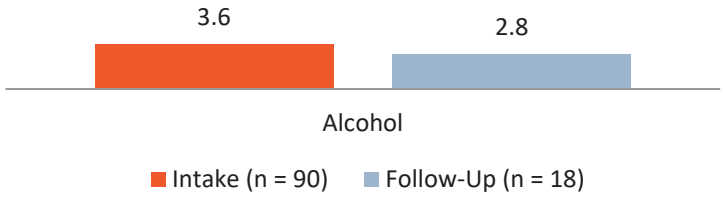
The percent of RCOS clients reporting alcohol use in the 6 months before intake was high but has decreased over time, with the lowest percentage in FY 2020. Each year the percent of clients reporting alcohol use has decreased significantly from intake to follow-up.



AVERAGE NUMBER OF MONTHS USED ALCOHOL

Figure 2A.6 shows the number of months of alcohol use for those who reported using any alcohol in the 6 months before intake and any alcohol in the 6 months before follow-up. Among the individuals who reported using alcohol in the 6 months before entering the program (n = 90), they used an average of 3.6 months. Among individuals who reported using alcohol at follow-up (n = 18), they used an average of 2.8 months.

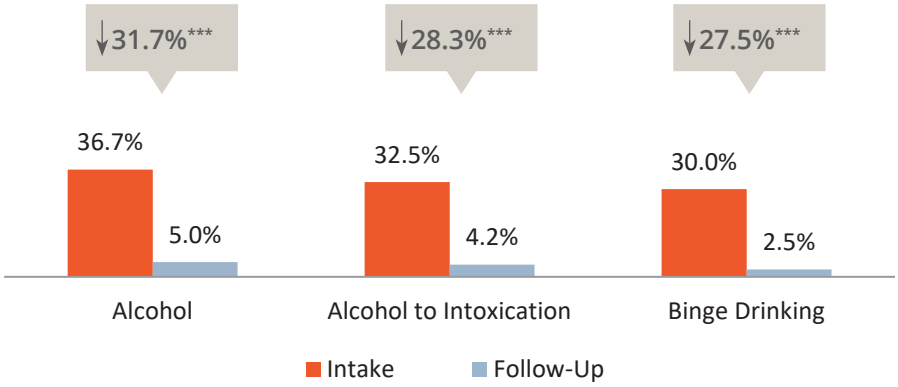
FIGURE 2A.6. AVERAGE NUMBER OF MONTHS OF ALCOHOL USE



Past-30-day Alcohol Use

There was a decrease of 31.7% in the number of individuals who reported using alcohol in the past 30 days from intake (36.7%) to follow-up (5%; see Figure 2A.7). Decreases in the number of individuals who reported using alcohol to intoxication (by 28.3%) and binge drinking (by 27.5%) were also significant for the sample overall.

FIGURE 2A.7. PAST-30-DAY ALCOHOL USE FROM INTAKE TO FOLLOW-UP (N = 120)



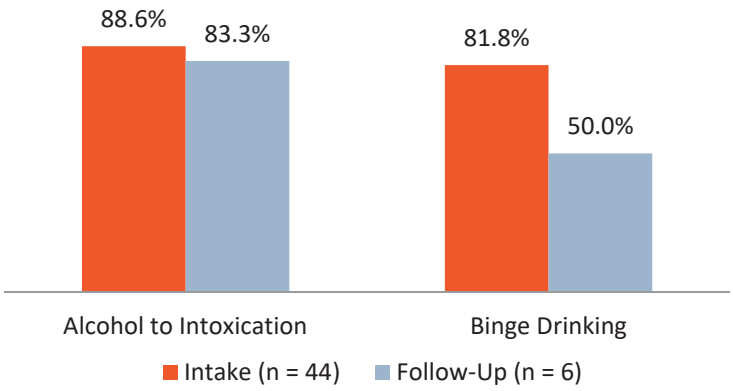
***p < .001.

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

Of the 44 individuals who used alcohol in the 30 days before entering the recovery center, 88.6% used alcohol to intoxication and 81.8% binge drank alcohol in the 30 days before entering the program (see Figure 2A.8). Of the 6 individuals who reported using alcohol in the 30 days before follow-up, 83.3% reported alcohol use to intoxication and 50.0% reported binge drinking.[42]

[42] It was not possible to conduct a chi square test to examine difference in the percent of men and women who used alcohol to intoxication and binge drank in the 30 days before follow-up among those who used alcohol because of the small number of individuals who reported using alcohol in the 30 days before follow-up (n = 6).

FIGURE 2A.8. PAST-30-DAY ALCOHOL TO INTOXICATION AND BINGE DRINKING AT INTAKE AND FOLLOW-UP, AMONG THOSE REPORTING ALCOHOL USE AT EACH POINT



Self-reported Severity of Alcohol and Drug Use

DSM-5 CRITERIA FOR SUBSTANCE USE DISORDER, PAST 6 MONTHS

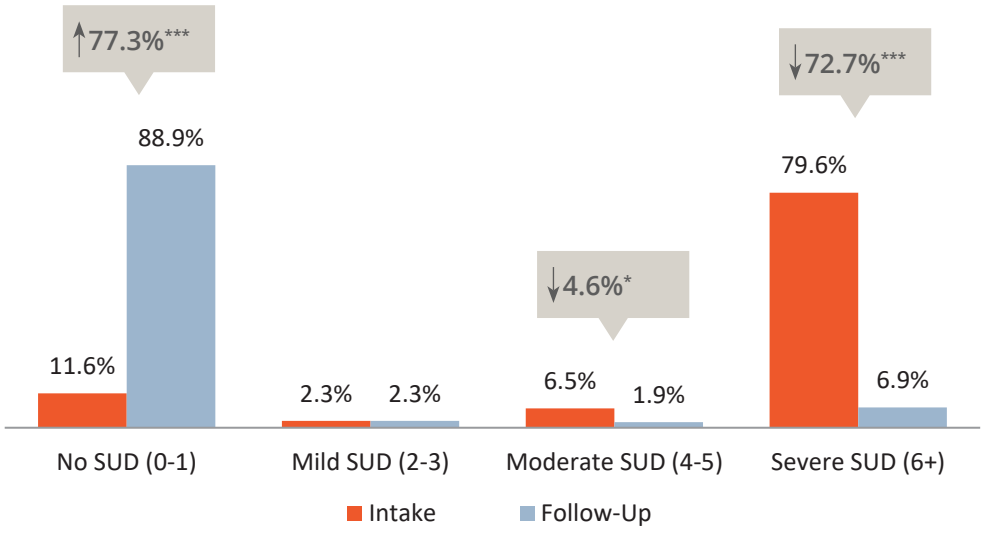
One way to examine overall change in degree of severity of substance use is to ask participants to self-report whether they meet any of the 11 symptoms included in the DSM-5 criteria for diagnosing substance use disorder (SUD) in the past 6 months.[43] The DSM-5 substance use disorder diagnosis has four levels of severity which were used to classify severity groups in this study: (1) no SUD (1 or no criteria met), (2) mild SUD (2 or 3 criteria met), (3) moderate SUD (4 or 5 criteria met), and (4) severe disorder (6 or more criteria met). Client self-reports of DSM-5 criteria suggest, but do not diagnose, a substance use disorder.

Change in the severity of SUD in the prior 6 months was examined for clients at intake and follow-up. Figure 2A.9 displays the change in the percent of individuals in each SUD severity classification, based on self-reported criteria in the preceding 6 months.[44] At intake, only 11.6% met criteria for no substance use disorder (meaning they reported 0 or 1 DSM-5 criteria), while at follow-up, the vast majority (88.9%) met criteria for no SUD, a significant increase of 77.3%. At the other extreme of the continuum, 79.6% of individuals met criteria for severe SUD at intake, while at follow-up, only 6.9% met criteria for severe SUD, a significant decrease of 72.7%. Also, the percent of clients who met criteria for moderate SUD also decreased significantly.

[43] The DSM-5 diagnostic criteria for substance use disorders included in the RCOS intake and follow-up interviews are similar to the criteria for DSM-IV, which has evidence of excellent test-retest reliability and validity. However, the DSM-5 eliminates the distinction between substance abuse and dependence, substituting severity ranking instead. In addition, the DSM-5 no longer includes the criterion about legal problems arising from substance use but adds a new criterion about craving and compulsion to use.

[44] Individuals who were in a controlled environment the entire 6-month period before intake or follow-up (n = 64) were excluded from this analysis. Three individuals were missing data on at least one variable that was used to compute SUD severity. Thus, this analysis includes data from 216 individuals.

FIGURE 2A.9. DSM-5 SUD SEVERITY AT INTAKE AND FOLLOW-UP (N = 216)[a]



a – Significance tested with the Stuart-Maxwell Test for Marginal Homogeneity ($p < .001$).
*$p < .05$, ***$p < .001$.

Addiction Severity Index (ASI), Past 30 Days

Another 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 of past-30-day alcohol and drug use, 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).

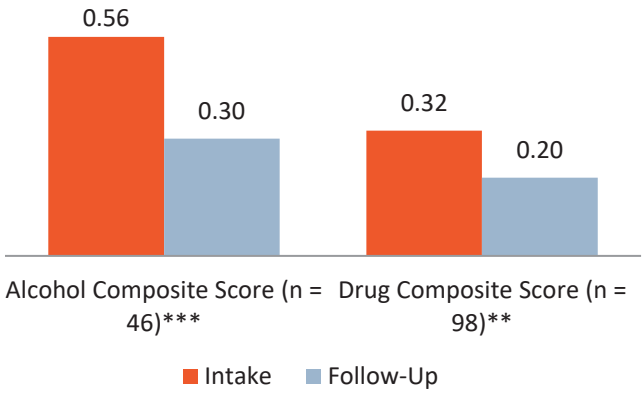
Change in the average ASI composite score for alcohol and drug use was examined for individuals who were not in a controlled environment all 30 days before entering the recovery center. Also, individuals who reported abstaining from alcohol or drugs at intake and follow-up were not included in the analysis of change for each composite score.

ASI ALCOHOL AND DRUG COMPOSITE SCORES AND SUBSTANCE USE DISORDERS

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, and to show reductions in self-reported severity of substance use. In previous years we have used the ASI composite scores to estimate the number and percent of clients who met a threshold for alcohol and drug dependence. However, recent changes in the diagnostics for substance abuse call into question the distinction between dependence and abuse. Thus, ASI composite scores that met the threshold can be considered indicative of severe substance use disorder to be compatible with current thinking about substance use disorders in the DSM-V, where we would have previously referred to them as meeting the threshold for dependence. Change from intake to follow-up in the severity rating as the same clinical relevance as moving from dependence to abuse in the older criteria.

Figure 2A.10 displays the change in average scores.[45] Among individuals who reported using any alcohol, the average alcohol composite score decreased significantly from 0.56 at intake to 0.30 at follow-up. Among individuals who reported any illegal drug use, the average drug composite score decreased significantly from 0.32 at intake to 0.20 at follow-up.

FIGURE 2A.10. AVERAGE ASI ALCOHOL AND DRUG COMPOSITE SCORES AT INTAKE AND FOLLOW-UP AMONG INDIVIDUALS WHO USED ALCOHOL AND DRUGS AT EITHER PERIOD



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

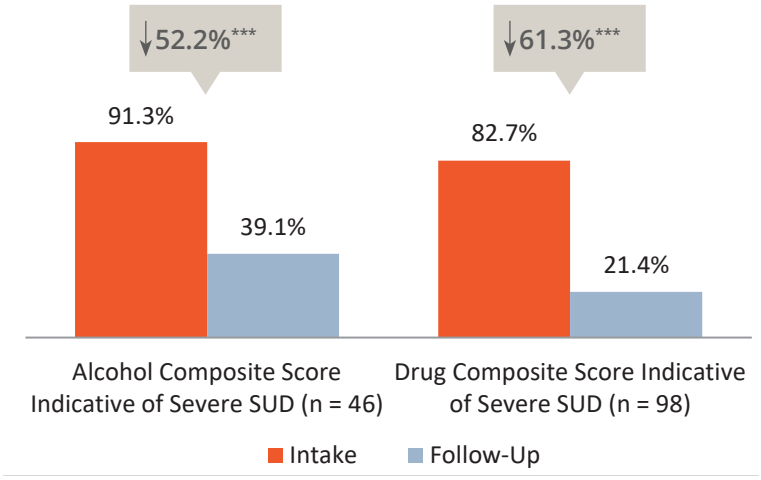
The percent of individuals who had ASI composite scores that met the cutoff for severe substance use disorder (SUD) decreased significantly from intake to follow-up (see Figure 2A.11). At intake, the majority of individuals who used the substances had alcohol and drug composite scores that met the cutoff for severe SUD (91.3% and 82.7% respectively), while the percent of individuals with alcohol and drug composite scores that met the cutoff for severe SUD were significantly lower at follow-up. Only 39.1% of individuals had an alcohol composite score that met the cutoff for severe SUD at follow-up and only 21.4% had a drug composite score that met the cutoff for severe SUD at follow-up.

"It was hard for me to be there away from family, but it saved my life" Helpful staff."

- RCOS FOLLOW-UP CLIENT

[45] In addition to the 163 individuals who were excluded because they were in a controlled environment all 30 days before intake or follow-up, the following numbers of cases were not included in the analysis of change in the composite score: 74 individuals reported abstaining from alcohol at intake and follow-up, 22 individuals reported abstaining from drugs at intake and follow-up.

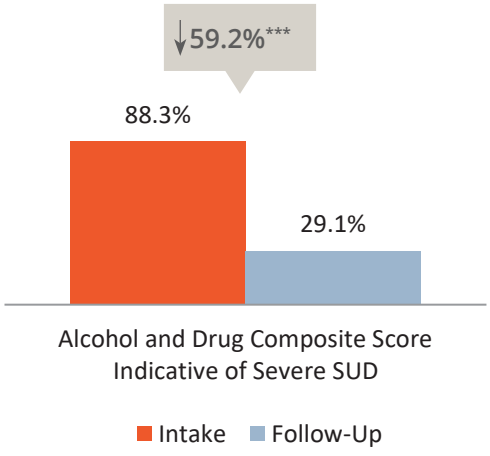
FIGURE 2A.11. INDIVIDUALS WITH ASI COMPOSITE SCORES MEETING THE CUTOFF FOR SEVERE SUBSTANCE USE DISORDER AT INTAKE AND FOLLOW-UP



***p < .001.

Among individuals who used alcohol and/or drugs in the 30 days before intake (n = 103), 88.3% had alcohol and drug composite scores that met the cutoff for both severe alcohol use disorder and drug use disorder (see Figure 2A.12). The percent of clients who had composite scores that met the cutoff for severe SUD for both alcohol and drugs decreased significantly to 29.1% at follow-up.

FIGURE 2A.12. INDIVIDUALS WITH ASI COMPOSITE SCORES MEETING THE CUTOFF FOR SEVERE ALCOHOL AND DRUG USE DISORDERS AT INTAKE AND FOLLOW-UP (n = 103)[46]

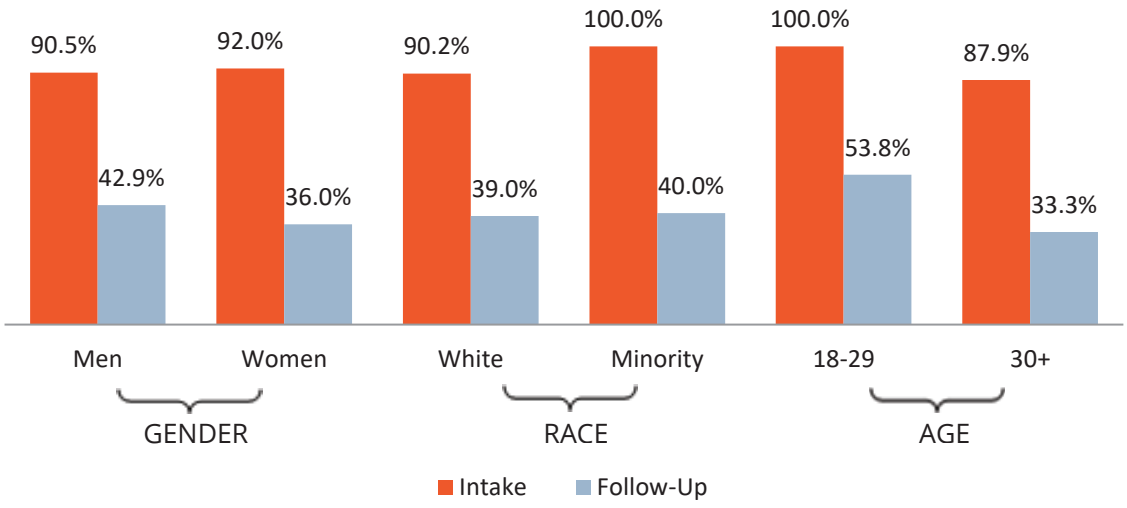


***p < .001.

Analysis was also conducted to examine differences between individuals who had an alcohol composite score meeting the cutoff for severe SUD at intake and follow-up by gender, race/ethnicity, or age (see Figure 2A.13). There were no significant differences by gender, race, or age group at intake or follow-up.

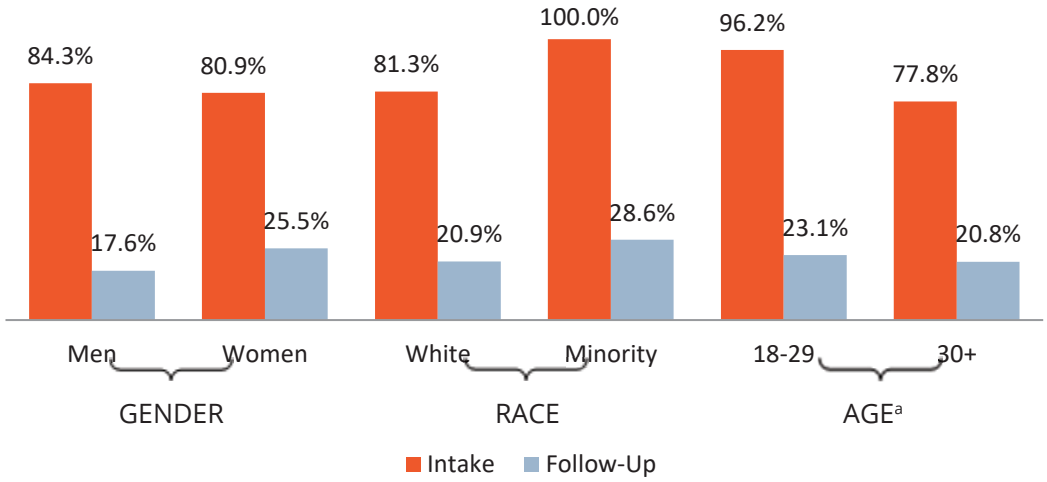
[46] Among the 120 individuals who were not in a controlled environment all 30 days before intake or follow-up, 17 were excluded from this analysis because they did not report using alcohol or drugs in the 30 days before intake or follow-up.

FIGURE 2A.13. ALCOHOL-USING INDIVIDUALS WITH AN ALCOHOL COMPOSITE SCORE INDICATIVE OF SEVERE SUD AT INTAKE AND FOLLOW-UP BY DEMOGRAPHIC FACTORS (N = 46)



Analysis was also conducted to examine whether individuals who had a drug composite score indicative of severe SUD at intake and follow-up differed by gender, race/ethnicity, or age (see Figure 2A.14). Compared to older individuals (30 and older) significantly more 18-29 year-old individuals had a drug composite score indicative of severe drug use disorder at intake, and at follow-up there was no difference. There were no differences at intake or follow-up by gender and race/ethnicity.

FIGURE 2A.14. DRUG-USING INDIVIDUALS WITH A DRUG COMPOSITE SCORE INDICATIVE OF SEVERE SUD AT INTAKE AND FOLLOW-UP BY DEMOGRAPHIC FACTORS (N = 98)



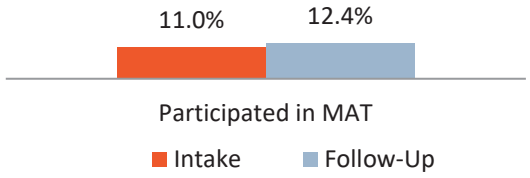
a—Statistically significant difference by age at intake; *p < .05.

Medication-assisted Treatment

A minority of clients reported at intake and follow-up that they had participated in

medication-assisted treatment in the previous 6 months, with no change from intake to follow-up (see Figure 2A.15).

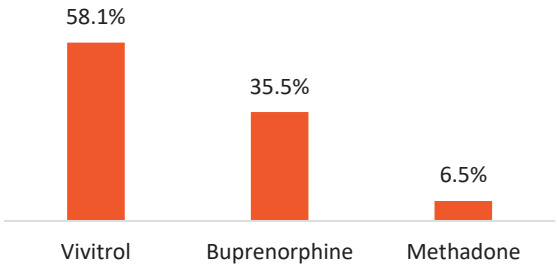
FIGURE 2A.15. PARTICIPATED IN ANY MEDICATION-ASSISTED TREATMENT IN THE 6 MONTHS BEFORE INTAKE AND FOLLOW-UP (n = 283)



Of the minority of clients (11.0%, n = 31) who reported at intake that they had participated in any medication-assisted treatment in the 6 months before intake, they reported using the medication for an average of 2.9 months of the 6-month period and 7.5 days in the past 30 days (not depicted in a figure).

Figure 2A.16 shows the percent of clients who reported using the following medications as their most recent medication in the 6 months entering the recovery program: Vivitrol (58.1%), buprenorphine (35.5%), and methadone (6.5%).

FIGURE 2A.16. MEDICATIONS TAKEN IN MEDICATION-ASSISTED TREATMENT IN THE 6 MONTHS BEFORE ENTERING THE RECOVERY CENTER (n = 31)

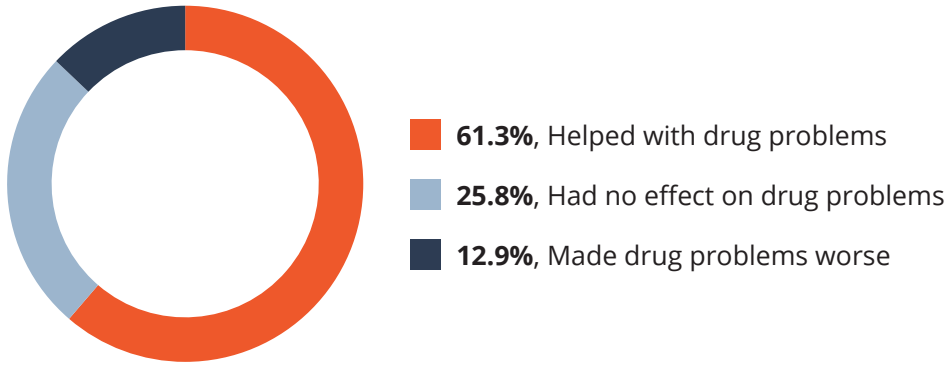


Among the 31 individuals who reported they had participated in MAT in the 6 months before entering the recovery center, 38.7% reported they obtained the medication from a doctor in a general medical practice , 22.6% reported the medication was prescribed by a doctor in a specialty clinic, and 38.7% reported the medication was dispensed in a clinic

(not depicted in a figure).

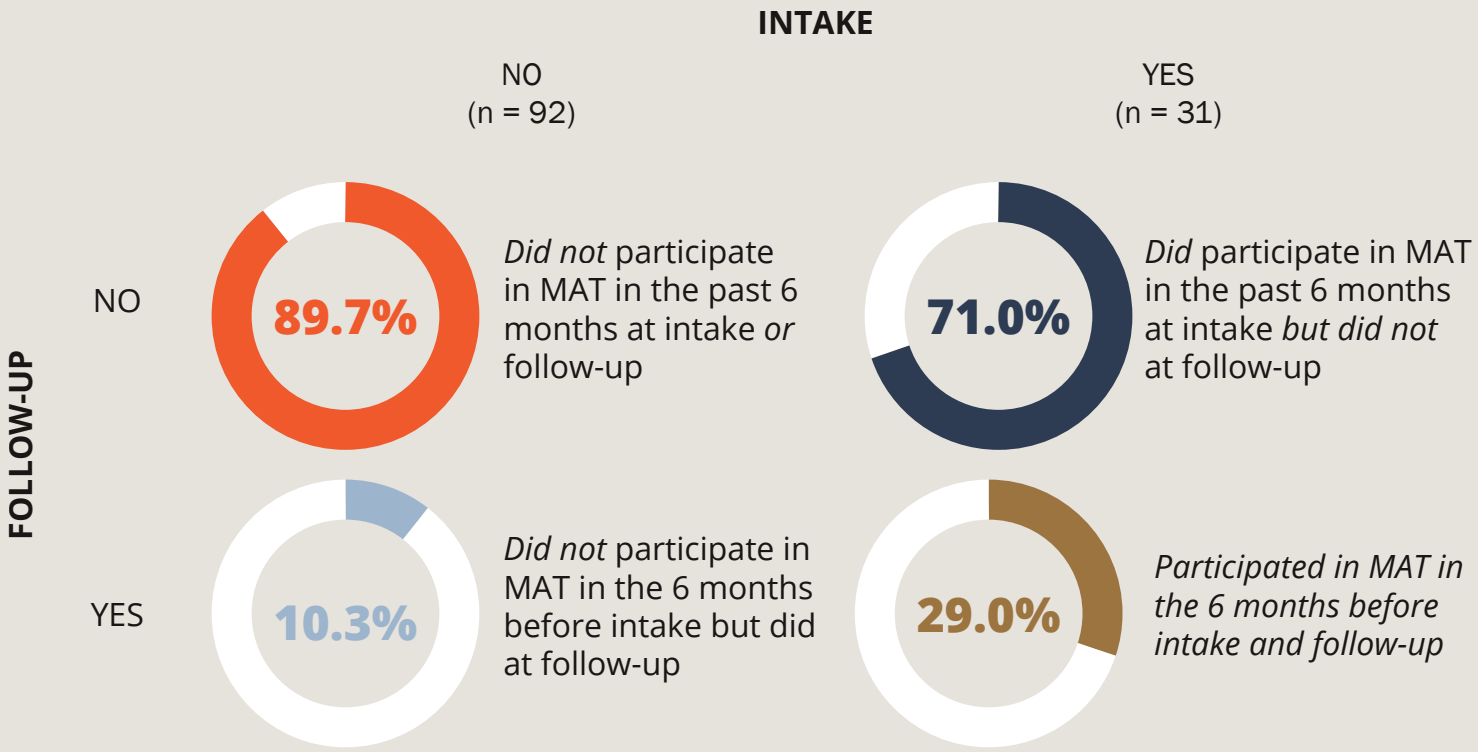
Among the 31 individuals who reported they had participated in MAT in the 6 months before entering the recovery center, the majority reported the prescribed medication helped them with their drug problems (61.3%), followed by 25.8% who reported the medication had no effect on their drug problem, and 12.9% who reported the medication made their drug problems worse (see Figure 2A.17).

FIGURE 2A.17. CLIENTS' PERCEPTION OF HOW HELPFUL THE PRESCRIBED



Of the 31 clients who reported participating in MAT in the 6 months before intake, most of them (71.0%, n = 22) reported not having participated in MAT in the 6 months before follow-up (see Figure 2A.18).

FIGURE 2A.18. PARTICIPATION IN MEDICATION-ASSISTED TREATMENT AT FOLLOW-UP BY PARTICIPATION AT INTAKE



Tobacco Use

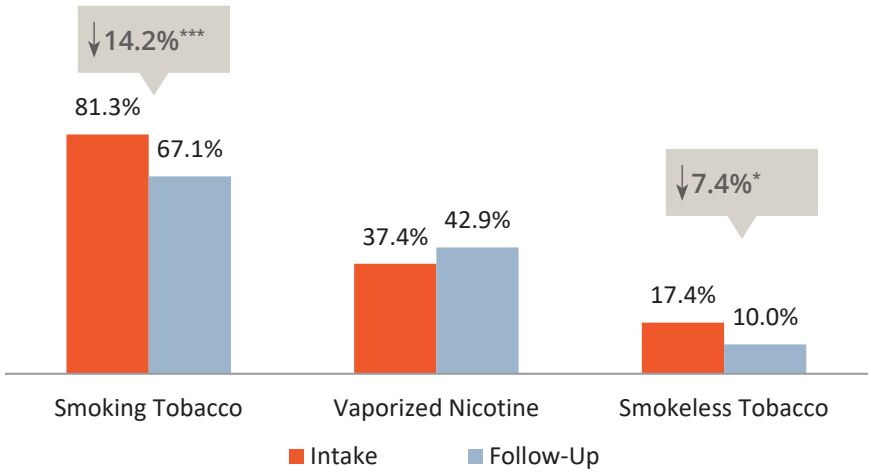
PAST-6-MONTH SMOKING, VAPORIZED NICOTINE, AND SMOKELESS TOBACCO USE

There were significant decreases in the percent of individuals reporting smoking tobacco and using smokeless tobacco from intake to follow-up (see Figure 2A.19). Most individuals reported smoking tobacco in the 6 months before entering the recovery center (81.3%) and in the 6 months before follow-up (67.1%). The percent of individuals reporting use of vaporized nicotine (e.g., battery-powered nicotine delivery devices that vaporize a liquid mixture consisting of propylene glycol, glycerin, flavorings, nicotine, and other chemicals) was more than one-third at intake (37.4%) and more than two-fifths at follow-up (42.9%), with no significant change. The percent of individuals who reported using smokeless tobacco decreased significantly from intake (17.4%) to follow-up (10%).

At intake, clients were asked how old they were when they began smoking regularly (on a daily basis). RCOS follow-up clients reported, on average, that they began smoking regularly at 15.4 years old.[a]

a—Thirty-five clients reported they had never smoked regularly.

FIGURE 2A.19. PAST-6-MONTH SMOKING TOBACCO, VAPORIZED NICOTINE, AND SMOKELESS TOBACCO USE AT INTAKE AND FOLLOW-UP (N = 219)

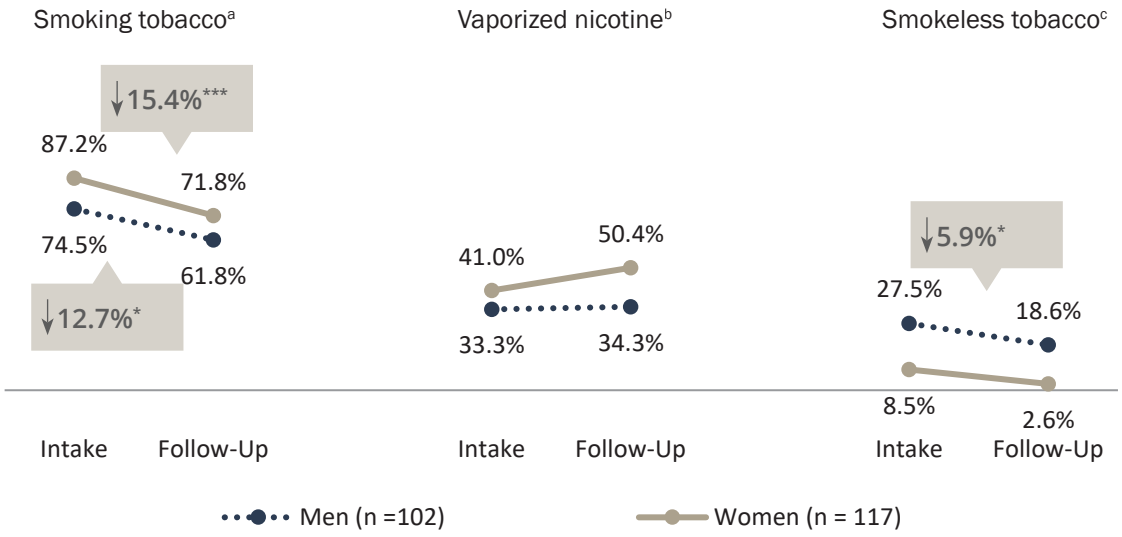


*p < .05, ***p<.001.

GENDER DIFFERENCES IN PAST-6-MONTH SMOKING AND SMOKELESS TOBACCO AND VAPORIZED NICOTINE

At intake, significantly more women than men reported smoking tobacco (see Figure 2A.20). The percent of women and men who reported smoking tobacco decreased from intake to follow-up, and at follow-up, there was no gender difference. At follow-up, significantly more women reported using vaporized nicotine compared to men. At intake and follow-up, significantly more men than women reported using smokeless tobacco. More than one-fourth of men (27.5%) and only 8.5% of women reported using smokeless tobacco at intake. There was a significant decrease from intake to follow-up in the percent of men who used smokeless tobacco.

FIGURE 2A.20. GENDER DIFFERENCES IN PAST-6-MONTH SMOKING AND SMOKELESS TOBACCO USE AT INTAKE AND FOLLOW-UP

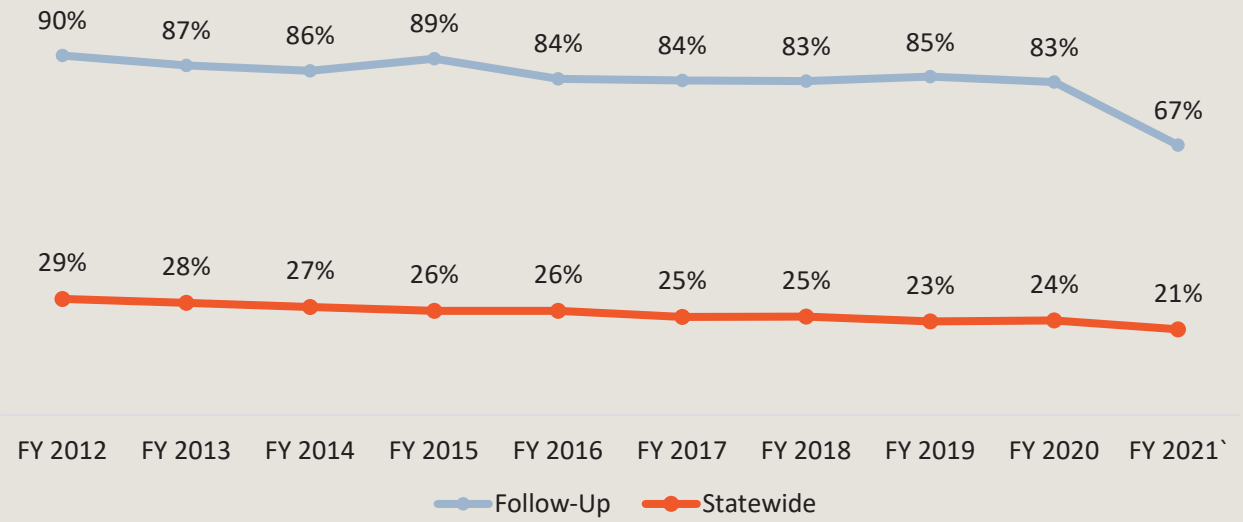


a—Significant difference by gender at intake ($p < .05$).
b—Significant difference by gender at follow-up ($p < .05$).
c—Significant difference by gender at intake and follow-up ($p < .001$).
*$p < .05$, ***$p < .001$

TREND ALERT: PAST-6-MONTH SMOKING TOBACCO AT FOLLOW-UP

Smoking rates for RCOS clients consistently remain high in the 6 months before follow-up from FY 2012 to FY 2020. In FY 2012, 90% of clients reported smoking at follow-up. A similar percentage was reported in FY 2013 (87%) and in FY 2014 (86%). Since FY 2016, the percentage of clients who reported smoking tobacco in the 6 months before follow-up has been between 83% and 85%. In FY 2021, the percent fell to 67%.

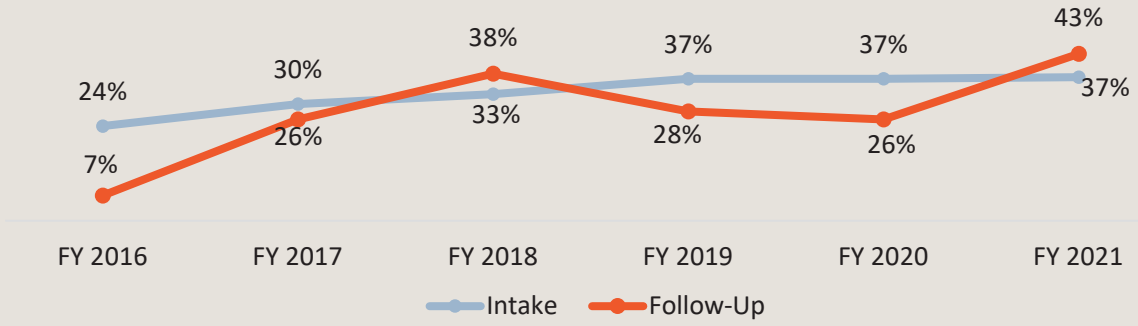
When compared to a statewide sample, over three times more RCOS clients report smoking at follow-up.[47]



[47] https://www.americashealthrankings.org/explore/2021-annual-report/measure/Smoking/state/KY

TREND ALERT: PAST-6-MONTH VAPORIZED NICOTINE AT INTAKE AND FOLLOW-UP

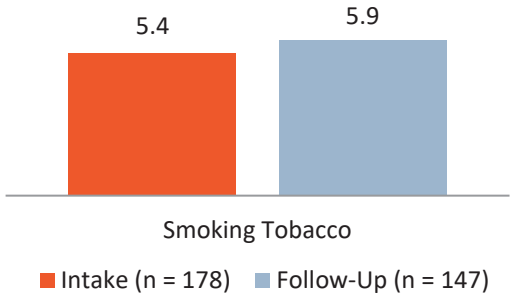
Use of vaporized nicotine in the 6 months before entering the recovery center has increased from 24% in the FY 2016 to 37% in FY 2019-2021, among individuals who were not in a controlled environment all 6 months. In FY 2016 and FY 2020, the decrease in vaporized nicotine use from intake to follow-up was statistically significant. However, in FY 2017 - 2019 there was no significant change from intake to follow-up in the percent of individuals reporting use of vaporized nicotine products.



AVERAGE NUMBER OF MONTHS SMOKED TOBACCO

Figure 2A.21 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 6 months before entering the program (n = 178), they reported smoking tobacco, on average, 5.4 months. Among individuals who reported smoking tobacco at follow-up (n = 147), they reported using, on average, 5.9 months of the 6-month period.

FIGURE 2A.21. AVERAGE NUMBER OF MONTHS TOBACCO USE

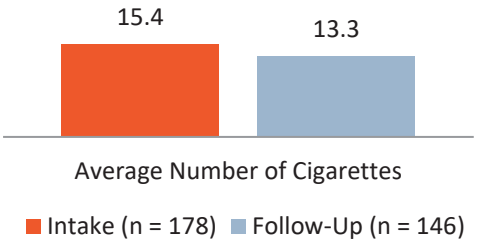


AVERAGE NUMBER OF CIGARETTES SMOKED PER DAY

Figure 2A.22 shows, among individuals who smoked tobacco, the average number of cigarettes smoked per day: 15.4 cigarettes per day at intake (n = 178) and 13.3 cigarettes

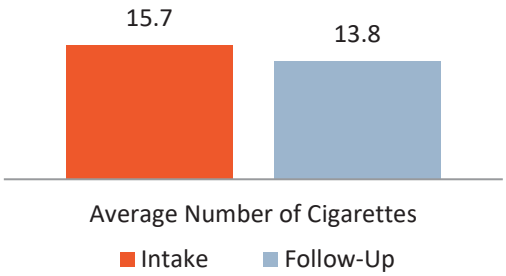
per day at follow-up (n = 146).[48]

FIGURE 2A.22. AVERAGE NUMBER OF CIGARETTES SMOKED PER DAY



Among the individuals who reported smoking tobacco in the 6 months both before intake and the 6 months before follow-up (n = 136), the average number of cigarettes they smoked per day decreased significantly from 15.7 at intake to 13.8 at follow-up (see Figure 2A.23).

FIGURE 2A.23. AMONG INDIVIDUALS WHO SMOKED CIGARETTES AT INTAKE AND FOLLOW UP (N = 135),[49] THE AVERAGE NUMBER OF CIGARETTES SMOKED PER DAY[a]



a--Paired sample t-test was conducted; the decrease in mean number of cigarettes smoked was statistically significant at $p < .01$.

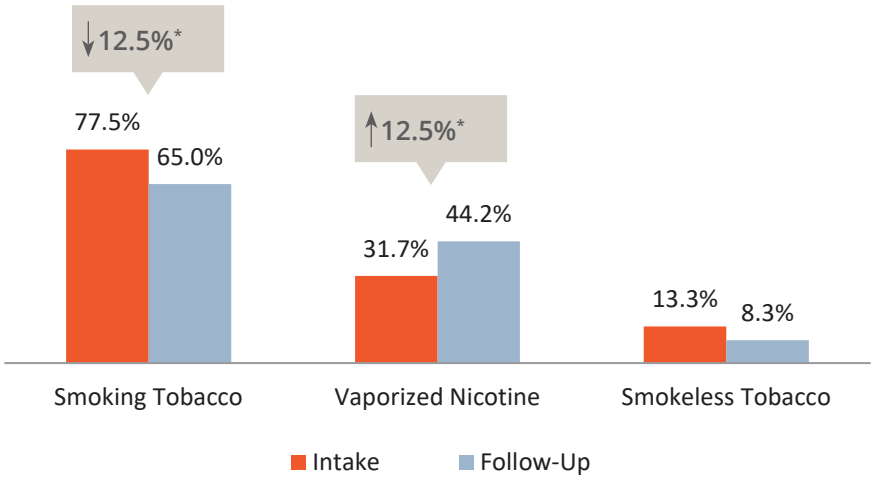
Past-30-day Use Smoking, Vaporized Nicotine, and Smokeless Tobacco Use

Among the individuals who were not in a controlled environment all 30 days before entering the program, the majority reported smoking tobacco in the 30 days before entering the recovery center (77.5%) and at follow-up (65.0%), with a small but significant decrease from intake to follow-up (see Figure 2A.24). About 3 in 10 clients (31.7%) reported using vaporized nicotine in the 30 days before entering the program, with a significant increase at follow-up (44.2%). A smaller percentage of individuals reported smokeless tobacco use in the 30 days before entering the program (13.3%), with a non-significant change to 8.3% at follow-up.

[48] One individual had a missing value for the number of cigarettes smoked per day at follow-up.

[49] 136 individuals reported smoking tobacco in the 6 months before intake and follow-up, however, one had a missing value for number of cigarettes smoked at follow-up.

FIGURE 2A.24. PAST-30-DAY SMOKING, VAPORIZED NICOTINE, AND SMOKELESS TOBACCO USE AT INTAKE AND FOLLOW-UP (N = 120)

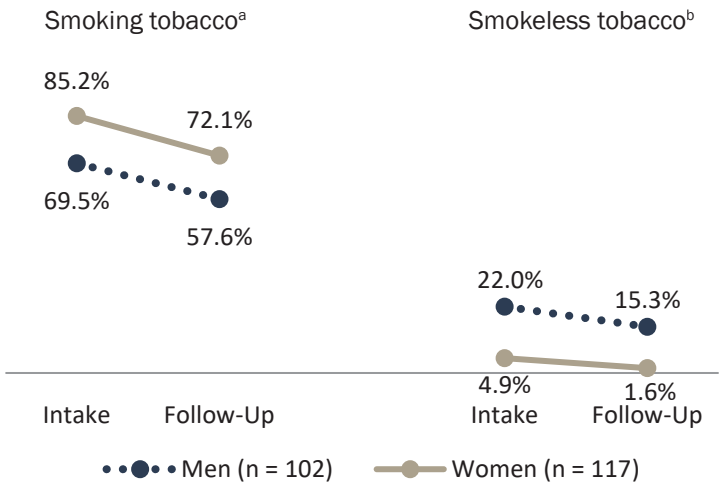


*p < .05.

GENDER DIFFERENCES IN PAST-30-DAY SMOKING AND SMOKELESS TOBACCO USE

Significantly more women reported smoking tobacco in the 30 days before enter the program than men. At follow-up, there was no difference between men and women. Significantly more men reported past-30-day use of smokeless tobacco at intake and follow-up compared to women (see Figure 2A.25). There was no significant change in the percent of men and women separately reporting smokeless tobacco use from intake to follow-up.

FIGURE 2A.25. GENDER DIFFERENCES IN PAST-30-DAY SMOKING AND SMOKELESS TOBACCO USE AT INTAKE AND FOLLOW-UP



a – Significant difference by gender at intake; p < .05.
b – Significant difference by gender at intake and follow-up; p < .01.

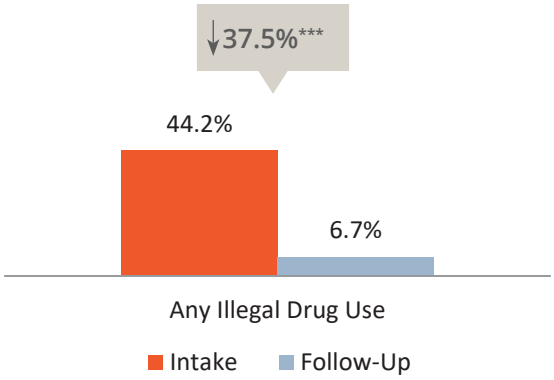
2b. Substance Use for Clients Who Were in a Controlled Environment

Changes in drug, alcohol, and tobacco 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 = 158) or all 30 days before the follow-up survey (n = 5) because being in a controlled environment reduces opportunities for alcohol and drug use.

Past-30 Day-use of Any Illegal Drugs

Of the individuals who were in a controlled environment all 30 days before intake or follow-up (n = 163), 44.2% 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 2B.1). In the 30 days before follow-up, 6.7% of clients reported illegal drug use, which is a significant decrease of 37.5%.

FIGURE 2B.1. PAST-30-DAY ILLEGAL DRUG USE AT INTAKE AND FOLLOW-UP FOR CLIENTS IN A CONTROLLED ENVIRONMENT (n = 163)

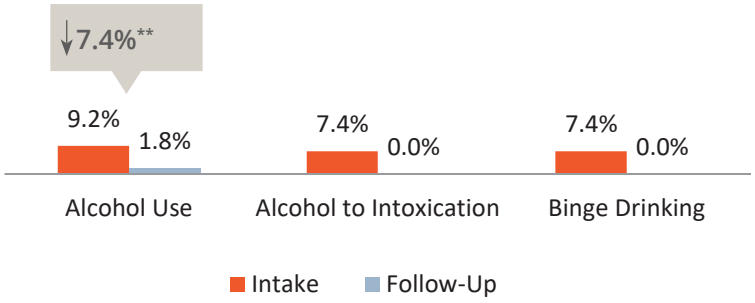


a – Significant difference by gender at intake; p < .05.
b—Significant difference by gender at intake and follow-up; p < .01.

Past-30-day Alcohol Use

As expected, given their confinement to a controlled environment in the 30 days before entering the recovery center, only a minority (9.2%) of individuals reported they had used alcohol in those 30 days (see Figure 2B.2). There was a significant decrease from intake to follow-up in the percent of individuals who reported using alcohol. Even though there was a decrease in the percent of clients reporting alcohol to intoxication and binge drinking, statistical significance could not be determined because the McNemar statistic cannot be computed when at least one of the cells in the crosstabulation has a value of 0.

FIGURE 2B.2. PAST-30-DAY ALCOHOL USE AT INTAKE AND FOLLOW-UP FOR CLIENTS IN A CONTROLLED ENVIRONMENT (N = 163)

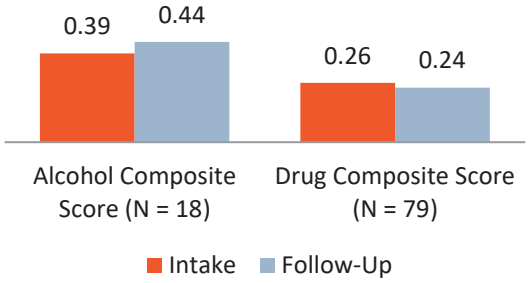


McNemar statistic could not be computed because one of the cells had a value of 0.
**p < .01.

Self-reported Severity of Alcohol and Drug Use Among Clients Who Were 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 scores for alcohol use and drug use did not change significantly from intake to follow-up (see Figure 2B.3).

FIGURE 2B.3. AVERAGE ALCOHOL ASI ALCOHOL AND DRUG COMPOSITE SCORES AT INTAKE AND FOLLOW-UP[50]

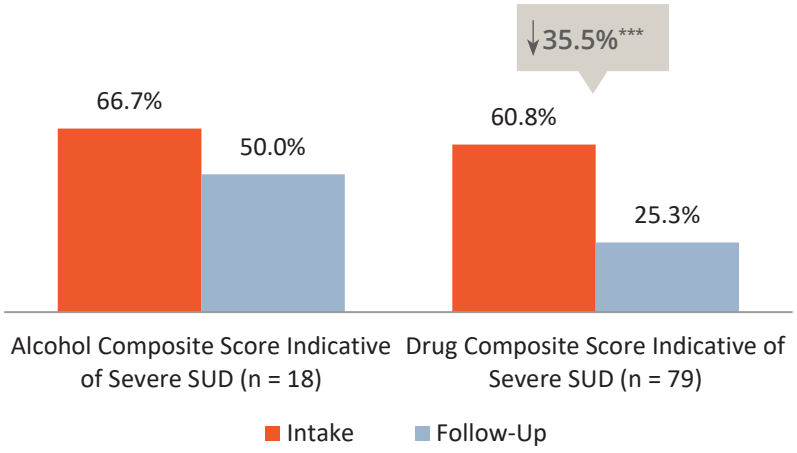


Among the individuals who were in a controlled environment all 30 days before entering the program and who did not report abstaining from the substance, the majority (66.7%) had an alcohol composite score that met the cutoff for severe SUD at intake. At follow-up, 50% of these individuals had an alcohol composite score that met the cutoff for severe SUD, which was not significantly different from intake (see Figure 2B.4). The majority of individuals (60.8%) had a drug composite score that met the cutoff for severe SUD, and

[50] Twenty-three individuals reported using alcohol at intake or follow-up. In addition, 83 individuals reported using illegal drugs at intake or follow-up.

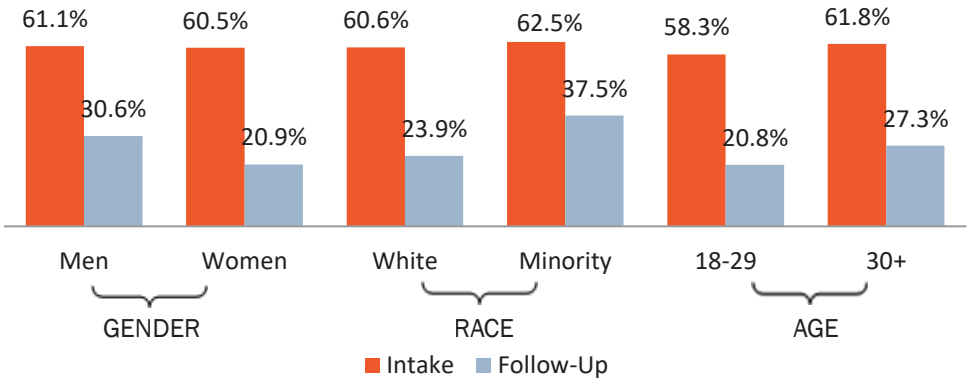
25.3% had a drug composite score that met the cutoff for severe SUD at follow-up—a significant decrease of 35.5%.[51]

FIGURE 2B.4. ASI COMPOSITE SCORES MEETING THE CUTOFF FOR SEVERE SUBSTANCE USE DISORDER AT INTAKE AND FOLLOW-UP



Analysis was also conducted to examine whether individuals who had a drug composite score indicative of severe SUD at intake and follow-up differed by gender, race/ethnicity, or age (see Figure 2B.5). At intake and follow-up, there were no significant differences by demographics in the percent of individuals having ASI drug composite scores indicative of severe drug use disorder.

FIGURE 2B.5. DRUG-USING INDIVIDUALS WITH A DRUG COMPOSITE SCORE INDICATIVE OF SEVERE SUD AT INTAKE AND FOLLOW-UP BY DEMOGRAPHIC FACTORS (N = 79)

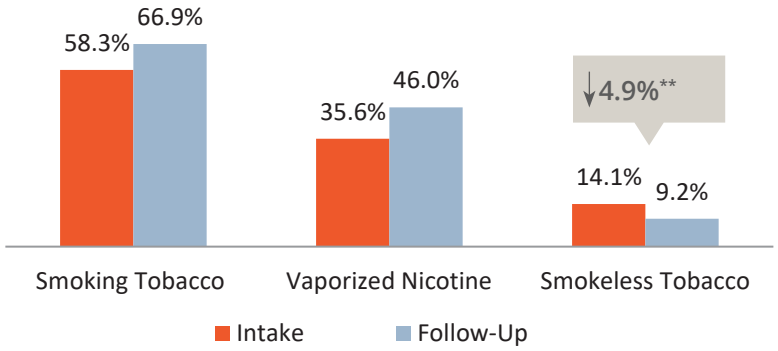


[51] It was not possible to examine demographic differences between individuals who had alcohol composite scores indicative of dependence with those who did not at intake or follow-up because the number of individuals in several of the cells of the cross tabulations were less than 5; thus, chi square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

Past-30-day Smoking, Vaporized Nicotine, and Smokeless Tobacco Use

Among individuals who were in a controlled environment all 30 days before they entered the recovery center, 62.7% reported they had smoked tobacco in those 30 days (see Figure 2B.6). Unlike alcohol and illegal drug use that decreased from intake to follow-up, there was a slight but non-significant increase in the percent of clients who reported past-30-day tobacco smoking at follow-up to 58.3%. More than one-third of clients who were in a controlled environment all 30 days before entering the program (35.6%) reported using vaporized nicotine, with a non-significant increase to 46% at follow-up. There was a significant decrease of 4.9% in the percent of individuals who reported using smokeless tobacco in the past 30 days at follow-up.

FIGURE 2B.6. PAST-30-DAY SMOKING, E-CIGARETTE, AND SMOKELESS TOBACCO AT INTAKE AND FOLLOW-UP FOR CLIENTS IN A CONTROLLED ENVIRONMENT (n = 158)

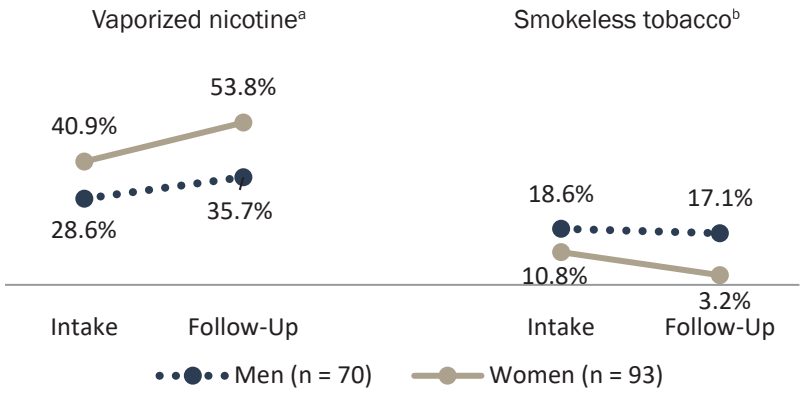


**p < .01.

GENDER DIFFERENCE IN PAST-30-DAY VAPORIZED NICOTINE AND SMOKELESS TOBACCO USE

Among the individuals in a controlled environment, significantly more women than men reported using vaporized nicotine at follow-up (see Figure 2B.7). There was no significant change from intake to follow-up in the percent of men and women who reported vaporized nicotine use in the past 30 days. Significantly more men than women reported using smokeless tobacco in the 30 days before the follow-up. The change in percent of individuals using smokeless tobacco from intake to follow-up was not statistically significant for men or women.

FIGURE 2B.7. GENDER DIFFERENCES IN PAST-30-DAY VAPORIZED NICOTINE AND SMOKELESS TOBACCO USE AT INTAKE AND FOLLOW-UP



a – Significant difference by gender at follow-up; $p < .05$.
b—Significant difference by gender at follow-up; $p < .01$.

Section 3. Mental Health and Physical Health

This section describes changes in mental health and physical health status at intake compared to follow-up including for: (1) depression, (2) generalized anxiety, (3) comorbid depression and generalized anxiety, (4) depression or anxiety, (5) suicidal thoughts or attempts, (6) posttraumatic stress disorder, (7) victimization, (8) general health status, and (9) chronic pain.

Depression

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

"Did you have a two-week period when you were consistently depressed or down, most of the day, nearly every day?" and

"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?"

Study Criteria for Depression

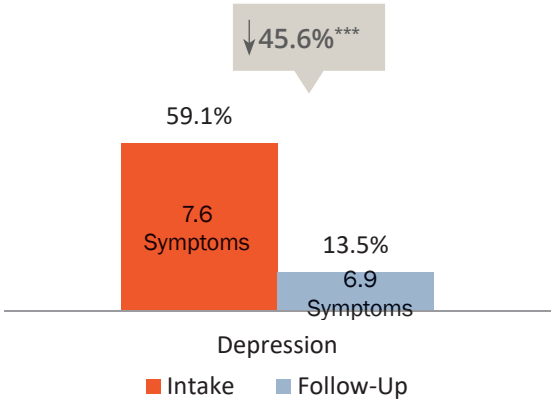
To meet study criteria for depression, clients had to say "yes" to at least one of the two screening questions and at least 4 of the 7 symptoms. Thus, the minimum score to meet study criteria: 5 out of 9.

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).

The majority of clients (59.1%) met study criteria for depression in the 6 months before they entered the recovery center (see Figure 3.1). By follow-up, only 13.5% met criteria for depression, representing a 45.6% significant decrease.

Of those who met criteria for depression at intake (n = 166), clients reported an average of 7.6 symptoms out of 9. Of those who met criteria for depression at follow-up (n = 38), they reported an average of 6.9 symptoms out of 9.

FIGURE 3.1. CLIENTS MEETING STUDY CRITERIA FOR DEPRESSION AT INTAKE AND FOLLOW-UP (N = 281)[52]



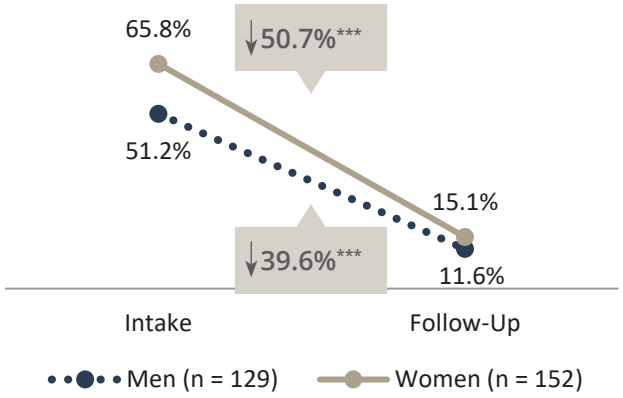
***p < .001.

[52] Two individuals had missing data for at least one of the items used to compute depression at follow-up.

Gender Differences in Meeting Criteria for Depression

The majority of men and women met criteria for depression at intake, with significantly more women meeting criteria for depression at intake (see Figure 3.2). There were significant decreases in the percent of women and men meeting criteria for depression at follow-up.

FIGURE 3.2. GENDER DIFFERENCES IN MEETING CRITERIA FOR DEPRESSION AT INTAKE AND FOLLOW-UP



[a] Significant difference by gender at intake (p<.05).
***p < .001.

Generalized Anxiety

To assess for generalized anxiety, participants were first asked:

"Did you have a period lasting 6 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).

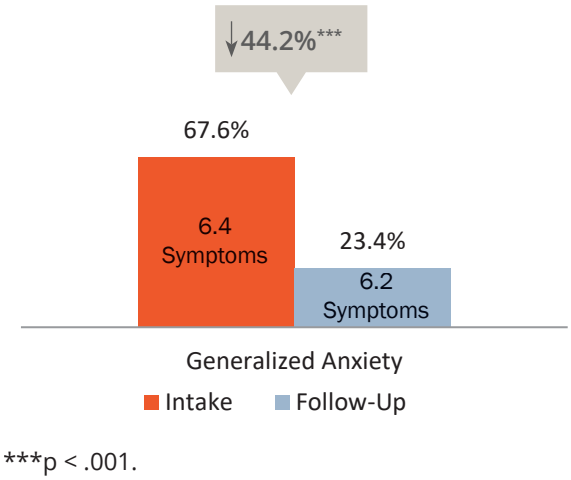
Study Criteria for General Anxiety Disorder

To meet study criteria for general anxiety disorder, clients had to say "yes" to the one screening question and at least 3 of the other 6 symptoms. Thus, minimum score to meet study criteria: 4 out of 7.

In the 6 months before entering the recovery center, two-thirds of clients (67.6%) reported symptoms that met the study criteria for generalized anxiety and one-fourth (23.4%) reported symptoms at follow-up (see Figure 3.3). This indicates there was a 44.2% significant decrease in the number of clients meeting the study criteria for generalized anxiety.

Of those who met study criteria for generalized anxiety at intake (n = 188), clients reported an average of 6.4 symptoms out of 7. At follow-up, those who met criteria for generalized anxiety (n = 65) reported an average of 6.2 symptoms out of 7.

FIGURE 3.3. CLIENTS MEETING STUDY CRITERIA FOR GENERALIZED ANXIETY AT INTAKE AND FOLLOW-UP (N = 278)[53]

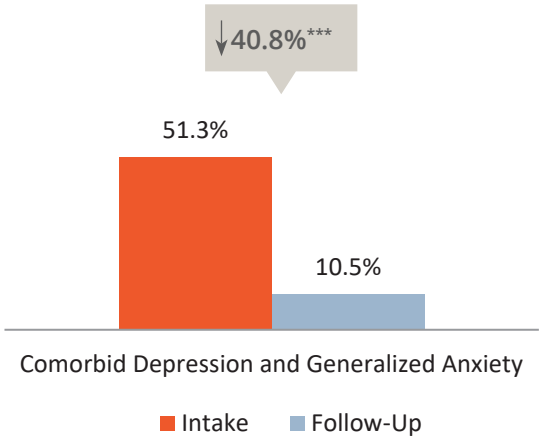


***p < .001.

Comorbid Depression and Generalized Anxiety

At intake, about half of clients (51.3%) met criteria for both depression and generalized anxiety, and at follow-up, only 10.5% met criteria for both (see Figure 3.4). There was a 40.8% significant reduction in the number of individuals who reported symptoms that met the criteria for both depression and generalized anxiety at follow-up.

FIGURE 3.4. CLIENTS MEETING CRITERIA FOR COMORBID DEPRESSION AND GENERALIZED ANXIETY AT INTAKE AND FOLLOW-UP (N = 277)[54]



***p < .001.

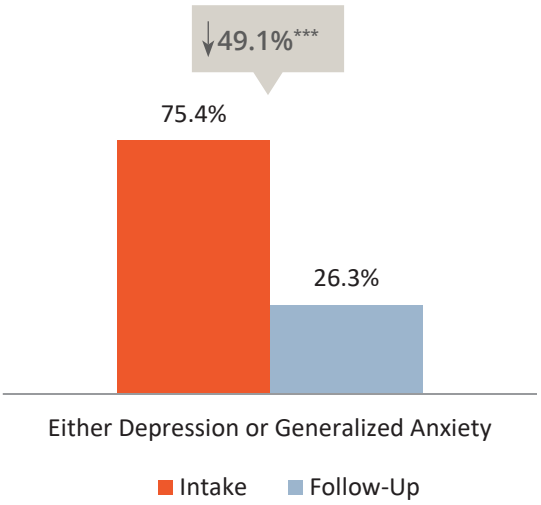
Either Depression or Generalized Anxiety

At intake, around three-fourths (75.4%) met criteria for either depression or generalized anxiety and at follow-up, the percentage was significantly lower (26.3%; see Figure 3.5).

[53] Four clients had missing data for at least one of the items used to compute generalized anxiety at follow-up.

[54] Six individuals had missing data for comorbid depression and generalized anxiety at follow-up.

FIGURE 3.5. CLIENTS MEETING CRITERIA FOR EITHER DEPRESSION OR GENERALIZED ANXIETY AT INTAKE AND FOLLOW-UP (N = 281)[55]

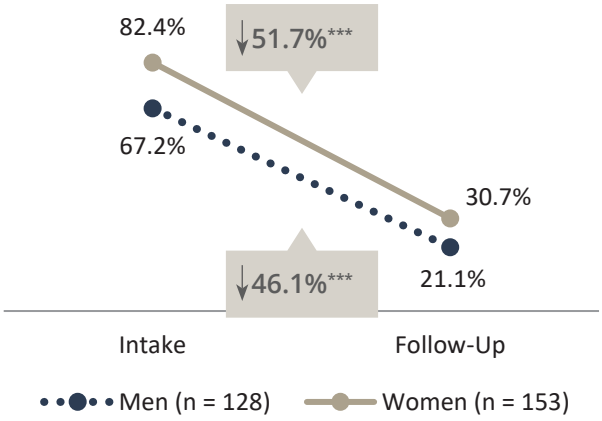


***p < .001.

Gender Differences in Meeting Criteria for Either Depression or Generalized Anxiety

The majority of men and women met criteria for depression or generalized anxiety at intake, with significant decreases at follow-up (see Figure 3.6). At intake, significantly more women than men met criteria for either depression or generalized anxiety.

FIGURE 3.6. GENDER DIFFERENCES IN MEETING CRITERIA FOR EITHER DEPRESSION OR ANXIETY AT INTAKE AND FOLLOW-UP[a]

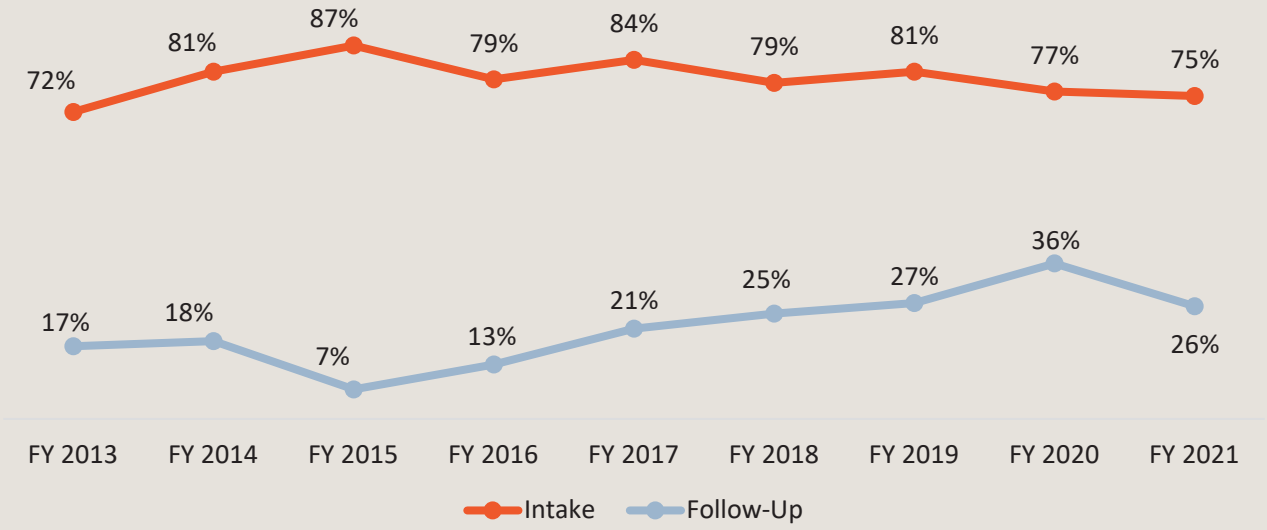


a—Statistical difference by gender at intake; p < .01.
***p < .001.

[55] Two individuals had missing data for the variable, depression or generalized anxiety at follow-up.

TREND ALERT: DEPRESSION OR GENERALIZED ANXIETY

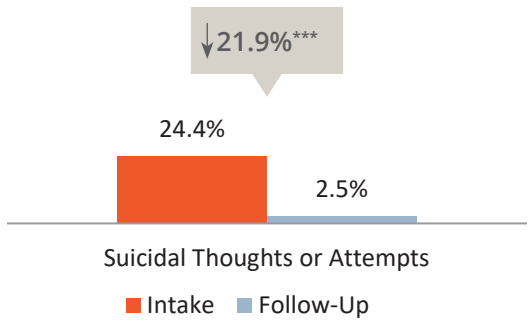
The percent of clients meeting criteria for depression or generalized anxiety in the 6 months before entering the recovery center has fluctuated from a little less than three-fourths (72%) to 87% over the past nine fiscal years. Each year there has been a significant decrease from intake to follow-up in the number of clients reporting either depression or generalized anxiety – with the lowest percentage at follow-up in FY 2015 (7%) and the highest in FY 2020 (36%) before decreasing to 26% in FY 2021.



Suicide Ideation and/or Attempts

Suicide ideation and attempts were measured with questions about thoughts of suicide and attempts to commit suicide. Nearly one-fourth of individuals (24.4%) reported thoughts of suicide or attempted suicide in the 6 months before entering the program. At follow-up, only 2.5% of individuals reported thoughts of suicide or attempted suicide in the 6 months before follow-up. There was a 21.9% decrease in suicidal ideation and attempts from intake to follow-up (see Figure 3.7).

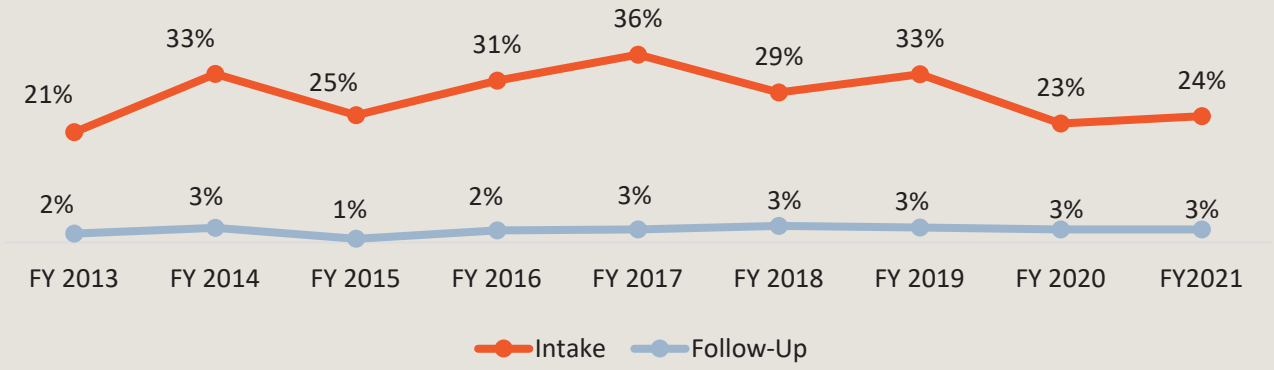
FIGURE 3.7. CLIENTS REPORTING SUICIDAL IDEATION AND/OR ATTEMPTS AT INTAKE AND FOLLOW-UP (N = 283)



***p < .001.

TREND ALERT: SUICIDAL THOUGHTS AND/OR ATTEMPTS

The percent of clients reporting suicidal thoughts and/or attempts in the 6 months before entering the recovery center has fluctuated between a low of one-fifth in FY 2013 and a high of a little over one-third in FY 2017 over the past nine fiscal years. Each year there has been a significant decrease from intake to follow-up in the number of clients reporting suicidality – with only 1%-3% of clients reported suicidal thoughts or attempts at follow-up.



Post Traumatic Stress Disorder

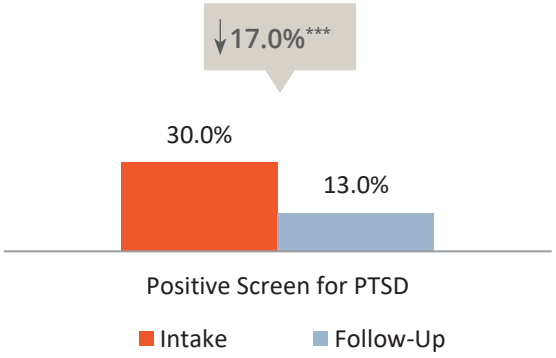
All clients were asked to think about the worst stressful event in their lifetime when answering the four items from the PTSD checklist about how bothered they had been by the event in the prior 6 months at intake and follow-up.[56] At intake, around one-fourth (30.0%) of clients screened positive for PTSD, and 13.0% screened positive for PTSD at follow-up, which was a significant decrease (see Figure 3.8).

"It has changed my life, still sober today because of them."

- RCOS FOLLOW-UP CLIENT

[56] Price, M., Szafranski, D., van Stolk-Cooke, K., & Gros, D. (2016). Investigation of an abbreviated 4 and 8-item version of the PTSD Checklist 5. Psychiatry Research, 239, 124-130.
In previous years reports, the PTSD symptom questions had been anchored around lifetime victimization experiences; however, the decision was made to broaden the range of potentially traumatic events for these items and to ask clients to think of the worst event.

FIGURE 3.8. CLIENTS WHO SCREENED POSITIVE FOR PTSD AT INTAKE AND PAST-6-MONTHS AT FOLLOW-UP (n = 230)[57]

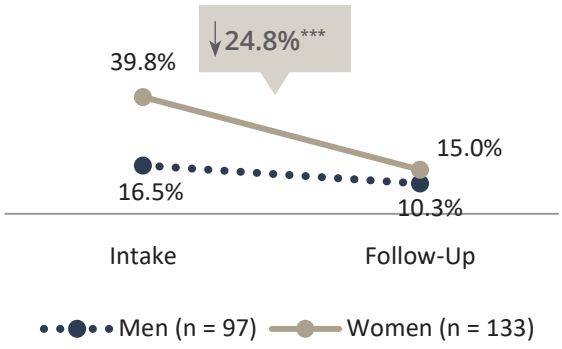


***p < .001.

Gender Differences in Screening Positive for Posttraumatic Stress Disorder

At intake, significantly more women than men screened positive for PTSD (39.8% vs. 16.5%; see Figure 3.9). The percent of women who screened positive for PTSD at follow-up was significantly lower than at intake. There was no significant change in the percent of men who screened positive for PTSD from intake to follow-up.

FIGURE 3.9. GENDER DIFFERENCES IN SCREENING POSITIVE FOR PTSD AT INTAKE AND FOLLOW-UP[a]



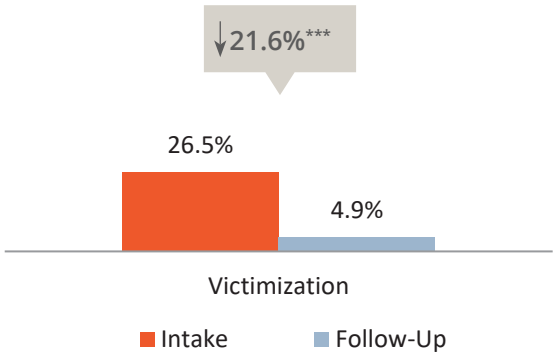
a—Statistical difference by gender at intake; p < .001.
***p < .001.

Victimization

About one-fourth of clients (26.5%) reported any interpersonal victimization in the 6 months before they entered the recovery center (see Figure 3.10). At follow-up, only 4.9% had experienced any victimization in the past 6 months, representing a 21.6% significant decrease.

[57] Fifty-three individuals had missing values on items about PTSD symptoms in the 6 months before follow-up.

FIGURE 3.10. VICTIMIZATION AT INTAKE AND PAST-6-MONTHS AT FOLLOW-UP (n = 283)

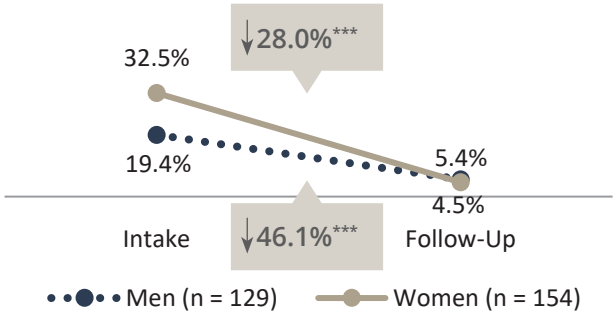


***p < .001.

Gender Differences in Victimization

Nearly one-third of women reported any victimization experiences in the 6 months before intake, which was significantly more than men who reported any victimization (see Figure 3.11). There were significant decreases in the percent of women and men reporting any victimization at follow-up.

FIGURE 3.11. GENDER DIFFERENCE IN 6 MONTH VICTIMIZATION AT INTAKE AND FOLLOW-UP[a]



a—Statistical difference by gender at intake; p < .001.

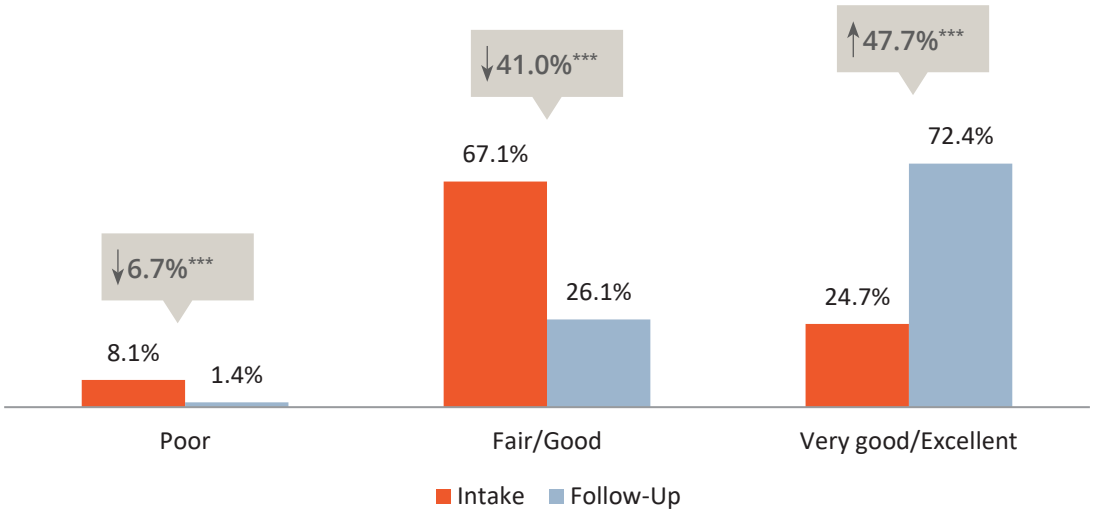
***p < .001.

General Health Status

Overall Health

At both intake and follow-up, clients were asked to rate their overall health in the past 6 months from 1 = poor to 5 = excellent. Clients rated their health, on average, as 2.9 at intake and this significantly increased to 4.0 at follow-up (not depicted in figure). Figure 3.12 shows that significantly more clients rated their overall physical health as very good or excellent (72.4%) at follow-up when compared to intake (24.7%).

FIGURE 3.12. CLIENTS' SELF-REPORT OF OVERALL HEALTH STATUS AT INTAKE AND FOLLOW-UP (N = 283)

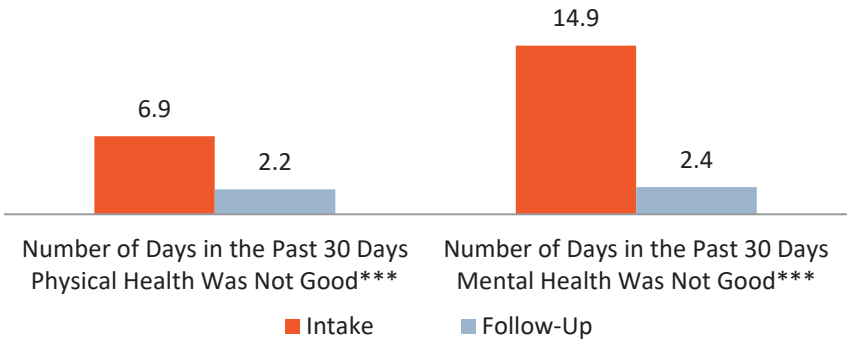


a – Significance tested with the Stuart-Maxwell Test for Marginal Homogeneity ($p < .001$).
***$p < .001$.

Number of Days Physical and Mental Health Was Not Good

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 average number of days individuals reported their physical health was not good decreased significantly from intake (6.9) to follow-up (2.2; see Figure 3.13). Also, clients' self-reported number of days their mental health was not good decreased significantly from intake (14.9) to follow-up (2.4).

FIGURE 3.13. PERCEPTIONS OF POOR PHYSICAL HEALTH AND MENTAL HEALTH IN THE PAST 30 DAYS AT INTAKE AND FOLLOW-UP (N = 283)[58]

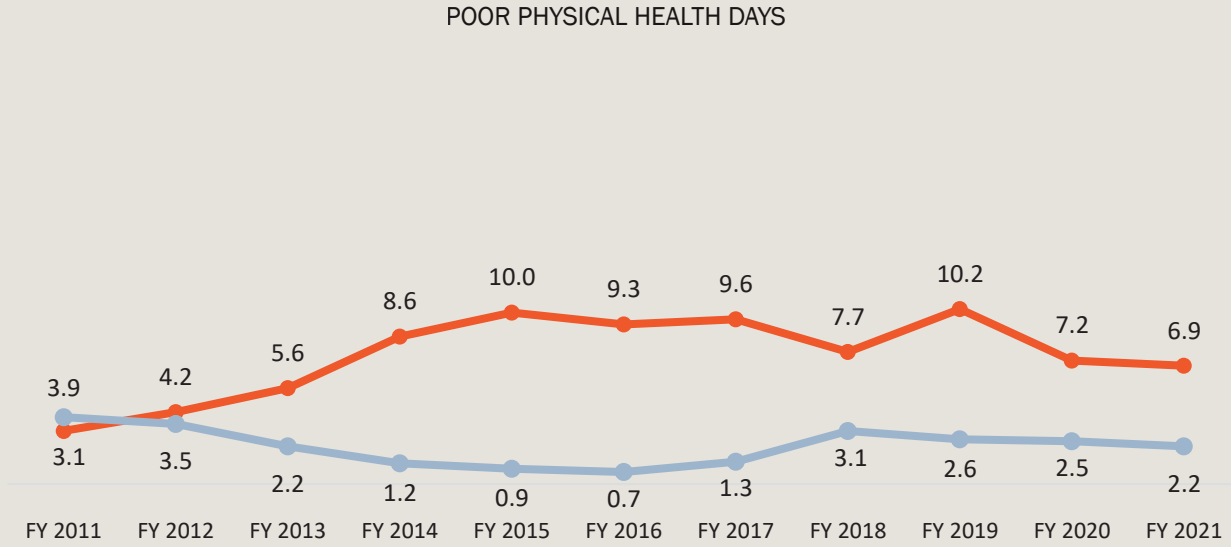


a—Statistical significance tested by paired t-test, ***$p < .001$.

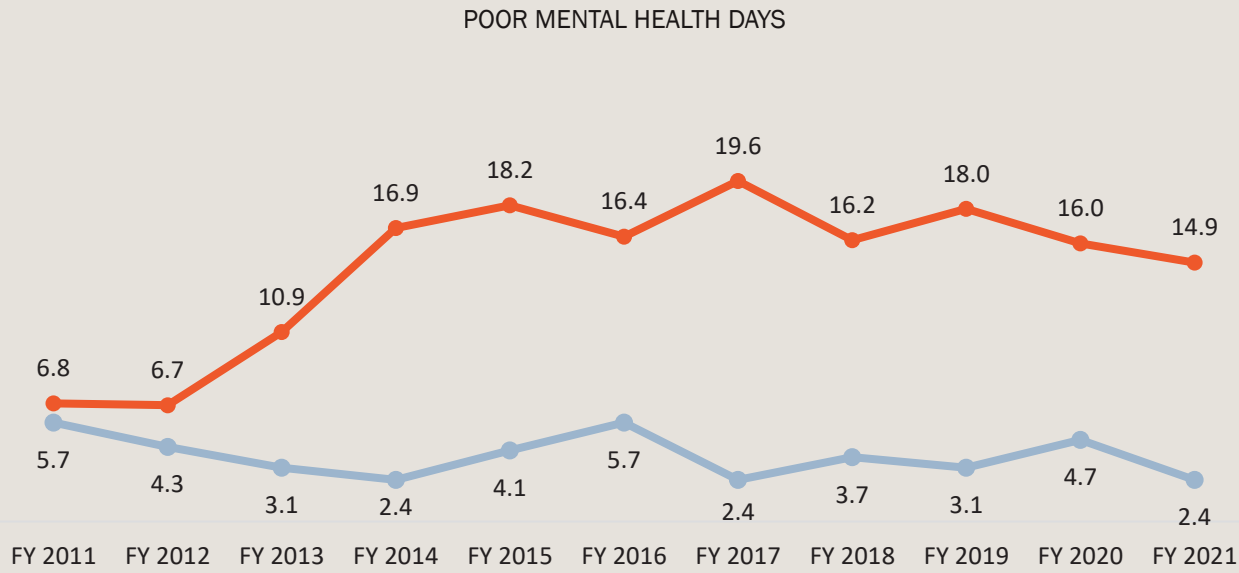
[58] One individual had a missing value for number of days mental health was not good at follow-up.

TREND ALERT: POOR PHYSICAL AND MENTAL HEALTH DAYS

At intake and follow-up, individuals are asked how many days in the past 30 days their physical health has been poor. Since FY 2011, the average number of poor physical health days at intake has increased from 3.1 days to a high of 10.2 days in FY 2019. In FY 2020, the average decreased to 7.2 days and again to 6.9 days in FY 2021. The average number of poor physical health days at follow-up was lower than at intake, since FY 2013.



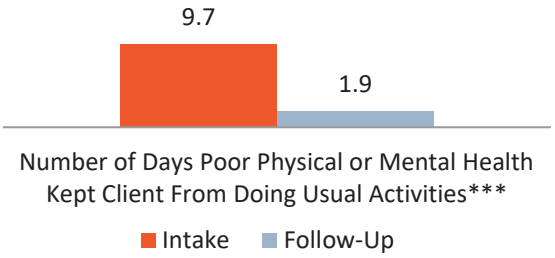
At intake and follow-up, clients are also asked how many days in the past 30 days their mental health has been poor. The average number of poor mental health days reported at intake has increased dramatically from FY 2011 (6.8) to FY 2017 (19.6). In the last three reports, the average number of days of poor mental health has fluctuated between 14.9 and 18.0. Since FY 2013, the average number of days of poor mental health has decreased from intake to follow-up.



Number of Days Poor Physical and Mental Health Limited Activities

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 3.14). 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 (9.7 to 1.9).

FIGURE 3.14. AVERAGE NUMBER OF DAYS POOR PHYSICAL OR MENTAL HEALTH LIMITED ACTIVITIES IN THE PAST 30 DAYS (N = 283)

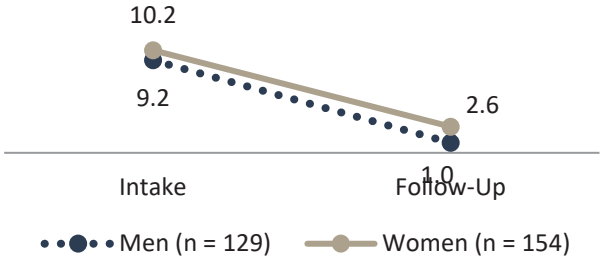


a—Statistical significance tested by paired t-test; ***p < .001.

GENDER DIFFERENCES IN DAYS POOR HEALTH LIMITED ACTIVITIES

At follow-up, compared to men, women reported higher average number of days poor physical or mental health limited their activities (see Figure 3.15). The number of days poor physical or mental health limited their activities decreased significantly from intake to follow-up for men and women.

FIGURE 3.15. GENDER DIFFERENCE IN AVERAGE NUMBER OF DAYS POOR PHYSICAL AND MENTAL HEALTH LIMITED ACTIVITIES AT INTAKE AND FOLLOW-UP[a,b]

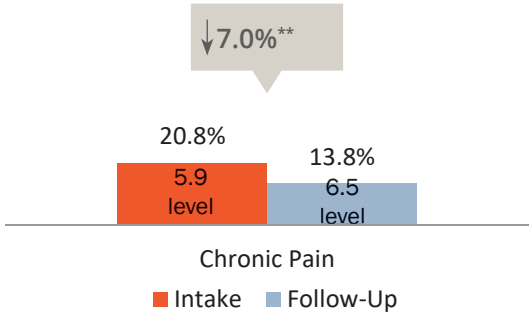


a—Statistical decrease from intake to follow-up for men ($p < .001$) and women ($p < .001$).
b- Significant different between gender at follow-up; $p < .01$.

Chronic Pain

The percent of clients who reported chronic pain that was persistent and lasted at least 3 months decreased significantly 7.0% from intake to follow-up (see Figure 3.16). Among the followed-up individuals who reported chronic pain at intake (n = 59), they reported an average pain intensity level of 5.9 and experiencing pain 23.6 days out of the 30 days before entering the program. Among the followed-up individuals who reported chronic pain at follow-up (n = 39), they had an average pain intensity rating of 6.5 and experienced chronic pain an average of 27.5 days out of the past 30.

FIGURE 3.16. CLIENTS REPORTING CHRONIC PAIN AT INTAKE AND FOLLOW-UP (N = 283)



**p < .01.

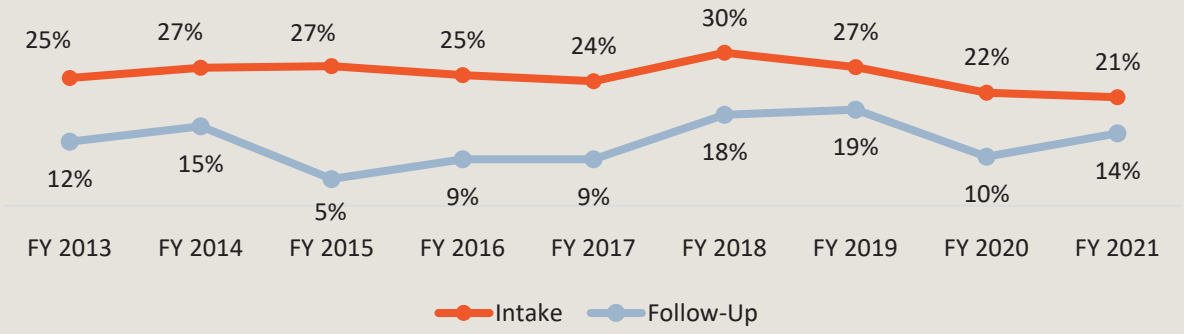
"There's a lot of people that work in there that have all been through the same things so they understand. There's a lot of caring people."

- RCOS FOLLOW-UP CLIENT

TREND ALERT: CHRONIC PAIN

Over the past nine fiscal years, the percent of RCOS clients reporting chronic pain that persisted for at least 3 months in the 6 months before entering the recovery center has been relatively stable: a low of 24% in FY 2017, with the highest percent of 30% in FY 2018.

At follow-up, the percent of clients reporting persistent chronic pain in the past 6 months increased slightly from FY 2013 (12%) to FY 2014 (15%) and decreased from FY 2014 to FY 2015 (5%), with an increase in FY 2016 (9%). The highest percentage of individuals reporting chronic pain at follow-up was in FY 2019 (19%), which was twice the percentage as in FY 2017 (9%). Nonetheless, the percent of individuals reporting chronic pain has decreased from intake to follow-up each year.



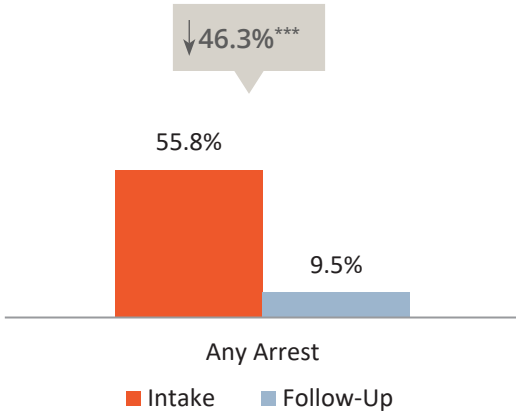
Section 4. Involvement in the Criminal Justice System

This section describes change in client involvement with the criminal justice system from intake to follow-up. Specifically, the following targeted factors are presented in this section: (1) arrests, (2) incarceration, (3) self-reported misdemeanor and felony convictions, and (4) self-reported supervision by the criminal justice system.

Arrests

At intake, individuals were asked about their arrests in the 6 months before they entered the recovery center and at follow-up individuals were asked about their arrests in the past 6 months. The majority of individuals (55.8%) reported an arrest in the 6 months before entering the recovery center (see Figure 4.1). At follow-up, this percent had decreased significantly by 46.3% to 9.5%.

FIGURE 4.1. CLIENTS REPORTING ANY ARRESTS AT INTAKE AND FOLLOW-UP (N = 283)

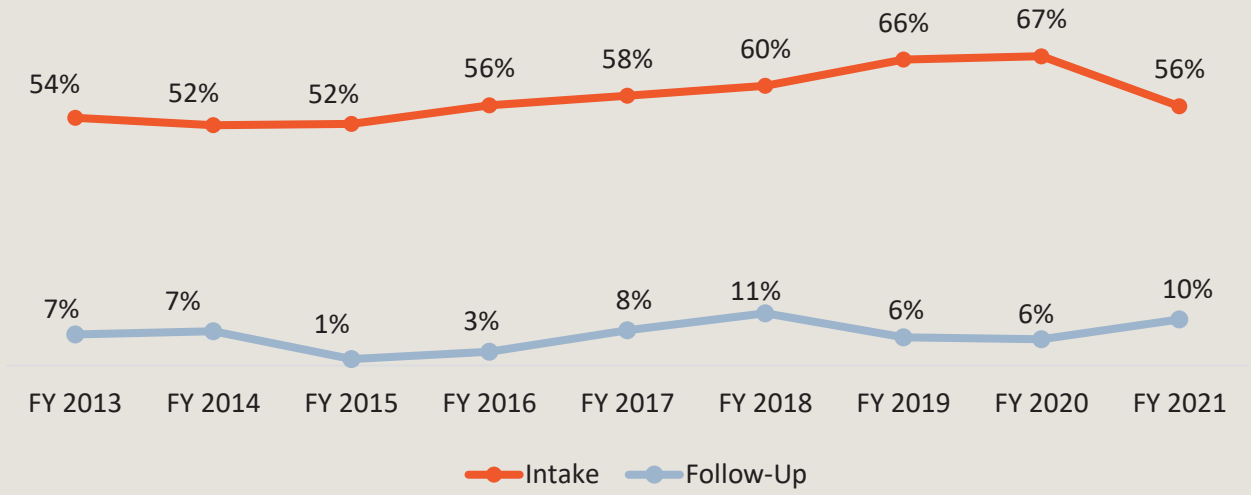


***p < .001.

TREND ALERT: ARRESTS

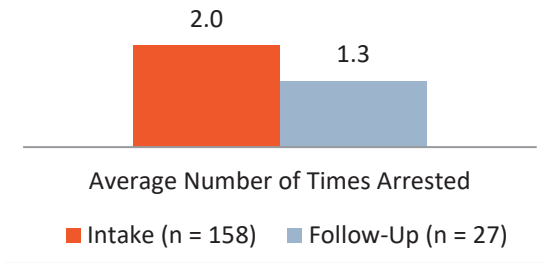
At intake, over half of RCOS clients reported at least one arrest in the past 6 months. The percent has increased from 52% in FY 2015 to 67% in FY 2020. However, in FY 2021, only 56% of followed-up RCOS clients reported they had been arrested at least once in the 6 months before entering the program.

Compared to intake, significantly fewer clients reported an arrest in the past 6 months at follow-up for each of the nine years. Only 7% of clients in FY 2013 and FY 2014 reported an arrest and that decreased to 1% in FY 2015, 3% in FY 2016, and jumped up to 11% in FY 2018, with decreases in FY 2019 and FY 2020, and an increase to 10% in FY 2021.



Of those who reported being arrested in the 6 months before entering the recovery center (n = 158), they were arrested an average of 2.0 times (see Figure 4.2). Similarly, of those who reported an arrest in the 6 months before follow-up (n = 27), they reported being arrested 1.3 times.

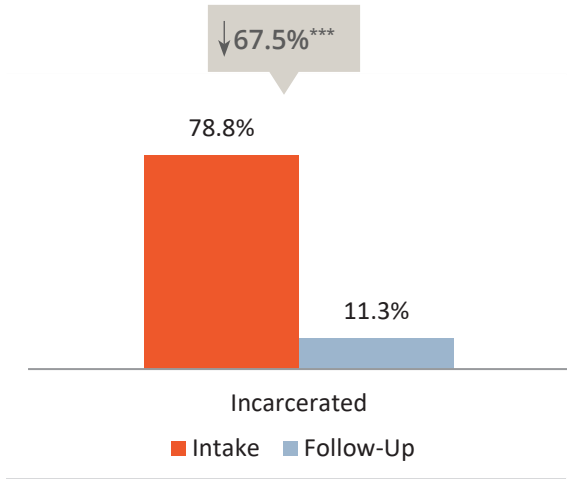
FIGURE 4.2. AMONG INDIVIDUALS WHO WERE ARRESTED, THE AVERAGE NUMBER OF TIMES ARRESTED AT INTAKE AND FOLLOW-UP



Incarceration

More than three-fourths of clients (78.8%) reported spending at least one day in jail or prison in the 6 months prior to entering the recovery center (see Figure 4.3). At follow-up, only 11.3% reported spending at least one day incarcerated in the past 6 months, which was a significant decrease of 67.5%.

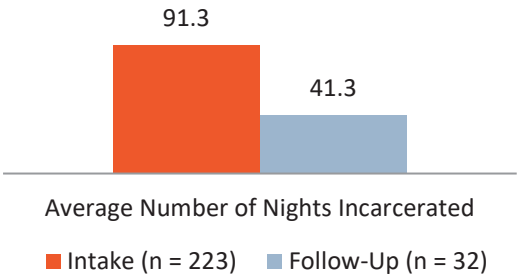
FIGURE 4.3. CLIENTS REPORTING INCARCERATION AT INTAKE AND FOLLOW-UP (N = 283)



***p < .001.

Among individuals who were incarcerated in the 6 months before entering the program (n = 223), the average number of nights incarcerated was 91.3 (see Figure 4.4). Among the number of individuals who reported being incarcerated in the 6 months before follow-up (n = 32), the average number of nights incarcerated was 41.3.

FIGURE 4.4. AMONG INDIVIDUALS WHO WERE INCARCERATED, THE AVERAGE NUMBER OF NIGHTS INCARCERATED AT INTAKE AND FOLLOW-UP

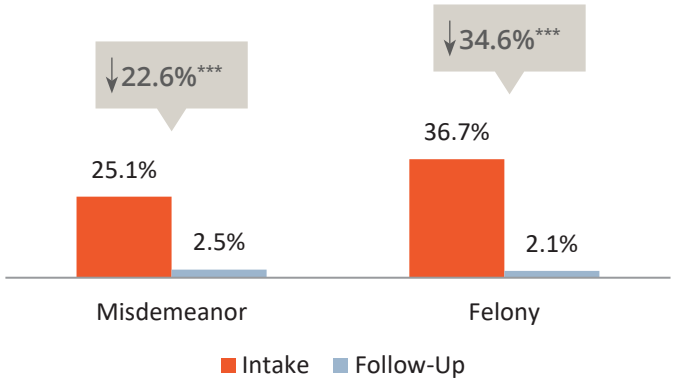


Self-reported Misdemeanor and Felony Convictions

At intake one-fourth (25.1%) of individuals reported they had been convicted of a misdemeanor in the 6 months before entering the recovery center (see Figure 4.5). The

percent decreased significantly to 2.5% at follow-up. The percent of individuals who reported being convicted of a felony also significantly decreased from intake (36.7%) to follow-up (2.1%).

FIGURE 4.5. CLIENTS REPORTING CONVICTIONS AT INTAKE AND FOLLOW-UP (N = 283)

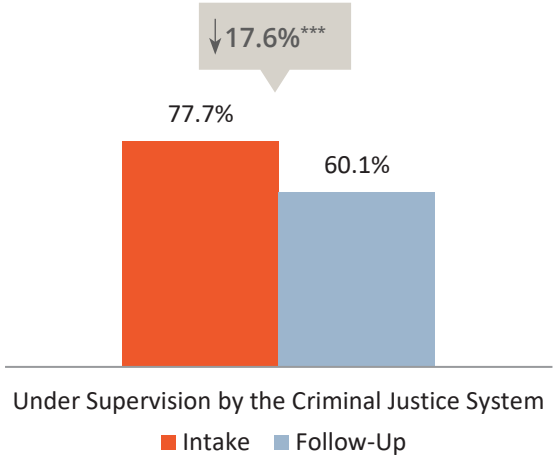


***p < .001.

Self-reported Criminal Justice System Supervision

More than three-fourths of clients (77.7%) were under criminal justice system supervision (e.g., probation or parole) when they entered Phase I of the recovery center program and 60.1% were under criminal justice supervision at follow-up (a significant decrease of 17.6%; see Figure 4.6).

FIGURE 4.6. CLIENTS REPORTING SUPERVISION BY THE CRIMINAL JUSTICE SYSTEM AT INTAKE AND FOLLOW-UP (N = 283)



***p < .001.

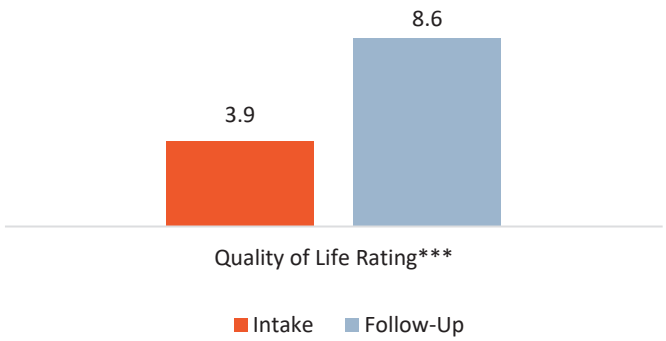
Section 5. Quality of Life

Clients' perceptions of their overall quality of life were measured at intake and follow-up, and are presented in this section.

Overall Quality of Life Rating

At intake, 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, on average, as 3.9 (see Figure 5.1). At follow-up, individuals were asked the same question about their current quality of life. The average rating of quality of life at follow-up increased significantly to 8.6.

FIGURE 5.1. PERCEPTION OF QUALITY OF LIFE BEFORE AND AFTER THE PROGRAM (N = 283)



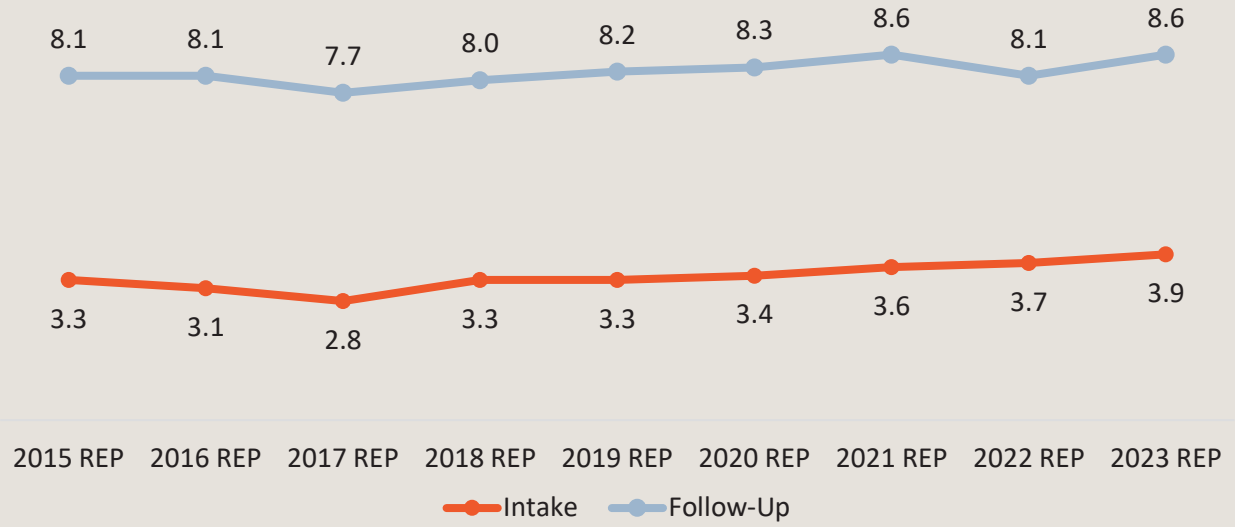
***p < .001.

"The workers there actually help you and they can relate to you because they have been through active addiction."

- RCOS FOLLOW-UP CLIENT

TREND ALERT: OVERALL QUALITY OF LIFE RATING

Clients are asked to rank their overall quality of life on a scale from 1 (worst imaginable) to 10 (best imaginable) at both intake and follow-up. At intake, RCOS clients have consistently rated their quality of life, on average, around 3, and 3.9 in the 2023 Report. Compared to intake, that rating at follow-up significantly increased each year, to an average of about 8 in most years, but 8.6 in the 2021 and 2023 reports.



Section 6. Education and Employment

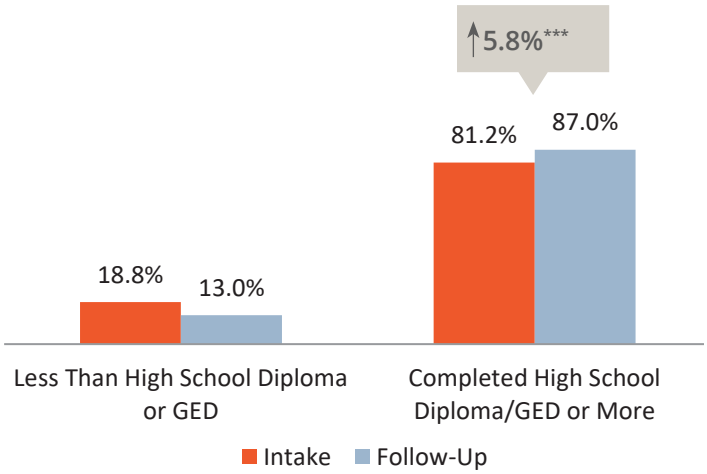
This section examines changes in education and employment from intake to follow-up including: (1) highest level of education completed, (2) the percent of clients who worked full-time or part-time, (3) the number of months clients were employed full-time or part-time, among those who were employed at any point in the 6-month period, (4) the median hourly wage, among those who were employed in the prior 30 days, and (5) expectations to be employed in the next 6 months.

Education

Overall, the average highest number of years of education completed increased slightly, but not significantly, from intake: 12.3 at intake to 12.4 at follow-up.[59]

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 6.1). At intake, 81.2% 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 percent had increased significantly to 87.0%. At intake, 18.8% of the follow-up sample reported that they had less than a high school diploma or GED. At follow-up, 13.0% reported that they had completed less than a high school diploma or GED.

FIGURE 6.1. HIGHEST LEVEL OF EDUCATION COMPLETED AT INTAKE AND FOLLOW-UP (N = 276)[60]



***p < .001.

Employment

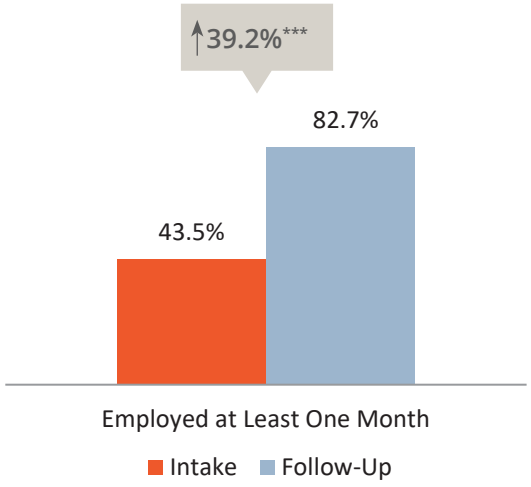
Clients were asked in the intake survey to report the number of months they were employed full-time or part-time in the 6 months before they entered the recovery center.

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

[60] Seven individuals had a missing value for highest level of education at follow-up.

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. Less than half of clients (43.5%) reported at intake they had worked full-time or part-time at least one month in the 6 months before entering the recovery center (see Figure 6.2). At follow-up, around four-fifths (82.7%) worked part-time or full-time at least one month in the past 6 months, which was a significant increase of 39.2%.

FIGURE 6.2. EMPLOYED FULL-TIME OR PART-TIME FOR AT LEAST ONE MONTH AT INTAKE AND FOLLOW-UP (N= 283)

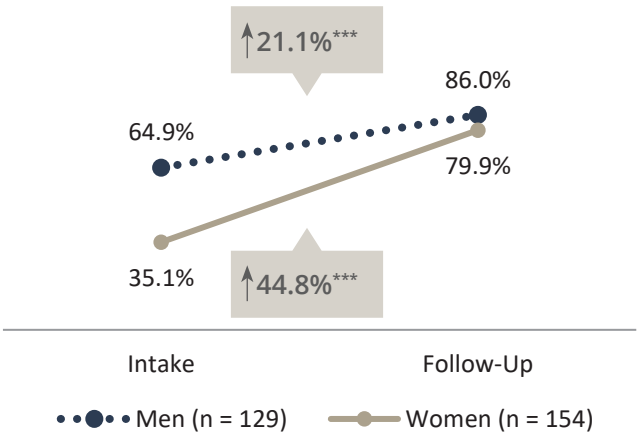


***p < .001.

Gender Differences in the Percent of Individuals Employed

There was a gender difference in the percent of men (64.9%) and women (35.1%) employed part-time or full-time at least one month before intake (see Figure 6.3). For both men and women, there was a significant increase in the percent reporting employment from intake to follow-up.

FIGURE 6.3. GENDER DIFFERENCES IN EMPLOYED AT LEAST ONE MONTH AT INTAKE AND FOLLOW-UP (N = 283)[a]



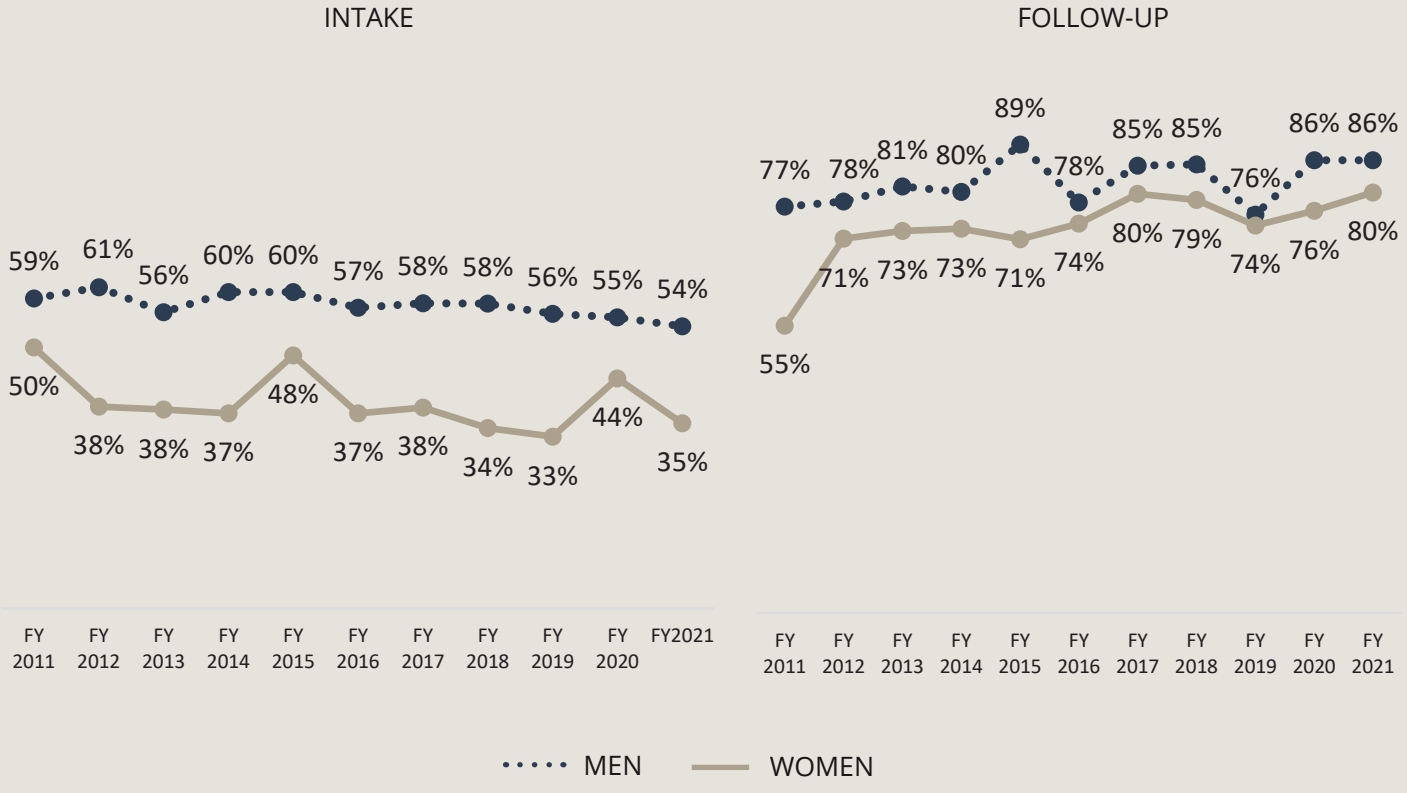
a—Significant difference by gender at intake (p < .01).
***p<.001.

TREND ALERT: EMPLOYMENT TRENDS BY GENDER

Since FY 2011, the disparity in employment between men and women in the RCOS follow-up sample has been documented in the annual reports.

From FY 2012 to FY 2014, significantly fewer women reported being employed at intake compared to men; however, in FY 2015, there was no significant difference in the percent of men and women reporting employment at intake. In FY 2016, only 37% of women were employed at least one month at intake while 57% of men reported employment. A similar disparity in the percent of men vs. women who reported being employed at least one month before entering the program was found in FY 2017 through FY 2019, and again in FY 2021. In FY 2020, there was no gender difference at intake.

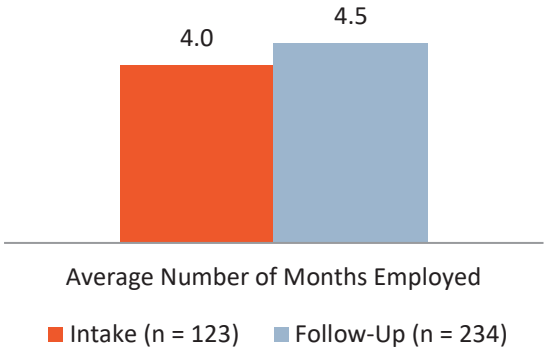
By follow-up, on average, a majority of women reported they were employed full-time or part-time at least one month in the past 6 months but significantly more men reported employment during that same time frame for most years. From FY 2016 through FY 2019 and again in FY 2021, there was no significant difference in the number of men and women who reported employment at least one month in the past 6 months. However, in FY 2020, significantly more men reported they were employed full-time or part-time compared to women.



Average Number of Months Employed

As seen in Figure 6.4, among individuals who reported being employed part-time or full-time at all before entering the program (n = 123), the average number of months worked was 4.0. Among the 234 individuals who worked at all in the 6-month follow-up period, the average number of months they worked was 4.5.

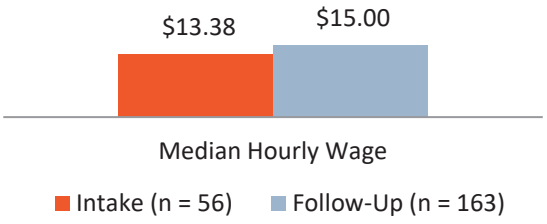
FIGURE 6.4. AVERAGE NUMBER MONTHS EMPLOYED AT INTAKE AND FOLLOW-UP, AMONG THOSE WHO REPORTED



Median Hourly Wage

At each period, individuals who reported they were employed in the 30 days before entering the program (past 30 days, at follow-up) were asked their hourly wage. Only a small percent of clients reported they were currently employed at intake and reported an hourly wage (n = 56),[61] and their median hourly wage was $13.38 (see Figure 6.5). At follow-up, the median hourly wage was $15 for the 163 individuals who were employed and reported an hourly wage.[62]

FIGURE 6.5. MEDIAN HOURLY WAGE AT INTAKE AND FOLLOW-UP, AMONG THOSE WHO REPORTED BEING CURRENTLY EMPLOYED



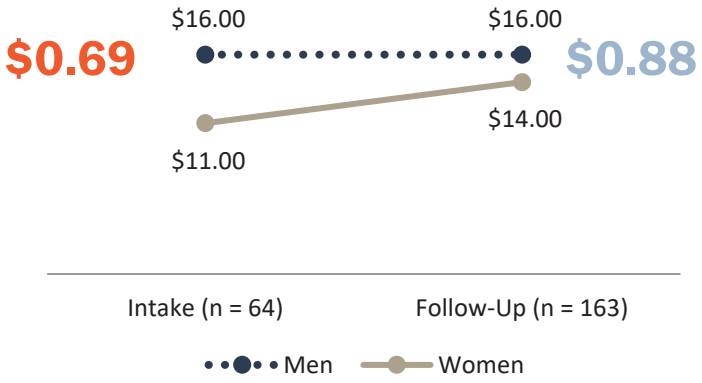
[61] Of those currently employed at intake (n = 64), eight clients had a missing value for hourly wage: 1 declined to answer and 7 had outlier values for hourly wage (>95th percentile of all employed individuals at intake).

[62] Of those currently employed at follow-up (n = 215), 52 cases had missing values for hourly wage.

GENDER DIFFERENCES IN MEDIAN HOURLY WAGE

At intake, employed women reported a median hourly wage of $11.00, which was significantly lower than the median hourly wage for employed men, $16.00, meaning employed women made $0.69 for every dollar employed men made (see Figure 6.6). At follow-up, men again reported significantly higher median hourly wages compared to women ($16.00 for men and $14.00 for women). At follow-up, employed women made $0.88 for every dollar employed men made.

FIGURE 6.6. GENDER DIFFERENCES MEDIAN HOURLY WAGE AT INTAKE AND FOLLOW-UP[a]



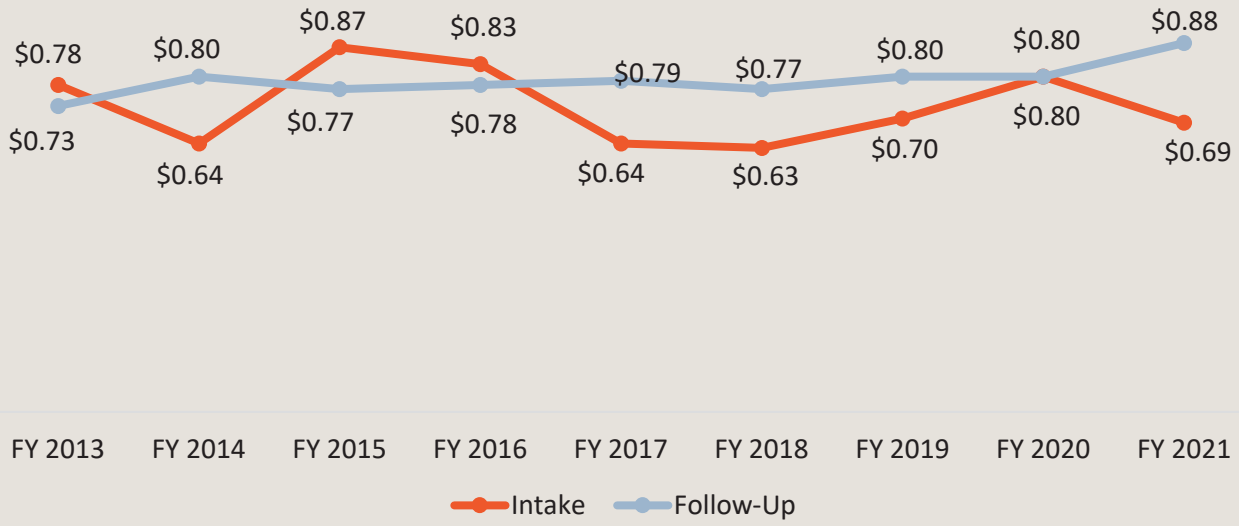
a—Significant difference in hourly wage at intake ($p < .05$) and follow-up ($p < .001$) by gender tested with independent-samples median test.

TREND ALERT: GENDER WAGE GAP

For the past nine fiscal years, among employed individuals there was a gender wage gap at intake and follow-up: men had higher median hourly wages compared to women.

In the FY 2013 report, employed women made $0.78 for every $1.00 men made at intake and $0.73 for every $1.00 men made at follow-up. The gender wage gap was even more pronounced in the FY 2014 report where, at intake, employed women made just $0.64 for every $1.00 men made. At follow-up this number improved; however, employed women still made $0.20 less, on average, than men.

FY 2015 continued to show a wage gap at both intake ($0.87) and follow-up ($0.77). In FY 2016, women again made less than men: $0.83 for each $1.00 men made at intake and $0.78 at follow-up. The wage gap in median income was similar at intake and follow-up in FY 2017 and FY 2018. In FY 2019, the wage gap was smaller than in previous years but still present. In FY 2020, at intake and follow-up, employed women made $0.80 for every $1.00 men made. In FY 2021 the wage gap was larger at intake than at follow-up.



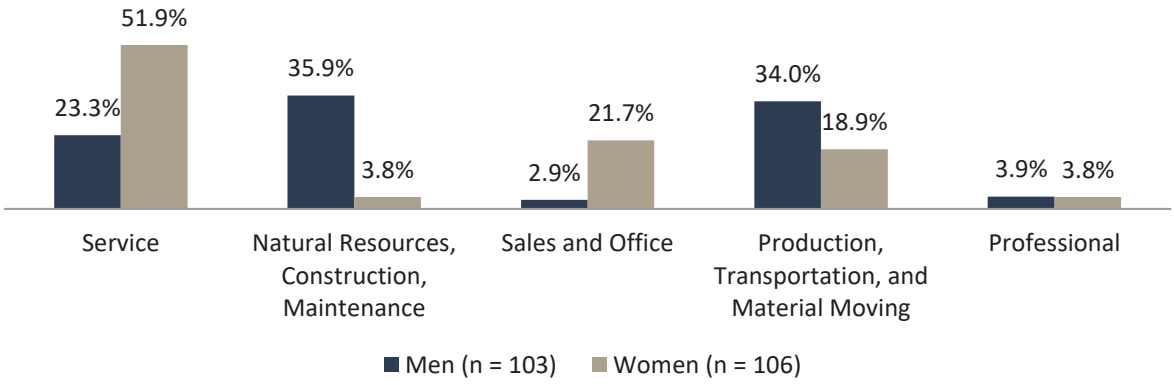
Gender Differences in Occupation Type

At least part of the reason for the marked difference in hourly wages between men and women may be due to the significant difference in occupation type for employed individuals by gender.[63] At follow-up, the majority of employed women (51.9%) reported having a service job (i.e., food preparation and serving, childcare, landscaping, housekeeping, lifeguard, hair stylist, etc.) whereas only 23.3% of employed men had a

[63] Occupation type was asked only of individuals who reported they were employed in the 30 days before entering the recovery center at intake and the past 30 days at follow-up. Because so few individuals reported employment in the 30 days before entering the recovery center, there were too few cases reporting several occupation types at intake to examine statistical difference by gender.

service job (see Figure 6.7). Significantly more employed men reported having a natural resources, construction, or maintenance job (i.e., mining, farming, logging, construction, plumber, mechanic, etc.) than women (35.9% vs. 3.8%). Small percentages of men and women had sales and office jobs (i.e., cashier, retail, telemarketer, bank teller, etc.). Production, transportation, and material moving jobs (i.e., factory production line, power plant, bus driver, sanitation worker, etc.) were reported by 34% of employed men and 18.9% of employed women. Small percentages of men and women reported having professional jobs.

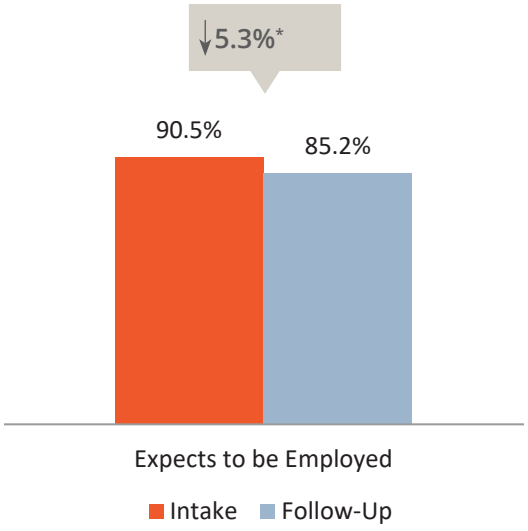
FIGURE 6.7. AMONG EMPLOYED INDIVIDUALS, TYPE OF OCCUPATION BY GENDER AT FOLLOW-UP (n = 209)



Expect to Be Employed

The vast majority of clients reported they expected to be employed in the next 6 months at intake and follow-up, with a small but significant decrease from intake to follow-up (see Figure 6.8).

FIGURE 6.8. CLIENT EXPECTS TO BE EMPLOYED IN THE NEXT 6 MONTHS AT INTAKE AND FOLLOW-UP (N = 283)

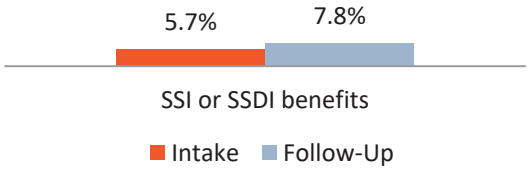


*p < .05.

SSI/SSDI Benefits

At intake, around 1 in 20 clients (5.7%) reported they were currently receiving SSI or SSDI benefits, with no significant change over time (see Figure 6.9).

FIGURE 6.9. CLIENT CURRENTLY RECEIVES SSI OR SSDI BENEFITS AT INTAKE AND FOLLOW-UP (N = 283)



"They were hard on me, I hated it when it happened, but they saved my life."

- RCOS FOLLOW-UP CLIENT

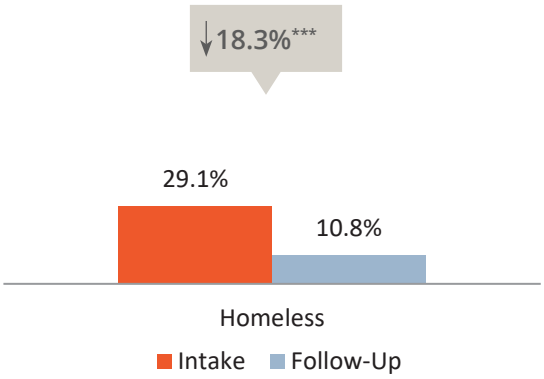
Section 7. Living Situation

This section of targeted factors examines the clients' living situation before they entered the program and at 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 about (3) economic hardship.

Homelessness

Less than one third of clients (29.1%) reported being homeless when they entered the recovery center and 10.8% reported being homeless at follow-up. This is a significant decrease of 18.3% in the number of clients who reported they were homeless (see Figure 7.1).

FIGURE 7.1. HOMELESSNESS AT INTAKE AND FOLLOW-UP (N = 251)[64]



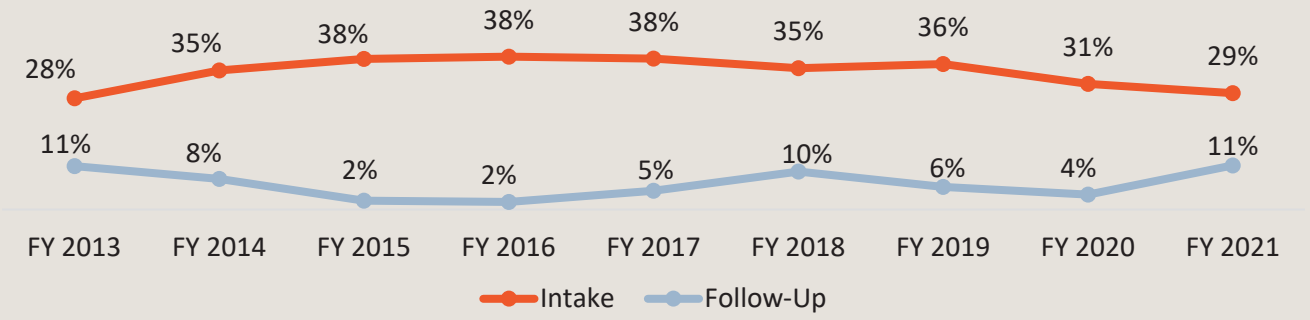
***p < .001.

[64] Individuals who said they were currently living at a recovery center at follow-up were not asked this question in the follow-up survey (n = 32). The number of individuals who reported they were living at the recovery center facility (n = 32) is larger than the number that reported they were involved in the recovery center program (n = 21). Some programs have adjacent transitional housing, which means that individuals in transitional housing consider themselves to be living at the recovery center but no longer involved in the program.

TREND ALERT: HOMELESSNESS

On average, around one-third of clients entering Phase I of the recovery center reported that they were homeless in the 6 months before entering the program from FY 2014 and on until FY 2020. From FY 2013 to FY 2015, the percent of people reporting homelessness at intake increased and remained stable from FY 2015 through FY 2019.

The percent of people reporting homeless at follow-up decreased from FY 2013 to FY 2015 and had a slight increase in FY 2017 (5%) and then doubled in FY 2018 to 10%, with a reduction to 6% in FY 2019 and 4% in FY 2020. In FY 2021, at follow-up, 11% of individuals reported they were homeless at some point in the preceding 6 months.

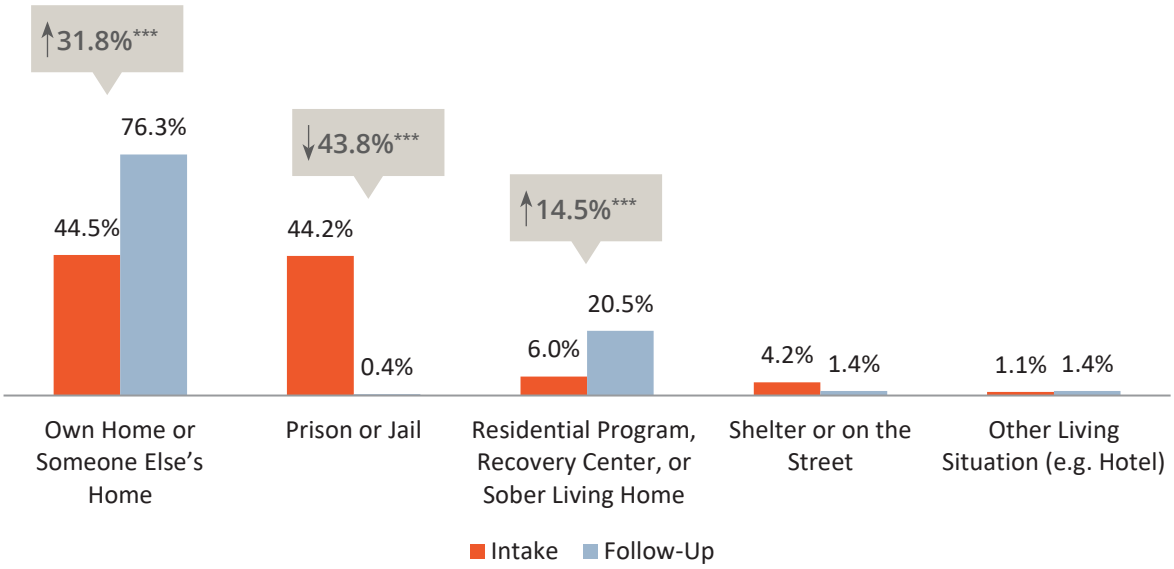


Living Situation

Change in living situation from intake to follow-up was examined for the RCOS follow-up sample (see Figure 7.2). At intake and follow-up, individuals were asked about where they lived in the past 30 days. At intake, less than half of individuals (44.5%) reported living in a private residence (i.e., their own home or someone else's home), whereas at follow-up, the majority (76.3%) reported living in their own home or someone else's home at follow-up—a significant increase. The number of clients who reported living in a jail or prison decreased significantly from 44.2% at intake to 0.4% at follow-up. Also, the percent of clients reporting their usual living situation was in a recovery center, sober living home, or residential program increased from intake to follow-up.

Even though the target date for the follow-up survey is 12 months after individuals completed their intake survey and entry into Phase 1, 6% reported at follow-up living in a recovery center, residential program, or sober living home in the past 30 days. Only a small number of individuals reported living in a shelter or on the street at intake (4.2%) and only 1.4% individuals reported living in a shelter or on the street at follow-up.

FIGURE 7.2. LIVING SITUATION AT INTAKE AND FOLLOW-UP (N=283)

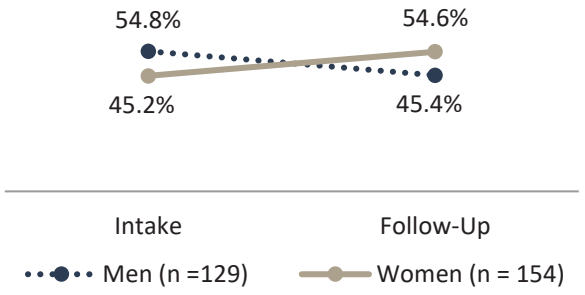


a – Significance tested with the Stuart-Maxwell Test for Marginal Homogeneity ($p < .001$).
***$p < .001$.

Gender Differences in Living Situation

At intake, significantly more men than women reported living in their own home or someone else's home (i.e., private residence; see Figure 7.3). Also, at intake, significantly more women reported their usual living situation was in jail or prison compared to men (64.8% vs. 35.2%). However, because only one individual reported that their usual living situation in the 6 months before follow-up was in jail or prison, the gender difference at intake is not depicted in Figure 7.4. At follow-up, there was no significant difference in living situation by gender.

FIGURE 7.3. GENDER DIFFERENCES IN LIVING IN PRIVATE RESIDENCE AT INTAKE AND FOLLOW-UP[a]



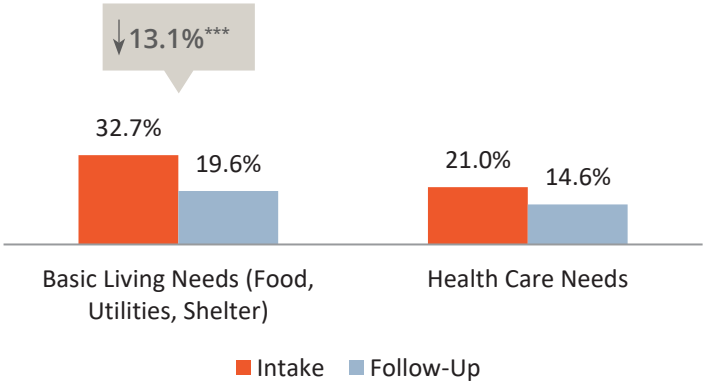
a – Significant by gender at intake; $p<.05$.

Economic Hardship

Economic hardship may be a better indicator of the actual day-to-day living situation clients 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.[65] 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 percent of clients who reported having difficulty meeting basic living needs decreased significantly from intake (32.7%) to follow-up (19.6%; see Figure 7.4). The percent of clients who reported having difficulty in obtaining health care needs (e.g., doctor visits, dental visits, and filling prescriptions) for financial reasons did not change significantly from intake to follow-up.

FIGURE 7.4. ECONOMIC HARDSHIP AT INTAKE AND FOLLOW-UP (n = 281)[66]



***p < .001.

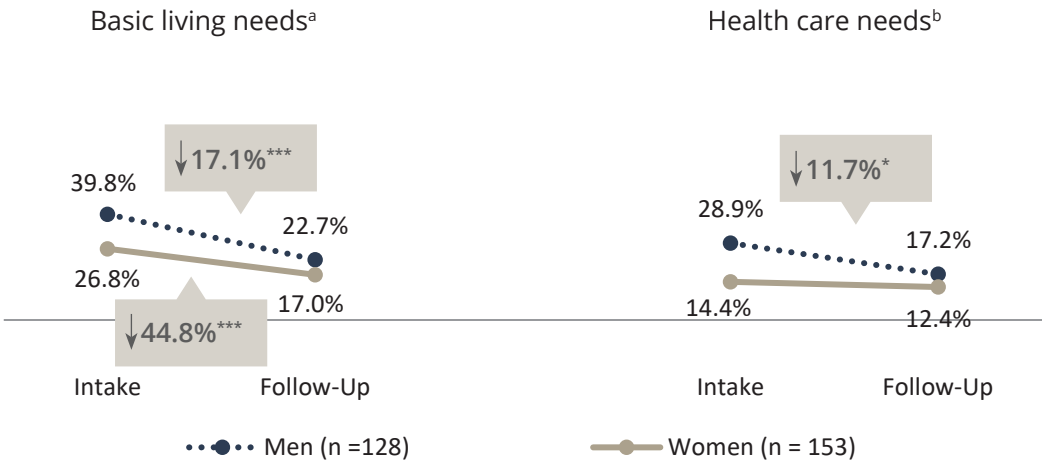
Gender Differences in Economic Hardship

At intake, significantly more men than women reported they had difficulty meeting basic living needs for financial reasons (see Figure 7.5). The percent of men and women who reported they had difficulty meeting their basic living needs decreased significantly from intake to follow-up. At intake, significantly more men than women reported they had difficulty meeting their health care needs for financial reasons. At follow-up, there was no difference by gender.

[65] She, P., & Livermore, G. (2007). Material hardship, poverty, and disability among working-age adults. *Social Science Quarterly, 88*(4), 970-989.

[66] Two individuals had missing values for the items at difficulty meeting basic living needs at follow-up and two individuals had missing values for items about difficulty meeting health care needs at follow-up.

FIGURE 7.5. GENDER DIFFERENCES IN ECONOMIC HARDSHIP AT INTAKE AND FOLLOW-UP[a]



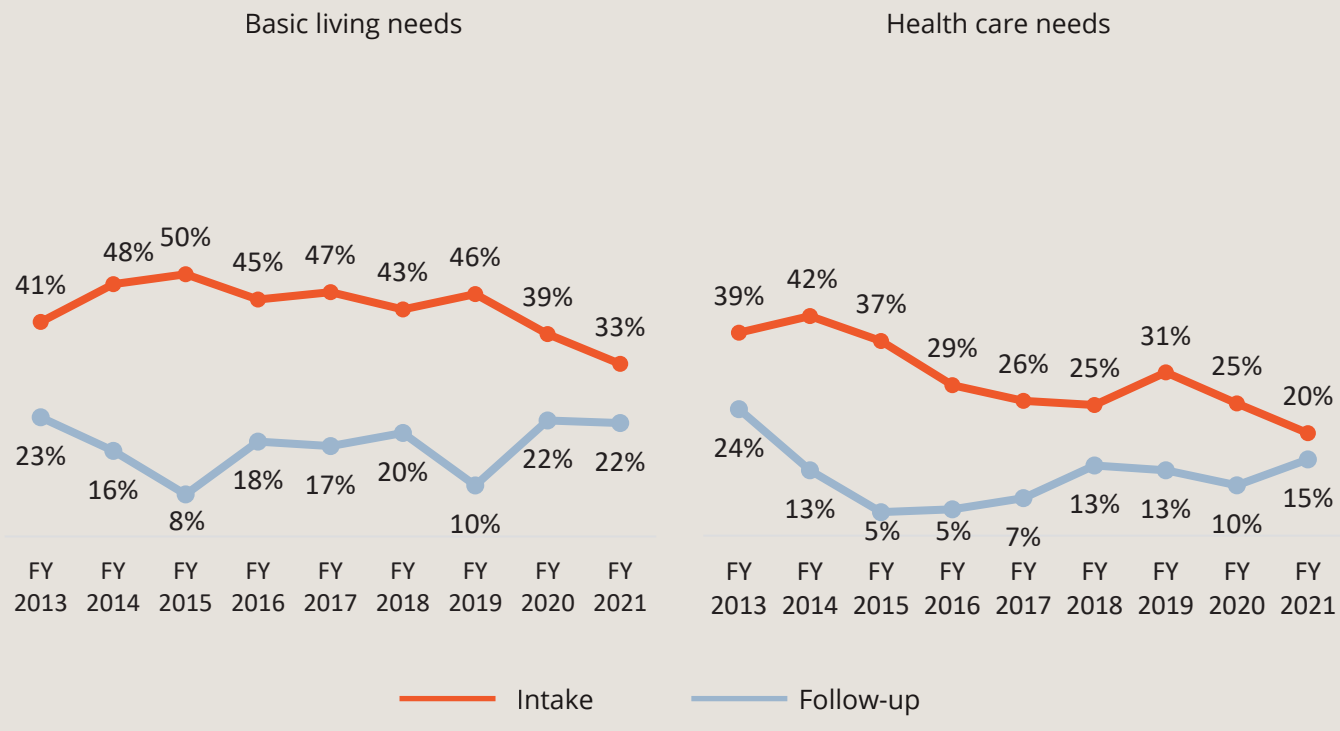
a – Significant by gender at intake; $p < .05$.
b—Significant by gender at intake; $p < .01$.
*$p < .05$, ***$p < .001$.

TREND ALERT: ECONOMIC HARDSHIP

Since FY 2013, there has been a significant decrease from intake to follow-up each year in the percent of clients who reported they had difficulty meeting basic living needs in the past 6 months.

At intake, the percent of clients who had difficulty meeting basic living needs (e.g., rent, utilities, food) has increased from 41% in FY 2013 to a high of 50% in FY 2015 In the last couple of years, the percent of clients reporting difficulty meeting basic living needs has decreased to a low of 33% in FY 2021. At follow-up, the number of clients who had difficulty meeting basic living needs was still high in FY 2013 (23%). That number decreased in FY 2014 and FY 2015, where it was the lowest (8%). The percent of RCOS clients unable to meet basic living needs at follow-up was 22% in FY 2020 and FY 2021.

Clients reporting difficulty meeting health care needs (e.g., unable to see a doctor, dentist, or pay for prescription medication) at intake and follow-up had a more dramatic decrease from FY 2013 to FY 2018. Only 5% of clients at follow-up reported difficulty meeting health care needs in FY 2015 and FY 2016, with a slight increase to 7% in FY 2017, and a greater increase to 13% in FY 2018 and FY 2019 and to 15% in FY 2021. The expansion of Medicaid in the state under the implementation of the Affordable Care Act corresponds to the follow-up period in FY 2015.



Section 8. Recovery Supports

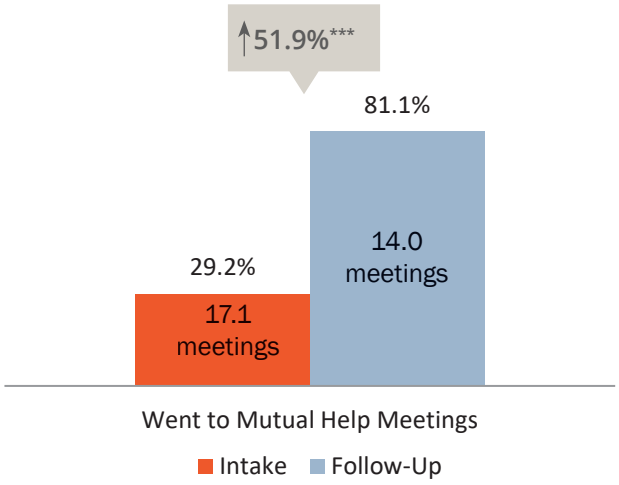
This section focuses on five changes in recovery supports: (1) percent of clients attending mutual help recovery group meetings, (2) recovery supportive interactions in the past 30 days, (3) the number of people the individual said they could count on for recovery support, (4) what would be most useful to them in staying off drugs or alcohol, and (5) how good they felt their chances were of staying off drugs or alcohol in the future.

Attendance of Mutual Help Recovery Group Meetings

At intake, 29.2% of individuals reported going to mutual help recovery group meetings (e.g., AA, NA) in the 30 days before they entered the recovery center (see Figure 8.1). At follow-up, there was a significant increase of 51.9%, with 81.1% of individuals reporting they had gone to mutual help recovery group meetings in the past 30 days.

To have a better idea how often individuals attended mutual-help recovery group meetings before entering the recovery center and at follow-up, the average number of meetings attended was examined. Of those who attended meetings, the average number of meetings attended at intake (n = 82) was 17.1 and at follow-up (n = 228), clients reported attending 14.0 meetings on average (see Figure 8.1).

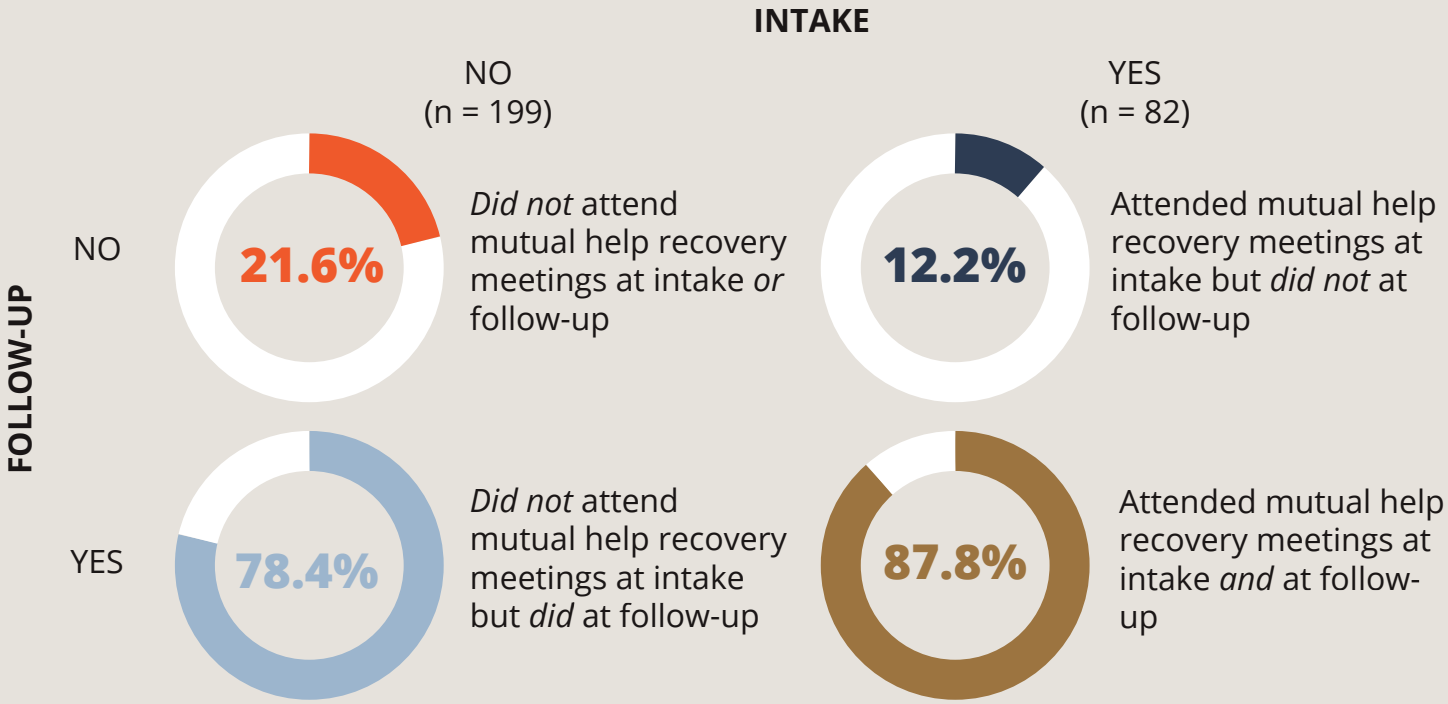
FIGURE 8.1. RECOVERY SUPPORTS AT INTAKE AND FOLLOW-UP (N=281)[67]



***p < .001.

[67] Two individuals had missing values for attending mutual help recovery meetings at follow-up.

More than one-fourth of clients reported attending mutual help recovery group meetings in the 30 days before entering the recovery center (29.2%; n = 82). Of the clients who attended meetings at intake, 87.8% also attended meetings in the 30 days before follow-up. Additionally, of those who did not attend recovery self-help meetings at intake (n = 199), 78.4% attended at least one meeting in the past 30 days at follow-up.

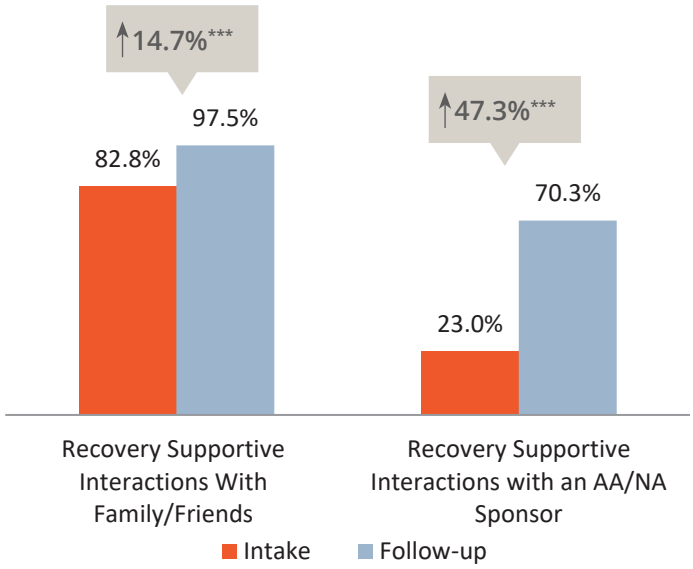


Recovery Supportive Interactions

As seen in Figure 8.2, at follow-up, significantly more individuals (97.5%) reported that they had interactions with family and friends who were supportive of their recovery in the past 30 days compared to intake (82.8%).

The percent of individuals who reported having contact with an AA, NA, or other self-help group sponsor in the past 30 days also significantly increased from intake (23.0%) to follow-up (70.3%).

FIGURE 8.2. RECOVERY SUPPORTIVE INTERACTIONS IN THE PAST 30 DAYS (N = 283)[68]

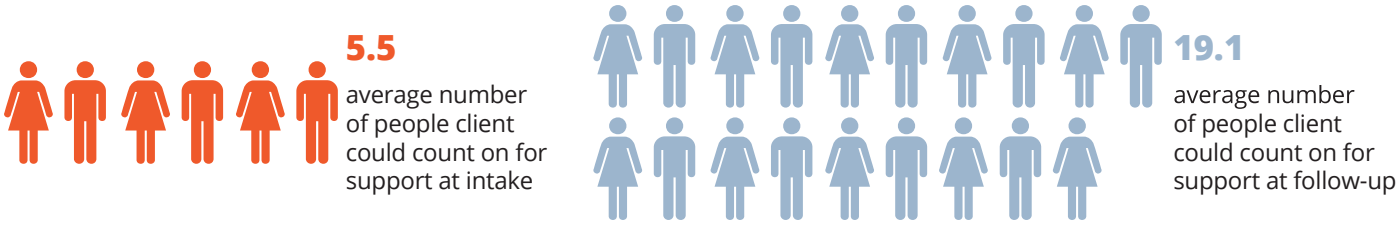


***p < .001.

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 from 6.3 people at intake to 19.1 people at follow-up (see Figure 8.3).

FIGURE 8.3. AVERAGE NUMBER OF PEOPLE CLIENTS SAID THEY COULD COUNT ON FOR RECOVERY SUPPORT AT INTAKE AND FOLLOW-UP (N = 242)[a69]



a – Significant increase from intake to follow-up as measured by a paired t-test (p < .001).

What Will Be Most Useful in Staying Off Drugs/alcohol

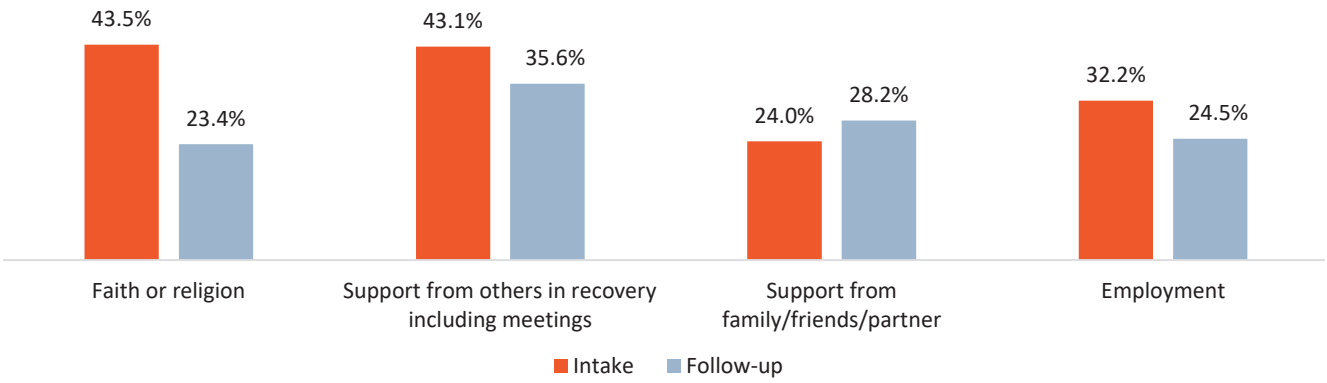
At intake and follow-up, clients were asked what, other than being at the Recovery Center, they believed would be most useful in helping them quit or stay off drugs/alcohol. Rather than conduct analysis on change in responses from intake to follow-up, responses that

[68] Four individuals had missing data for recovery supportive interactions with family/friends at follow-up.

[69] Forty-one individuals had missing values for the number of people they could count on for recovery support at follow-up.

were reported by 15% of clients or more are presented for descriptive purposes in Figure 8.4. At intake, the most common responses were support from other people in recovery, faith or religion, support from family/friends/partners, and employment. At follow-up, the most common responses were support from others in recovery, support from family/friends/partner, employment, and faith or religion.

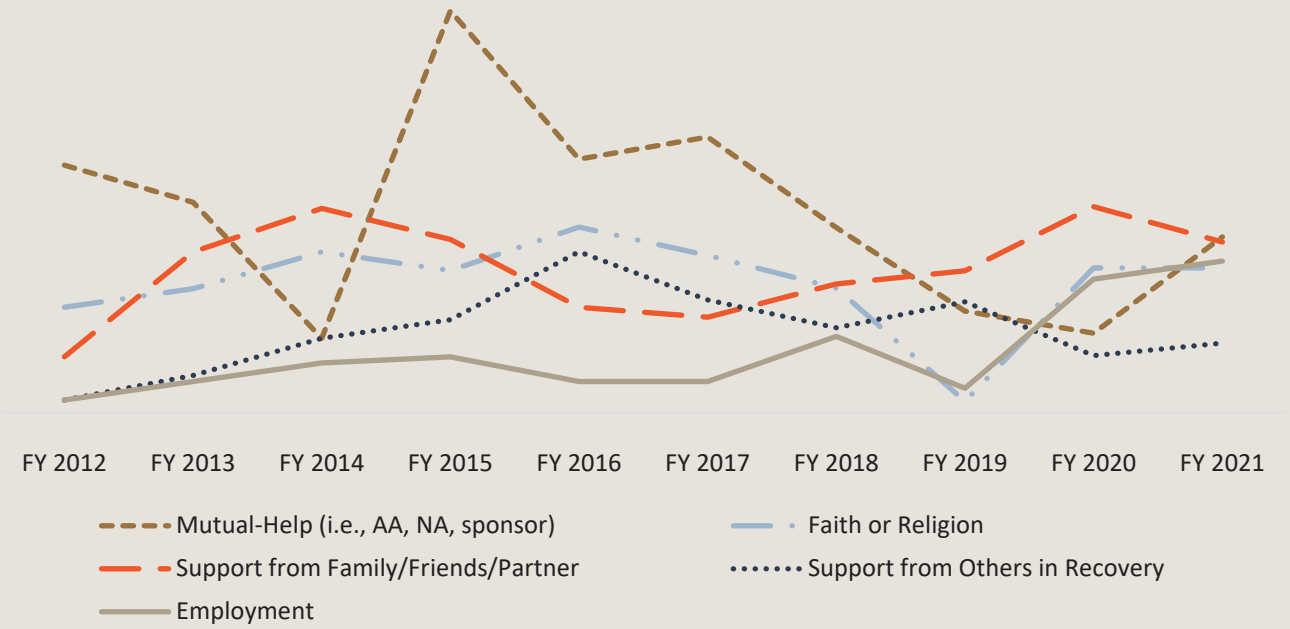
FIGURE 8.4. CLIENTS REPORTING WHAT WILL BE MOST USEFUL IN STAYING OFF DRUGS AND/OR ALCOHOL (N = 277)[70]



[70] Six individuals had missing values for the factors that are most useful to them in staying off alcohol/drugs at follow-up.

TREND ALERT: WHAT WILL BE MOST USEFUL IN STAYING OFF DRUGS/ ALCOHOL AT FOLLOW-UP

At follow-up, clients were asked what, other than being at the recovery center, would be most useful in helping them quit or stay off drugs or alcohol. Examining the trends in five of the most common responses shows that mutual-help, such as AA/ NA meetings, working the 12 steps, and having a sponsor, was the most reported each year, except FY 2014, FY 2019, and FY 2020, when the most common response at follow-up was support from family, friends, or a partner. In FY 2021, the most common response was mutual help recovery meetings (28%) and support from family/friends/partners (28%).

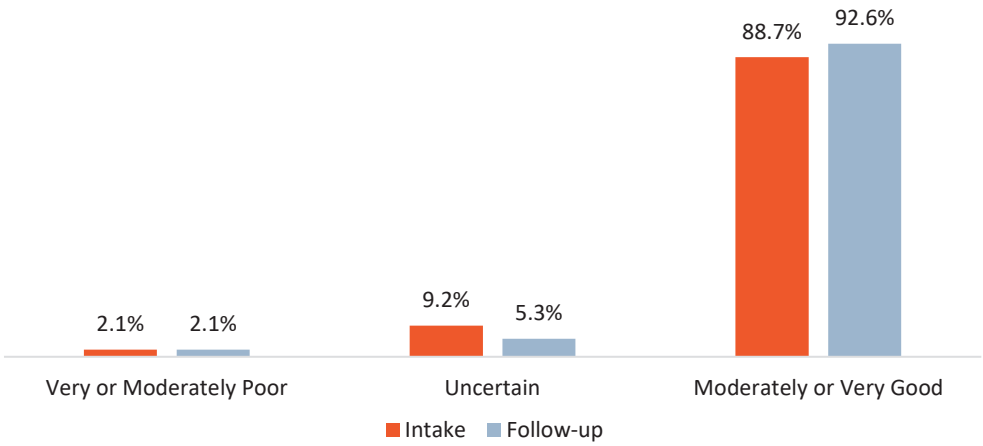


Chances of Staying Off Drugs/Alcohol

Clients were asked, based upon their situation, how good they believed their chances were of getting off and staying off drugs/alcohol using a scale from 1 (Very poor) to 5 (Very good). Clients rated their chances of getting off and staying off drugs/alcohol as a 4.5 at intake and 4.7 at follow-up, which was a significant increase (not depicted in figure).

Overall, 88.7% of clients believed they had moderately or very good chances of staying off drugs/alcohol at intake and 92.6% at follow-up (see Figure 8.5). There was no significant change over time.

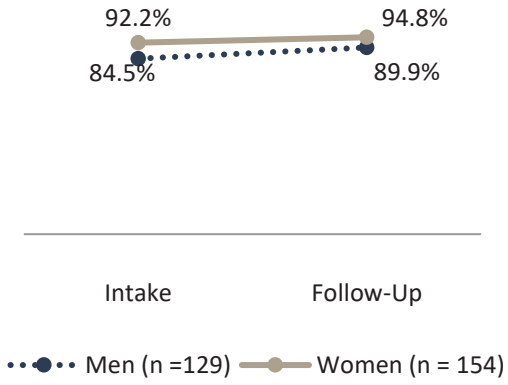
FIGURE 8.5. CLIENTS REPORTING THEIR CHANCES OF GETTING OFF AND STAYING OFF DRUGS/ALCOHOL AT INTAKE AND FOLLOW-UP (N = 283)[a]



Gender Differences in Chances of Staying Off Drugs/Alcohol

At intake, significantly more women than men reported they had moderately to very good chances of staying off drugs/alcohol (see Figure 8.6). At follow-up, there was no difference by gender.

FIGURE 8.6. GENDER DIFFERENCES IN CHANCES IN STAYING OFF DRUGS/ALCOHOL AT INTAKE AND FOLLOW-UP[a]



a – Significant by gender at intake; p<.05.

Section 9. Multidimensional Recovery Status

This section examines multidimensional recovery at follow up as well as change in multidimensional recovery before entering the program and at follow-up.

Recovery goes beyond relapse or return to occasional drug or alcohol use. Recovery from substance use disorders can be defined as "a process of change through which an individual achieves abstinence and improved health, wellness and quality of life: (p. 5).[71] The SAMHSA definition of recovery is similarly worded and encompasses health (including but not limited to abstinence from alcohol and drugs), having a stable and safe home, a sense of purpose through meaningful daily activities, and a sense of community.[72] In other words, recovery encompasses multiple dimensions of individuals' lives and functioning. The multidimensional recovery measure uses items from the intake and follow-up surveys to classify individuals who have all positive dimensions of recovery.

TABLE 9.1. COMPONENTS OF MULTIDIMENSIONAL RECOVERY STATUS

INDICATOR	POSITIVE RECOVERY DIMENSIONS	NEGATIVE RECOVERY DIMENSIONS
Substance use disorder (SUD) symptoms	No or mild substance use disorder (SUD)	Moderate or severe substance use disorder (SUD)
Employment	Employed at least part-time or in school	Unemployed (not on disability, not going to school, not a caregiver)
Homelessness	No reported homelessness	Reported homelessness
Criminal Justice System Involvement	No arrest or incarceration	Any arrest or incarceration
Suicide ideation	No suicide ideation (thoughts or attempts)	Any suicide ideation (thoughts or attempts)
Overall health	Fair to excellent overall health	Poor overall health
Recovery support	Had at least one person he/she could count on for recovery support	Had no one he/she could count on for recovery support
Quality of life	Mid to high-level of quality of life	Low-level quality of life

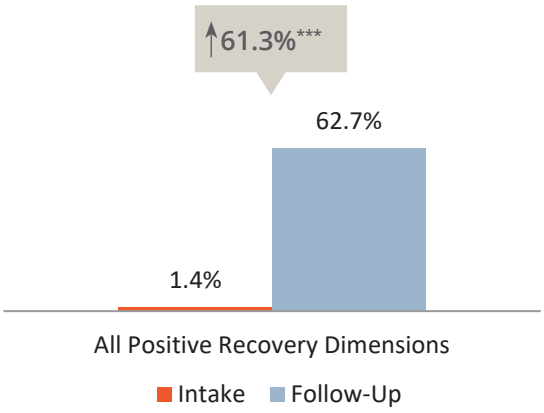
At intake, four individuals (1.4%) were classified as having all positive dimensions of recovery when entering the program (see Figure 9.1).

As shown in the figure below, 62.7% of the sample were classified as having all positive dimensions of recovery at follow-up, which was a significant increase.

[71] Center on Substance Abuse Treatment. (2007). *National summit on recovery: conference report* (DHHS Publication No. SMA 07-4276). Rockville, MD: Substance Abuse and Mental Health Services Administration.

[72] Laudet, A. (2016). *Measuring recovery from substance use disorders.* Workshop presentation at National Academies of Sciences, Engineering, and Medicine (February 24, 2016). Retrieved from https://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_171025.pdf

FIGURE 9.1. MULTIDIMENSIONAL RECOVERY AT INTAKE AND FOLLOW-UP (N = 276)[73]



***p < .001.

Table 9.2 presents the frequency of clients who reported each of the specific components of the multidimensional recovery measure at intake and follow-up. At intake, the factors with the lowest percent of individuals indicated were no arrests or incarceration, no substance use disorder, and a higher quality of life. At follow-up, the factors with the lowest percent of individuals reporting the positive dimensions of recovery were having employment full-time and part-time, and not being arrested or incarcerated in the past 6 months.

TABLE 9.2. PERCENT OF CLIENTS WITH SPECIFIC POSITIVE DIMENSIONS OF RECOVERY AT INTAKE AND FOLLOW-UP (n = 276)[74]

	Intake	**Follow-Up**
Factor	Yes	Yes
Met DSM-5 criteria for no SUD in the past 6 months	23.6%	89.8%
Usual employment was employed full-time or part-time in the past 6 months (or unemployed because a student, home caregiver, on disability)	51.1%	78.6%
Reported no homelessness (or living in recovery center at follow-up)	70.7%	88.8%
Reported not being arrested and/or incarcerated in the past 6 months	18.1%	87.7%
Reported no thoughts of suicide or attempted suicide in the past 6 months	75.7%	97.5%
Self-rating of overall health at follow-up was fair, good, very good, or excellent	91.7%	98.6%
Reported having someone they could count on for recovery support	87.7%	100%
Reported a quality-of-life rating in the mid or higher range (rating of 5 or higher)	36.2%	97.8%

To better understand which factors at entry to the program are associated with having all positive dimensions of recovery at follow-up, each element that defined the multidimensional recovery measure at intake as well as the number of months the client self-reported they spent in the recovery center program and their completion of the

[73] Seven individuals had missing data for at least one of the dimensions of recovery at follow-up.

[74] Seven individuals had missing data for at least one of the dimensions of recovery at follow-up

program (Yes/No) were entered as predictor variables in a logistic regression model. The continuous variable for the following factors were included as predictor variables instead of the binary variables that are presented in Table 9.2: the number of criteria for DSM-5 substance use disorder met, number of months employed, overall health rating, quality of life rating, and the number of people the individual could count on for recovery support at intake. Having all the positive dimensions of recovery at follow-up was the criterion (i.e., dependent) variable. Only two predictor variables were statistically significantly associated with having all positive dimensions of recovery at follow-up: having completed phase I of the recovery program and the number of months employed full-time or part-time before entering the program.

TABLE 9.3. MULTIVARIATE ASSOCIATIONS WITH HAVING ALL POSITIVE DIMENSIONS OF RECOVERY AT FOLLOW-UP (n = 276)[75]

Factor	B	Wald	Odds Ratio	95% Confidence Interval	
				Lower	Upper
Self-reported number of months in the recovery center program	-.012	.072	.988	.906	1.078
Completed phase I of the recovery center program [0 = No, 1 = Yes]	1.033	8.523	2.808**	1.404	5.617
Number of DSM-5 criteria for SUD in the 6 months before entering the program	-.013	.160	.987	.928	1.051
Number of months employed full-time or part-time in the 6 months before entering the program	.159	6.348	1.172*	1.036	1.326
Homelessness in the 6 months before entering the program [0 = No, 1 = Yes]	.433	1.961	1.542	.841	2.825
Arrested or incarcerated in the 6months before entering the program [0 = No, 1 = Yes]	-.029	.007	.971	.482	1.955
Reported thoughts of suicide or attempted suicide in the 6 months before entering the program [0 = No, 1 = Yes]	-.079	.056	.924	.480	1.779
Self-rating of overall health at intake [1 – 5]	.034	.055	1.035	.778	1.377
Number of people client could count on for recovery support before entering the program	-.008	.232	.992	.961	1.024
Rating of quality of life before entering the program [1 – 10]	-.106	2.467	.899	.788	1.027

Note: Categorical variables were coded in the following ways: Completed phase I (0 = No, 1 = Yes), homeless (0 = No, 1 = Yes), arrested or incarcerated (0 = No, 1 = Yes), had thoughts of suicide or attempts (0 = No, 1 = Yes). In the table headings, B represents the unstandardized coefficient; Wald is the Wald statistic.
*p < .05, **p < .01.

[75] Seven individuals were excluded from this analysis because they had missing data for at least one of the variables that was used to compute the measure of multidimensional recovery at follow-up.

Section 10. Client Satisfaction with Recovery Center Programs

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 three aspects of client satisfaction with the program: (1) overall client satisfaction, (2) client ratings of program experiences, and (3) positive outcomes of program participation.

Overall Client Satisfaction

The majority of individuals (77.0%) rated their experience in the Recovery Kentucky program between an 8 and a 10, where 0 represented "not at all right for the client" and 10 represented "exactly right for the client (a perfect fit)" (not in a table). The average rating was 8.5.

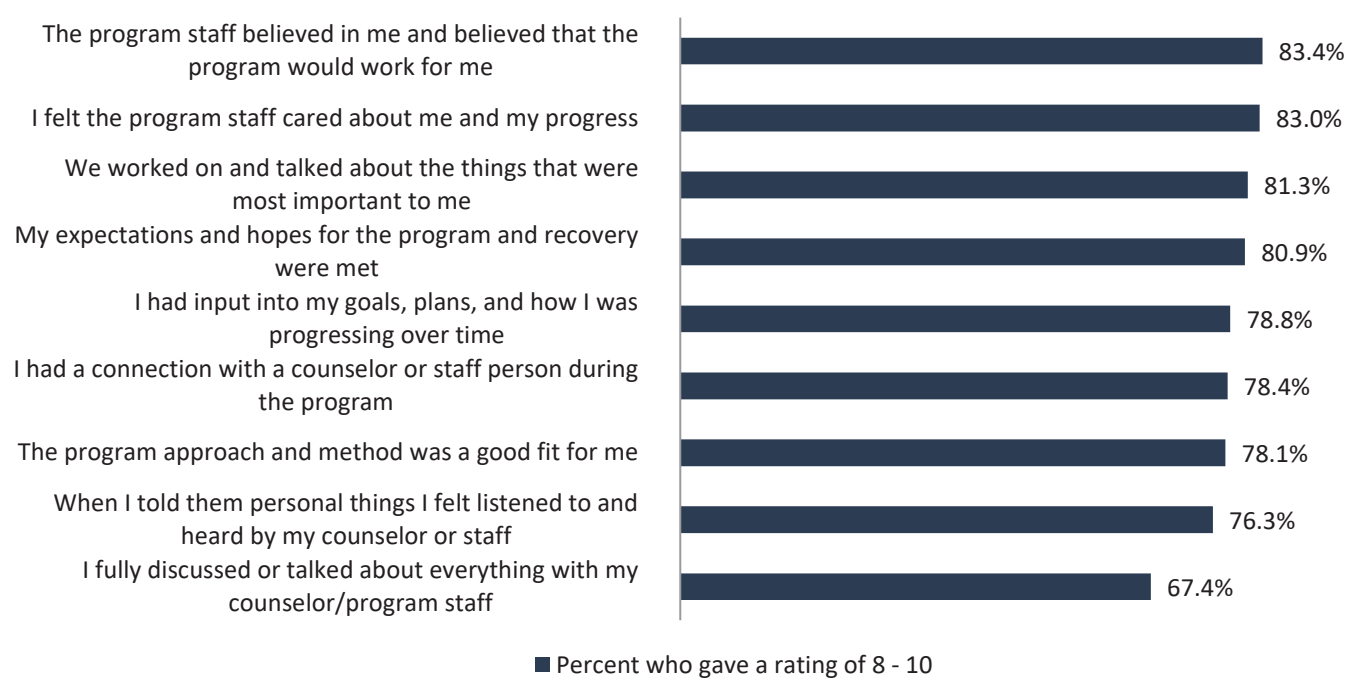
The majority of clients (81.6%) reported at follow-up that they had completed Phase I of the recovery program. Individuals who completed Phase I gave a significantly higher rating of the program relative to individuals who did not complete Phase I (8.8 vs. 7.1, $t(58.3) = -3.989$, $p < .001$).

Clients were asked to report their perceptions of how the recovery center programs worked for them. The statements presented in Figure 10.1 had separate response options, with ratings ranging from 0 to 10. The higher values corresponded to the more positive responses and the lower values corresponded to the negative responses. For example, for the statement, "My expectations and hopes for recovery were met" the anchors were 0 "Not at all met" and 10 "Perfectly met." Even the negatively worded items had anchors in which the higher values represented the more positive side of the continuum. For example, for the statement, "There were things I did not talk about or that I did not fully discuss with my counselor/program staff" the response option 0 corresponds to "I did not discuss lots of things, I held things back," and 10 corresponds to "I discussed everything, I held back nothing."

"They cared about me as a person and really made me want to strive to be better"

- RCOS FOLLOW-UP CLIENT

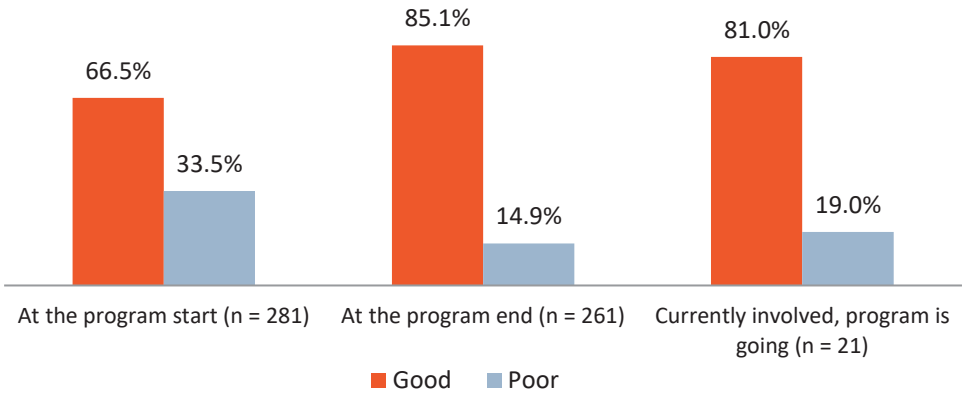
FIGURE 10.1. PERCENT OF INDIVIDUALS WHO GAVE A RATING OF 8 – 10 AT FOLLOW-UP TO THE FOLLOWING STATEMENTS ABOUT THE RECOVERY KENTUCKY PROGRAM (N = 283)



The majority of clients (69.1%) reported that the program length was just right as opposed to too short (3.2%) or too long (27.7%; not depicted in a figure).[76]

Figure 10.2 shows the percent of individuals who reported the program started poor or good and ended poor or good. One-third of clients (33.5%) reported the start of the program was poor for them, while 14.9% reported the end of the program was poor for them. The majority of clients who were not still involved in the program (85.1%) reported the end of the program was good for them. The majority of the 21 individuals who were still involved in the program reported that it was currently good.

FIGURE 10.2. PERCENT OF INDIVIDUALS WHO REPORTED AT FOLLOW-UP THE RECOVERY CENTER PROGRAM STARTED AND ENDED POOR OR GOOD[77]



[76] One individuals had missing values for this item.

[77] Two individuals declined to respond to the question about how the program started for them and one individual declined to answer how the treatment program ended for them.

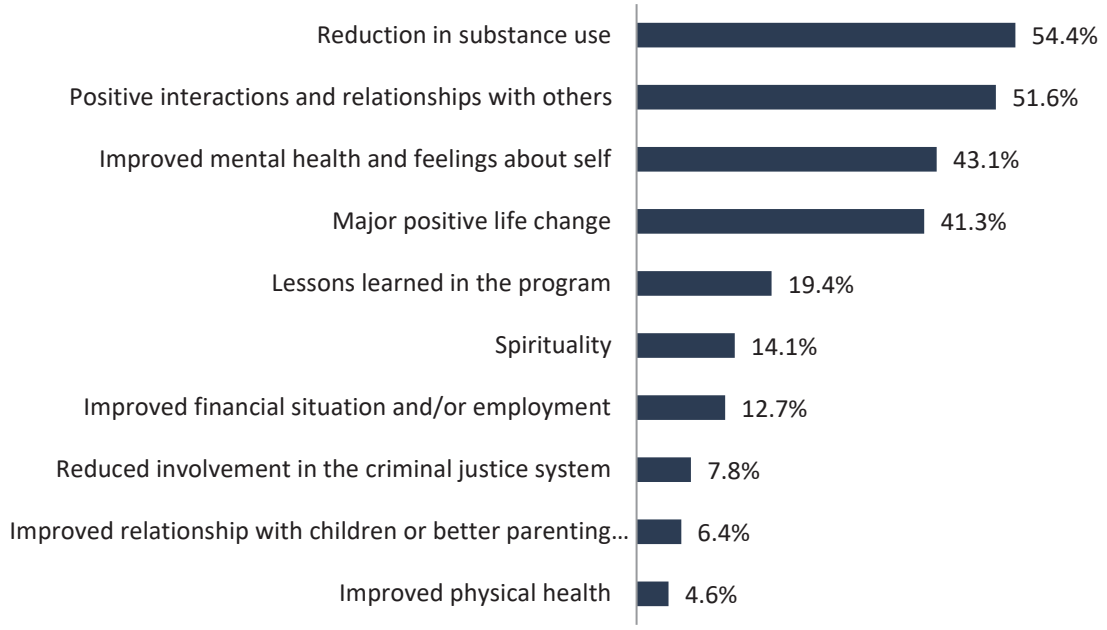
Of the 39 individuals who stated the program ended poorly for them, only 51.3% reported they had completed Phase I of the program.[78] Of these 39 individuals, 17.9% reported they had left the program before staff thought they should have (but the client told staff they were leaving before they did); nearly one half (48.7%) reported that the program staff the client mutually agreed the client was ready to leave the program (or the client completed the program); and 25.6% reported they left the program before staff thought they should and the client did not inform staff they were leaving (not depicted in a figure).

Thinking about their experience with the recovery center program most individuals stated the program worked extremely well (69.1%) or pretty well (20.9%) for them (not depicted in a figure). A small percent (6.4%) reported the program worked somewhat for them and 3.5% said the program worked not at all for them.[79] The majority (88.7%) stated they would refer a close friend or family member to the recovery center program, with 11.3% stating they would not refer a close friend or family member.

Positive Outcomes of Program Participation

At the beginning of the follow-up survey, individuals were also asked about the three most positive outcomes of their Recovery Kentucky program experience (see Figure 10.3). The most commonly self-reported positive outcomes of the program included reduction in substance use, increased positive interactions and relationships with other people, improved mental health and feelings about themselves, major positive life change (e.g., better quality of life, better able to function, having a "normal" life, having greater control over life), lessons learned in the program, spirituality (religious faith), improved financial situation, reduced involvement with the criminal justice system, better relationship with and ability to parent children, and improved physical health.

FIGURE 10.3. PERCENT OF INDIVIDUALS REPORTING THE MOST POSITIVE OUTCOMES THEY EXPERIENCED FROM THEIR RECOVERY KENTUCKY PROGRAM EXPERIENCE AT FOLLOW-UP (n = 283)



[78] Three clients declined to answer this item.

[79] One client had a missing value for this item.

Section 11. Multivariate Analysis of Factors Associated with Relapse

This section focuses on a multivariate analysis examining factors related to relapse in the 2023 RCOS follow-up sample.

RCOS clients who reported using any illicit drugs and/or alcohol in the 6 months before follow-up (n = 42, 14.8%) were compared to clients who did not report use of drugs or alcohol in the 6 months before follow-up (n = 241, 85.2%). A logistic regression was used to examine the association between selected targeted factors and use of drugs or alcohol during the follow-up period (relapse).

In comparing the two groups on the targeted factors, two statistically significant differences were found in bivariate statistical tests: individuals who had return to substance use had a lower number of months they were in the program, and a lower average number of nights incarcerated in the 6 months before entering the program (see Table 11.1).

TABLE 11.1. COMPARISON OF TARGETED FACTORS FOR RELAPSE AND NON-RELAPSE GROUPS

INTAKE VARIABLES	Used illicit drugs and/or alcohol in past 6 months at follow-up (n = 42)	Did not use illicit drugs or alcohol in the past 6 months at follow-up (n =241)
Average age at intake	34.9	35.4
Male	54.8%	44.0%
Number of months in the program (self-reported)**	5.9	7.5
Met criteria for moderate or severe SUD per DSM-5 criteria	85.7%	71.8%
Number of nights incarcerated in the 6 months before intake**	47.1	76.3
Number of months employed in the 6 months before intake	1.4	1.8
Average number of mental health symptoms (depression and anxiety) reported at intake	9.5	9.0
Number of people client could count on for recovery support at intake	5.7	6.6
Average quality of life rating at intake	3.4	4.0
Number of adverse childhood experiences	3.9	4.1

**p < .01.

Gender, number of months in the program (self-reported), and number of nights incarcerated in the 6 months before intake were entered into a logistic regression as predictor variables and any drug or alcohol use in the past 6 months at follow-up (No/Yes) was entered as the dependent variable. Results of the analysis show that lower number of

months in the program and lower number of nights incarcerated in the 6 months before intake were associated with greater odds of relapse during the 6-month follow-up period.

TABLE 11.2. ASSOCIATION OF TARGETED FACTORS AND RELAPSE

Factor	B	Wald	Odds Ratio	95% CI	
				Lower	Upper
Gender	-.297	.743	.743	.378	1.461
Number of months in the program.....	-.169	7.121	.843**	.746	.956
Number of nights incarecerated.....	-.006	4.420	.993*	.988	.999

Note: Categorical variables were coded in the following ways: gender (1=male, 2= female).

Section 12. 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 and/or alcohol use at intake and follow-up, a national per person cost was applied to this study's follow-up sample 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 $2.00 for every dollar spent on recovery programs.

Return on Investment in 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 estimated annual costs drug abuse in the United States[80] and a separate study of the societal costs of excessive alcohol consumption in the U.S. in 2006.[81] In 2010 the estimated costs of excessive alcohol consumption in the United States was updated and in 2011 the National Drug Intelligence Center updated the estimates of drug abuse in the United States for 2007.[82], [83] 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

[80] Harwood, H., Fountain, D., & Livermore, G. (1998). *The Economic Costs of Alcohol and Drug Abuse in the United States, 1992*. Report prepared for the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, Department of Health and Human Services. NIH Publication No. 98-4327. Rockville, MD: National Institutes of Health.

[81] Bouchery, E.E., Harwood, H.J., Sacks, J.J., Simon, C.J., & Brewer, R.D. (2011). Economic costs of excessive alcohol consumption in the U.S., 2006. *American Journal of Preventive Medicine, 41*(5), 516–524.

[82] Sacks, J.J., Gonzales, K.R., Bouchery, E.E., Tomedi, L.E., & Brewer, R.D. (2015). 2010 national and state costs of excessive alcohol consumption. *American Journal of Preventive Medicine, 49*(5), e73-e79.

[83] National Drug Intelligence Center. (2011). T*he Economic Impact of Illicit Drug Use on American Society*. Washington, DC: United States Department of Justice.

of crime to victims, costs of incarceration, hospital and other medical treatment, social services, motor accidents, and other costs. Thus, these reports consider both the hidden and obvious costs of substance abuse.

To calculate the estimate of the cost per alcohol user or drug user, the national cost estimates were divided by the estimate of the number of individuals with alcohol or drug use disorder in the corresponding years (2010 for alcohol use and 2007 for drug use).[84], [85] The estimate of the cost to society of excessive alcohol consumption was $249,026,400,000 in 2010. This amount was then divided by the 17,900,000 individuals estimated in the NSDUH in 2010 to have an alcohol use disorder, yielding a cost per person of alcohol abuse of $13,912 (after rounding to a whole dollar) in 2010 dollars. The estimate of the cost to society of drug use was $193,096,930,000 in 2007. This amount was then divided by the 6,900,000 individuals estimated in the NSDUH in 2007 to have an illicit drug abuse or dependence disorder, yielding a cost per person of drug abuse of $27,985 (after rounding to a whole dollar) in 2007 dollars. The costs per person were then converted to 2021 dollars using a CPI indexing from a federal reserve bank (http://www.minneapolisfed.org). Thus, the estimate of cost per person of alcohol abuse is $17,286 in 2021 dollars and the estimate of the cost per person of drug abuse is $36,577 in 2021 dollars.

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.

Individuals who reported any illegal drug use in the corresponding period were classified in the drug use disorder category. Individuals who reported using alcohol but not using illegal drugs were classified in the alcohol use disorder category. The change from intake to follow-up was substantial (see Figure 12.1). At intake, 205 of the 282 RCOS clients included in the follow-up sample[86] were classified in the drug use category and 10 in the alcohol use category. At follow-up, only 36 individuals were classified in the drug use category and 6 individuals in the alcohol use category.

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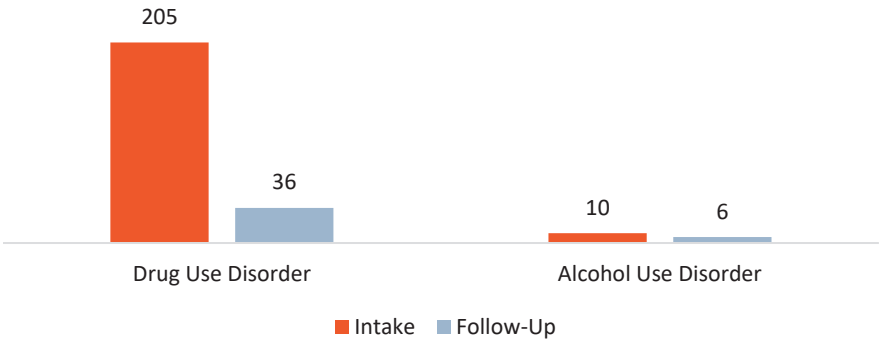
[84] Substance Abuse and Mental Health Services Administration. (2008). *Results from the 2007 National Survey on Drug Use and Health: National findings*. (DHHS Publication No. SMA 08-4343, NSDUH Series H-34). Rockville, MD: Office of Applied Studies. Retrieved from https://oas.samhsa.gov

[85] Substance Abuse and Mental Health Services Administration. (2011). *Results from the 2010 National Survey on Drug Use and Health: Summary of National Findings*. (HHS Publication No. SMA 11-4658, NSDUH Series, H-41. Rockville, MD: Substance Abuse and Mental Health Services.

[86] One individual had missing data for length of service, and was not included in the avoided costs analysis.

FIGURE 12.1 CHANGE IN THE NUMBER OF INDIVIDUALS WHO WERE ACTIVE DRUG ABUSERS OR ALCOHOL ABUSERS FROM INTAKE TO FOLLOW-UP (N = 282)



When the estimated cost per individual drug user was applied to the 205 individuals who were active drug users at intake, the annual estimated cost to society for the RCOS individuals who used illegal drugs before entry into the recovery center was $7,498,285. When the average annual cost per individual alcohol user was applied to the 10 individuals who were active alcohol users at intake, the estimated cost to society was $172,860. The total estimated cost of drug and alcohol abuse applied to the sample of individuals in RCOS was $7,671,145. By follow-up, the estimated cost of the 36 individuals who were still active drug abusers was $1,316,772 and the estimated cost of the 6 individuals who were active alcohol abusers was $103,716, for a total of $1,420,488. Thus, as shown in Figure 12.2, after participation in a Recovery Kentucky program, the aggregate cost to society for the RCOS follow-up sample was reduced by $6,250,657.

FIGURE 12.2. CHANGE IN COST TO SOCIETY AT INTAKE AND FOLLOW-UP (AMOUNTS IN MILLIONS OF DOLLARS) (N = 282)

$7.6 million – **$1.4 million** = **$6.2 million**

COST TO SOCIETY AT INTAKE – COST TO SOCIETY AT FOLLOW-UP = GROSS DIFFERENCE IN COST TO SOCIETY

The daily cost of participation in a Recovery Kentucky program in FY 2021 was $48.06 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 for each client was multiplied by the daily cost of $48.06, for a total cost of $3,130,484 for the 282 individuals in the RCOS follow-up sample. When the cost of Recovery Kentucky programs was subtracted from the cost savings from increased alcohol and drug abstinence, there is an estimated net savings to society of $6,250,657 for serving this sample of 282 individuals. Examining the total avoided costs in relation to expenditures on recovery services, these figures suggest that for every dollar invested in recovery, there was a $2.00 return in avoided costs.

Section 13. 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 Phase 1 entry in FY 2021 and a follow-up telephone interview about 12 months after the intake survey.

Areas of Success

The 2023 evaluation results indicate that Recovery Kentucky programs have been successful in facilitating substantial positive changes in clients' lives. The majority of clients (81.6%) reported at follow-up that they had completed Phase I of the recovery program. Clients' level of satisfaction with the programs was high. Specifically, the majority indicated that the program worked extremely well for them and the average rating of the program was 8.5 on a scale from 1 to 10, with 10 representing the best possible program. The majority of clients reported that: program staff believed in them and that the program would work for them, they felt the program staff cared about them and their progress, they worked on and talked about the things that were most important to them, their expectations and hopes for the program and recovery were met, they had input into their goals and how they were progressing over time, they had a connection with a staff person during the program, the program approach and method was a good fit for them, and when clients spoke about personal things they felt listened to by their counselors and staff. Clients reported the biggest benefits of the program were their reduced substance use, positive interactions and relationships with other people, improved mental health and feelings about self, major positive life changes, and spirituality.

Significant improvements in clients' lives and functioning were made from intake to follow-up were made in the following areas:

Substance Use

There was a significant decrease in past-6-month use of illegal drugs as well as a decrease in past-6-month use of alcohol from intake to follow-up among clients who were not in a controlled environment for the entire period at intake. About 85% of RCOS clients reported abstinence from illegal drugs and 92% reported abstinence from alcohol in the past 6 months at follow-up. Abstinence is linked to a decrease in drug-related consequences[87] as well as improvements in health and a decrease in mortality, reductions in crime, increases in employment, and an improved quality of life.[88]

Further, there was a 73% reduction in the percent of clients meeting DSM-5 criteria for

[87] Park, T., Cheng, D., Lloyd-Travaglini, C., Bernstein, J., Palfai, T., & Saitz, R. (2015). Changes in health outcomes as a function of abstinence and reduction in illicit psychoactive drug use: A prospective study in primary care. *Addiction, 110*, 1476-1483.

[88] Vederhus, J., Birkeland, B., & Clausen, T. (2016). Perceived quality of life, 6 months after detoxification: Is abstinence a modifying factor? *Quality of Life Research, 25*, 2315-2322.

severe substance use disorder from intake to follow-up. The number of clients with an ASI alcohol or drug composite score that met or exceeded the cutoff for severe substance use disorder also decreased significantly in the past 30 days.

Mental Health

Compared to the general population, individuals who have a substance use disorder are more likely to have a co-occurring mental health disorder.[89] At intake, 59% clients met study criteria for depression, 68% met criteria for generalized anxiety, and almost one-fourth (24%) reported suicidal thoughts or attempts in the past 6 months. At follow-up, there were significant reductions in mental health symptoms for RCOS clients – 14% met depression criteria, 23% met anxiety criteria, and only about 3% reported suicidality in the past 6 months. Further, three-fourths of clients (75%) met criteria for either depression or anxiety at intake, with a significant decrease to 26% at follow-up.

At intake, 30% screened positive for PTSD symptoms at intake, and 13% of these individuals screened positive for PTSD symptoms at follow-up, which was a significant decrease.

Physical Health

Clients' self-reported overall health improved from intake to follow-up. Only 25% of clients rated their overall health as "very good" or "excellent" at intake, which increased significantly to 72% rating their overall health as "very good" or "excellent" at follow-up. The number of days individuals reported their physical health was not good in the past 30 days decreased significantly from intake (6.9) to follow-up (2.2). Comparing RCOS clients to a statewide sample, the number of poor physical health days reported at follow-up (2.5) was somewhat less than others in Kentucky (5.0).[90] Additionally, there was a significant reduction in the number of clients reporting chronic pain in the past 6 months from intake to follow-up.

Criminal Justice Involvement

Research has shown that criminal justice involvement, specifically post-treatment arrests, may increase the likelihood of substance use relapse.[91] The number of RCOS clients reporting arrests and incarceration in the past 6 months at follow-up was significantly less than the number at intake. Only around 10% of clients reported an arrest and 11% reported spending any time incarcerated at follow-up. The percent of clients who self-reported at least one conviction for a misdemeanor or felony also decreased significantly from intake to follow-up.

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[89] https://www.samhsa.gov/treatment#co-occurring

[90] University of Wisconsin Population Health Institute. (2022). 2021 County Health Rankings: Kentucky. Retrieved from https://www.countyhealthrankings.org/rankings/data/ky.

[91] Kopak, A., Haugh, S., Hoffmann, N. (2016). The entanglement between relapse and posttreatment criminal justice involvement. The American Journal of Drug and Alcohol Abuse, 42(5), 606-613.

Quality of Life and Well-being

Clients' self-reported quality of life improved from intake to follow-up (3.9 vs. 8.6) on a scale from 1, worst imaginable to 10 best imaginable.

Education

Even though most clients (81%) reported they had a high school diploma or GED at intake, there was a significant increase in the percent reporting a high school diploma or GED at follow-up (87%).

Employment

Unemployment has been linked to higher rates of smoking, alcohol consumption, and illicit drug use.[92] There was a significant increase in employment for RCOS clients from intake (44%) to follow-up (83%). The percent of men who were employed at least one month out of the past 6 months increased by 11% and the number of women employed increased by 45%.

Homelessness

Research has shown that homelessness and substance use often go together and one recent study found that among individuals with any substance abuse or dependence diagnosis in their lifetime, three-fourths had also experienced an episode of homelessness.[93] Overall, there was a significant decrease in the number of RCOS clients reporting homelessness in the last 6 months, from 29% at intake to 11% at follow-up.

Economic Hardship

Economic hardship may be a better indicator of the actual day-to-day living situation clients face than a measure of income. The percent of clients reporting they had difficulty meeting basic living needs and health care needs decreased significantly from intake to follow-up. For example, 33% of the clients had difficulty meeting basic living needs at intake, whereas the percent had decreased to 20% at follow-up.

Recovery Support

Research has shown that positive social and recovery supports, like AA, NA, and other 12-step programs, are linked to a lower risk of relapse.[94] For RCOS clients, there was a significant increase in mutual-help group meeting attendance in the past 30 days from

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[92] Henkel, D. (2011). Unemployment and substance use: A review of the literature (1990-2010). *Current Drug Abuse Reviews, 4*, 4-27.

[93] Greenberg, G. & Rosenheck, R. (2010). Correlates of pate homelessness in the National Epidemiological Survey of Alcohol and Related Conditions. *Administration and Policy in Mental Health and Mental Health Services Research, 37*, 357-366.

[94] Havassy, B., Hall, S. & Wasserman, D. (1991). Social support and relapse: Commonalities among alcoholics, opiate users, and cigarette smokers. *Addictive Behaviors, 16*, 235-246.

29% at intake to 81% at follow-up. Further, among individuals who did not attend mutual-help group meetings at intake, 78% did attend at least one meeting in the past 30 days at follow-up. At follow-up, RCOS clients also reported more recovery supportive contact with family, friends, or a sponsor. Additionally, the number of people clients could count on for support was significantly higher at follow-up (19.1) compared to intake (6.3).

Multidimensional Recovery

Recovery goes beyond relapse or return to occasional drug or alcohol use. The multidimensional recovery measure items from the intake and follow-up surveys to create one measure of recovery. At intake, 1.4% of the individuals had all positive dimensions of recovery, whereas at follow-up, the majority (63%) had all positive dimensions.

Avoided Costs

A cost-benefit analysis was beyond the scope of this outcome evaluation. Nonetheless, an estimate of the avoided costs to society in the follow-up period based on national estimates of the cost of alcohol and drug abuse and taking into account the cost of recovery Kentucky services suggests that recovery Kentucky has a positive return on investment. The estimate of avoided costs to society of $6,250,657 divided by the cost of recovery Kentucky services to the individuals in the follow-up sample suggest that for every dollar spent there was an estimated $2.00 of avoided costs to society.

Areas of Concern

There were a few areas where the data results suggest additional attention is warranted:

High Rates of Methamphetamine Use

The percent of clients reporting methamphetamine use at intake began increasing in FY 2015 (36%), with the highest percentage in FY 2020 (60%). In FY 2021, a higher percentage of RCOS clients reported they had used methamphetamine in the 6 months before entering the recovery center program (56%) than had used prescription opioids (41%), which is the third year this has happened in the RCOS sample. In the follow-up sample, there was a significant 57% reduction in the percent of individuals who reported using methamphetamine in the past 6 months from intake (64%) to follow-up (7%).

Smoking Tobacco and Vaporized Nicotine Use

Even though the percent of RCOS clients not in a controlled environment who reported past-6-month smoking tobacco was high at follow-up (67%), the percent was significantly lower than at intake (81%). Nonetheless, compared to a statewide sample (21.4%), over three times more RCOS clients report smoking at follow-up.[95] Past-30-day use of vaporized nicotine increased from intake to follow-up as smoking tobacco use decreased. This relationship may be explained by the research indicating an association between

[95] America's Health Rankings https://www.americashealthrankings.org/explore/annual/measure/Smoking/state/KY

e-cigarette use and quitting tobacco cigarettes. The study found that individuals who started using e-cigarettes were more likely to stop smoking cigarettes.[96]

There is a common belief that individuals should not attempt to quit smoking while in substance abuse treatment, because smoking cessation can endanger their sobriety. However, recent empirical research challenges this idea.[97] Continued tobacco use is associated with increased mental health symptoms as well as well-known physical health problems, including increased mortality. Voluntary smoking cessation interventions during substance abuse treatment has been associated with lower alcohol and drug relapse and improved mental health outcomes.[98, 99]

Economic Hardship

Even though there was a significant decrease in the percent of clients who had difficulty meeting their basic living needs from intake to follow-up, 20% of clients reported they had difficulty meeting basic living needs (e.g., food, utilities, rent) at follow-up, which is higher than found in the 2021 Report (10%). Further, there was no significant decrease in difficulty meeting health care needs from intake to follow-up. Despite significant increases in the percent of men and women employed, significantly fewer women reported working in the past 6 months at follow-up and women earned a lower median hourly wage at intake and follow-up compared to men. Chronic stressors like sustained economic hardship and unemployment are associated with substance abuse relapse.[100] Additionally, increased substance use may occur in those with financial strain to help alleviate the stress.[101]

Program Concerns

Most RCOS clients rated their time at the recovery center as positive and helpful for multiple aspects of their lives. Nonetheless, there were some aspects of the program that a minority of clients found problematic. For example, one-third of clients stated the start of the program was poor for them and about 15% of clients who were not still involved in the program at follow-up reported that the program ended poorly for them. Among the individuals who stated the program ended poorly for them 49% left the program on terms other than completing the program, such as leaving before program staff thought they should, missing too many appointments to continue, not complying with program

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[96] Kasza K., Edwards K., Kimmel H., et al. (2021). Association of e-Cigarette Use With Discontinuation of Cigarette Smoking Among Adult Smokers Who Were Initially Never Planning to Quit. *JAMA Netw Open, 4*(12):e2140880. doi:10.1001/jamanetworkopen.2021.40880

[97] Baca, C., & Yahne, C. (2009). Smoking cessation during substance abuse treatment: What you need to know. *Journal of Substance Abuse Treatment, 36*, 205-219.

[98] Proschaska, J. (2010). Failure to treat tobacco use in mental health and addiction treatment settings: A form of harm reduction? *Drug and Alcohol Dependence, 110*, 177-182.

[99] Kohn, C., Tsoh, J., & Weisner, C. (2003). Changes in smoking status among substance abusers: Baseline characteristics and abstinence from alcohol and drugs at 12-month follow-up. *Drug and Alcohol Dependence, 69*(1), 61-71.

[100] Tate, S., Brown, S., Glasner, S., Unrod, M., & McQuaid, J. (2006). Chronic life stress, acute stress events, and substance availability in relapse. Addiction Research and Theory, 14(3), 303-322.

[101] Shaw, B. A., Agahi, N., & Krause, N. (2011). Are Changes in Financial Strain Associated with Changes in Alcohol Use and Smoking Among Older Adults? *Journal of Studies on Alcohol and Drugs, 72*(6), 917-925.

rules, or being voted out by their peers for not complying with program rules. Also, 31% of individuals believed the length of the program was either too short or too long. Further exploration of the characteristics, conditions, and program processes of clients whose participation in the program ends before completion is needed to determine if there are additional supports the programs can put in place to decrease attrition.

Adverse Childhood Experiences and Interpersonal Victimization in Adulthood

Adverse childhood experiences were reported by the majority of clients who completed intake surveys: 86.7% of men and 90.7% of women. Of the maltreatment and abuse experiences, the most reported experiences for the total sample were emotional maltreatment, emotional neglect, and physical maltreatment. Of the household risks experiences, the most reported experiences were parents being separated/divorced, substance abuse by a household member, and mental illness of a household member. Women reported significantly more adverse childhood experiences relative to men. Furthermore, significantly more women than men reported they had experienced emotional maltreatment, emotional neglect, sexual abuse, their mother/stepmother was a victim of partner violence, a household member had a substance abuse problem, and a household member had mental illness.

The majority of RCOS clients reported they had been physically assaulted (other than intimate partner violence) as adults. Similar percentages of men and women reported ever (1) being robbed or mugged and (2) directly or indirectly threatened with a gun or held at gunpoint. Significantly higher percentages of women than men reported ever being physically assaulted or attacked, intimate partner violence (including controlling behavior), stalked by someone who scared them, sexually assaulted or raped, and verbally, sexually, or otherwise harassed in a way that made them afraid. The high number of clients who experience adverse childhood events and interpersonal victimization in adulthood suggest a need to address interpersonal victimization and traumatic events in the programs.

Study Limitations

The study findings must be considered within the context of the project's limitations. First, the data included in this write-up was self-reported by Recovery Kentucky clients. There is reason to question the validity and reliability of self-reported data, particularly about sensitive topics, such as illegal behavior and stigmatizing issues such as mental health and substance use. However, some research has supported findings about the reliability and accuracy of individuals' reports of their substance use.[102, 103, 104] For example, in many studies that have compared agreement between self-report and urinalysis the

[102] Del Boca, F.K., & Noll, J.A. (2000). Truth or consequences: The validity of self-report data in health services research on addictions. *Addiction, 95*, 347-360.

[103] Harrison, L. D., Martin, S. S., Enev, T., & Harrington, D. (2007). C*omparing drug testing and self-report of drug use among youths and young adults in the general population* (DHHS Publication No. SMA 07-4249, Methodology Series M-7). Rockville, MD: Substance abuse and Mental Health Services Administration, Office of Applied Studies.

[104] Rutherford, M.J., Cacciola, J.S., Alterman, A.I., McKay, J.R., & Cook, T.G. (2000). Contrasts between admitters and deniers of drug use. *Journal of Substance Abuse Treatment, 18*, 343-348.

concordance or agreement is acceptable to high.[105, 106, 107] In fact, in some studies, when there were discrepant results between self-report and urinalysis of drugs and alcohol, the majority were self-reported substance use that was not detected with the biochemical measures.[108, 109, 110] In other studies, higher percentages of underreporting have been found.[111] Prevalence of underreporting of substance use is quite varied in studies. Nonetheless, research has found that certain conditions facilitate the accuracy of self-report data such as assurances of confidentiality and memory prompts.[112] Moreover, the "gold standard" of biochemical measures of substance use have many limitations: short windows of detection that vary by substance; detection varies on many factors such as the amount of the substance consumed, chronicity of use, sensitivity of the analytic method used.[113] Therefore, the study method includes several key strategies to facilitate accurate reporting of sensitive behaviors at follow-up including: (a) the follow-up interviews are conducted by telephone with a University of Kentucky Center on Drug and Alcohol Research (UK CDAR) staff person who is not associated with any Recovery Kentucky program; (b) the follow-up responses are confidential and are reported at a group level, meaning no individual responses are linked to participants' identity; (c) the study procedures, including data protections, are consistent with federal regulations and approved by the University of Kentucky Human Subjects Institutional Review Board; (d) confidentiality is protected under Federal law through a Federal Certificate of Confidentiality; (e) participants can skip any question they do not want to answer; and (f) UK CDAR staff are trained to facilitate accurate reporting of behaviors and are regularly supervised for quality data collection and adherence to confidentiality.

Even though the project sample was limited to 283 follow-up surveys this fiscal year due to budget constraints, there are several ways the study method helps to minimize the impact of this limitation including: (a) the follow-up sample is randomly selected from those clients who agree to participate and who provide minimal locator information in the study and is stratified to ensure there are similar numbers of males and females; and (b) clients who did and clients who did not complete a follow-up interview are compared to see how different the follow-up sample is from those not followed up on sociodemographic factors and targeted factors at Phase 1 intake. Results show there

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[105] Rowe, C., Vittinghoff, E., Colfax, G., Coffin, P. O., & Santos, G. M. (2018). Correlates of validity of self-reported methamphetamine use among a sample of dependent adults. *Substance Use & Misuse, 53* (10), 1742-1755.

[106] Rygaard Hjorthoj, C., Rygaard Hjorthoj, A., & Nordentoft, M. (2012). Validity of Timeline Follow-Back for self-reported use of cannabis and other illicit substances—Systematic review and meta-analysis. *Addictive Behaviors, 37*, 225-233.

[107] Wilcox, C. E., Bogenschutz, M. P., Nakazawa, M., & Woody, G. (2013). Concordance between self-report and urine drug screen data in adolescent opioid dependent clinical trial participants. *Addictive Behaviors, 38*, 2568-2574.

[108] Denis, C., Fatséas, M., Beltran, V., Bonnet, C., Picard, S., Combourieu, I., Daulouède, J., & Auriacombe, M. (2012). Validity of the self-reported drug use section of the Addiction Severity and associated factors used under naturalistic conditions. *Substance Use & Misuse, 47*, 356-363.

[109] Hilario, E. Y., Griffin, M. L., McHugh, R. K., McDermott, K. A., Connery, H. S., Fitzmaurice, G. M., & Weiss, R. D. (2015). Denial of urinalysis-confirmed opioid use in prescription opioid dependence. J*ournal of Substance Abuse Treatment, 48*, 85-90.

[110] Williams, R. J., & Nowatzki, N. (2005). Validity of self-report of substance use. *Substance Use & Misuse, 40*, 299-313.

[111] Chermack, S. T., Roll, J., Reilly, M., Davis, L., Kilaru, U., Grabowski, J. (2000). Comparison of patient self-reports and urianalysis results obtained under naturalistic methadone treatment conditions. *Drug and Alcohol Dependence, 59*, 43-49.

[112] Del Boca, F. K., & Noll, J. A. (2000). Truth or consequences: the validity of self-report data in health services research on addictions. *Addiction, 95* (Suppl. 3), S347—S360.

[113] Williams, R. J., & Nowatzki, N. (2005). Validity of self-report of substance use. *Substance Use & Misuse, 40*, 299-313.

was only two significant difference in this year's report data and one was a result of the stratification by gender when selecting the follow-up sample: significantly more clients who completed a follow-up interview were female compared to clients who did not complete a follow-up interview. Second, significantly more followed-up clients reported using opioids in the 6 months before entering the program compared to clients who did not complete a follow-up interview.

Finally, a longer-term follow-up would provide more information about the impact of the Recovery Kentucky Program on longer time life changes and events.

Conclusion

This RCOS 2023 report 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.

Overall, Recovery Kentucky clients made significant strides in all the targeted areas, clients were largely satisfied and appreciative of the services they received through the recovery centers, and Recovery Kentucky 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 improvements in global functioning and 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.

Appendix A. Methods

A total of 1,548 unduplicated individuals had an intake survey completed between July 1, 2020 and June 30, 2021. The target month for the follow-up survey was 12 months after the intake survey was conducted. Cases were randomly selected into the follow-up sample by gender [male, female] so that equal numbers of men and women were selected for the follow-up sample. 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 533 individuals were selected into the sample of individuals to be followed up from July 2021 to June 2022. Of these individuals, 25 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 508 individuals, interviewers completed follow-up surveys with 283 individuals, representing a follow-up rate of 55.7%. Of the eligible individuals, 224 (44.1%) 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. One individual declined to complete the follow-up survey when the interviewer contacted him/her. The project interviewers' efforts accounted for 60.8% of the cases (n = 309) 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 = 533)	Percent
Ineligible for follow-up survey	25	4.7%
	Number of cases eligible for follow-up (N = 508)	
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		55.7%
Expired cases (i.e., never contacted, did not complete the survey during the follow-up period)	224	
Expired rate ((the number of expired cases/eligible cases)*100)		44.1%
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)	309	
Percent of cases accounted for ((# of cases accounted for/total number of records in the follow-up sample)*100)		60.8%

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 25 cases that were ineligible for follow-up, the majority (76.0%) was ineligible because they were incarcerated during the follow-up period. Three individuals were ineligible because they were deceased and three were ineligible because they were in residential treatment at the time of follow-up.

TABLE AA.2. REASONS CLIENTS WERE INELIGIBLE FOR FOLLOW-UP (N = 25)

	Number	Percent
Incarcerated	19	76.0%
Deceased	3	12.0%
Residential treatment	3	12.0%

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).[114]

Demographic Characteristics

The average age of clients was 36.5 for clients who did not complete a follow-up and 35.3 for clients who completed a follow-up, with no statistically significant difference by follow-up status (see Table AB.1). Significantly more women completed the follow-up than did not, and more than half of the follow-up sample was women. The majority of the sample for this annual report was White. The highest percentage of clients in both groups reported at intake that they had never been married and the next highest percentage reported they were separated or divorced. Age, race, and marital status did not differ significantly by follow-up status.

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

	FOLLOWED UP	
	NO n = 1,251	YES n = 283
Age	36.5 years	35.3 years
Gender**		
Male	66.5%	45.6%
Female	33.5%	54.4%
Race		
White	90.7%	92.2%
African American	6.6%	5.3%
Other or multiracial	2.8%	2.5%
Marital status		
Never married	44.2%	42.8%
Married or cohabiting	20.7%	23.3%
Separated or divorced	33.2%	31.1%
Widowed	1.9%	2.8%

**p < .001.

Substance Use at Intake

[114] Significance is reported for p<.01.

Use of illegal drugs, alcohol, and tobacco in the 6 months before entering the recovery center is presented by follow-up status in Table AB.2 for those clients who were not incarcerated the entire period.[115] There was only one statistically significant difference by follow-up status in the percent of individuals who reported using opioids in the 6 months before entering treatment.

The vast majority of the clients reported using any illegal drug in the 6 months before entering the program. The drug class used by the greatest percent of clients was stimulants (methamphetamine, non-prescribed Adderall, Ecstasy), followed by cannabis, and then opioids (other than heroin). Use of heroin was reported by little less than two-fifths of clients. Less than one-fourth of clients used CNS depressants and cocaine. Less than one-fifth of clients used other illegal drugs (e.g., synthetic drugs, hallucinogens, inhalants).

About two-fifths of clients reported using any alcohol at intake. The majority of clients reported smoking tobacco products in the 6 months before entering the program. A little more than one-third of clients reported e-cigarette use. One-fifth of clients who did not complete a follow-up survey used smokeless tobacco in the 6 months before entering the program.

TABLE AB.2. PERCENT OF INDIVIDUALS REPORTING ILLEGAL DRUG USE, ALCOHOL, AND TOBACCO IN THE 6 MONTHS BEFORE ENTERING THE RECOVERY CENTER

	FOLLOWED UP	
	NO n = 1, 194	YES n = 222
Any illicit drug	82.8%	88.7%
Stimulants (methamphetamine, Adderall, Ecstasy)	56.4%	64.4%
Cannabis	54.2%	56.3%
Opioids (including methadone and buprenorphine-naloxone)*	45.2%	55.4%
Heroin	31.2%	38.7%
CNS depressants	23.9%	27.0%
Cocaine	22.9%	23.9%
Other illegal drugs (synthetic drugs, hallucinogens, inhalants)	18.2%	18.5%
Alcohol	40.9%	41.4%
Smoked tobacco	82.3%	81.5%
Vaporized nicotine	34.6%	37.4%
Smokeless tobacco	19.0%	17.1%

*$p < .01$.

[115] Of those who did not complete a follow-up, 293 were incarcerated all 6 months before entering the program. Of those who completed a follow-up, 61 were incarcerated all 6 months before entering the program.

Analysis of past-30-day substance use of clients who were followed up compared to clients who were not followed up showed similar patterns to the 6-month substance use, however, there were no statistically significant differences by follow-up status.

Table AB.3 shows the percent of followed-up and non-followed-up individuals in each DSM-5 severity classification based on self-reported criteria of the 6 months before entering the recovery center, among clients who were not in a controlled environment the entire 6-month period before entering the program. The majority of both groups reported six or more DSM-5 symptoms at intake, with no difference by follow-up status.

TABLE AB.3. SELF-REPORTED DSM-5 SYMPTOMS OF SUBSTANCE USE DISORDER[116]

	FOLLOWED UP	
	NO n = 972	YES n = 222
No SUD (0-1 symptom).....	18.2%	11.3%
Mild SUD (2-3 symptoms)	3.4%	2.3%
Moderate SUD (4-5 symptoms).....	4.2%	6.3%
Severe SUD (6+ symptoms)	74.2%	80.2%

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.4 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 (74.9% for not followed up and 81.6% for followed up individuals; see Table AB.4). 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 .26 for individuals who were not followed up and .27 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 .26 for those not followed up and .28 for those who were followed up. 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, less than half 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.4). Among individuals who were in a controlled environment all 30 days before entering the program,

[116] Of those who did not complete a follow-up, 293 were incarcerated all 6 months before entering the program. Of those who completed a follow-up, 61 were incarcerated all 6 months before entering the program.

the average score for the alcohol severity composite score was .11 for the not followed-up group and the followed-up group. Of clients who were in a controlled environment all 30 days, the mean for the drug severity composite scores was .15 for both groups of individuals. The percent of individuals who met or surpassed the cutoff for the ASI CS for severe SUD did not differ significantly by follow-up status.

TABLE AB.4. 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 = 618)	YES (n = 125)	NO (n =647)	YES (n =158)
Percent of Individuals with ASI composite score equal to or greater than cutoff score for...				
alcohol or drug use disorder.....	74.9%	81.6%	40.0%	39.2%
alcohol use disorder.....	40.1%	46.4%	17.6%	17.1%
drug use disorder.....	63.6%	71.8%	34.0%	33.5%
Average ASI composite score for alcohol use[a]	.26	.27	.11	.11
Average ASI composite score for drug use[b]	.26	.28	.15	.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

A 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.5). Among clients who reported a history of substance abuse treatment, the average number of lifetime treatment episodes was 3.7 for individuals who did not complete a follow-up interview and individuals who did complete a follow-up interview. A minority of clients reported they had participated in any medication-assisted treatment within the past 6 months, with no difference by follow-up status.

TABLE AB.5. HISTORY OF SUBSTANCE ABUSE TREATMENT IN LIFETIME

	FOLLOWED UP	
	NO n = 1,251	YES n = 283
Ever been in substance abuse treatment in lifetime.....	72.4%	78.4%
Among those who had ever been in substance abuse treatment in lifetime,	(n = 916)	(n = 222)
Average number of times in treatment Participated in any MAT in the 6 months before entering the recovery center	3.7	3.7
Participated in any MAT in the 6 months before entering the recovery center	14.6%	11.0%

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 study 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 reported symptoms that met study criteria for depression, with no significant difference by follow-up status (see Table AB.6).

A total of 7 questions were asked to determine if individuals met criteria for Generalized Anxiety, including the screening question: "In the 6 months before you entered this recovery center, did you worry excessively or were you anxious about multiple things on more days than not (like family, health, finances, school, or work difficulties) all 6 months?" 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 6 months before clients entered recovery centers. There was no significant difference by follow-up status in the percent of clients that reported suicide ideation and/or attempts at intake (see Table AB.6).

The abbreviated version of the PTSD Checklist-5 (PCL-5), comprised of 4 items, was added to intake and follow-up interviews.[117] A score of 10 or higher is indicative of clinically significant PTSD symptomatology. Around 1 in 4 individuals in both groups had scores of 10 or higher on the PCL-5.

TABLE AB.6. PERCENT OF INDIVIDUALS REPORTING MENTAL HEALTH PROBLEMS IN THE 6 MONTHS BEFORE ENTERING THE RECOVERY CENTER

	FOLLOWED UP	
	NO n = 1,251	YES n = 283
Depression	57.2%	59.4%
Generalized Anxiety	64.0%	67.8%
Suicidality (e.g., thoughts of suicide or suicide attempts)	23.6%	24.4%
PTSD	26.3%	28.6%

[117] Price, M., Szafrankski, D. D., van Stolk-Cooke, K., & Gros, D. F. (2016). Investigation of abbreviated 4 and 8 item versions of the PTSD Checklist 5. *Psychiatry Research, 239*, 124-130.

Criminal Justice System Involvement at Intake

There was no significant difference by follow-up status in the percent of clients who were referred to the recovery center by the criminal justice system (e.g., judge, drug court, probation, Department of Corrections): 81.6% of those who did not complete a follow-up vs. 85.5% of those who did complete a follow-up (85.5%; not depicted in a Table or Figure).

The majority of individuals (57.1% of those not followed up and 55.8% of those followed up) reported they had been arrested in the 6 months before entering the recovery center (see Table AB.7). The majority of clients were under supervision by the criminal justice system (e.g., on probation or parole) when they entered the recovery center, with no significant difference by follow-up status.

TABLE AB.7. CRIMINAL JUSTICE SYSTEM INVOLVEMENT WHEN ENTERING THE RECOVERY CENTER

	FOLLOWED UP	
	NO n = 1,251	YES n = 283
Arrested for any charge in the 6 months before entering the Recovery Center	57.1%	55.8%
Currently under supervision by the criminal justice system	78.3%	77.7%
On probation	56.3%	56.2%
On parole	25.6%	24.0%

The majority of clients in each group reported being incarcerated for at least one day in the past 6 months before entering the program, with significantly more followed-up clients reporting past-6-month incarceration compared to the not followed-up clients (See Table AB.8). Among those who reported being incarcerated at least one day in the 6 months before entering the program, the average number of days they were incarcerated did not differ by follow-up status.

TABLE AB.8. INCARCERATION HISTORY IN THE 6 MONTHS BEFORE ENTERING THE RECOVERY CENTER

	FOLLOWED UP	
	NO n = 1,251	YES n = 283
Incarcerated at least one day	77.2% (n = 977)	78.8% (n = 223)
Among those incarcerated at least one day, the average number of days incarcerated	88.6	91.3

Physical Health at Intake

Table AB.9 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. The majority 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. Nearly one-quarter of clients in the not followed-up group (22.2%) and about 21% of the followed-up clients reported they had experienced chronic pain in the 6 months before intake. There was no statistically significant difference in the average number of days clients' physical health and mental health was not good in the 30 days before entering the recovery center.

TABLE AB.9. CLIENT'S PHYSICAL HEALTH STATUS AT INTAKE

	FOLLOWED UP	
	NO n = 1,251	YES n = 283
Client was ever told by a doctor that client had a chronic medical problem	60.2%	60.8%
Experienced chronic pain (pain lasting 3 months or more)	22.2%	20.8%
In the 30 days before entering the program:		
Average number of days physical health was not good	7.8	6.9
Average number of days mental health was not good	15.2	14.9

Economic and Living Circumstances at Intake

Table AB.10 describes clients' level of education when entering the recovery center. A minority of individuals had less than a high school diploma or GED, with no significant difference by follow-up status.

TABLE AB.10. CLIENTS' HIGHEST LEVEL OF EDUCATION COMPLETED AT INTAKE

	FOLLOWED UP	
	NO n = 1,265	YES n = 283
Highest level of education completed		
Less than GED or high school diploma	22.5%	18.7%
GED/high school diploma	46.8%	41.7%
Vocational to graduate school	30.8%	39.6%

There were no differences in usual employment status at intake by follow-up status (see Table AB.11). 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 because they were looking for work. Of the individuals who reported working at least part-time in the 6 months before entering the recovery center, the average number of months worked was 4.0 for clients who were not followed up and 3.9 for followed-up clients. A minority of clients reported they currently received SSI or SSDI benefits.

TABLE AB.11. EMPLOYMENT IN THE 6 MONTHS BEFORE ENTERING THE RECOVERY CENTER

	FOLLOWED UP	
	NO n = 1, 265	YES n = 283
Usual employment status		
Employed full-time	32.3%	34.3%
Employed part-time (including seasonal, occasional work)	8.7%	8.1%
Unemployed and not looking for work due to being a student, homemaker, retired, disabled, or in a controlled environment	30.0%	29.7%
Unemployed	29.0%	27.9%
	(n = 518)	(n = 120)
Among those who were employed, average number of months client was employed	4.0 months	3.9 months
Currently receives SSI or SSDI benefits	7.4%	5.7%

There were no significant differences in living situation at intake between individuals who completed a follow-up interview and individuals who did not. Similar percentages in each group reported their usual living situation to be in a private residence and in jail/prison (see Table AB.12). Small percentages of individuals reported their usual living arrangement had been in a shelter or on the street, or in a controlled environment that was not a jail or prison, such as a recovery center, residential treatment, sober living home, or hospital.

At the time individuals entered recovery centers, 35.4% of clients who were not followed up and 29.3% of clients who were followed up considered themselves to be homeless, with many of those individuals stating that they were temporarily living with family or friends, staying on the street or living in a car, or in jail or prison (see Table AB.12).

TABLE AB.12 LIVING SITUATION OF CLIENTS BEFORE ENTERING THE RECOVERY CENTER

	FOLLOWED UP	
	NO n = 1,265	YES n = 283
Usual living arrangement in the 6 months before entering the program		
Own or someone else's home or apartment	42.6%	44.5%
Jail or prison	42.9%	44.2%
Shelter or on the street	7.9%	4.2%
Residential program, hospital, recovery center, or sober living home	5.3%	6.0%
Other living situation	1.3%	1.1%
Considers self to be currently homeless	35.4%	29.3%
Why the individual considers himself/herself to be homeless	(n = 439)[118]	(n = 83)
Staying temporarily with friends or family	44.4%	50.6%
Staying on the street or living in a car	36.0%	27.7%
In jail or prison	11.8%	15.7%
Staying in a shelter	4.3%	1.2%
Staying in a hotel or motel	1.4%	1.2%
In residential treatment, or other recovery center	1.6%	3.6%
Multiple situations	0.5%	0.0%

A sizeable minority of clients reported they had difficulty meeting any needs for financial reasons in the 6 months before entering the program, with no significant difference by follow-up status (see Table AB.13). 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. Followed-up and not followed-up clients reported similar average number of needs they had difficulty meeting in the 6 months before entering the program.

TABLE AB.13. CLIENTS WHO HAD DIFFICULTY MEETING BASIC NEEDS BEFORE ENTERING THE RECOVERY CENTER

	FOLLOWED UP	
	NO n = 1,265	YES n = 283
Client's household had difficulty meeting any needs in the 6 months before entering the program	41.3%	37.8%
Basic living needs (e.g., housing, utilities, telephone service, food)	37.6%	32.9%
Health care needs	24.0%	21.6%
Average number of needs had difficulty meeting	1.5	1.3

[118] Nine clients had a missing value for the item about reason for homelessness.

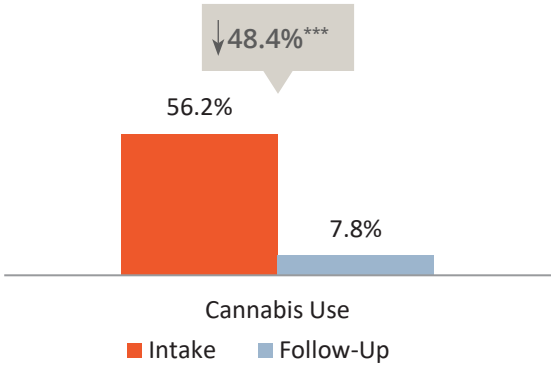
Appendix C. Change in Use of Specific Classes of Drugs from Intake to Follow-up

Change in 6-month Drug Use for Individuals Not in a Controlled Environment the Entire Period Before Entering the Recovery Center

Past-6-month Cannabis/marijuana Use

Clients' self-reported cannabis use decreased significantly by 48.4% from the 6 months before entering the program to the 6 months before follow-up (see Table AC.1).

FIGURE AC.1. CANNABIS USE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD BEFORE ENTERING THE RECOVERY CENTER (N = 219)

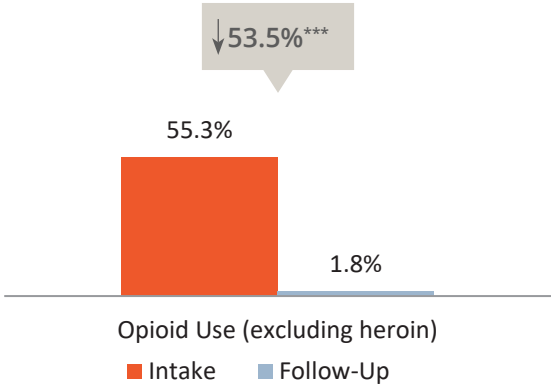


***p<.001.

Past-6-month Opioid (excluding Heroin) Use

Individuals' self-reported use of opioids including prescription opiates, methadone, and buprenorphine-naloxone (bup-nx) decreased significantly by 53.5% from the 6 months before entering the recovery center to the 6 months before follow-up (see Table AC.2).

FIGURE AC.2. OPIOID USE (EXCLUDING HEROIN) FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD BEFORE ENTERING THE RECOVERY CENTER (N = 219)

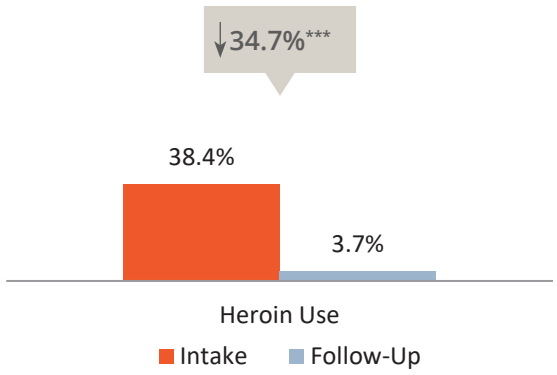


***p<.001.

Past-6-month Heroin Use

The number of individuals who reported using heroin decreased significantly by 34.7% in the period before entering the recovery center to the 6 months before follow-up (see Figure AC.3). There was no significant difference in use of heroin at intake by gender. Too few individuals reported using heroin in the 6 months before follow-up to examine statistically significant differences by gender.

FIGURE AC.3. HEROIN USE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD BEFORE ENTERING THE RECOVERY CENTER (N = 219)

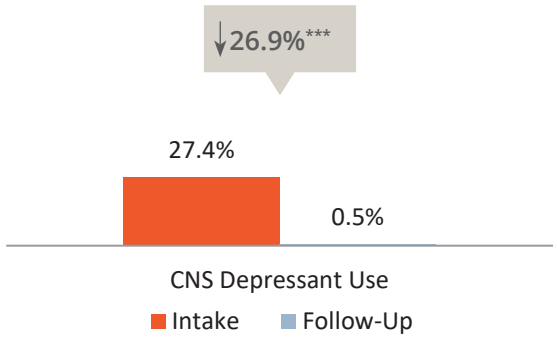


***p<.001.

Past-6-month Central Nervous System (CNS) Depressant Use

The number of individuals who reported using CNS depressants (e.g., tranquilizers, barbiturates, benzodiazepines, sedatives) decreased significantly by 26.9% in the 6 months before entering the recovery center to the 6 months before follow-up (see Figure AC.4). There were no gender differences at intake and there were too few individuals who reported using CNS depressants at follow-up to examine for a gender difference.

FIGURE AC.4. CNS DEPRESSANT USE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD BEFORE ENTERING THE RECOVERY CENTER (N = 219)

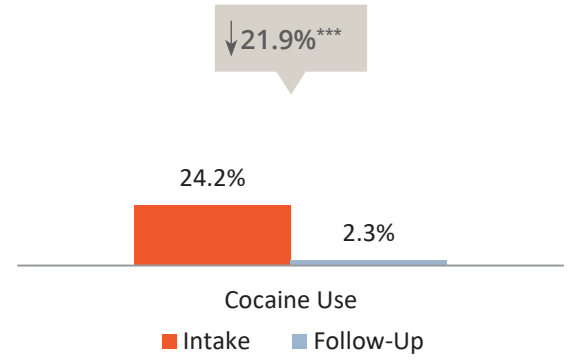


***p<.001.

Past-6-month Cocaine Use

The number of individuals who reported using cocaine decreased significantly by 21.9% in the period before entering the recovery center to the 6 months before follow-up (see Figure AC.5). There were no gender differences at intake and there were too few individuals who reported using cocaine at follow-up to examine for a gender difference.

FIGURE AC.5. COCAINE USE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD BEFORE ENTERING THE RECOVERY CENTER (N = 219)

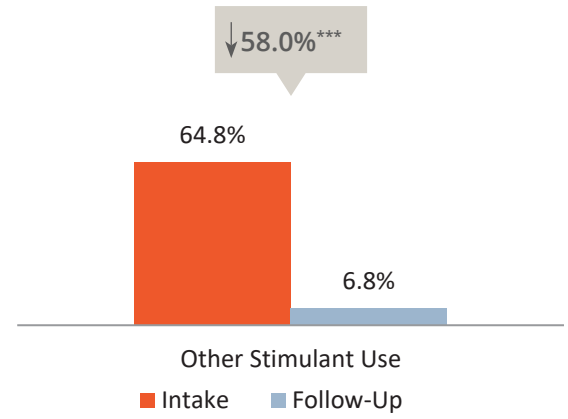


***p<.001.

Past-6-month Other Stimulant Use

The number of individuals who reported using other stimulants (e.g., amphetamine, methamphetamine, ecstasy, Ritalin) decreased significantly by 58.0% in the period before entering the recovery center to the 6 months before follow-up (see Figure AC.6). There were no gender differences in the percent of clients who reported using stimulants at intake and follow-up.

FIGURE AC.6. OTHER STIMULANT USE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD BEFORE ENTERING THE RECOVERY CENTER (N = 219)

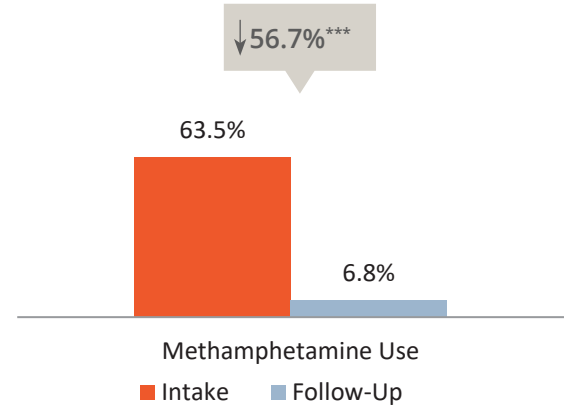


***p<.001.

Past-6-month Methamphetamine Use

Within the class of stimulant use, methamphetamine use was noted. The number of individuals who reported using methamphetamine decreased significantly by 56.7% in the period before entering the recovery center to the 6 months before follow-up (see Figure AC.7). There were no gender differences in the percent of clients who reported using stimulants at intake and follow-up.

FIGURE AC.7. METHAMPHETAMINE USE FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD BEFORE ENTERING THE RECOVERY CENTER (N = 219)

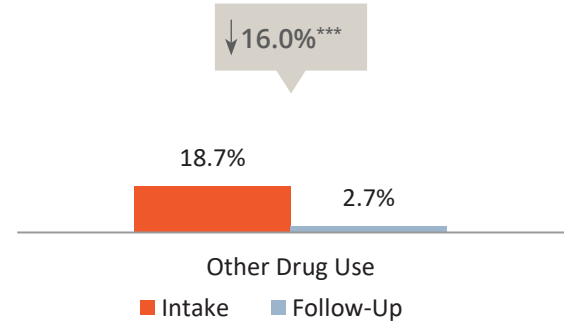


***p<.001.

Past-6-month Use of Other Drugs

The number of individuals who reported using other illegal drugs (e.g., inhalants, hallucinogens, synthetic drugs) decreased significantly by 16.0% (see Figure AC.8). There were no gender differences in the percent of clients who reported using other illegal drugs at intake, and too few individuals reported using other illegal drugs at follow-up to examine statistically significant difference by gender.

FIGURE AC.8. USE OF OTHER DRUGS FOR INDIVIDUALS WHO WERE NOT IN A CONTROLLED ENVIRONMENT THE ENTIRE PERIOD BEFORE ENTERING THE RECOVERY CENTER (N = 219)



***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 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).

Overall, the clients who were followed up received, on average, about 7.6 months of services from the recovery centers. Clients who were referred to the program by DOC had significantly longer stays in the recovery centers compared to clients who were not referred by DOC (240.8 days vs. 211.0 days, $t(280) = -2.424$, $p < .05$).

Multivariate analysis examining the relationship between length of service, DOC referral status, and several targeted outcomes showed no significant associations between DOC referral status and the outcomes, but significant associations were found between length of service and five outcomes at follow-up. Specifically, lower length of service was associated with greater odds of:

- using drugs or alcohol in the preceding 6 months
- meeting criteria for depression or anxiety
- being arrested in the preceding 6 months
- being incarcerated in the preceding 6 months

Greater length of service was associated with greater odds of:

- being employed full-time or part-time.