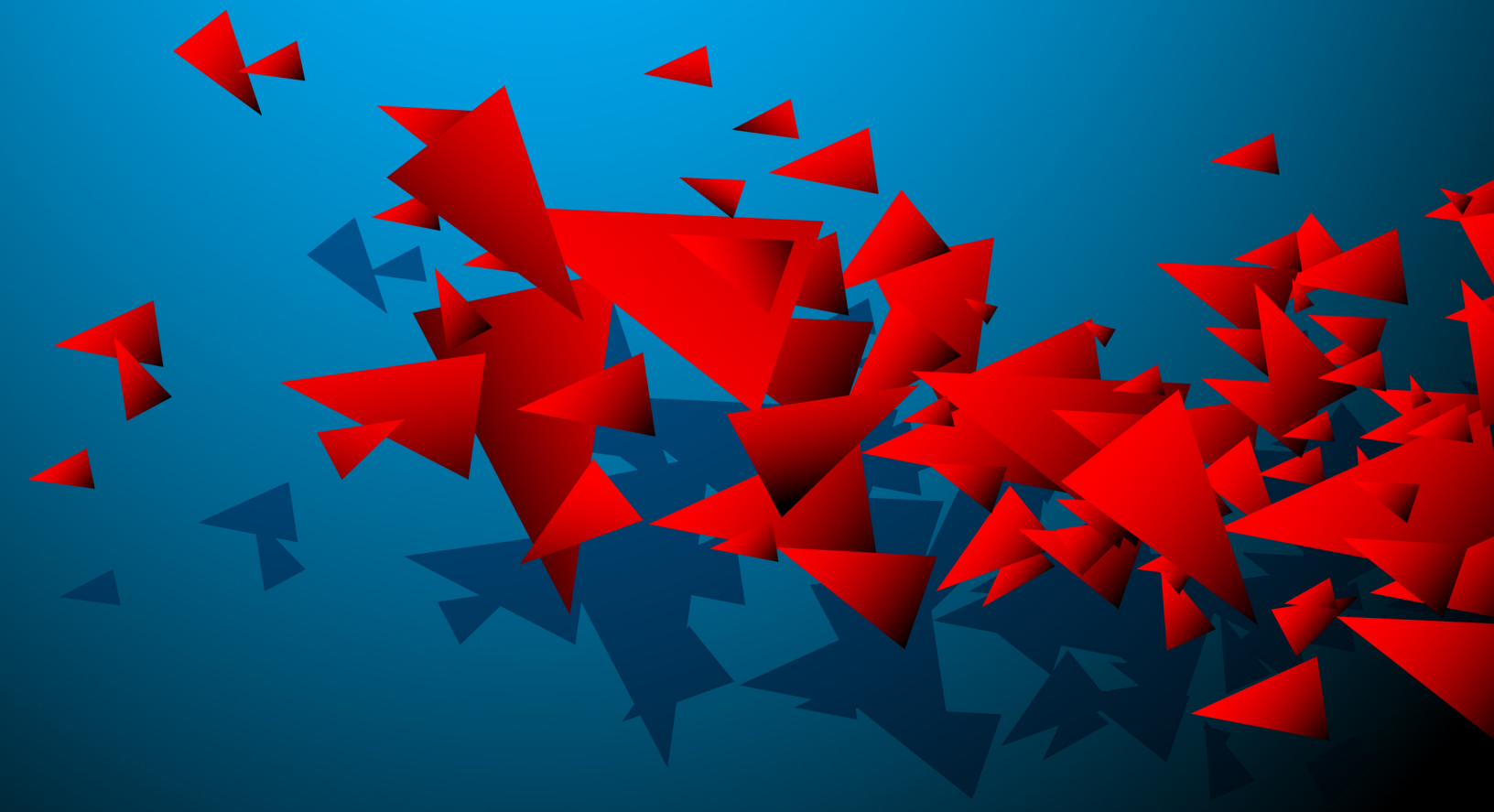
Adult Kentucky Treatment Outcome Study

2014 ANNUAL REPORT



EXECUTIVE SUMMARY

This report summarizes client outcomes from a statewide evaluation of publicly-funded substance abuse treatment programs for adults (18 years and older). The goal of the Kentucky Substance Abuse Treatment Outcome Study (KTOS) is to examine client satisfaction, recovery support, and outcomes for several specific targeted factors including: (1) substance use and severity of substance use, (2) mental health, (3) education, (4) employment, (5) homelessness and living situation, and (6) involvement in the criminal justice system. In addition, this report provides estimates of cost savings of publicly-funded substance abuse treatment. Report findings support continued funding of substance abuse treatment programs which improve the lives of clients and greatly reduce the cost of untreated substance abuse to society. State funded substance abuse programs in Kentucky are required by Kentucky Revised Statute (222.465) to collect data on substance abuse clients as they enter treatment. KTOS is an important part of the Division of Behavioral Health's performance-based measurement of treatment outcomes in Kentucky's communities.

The 2014 KTOS evaluation indicates that publicly-funded substance abuse treatment programs in Kentucky have been successful in facilitating positive changes in clients' lives in a variety of ways

This report presents findings on outcomes for 1,266 men and women who participated in publicly funded substance abuse treatment from July 2011 through June 2012 and then completed a follow-up interview about 12 months later.

Results show that program clients are largely satisfied with the treatment services they received at Kentucky's Community Mental Health Centers. Compared to intake, significantly more individuals reported they had attended mutual help recovery group meetings in the past 30 days. Also, more individuals reported they had interactions with family or friends who were supportive of their recovery at follow-up. At follow-up individuals reported having more people they could count on for recovery support than at intake.

Importantly, there were significant reductions in drug use and alcohol use as well as self-reported

substance use severity. The mental health of clients who participated in treatment was significantly improved in terms of lower depression symptoms, fewer individuals who had suicidal thoughts or attempts, and fewer days of poor mental health at follow-up.

Overall, there was a significant increase in the number of individuals who had completed high school or a GED by follow-up. Further, more clients reported current full-time employment and fewer clients reported unemployment at follow-up than at intake. Involvement in the criminal justice system, in terms of being arrested or incarcerated, also decreased significantly from intake to follow-up.

Examining estimates of the total costs of drug and alcohol abuse to society in relation to expenditures on treatment programs, estimates suggest that for every dollar spent on publicly-funded substance abuse treatment programs there was a $6.41 return in avoided costs (i.e., costs that would have been expected if alcohol and drug use continued at the same level as it was before treatment intake).

The 2014 KTOS evaluation indicates that publicly-funded substance abuse treatment programs in Kentucky have been successful in facilitating positive changes in clients' lives in a variety of ways, including decreased substance use, decreased severity of substance use, decreased mental health symptoms, increased education and full-time employment, and decreased involvement with the criminal justice system. Results also show that clients appreciate and value their experiences in treatment programs and have more support for recovery after participating in treatment. Finally, publicly-funded substance abuse treatment (in a variety of modalities) saves Kentucky taxpayers' money in avoided costs that ongoing substance abuse would have cost without treatment.

TABLE OF CONTENTS

Adult Kentucky Treatment Outcome Study 2014 Annual Report

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Baseline Surveys Completed From July 2011 to June 2012 and Follow-Up Surveys Completed From July 2012 through June 2013

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INTRODUCTION

The Behavioral Health Outcome Studies team at the University of Kentucky Center on Drug and Alcohol Research (UK CDAR) conducts an annual outcome evaluation for publicly funded substance abuse treatment programs in Kentucky for the Division of Behavioral Health in the Kentucky Department for Behavioral Health, Intellectual and Developmental Disabilities. State funded substance abuse programs in Kentucky are required by Kentucky Revised Statute (222.465) to collect data on substance abuse clients as they enter treatment. KTOS is an important part of the Division of Behavioral Health's performance-based measurement of treatment outcomes in Kentucky's communities.

KTOS data includes a face-to-face interview with program staff at treatment intake to assess targeted factors such as behaviors and problems prior to entering treatment. The findings presented in this report describe outcomes for 1,268[1] clients who participated in publicly funded substance abuse treatment from July 2011 through June 2012 and then completed a follow-up interview about 12 months later (an average of 343 days).

The follow-up interviews are conducted over the telephone by an interviewer at UK CDAR. Client responses to follow-up interviews are kept confidential to help facilitate the honest evaluation of client outcomes and perception of program services. The UK CDAR research team secured a high follow-up rate of 75.7% and low refusal rates for participation in the interviews. Only 23.1% of clients were not successfully contacted to complete the follow-up telephone interviews (see Appendix A for detailed information on study methods).

Of the 1,268 clients who completed follow-up interviews, 52.8% were men and 47.1% were women. Most clients were White (92.5%), 5.7% were African American, and 1.8% were "other" race or multiracial. Clients were an average age of 33 years old at the time of treatment intake (18 – 69 years old). The majority of clients were not married at intake with 39.3% reporting they had never been married, and 27.7% who were separated or divorced. Slightly over one-third of clients (36.6%) said they were referred to treatment by the criminal justice system (e.g., judge, probation officer).

When those with a follow-up interview were compared with those who did not have a follow-up interview on a variety of intake variables, there were a few significant differences for demographics, socio-economic status indicators (education, employment, living situation), physical and mental health. Specifically, more females completed a follow-up interview than did not. In addition, a greater number of clients who completed the follow-up interview reported having troubling meeting basic needs (such as shelter, utilities, food, or health care) as a result of financial issues. More clients who completed a follow-up interview reported having a chronic health problem, depression symptoms and generalized anxiety symptoms compared to clients who did not complete a follow-up interview. See Appendix B for detailed comparisons of clients who completed a follow-up interview (n = 1,268) and clients who did not complete a follow-up interview (n = 3,744).

Results are reported within eight main sections.

[1] There a total of 1,268 clients who completed intakes and follow-ups, however due to the small number of transgender individuals they were not included in analysis examining gender.

Section 1: Overview and Description of KTOS Clients. This section briefly describes the Kentucky Treatment Outcome Study (KTOS) including a description of clients who participated in publicly-funded substance abuse treatment in Kentucky's Community Mental Health Centers in FY 2012 as well as clients who completed a 12-month follow-up interview.

Section 2: Client Satisfaction with Substance Abuse Treatment Programs. This section describes three aspects of client satisfaction: (1) overall client satisfaction; (2) client ratings of program experiences; and, (3) quality of life ratings.

Section 3: Substance Use. This section examines change in substance use (illegal drugs, alcohol, and tobacco) for 12-month and 30-day periods at intake and follow-up. In addition, self-reported severity of alcohol and drug use based on the Addiction Severity Index (ASI) alcohol and drug use composite scores are compared at intake and follow-up. Significant differences between genders are reported when applicable.

Section 4: Other Targeted Factors. This section examines changes in targeted factors including mental health symptoms, education, employment, living situation, and involvement with the criminal justice system from intake to follow-up. Significant differences between genders are reported when applicable.

Section 5: Change in Recovery Supports. This section focuses on three main changes in recovery supports: (1) percentage of clients attending mutual help recovery group meetings; (2) recovery supportive interactions with family/friends in the past 30 days; and (3) the number of people the participant said they could count on for recovery support.

Section 6: Clinical Diagnostic and Service Information. This section examines mental health diagnosis and service event data submitted by Community Mental Health Center (CMHC) providers to the Department for Behavioral Health, Developmental and Intellectual Disabilities.

Section 7: Cost Savings of Substance Abuse Treatment in Kentucky. This section examines cost reductions or avoided costs to society after participation in substance abuse treatment. Using the number of clients who met criteria for drug and alcohol dependence at intake and follow-up in the KTOS sample, a national per/person cost was applied to the sample used in this study to estimate the cost to society for the year before clients were in treatment and then for the same clients during the year after treatment had begun.

Section 8: Conclusion and Implications. This section summarizes the highlights from the evaluation results and suggests implications from these findings for the state.

SECTION 1: OVERVIEW AND DESCRIPTION OF KTOS CLIENTS

This section briefly describes the Kentucky Treatment Outcome Study (KTOS) including how clients are selected into the outcome evaluation. In addition, this section describes characteristics of clients who participated in publicly-funded substance abuse treatment in Kentucky's Community Mental Health Centers in FY 2012 as well as clients who completed a 12-month follow-up interview.

PUBLICLY FUNDED SUBSTANCE ABUSE TREATMENT FOR ADULTS

The goal of KTOS is to provide an annual outcome evaluation for CMHCs' substance abuse treatment programs for the Department for Behavioral Health, Developmental and Intellectual Disabilities in partnership with the Behavioral Health Outcome Studies team at the University of Kentucky Center on Drug and Alcohol Research (UK CDAR). Specifically, the outcome evaluation examines client satisfaction, recovery support, substance use outcomes and several other targeted outcomes: (1) mental and physical health; (2) education; (3) employment; (4) living situation; and (5) criminal justice system involvement. In addition, estimates present the avoided costs to society in relation to the cost of publicly-funded substance abuse treatment.

This report describes the sample of treatment clients in two main ways: (1) providing characteristics of the 5,012 adults who completed an intake interview and (2) presentation of the outcomes for 1,268 adults who completed an intake and 12-month follow-up telephone interview.

KTOS includes a face-to-face intake interview conducted by program staff to assess targeted factors such as substance use, mental health symptoms, education, employment status, living situation, and involvement in the criminal justice system prior to entering substance abuse treatment (submitted to UK CDAR from July 1, 2011 through June 30, 2012). In FY 2012, 5,012 adults completed an intake survey.[2] At the completion of the intake interview, staff persons inform individuals about the KTOS follow-up telephone interview and ask if they are interested in participating.

KTOS CLIENTS AT TREATMENT INTAKE

Table 1.1 shows that the majority of clients with an intake survey submitted in FY 2012 were male (58.4%) and White (91.6%). Only a minority of clients reported their race as African American/Black (6.4%) and 2.1% reported they were American Indian, Asian, Hispanic, or multiracial. Clients were, on average, 33.1 years old, ranging from 18 to 75 years old at intake. The majority of clients were not married or cohabiting at intake: 36.5% were never married, 31.1% were separated or divorced, and 2.1% were widowed. About 1 in 5 (19.7%) were married and 1 in 10 (10.7%) were cohabiting with a partner at intake. The majority of clients reported they had ever had at least one child (62.3%).

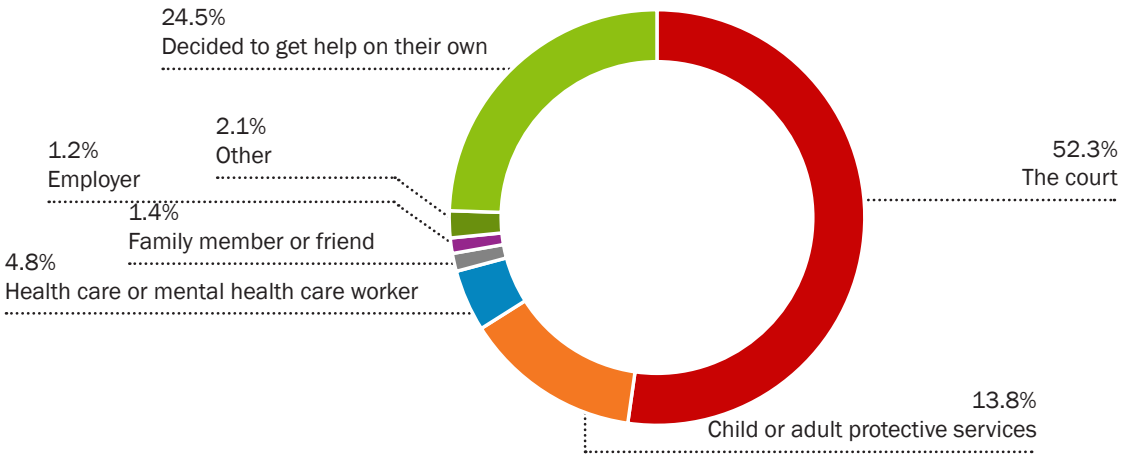
[2] When a client had more than one intake survey in the same fiscal year, the survey with the earliest submission date was kept in the data file and the other intake surveys were deleted so that each client was represented once and only once in the data set.

TABLE 1.1. DEMOGRAPHICS FOR ALL KTOS CLIENTS AT INTAKE (N = 5,012)

AGE	33.1 years (range of 18-75)
GENDER	
Male	58.4%
Female	41.5%
RACE	
White	91.6%
African American	6.4%
Other	2.1%
MARITAL STATUS	
Never married	36.5%
Separated or divorced	31.1%
Married or cohabiting	30.4%
Widowed	2.1%
HAVE CHILDREN	62.3%

Figure 1.1 shows the treatment referral source for all KTOS clients at intake. About half of clients (52.3%) reported they were referred to treatment by the court (e.g., judge, court designated worker, probation officer, for DUI offense). A minority of clients reported they were referred to treatment by Child or Adult Protective Services (13.8%), by a health care or mental health care worker (4.8%). Even smaller numbers of clients reported they were referred to treatment by a family member or friend (1.4%), an employer (1.2%), an AA/NA sponsor (0.5%), a different government agency (0.3%), or other referral source (1.3%). Nearly one fourth (24.5%) reported they decided to get help on their own.

FIGURE 1.1 REFERRAL SOURCE FOR ALL KTOS CLIENTS AT INTAKE (N = 5,011)[3]

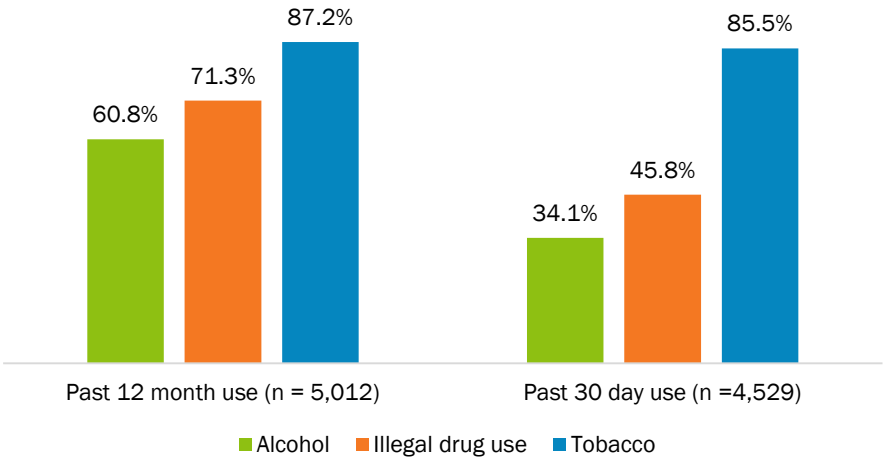


The majority of adults who completed an intake survey (71.3%) reported using illegal drugs, alcohol (60.8%), and tobacco (87.2%) in the 12 months before intake (see Figure 1.2). The drug classes reported by the greatest number of clients were marijuana (47.0%), prescription opioid/opiate (46.8%), and tranquilizers (31.0%). Because being in a controlled environment inhibits substance

[3] One case had missing data.

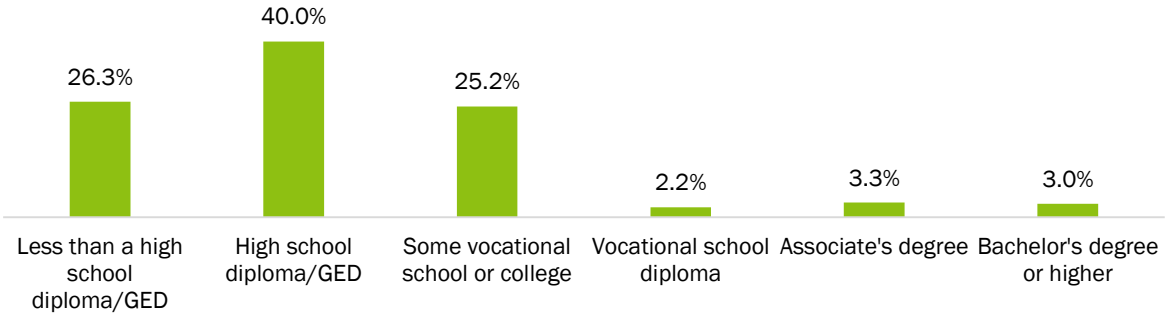
use, individuals who were in a controlled environment all 30 days before entering treatment (n = 483) are not included in the analysis of substance use in the 30 days before entering treatment. Of the 4,529 individuals who were not in a controlled environment all 30 days, 45.8% reported using illegal drugs, 34.1% reported using alcohol, and 85.5% reported using tobacco in the 30 days before entering treatment.

FIGURE 1.2 ALCOHOL AND DRUG USE 12 MONTHS AND 30 DAYS BEFORE TREATMENT



About 1 in 4 clients (26.3%) had less than a high school diploma or GED at intake. The highest level of education of 40.0% of the sample was a high school diploma or GED. One in four clients had completed some vocational/technical school or college. Only a minority of clients had completed vocational/technical school (2.2%), an associate's degree (3.3%), or a bachelor's degree or higher (3.0%).

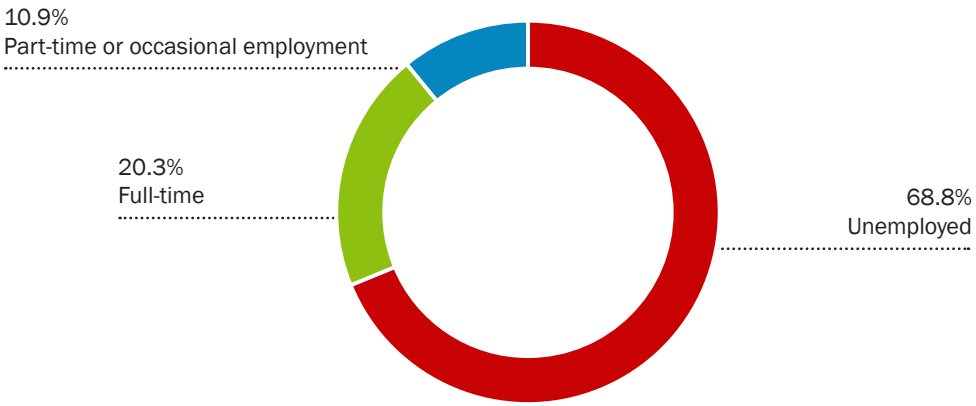
FIGURE 1.3 HIGHEST LEVEL OF EDUCATION COMPLETED AT INTAKE (N = 5,012)



Two in five clients (41.1%) reported they had worked 0 months, 21.1% had worked 1 to 5 months, and 37.7% had worked 6 or more months in the 12 months before intake. At intake the majority of individuals reported they were currently unemployed (68.8%), with 20.3% being employed full-time, and 10.9% employed part-time or having occasional or seasonal employment. Among those who reported being employed full or part-time at intake, the mean hourly wage was $11.73.[4]

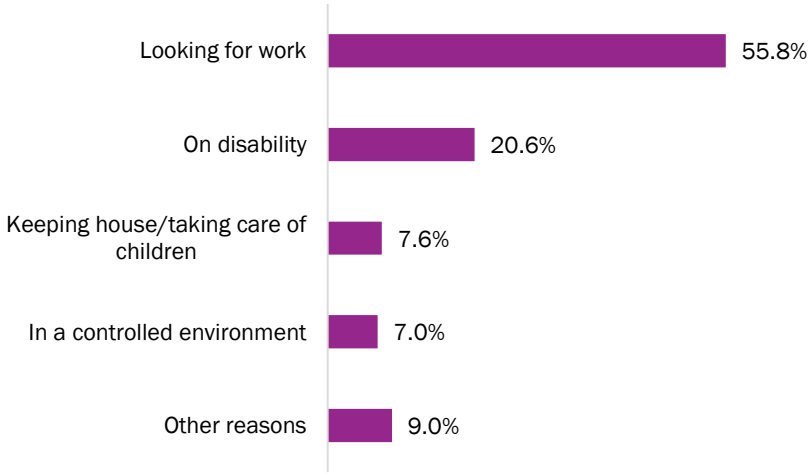
[4] Forty-seven cases had missing data on hourly wage.

FIGURE 1.4 CURRENT EMPLOYMENT STATUS AT INTAKE (N = 5,003)[5]



Of the individuals who were currently unemployed at intake (n = 3,438)[6], the majority stated they were looking for work (55.8%), 20.6% were on disability, 7.6% were keeping the house or taking care of children full-time at home, 7.0% were in a controlled environment that prohibited them from working, and the remaining 9% gave other reasons for not being employed (e.g., on furlough or temporarily laid off, retired, full-time student, other health problems prevented them from work but they weren't on disability, and they were not looking for work).

FIGURE 1.5 OF THOSE UNEMPLOYED, REASONS FOR BEING UNEMPLOYED (N = 3,438)

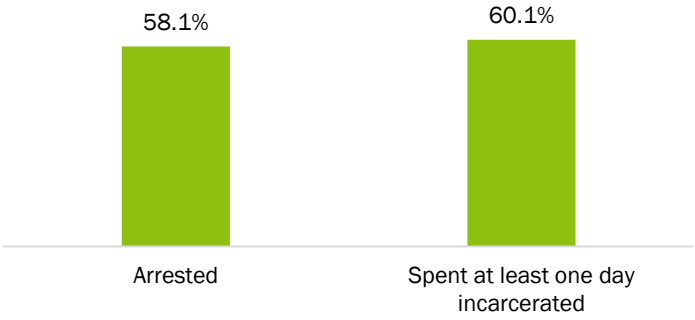


The majority of individuals reported being arrested at least once (58.1%) and being incarcerated at least one night (60.1%) in the 12 months before treatment (see Figure 1.6). Among those who were arrested in the past 12 months, they were arrested an average of 1.7 times. Among those who were incarcerated in the past 12 months, they were incarcerated an average of 58.1 nights.

[5] Nine cases had missing data on current employment.

[6] A total of 3,442 reported they were currently unemployed; however, four of these cases had missing data for reason for being unemployed.

FIGURE 1.6 CRIMINAL JUSTICE INVOLVEMENT 12 MONTHS BEFORE TREATMENT AT INTAKE (N = 5,012)



KTOS FOLLOW-UP SAMPLE

Follow-up interviews are conducted with a selected sample of KTOS clients about 12 months after the intake survey is completed. All individuals who agree to be contacted by UK CDAR for the follow-up interview and have given at least one mailing address and one phone number, or two phone numbers if they do not have a mailing address in their locator information, are eligible for the follow-up component of the study. Of those eligible, individuals are then randomly selected by the month in which they completed baseline surveys (170 clients per month). The follow-up interviews are conducted over the telephone by an interviewer at UK CDAR. Client responses to the follow-up interviews are kept confidential to help facilitate the honest evaluation of client outcomes and satisfaction with program services. The professionalism of the outcome study is reflected in a low refusal rate for follow-up participation (0.7%), and in the high follow-up rate (75.7%). This means that only 23.6% of individuals included in the sample to be followed up were not successfully contacted.[7] These elements all indicate KTOS is a solid, dependable research study for publicly-funded substance abuse treatment programs with adults in Kentucky.

This report describes outcomes for 1,268 adults[8] who participated in publicly-funded substance abuse treatment and who completed an intake interview and a follow-up telephone interview about 12 months (average of 343 days) after the intake survey was submitted to UK CDAR.[9] Detailed information about the methods and follow-up efforts can be found in Appendix A.

Of the 1,268 adults who completed a 12-month follow-up interview, 52.8% were male and 47.1% were female. The majority of follow-up clients were White (92.5%). A minority were African American/Black (5.7%) and 1.8% were Hispanic, American Indian, or multiracial. They were an average of 32.8 years old at the time of the intake interview. The majority of clients (53.8%) were 30 years old or older at intake.

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

[8] The two clients who identified themselves as transgender were not included in the analysis, because 2 cases is too few to include in analysis examining gender differences, which was carried out throughout the report. Thus, for the remaining sections the follow-up sample is n = 1,266.

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

TABLE 1.2. DEMOGRAPHICS FOR ALL KTOS CLIENTS AT INTAKE (N = 1,268)

AGE	32.8 years (range of 18-69)
GENDER	
Female	47.1%
Male	52.8%
Transgender	0.2%
RACE	
White	92.5%
African American	5.7%
Other or multiracial	1.8%

When those with a follow-up interview were compared with those who did not have a follow-up interview on a variety of intake variables, there were a few significant differences for demographics, socio-economic status indicators (education, employment, living situation), physical and mental health. Specifically, more females completed a follow-up interview than did not. In addition, a greater number of clients who completed the follow-up interview reported having trouble meeting basic needs (such as shelter, utilities food, or health care) as a result of financial issues. More clients who completed a follow-up interview reporting having a chronic health problem, depression symptoms and generalized anxiety symptoms compared to clients who did not complete a follow-up interview. See Appendix B for detailed comparisons of clients who completed a follow-up interview (n = 1,268) and clients who did not complete a follow-up interview (n = 3,744).

SECTION 2. CLIENT SATISFACTION WITH SUBSTANCE ABUSE TREATMENT PROGRAMS

One of the important outcomes assessed during the follow-up interview is the client perception of the treatment program experience. This section describes three aspects of client satisfaction: (1) overall client satisfaction; (2) client ratings of program experiences; and, (3) client quality of life ratings before and after involvement in the program.

OVERALL CLIENT SATISFACTION

At the beginning of the follow-up survey, interviewers asked participants questions about their satisfaction with the treatment programs where 1 represented the worst experience and 10 represented the best experience. Overall, the majority of clients (66.7%) gave a positive rating between 8 and 10 of their satisfaction with the treatment program (not in a table). The average rating was 7.9.

CLIENT RATINGS OF PROGRAM EXPERIENCES

When asked about specific aspects of their treatment program, the vast majority of clients reported they either agreed or strongly agreed with each aspect of the program that was assessed (see Figure 2.1).[10] The vast majority of clients understood their treatment plan, understood what staff expected of them, understood their rights as clients of substance abuse treatment, indicated they were treated with respect and that they had received the services they needed to help them get better.

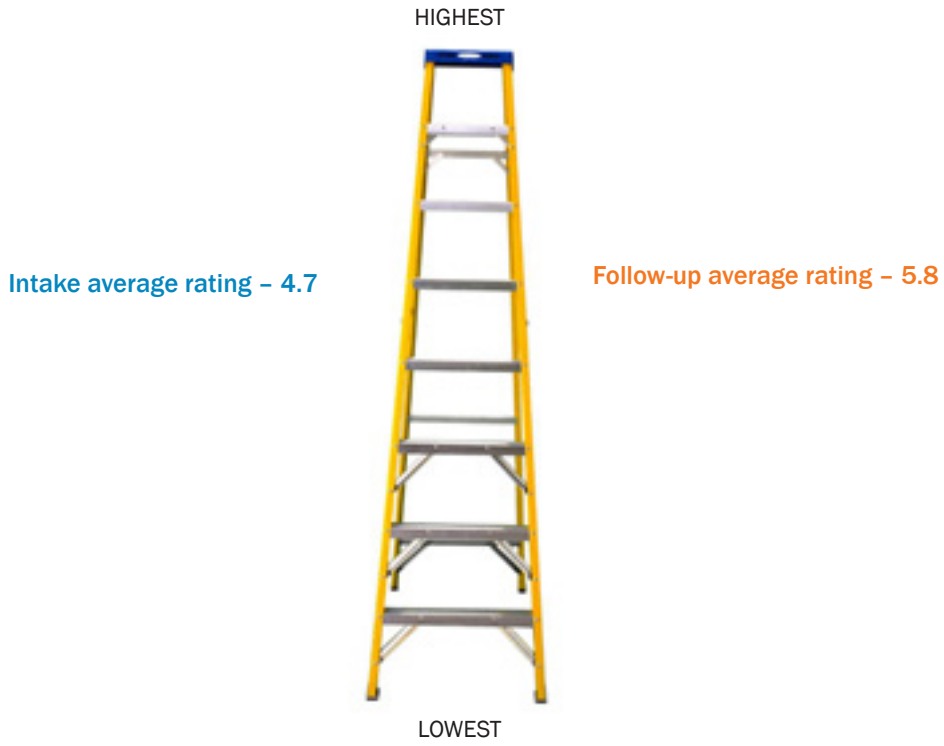
FIGURE 2.1. PERCENTAGE OF CLIENTS WHO AGREED/STRONGLY AGREED WITH THE FOLLOWING STATEMENTS ABOUT THE TREATMENT PROGRAM AT FOLLOW-UP (N = 1266)

[10] Answers of don't know/don't remember were treated as missing on these items. The number of missing values ranged from 0 to 7 on the items represented in the above figure.

QUALITY OF LIFE RATINGS

One way to measure quality of life is to assess individual perceptions of their social standing in society. Clients were asked to place themselves on a ladder, representing their perception of their standing in society (Adler's Ladder).[11] The bottom rung, 1, represents "people who are the worst off, those who have the least money, least education, and worst jobs or no jobs" and the top rung, 10, represents "people who are the best off, those who have the most money, most education, and best jobs." Overall, clients rated themselves as a 4.7 on average, (just under the middle of the ladder) at intake, and a 5.8 (just above the middle) at follow-up, which was a significant increase.

FIGURE 2.2 DISTRIBUTION OF CLIENTS' PERCEPTIONS OF THEIR STANDING IN SOCIETY (N = 1261)[12]



[11] Adler, N., Epel, E., Castellazzo, G., & Ickovics, J. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy white women. Health Psychology, 19(6), 586-592.

[12] Subjective social standing at follow-up was missing for five cases.

SECTION 3. SUBSTANCE USE

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

This section examines substance use changes which include use of any illegal drugs or alcohol, and then separately for illegal drugs, alcohol, and tobacco at intake and follow-up. In addition to examining the overall use of illegal drugs, several specific categories of illegal drugs were examined including: (a) marijuana, (b) opioids [i.e., prescription opiates, methadone, and buprenorphine], (c) heroin, (d) Central Nervous System (CNS) depressants [including tranquilizers, benzodiazepines, sedatives, and barbiturates], (e) stimulants [i.e., cocaine, methamphetamine, Ecstasy, MDMA, Adderall, and Ritalin], and (d) other illegal drugs not mentioned above [i.e., hallucinogens and inhalants]. Analysis is presented in detail for KTOS study participants who were not in a controlled environment for the entire period of 12 months and/or 30 days before entering treatment. Changes in substance use from intake to follow-up are presented in 4 main groups and organized by type of substance use:

1. Change in 12-month substance use from intake to follow-up. Comparisons of the use of substances including ANY illegal drug use, marijuana, opioids, heroin, CNS depressants, stimulants, and other illegal drug use, alcohol use, and tobacco use 12 months before the client entered the program and any use of these substances during the 12-month follow-up period (n = 1,255)[13] are presented.

2. Average number of months clients used substances at intake and follow-up. For those who used any of the substances, the average number of months used in the 12 months before treatment intake and during the 12-month follow-up period are reported.

3. Change in 30-day substance use from intake to follow-up. In addition to looking at past 12-month substance use, change in any use in the 30 days before program entry and the 30 days before the follow-up interview for any illegal drug use (including marijuana, opioids, heroin, CNS depressants, stimulants, and other illegal drugs), alcohol use, and tobacco use (n = 1,141)[14] is also examined. Because some clients were in a controlled environment (e.g., prison, jail, or residential facility) all 30 days before entering treatment (n = 125), changes in drug, alcohol, and tobacco use from intake to follow-up were analyzed for only clients who were not in a controlled environment all 30 days before entering treatment.[15]

[13] 11 cases were excluded from this analysis because they were incarcerated all 365 days before entering treatment.

[14] Because some clients enter treatment after leaving jail or prison, substance use in the 30 days before entering the program was examined for clients who were not in a controlled environment all 30 days. The assumption for excluding clients who were in a controlled environment all 30 days before entering treatment (n = 125) from the change in past 30-day substance use analysis is that being in a controlled environment inhibits opportunities for alcohol and drug use.

[15] 125 cases were excluded because they were in a controlled environment all 30 days before intake, and 2 individuals were transgender.

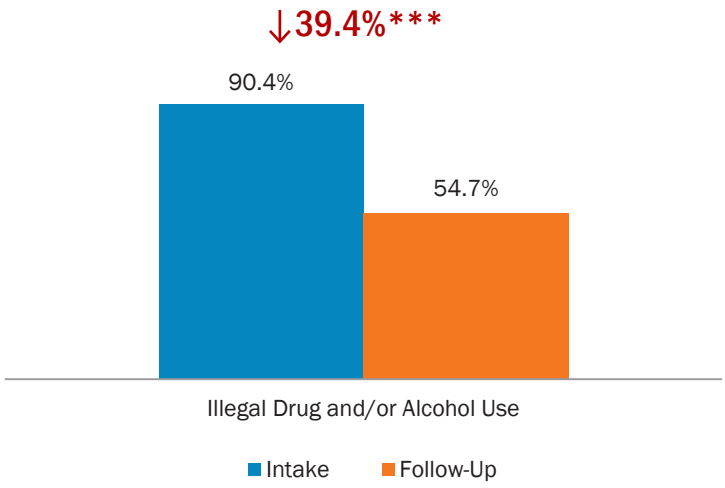
4. Change in self-reported alcohol and drug composite scores from intake to follow-up. The Addiction Severity Index (ASI) composite scores are examined for change over time for illegal drugs (n = 619), alcohol (n = 520) and those with both alcohol and illegal drug use (n = 793). The ASI composite score 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-days 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.

ALCOHOL AND DRUG USE

Nine in ten clients (90.4%) reported using alcohol and illegal drugs in the 12 months before entering substance abuse treatment, which decreased to 54.7% at follow-up. There was a 39.4% significant decrease in the number of clients reporting use of alcohol and illegal drugs (see Figure 3.1).

The number of clients reporting alcohol and/or illegal drug use decreased by 39%

FIGURE 3.1. PAST 12-MONTH ALCOHOL AND/OR DRUG USE AT INTAKE AND FOLLOW-UP (N = 1,255)



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

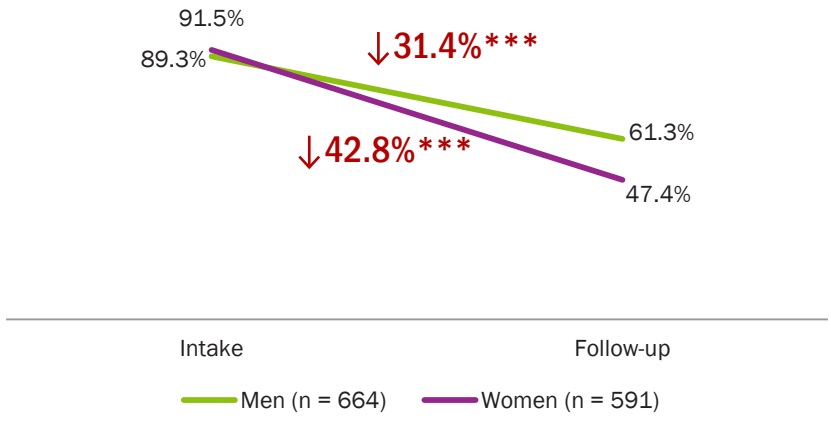
GENDER DIFFERENCES IN ALCOHOL AND ILLEGAL DRUG USE, PAST 12 MONTHS

At follow-up, significantly more men than women reported alcohol and illegal drug use, 61.3% vs. 47.4%. The number of men and women who reported using alcohol and illegal drugs significantly decreased from intake to follow-up by 31.4% and 48.2% respectively.

Significantly more men than women reported using alcohol and/or illegal drugs at follow-up

> ***"I felt, for me, it was my time to get better. The program was designed for me and it changed my life. It was very hard, but nothing easy is good for you."***
>
> **- KTOS Client quote**

FIGURE 3.2. GENDER DIFFERENCES IN PAST 12-MONTH ALCOHOL AND/OR ILLEGAL DRUG USE AT INTAKE AND FOLLOW-UP[a]



a—Significant difference by gender at follow-up, p < .001.
*p < .05, **p < .01, ***p < .001.

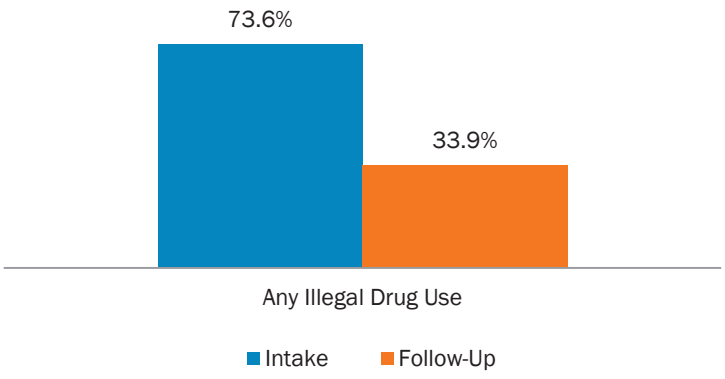
ANY ILLEGAL DRUGS

ANY ILLEGAL DRUG USE, PAST 12 MONTHS

About three in four clients (73.6%) reported using illegal drugs in the 12 months before entering substance abuse treatment, which decreased to 33.9% at follow-up. Overall, for the KTOS follow-up sample, there was a 53.9% decrease in the number of clients reporting use of any illegal drug (see Figure 3.3).

The number of clients reporting illegal drug use decreased by 54%

FIGURE 3.3. PAST 12-MONTH DRUG USE AT INTAKE AND FOLLOW-UP (N = 1,241)[16]



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

Gender Differences in Any Illegal Drug Use, Past 12 Months

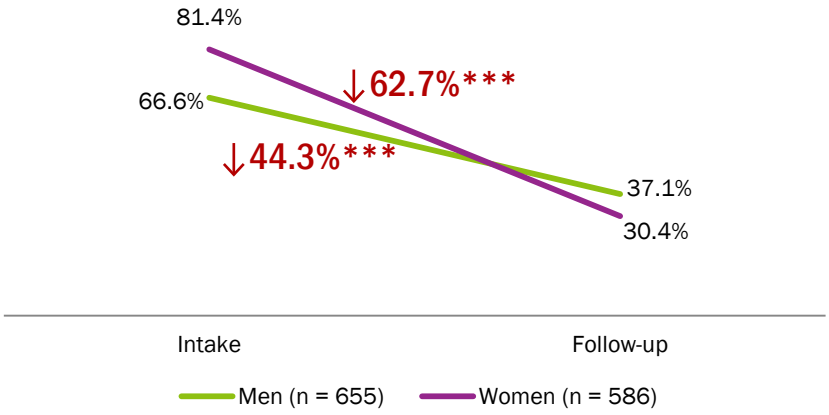
Significantly more women than men reported any illegal drug use at intake, 81.4% vs. 66.6% (see Figure 3.4). At follow-up, however, significantly more men than women reported any illegal drug use, 37.1% vs. 30.4%. The number of men and women who reported illegal drug use significantly decreased from intake to follow-up

Significantly more women than men reported using any illegal drugs at intake, but significantly more men than women reported using any illegal drugs at follow-up

[16] 14 cases had missing data on illegal drugs in the 12 months before follow-up

by 44.3% and 62.7% respectively.

FIGURE 3.4. GENDER DIFFERENCES IN PAST 12-MONTH ILLEGAL DRUG USE AT INTAKE AND FOLLOW-UP[a,b]

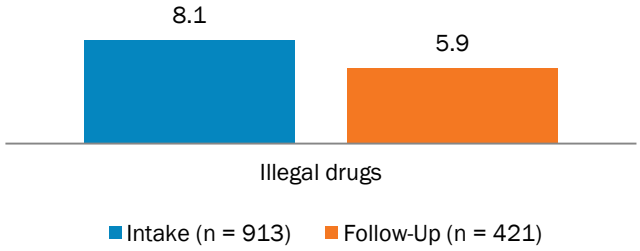


a—Significant difference by gender at intake, p < .001.
b—Significant difference by gender at follow-up, p < .05.
*p < .05, **p < .01, ***p < .001.

Average Number of Months Used Any Illegal Drugs

Among the clients who reported using illegal drugs in the 12 months before entering treatment (n = 913), they reported using illegal drugs on average 8.1 months (see Figure 3.5). Among clients who reported using illegal drugs at follow-up (n = 421), they reported using on average 5.9 months.[17]

FIGURE 3.5. AVERAGE NUMBER OF MONTHS CLIENTS USED ILLEGAL DRUGS



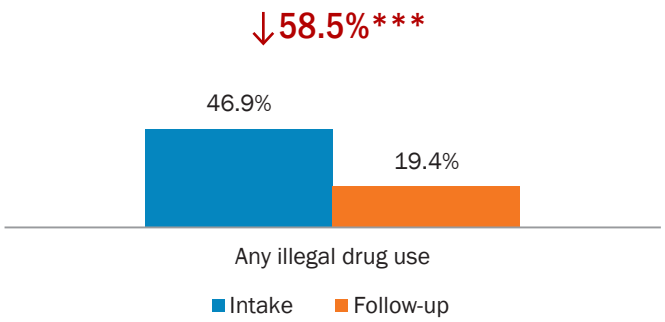
ANY ILLEGAL DRUG USE, PAST 30 DAYS

A little less than one half of clients (46.9%) who were not in a controlled environment all 30 days reported they had used illegal drugs in the 30 days before entering treatment (see Figure 3.6). At follow-up, only 19.4% of clients reported they had used illegal drugs in the past 30 days—a significant decrease of 58.5%.

There was a significant reduction of 59% in the number of clients who reported past 30-day illegal drug use

[17] Because number of months of illegal drugs was measured separately for each class of substance, the value is a calculation of the maximum number of months clients used any class of substance.

FIGURE 3.6. PAST 30-DAY USE OF ANY ILLEGAL DRUG AT INTAKE AND FOLLOW-UP (N = 1,126)[18]



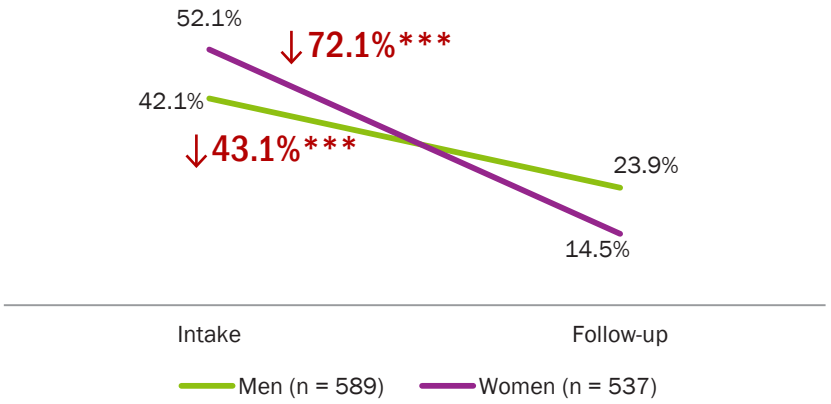
*p < .05, **p < .01, ***p < .001.

Gender Differences in Any Illegal Drug Use, Past 30 Days

Significantly more women reported illegal drug use in the 30 days before intake (52.1% vs. 42.1%); however, significantly more men than women reported using any illegal drug in the 30 days before follow-up (23.9% vs. 14.5%). The number of men and women who reported illegal drug use decreased significantly by 43.1% and 72.1% respectively (see Figure 3.7).

Significantly more men reported using any illegal drugs at follow-up

FIGURE 3.7. GENDER DIFFERENCES IN PAST 30-DAY ILLEGAL DRUG USE AT INTAKE AND FOLLOW-UP[a,b]



a—Significant difference by gender at intake (p < .001).
b—Significant difference by gender at follow-up (p < .001).
*p < .05, **p < .01, ***p < .001.

MARIJUANA

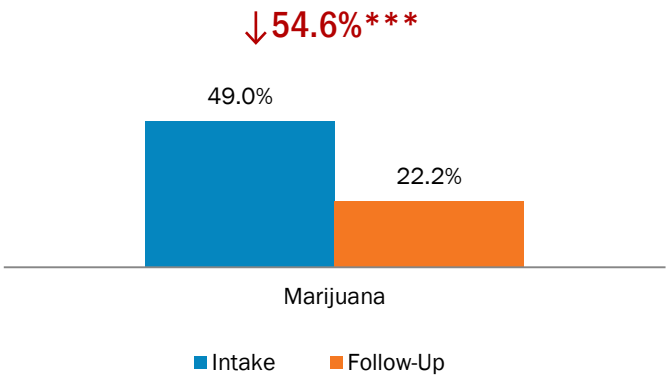
MARIJUANA USE, PAST 12 MONTHS

Nearly half of clients (49.0%) reported using marijuana in the 12 months before entering treatment, which decreased to 22.2% at follow-up. Overall, for the KTOS follow-up sample, there was a 54.6% decrease in the number of clients reporting marijuana use (see Figure 3.8).

The number of clients reporting marijuana use decreased by 55%

[18] 15 individuals had missing data on 30-day illegal drug use at follow-up.

FIGURE 3.8. PAST 12-MONTH MARIJUANA USE AT INTAKE AND FOLLOW-UP (N = 1,254)[19]

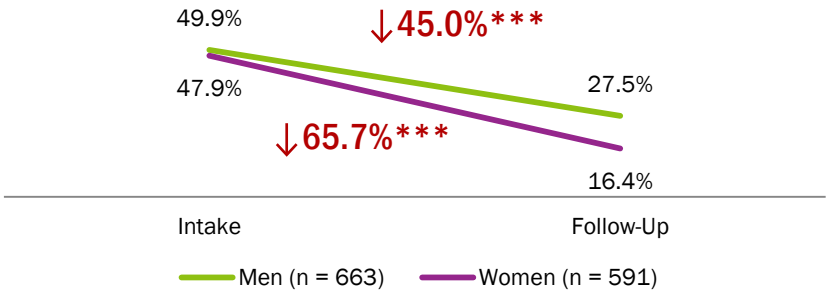


*p < .05, **p < .01, ***p < .001.

Gender Differences in Marijuana Use, Past 12 Months

Similar percentages of men and women reported using marijuana in the 12 months before intake. The number of men and women who reported using marijuana decreased significantly by follow-up; however, the decrease was greater for women (65.7%) than for men (45.0%). By follow-up significantly more men than women reported using marijuana, 27.5% vs. 16.4% (see Figure 3.9).

FIGURE 3.9. GENDER DIFFERENCES IN PAST 12-MONTH MARIJUANA USE AT INTAKE AND FOLLOW-UP[a]

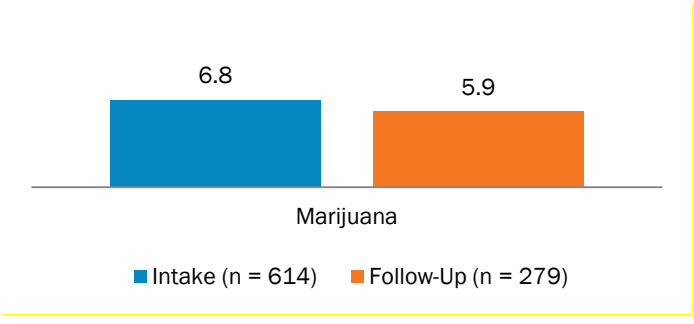


a—Significant difference by gender at follow-up; p < .001.
*p < .05, **p < .01, ***p < .001.

Average Number of Months Used Marijuana

Among the clients who reported using marijuana in the 12 months before entering treatment (n = 614), they reported using marijuana, on average, 6.8 months (see Figure 3.10). Among clients who reported using marijuana at follow-up (n = 279), they reported using, on average 5.9 months.

FIGURE 3.10. AVERAGE NUMBER OF MONTHS CLIENTS USED MARIJUANA



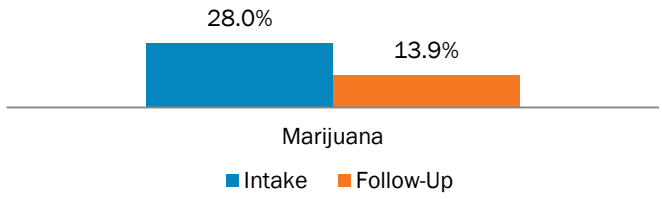
[19] One case had missing values on marijuana misuse at follow-up.

MARIJUANA USE, PAST 30 DAYS

The number of clients who reported using marijuana in the past 30 days decreased significantly by 50.5%, from 28.0% at intake to 13.9% at follow-up (see Figure 3.11).

The number of clients who used marijuana decreased significantly by 51%

FIGURE 3.11. PAST 30-DAY MARIJUANA USE AT INTAKE AND FOLLOW-UP (N = 1,140)[20]

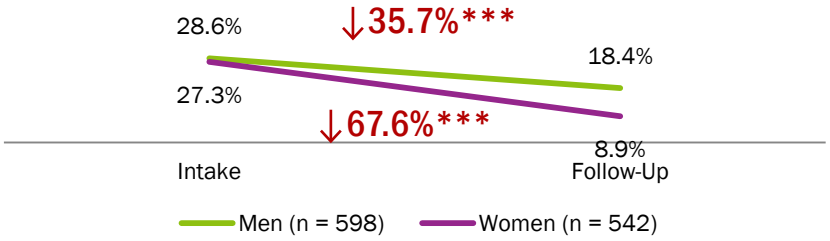


*p < .05, **p < .01, ***p < .001.

Gender Differences in Marijuana Use, Past 30 Days

Similar percentages of men and women reported past 30-day marijuana use at intake, 28.6% vs. 27.3% (see Figure 3.12). The number of men and women who reported marijuana use significantly decreased from intake to follow-up by 35.7% and 67.6% respectively. However, the decrease was greater for women, such that, at follow-up significantly more men reported using marijuana compared to women.

FIGURE 3.12. GENDER DIFFERENCES PAST 30-DAY MARIJUANA USE AT INTAKE AND FOLLOW-UP[a]



a—Significant difference by gender at follow-up; p < .001.

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

OPIOIDS

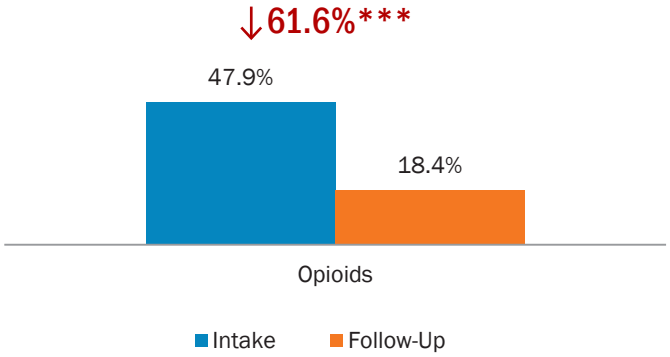
OPIOID USE, PAST 12 MONTHS

Nearly half of clients (47.9%) reported misusing opioids other than heroin, including prescription opiates, methadone, and buprenorphine in the 12 months before entering treatment, which decreased to 18.4% at follow-up. Overall, for the KTOS follow-up sample, there was a 61.6% decrease in the number of clients reporting opioid use other than heroin (see Figure 3.13).

The number of clients reporting opioid use decreased by 62%

[20] One case had missing value on 30-day marijuana use at follow-up.

FIGURE 3.13. PAST 12-MONTH OPIOID USE AT INTAKE AND FOLLOW-UP (N = 1,254)[21]



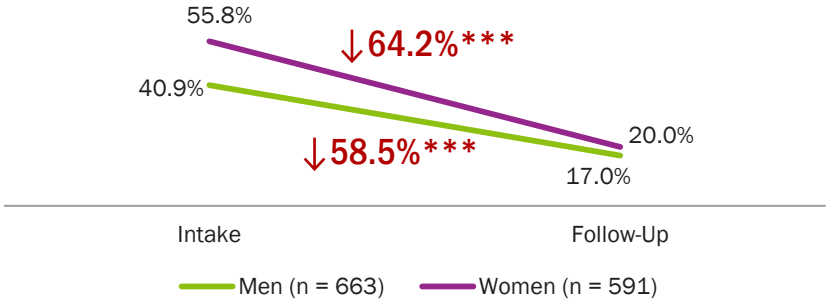
*p < .05, **p < .01, ***p < .001.

Gender Differences in Opioid Use, Past 12 Months

Significantly more women than men reported opioid use in the 12 months before intake, 55.8% vs. 40.9% (see Figure 3.14). The number of women and men who reported opioid use significantly decreased from intake to follow-up by 64.2% and 58.5% respectively.

Significantly more women than men reported opioid use at intake

FIGURE 3.14. GENDER DIFFERENCES IN PAST 12-MONTH OPIOID USE AT INTAKE AND FOLLOW-UP[a]

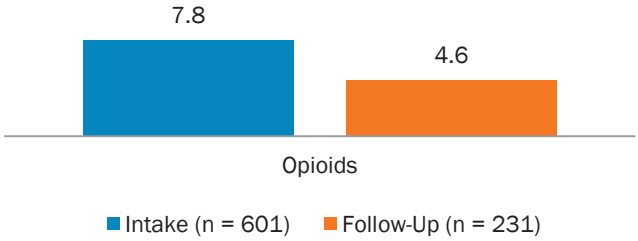


a—Significant difference by gender at intake; p < .001.
*p < .05, **p < .01, ***p < .001.

Average Number of Months Used Opioids

Among the clients who reported using opioids in the 12 months before entering treatment (n = 601), they reported using opioids on average 7.8 months (see Figure 3.15). Among clients who reported using opioids at follow-up (n = 231), they reported using an average 4.6 months.[22]

FIGURE 3.15. AVERAGE NUMBER OF MONTHS CLIENTS USED OPIOIDS



[21] One case had missing values on opioid use at follow-up.

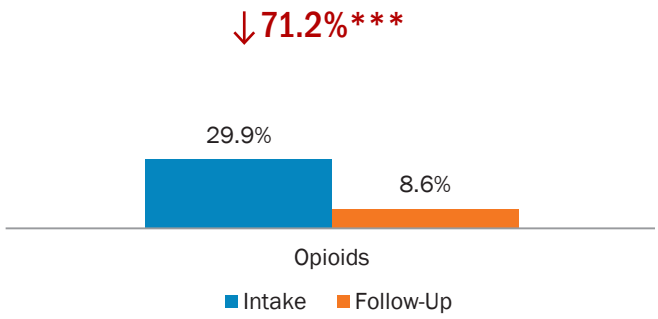
[22] Because number of months of prescription opiates, methadone, and buprenorphine were measured separately, the value is a calculation of the maximum number of months clients used any of these specific types of opioids.

OPIOID USE, PAST 30 DAYS

The number of clients who reported using opioids decreased significantly by 71.2%, from 29.9% at intake to 8.6% at follow-up (see Figure 3.16).

The number of clients who used opioids decreased significantly by 71%

FIGURE 3.16. PAST 30-DAY OPIOID USE AT INTAKE AND FOLLOW-UP (N = 1,139)[23]



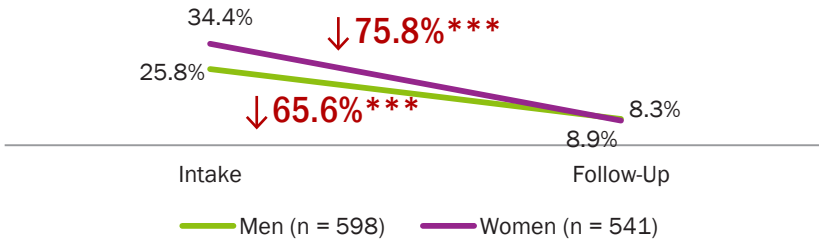
*p < .05, **p < .01, ***p < .001.

Gender Differences in Opioid Use, Past 30 Days

Significantly more women than men reported opioid use in the 30 days before intake, 34.4% vs. 25.8% (see Figure 3.17). The number of women and men who reported opioid use significantly decreased from intake to follow-up by 75.8% and 65.6% respectively.

Significantly more women than men reported opioid use in the past 30 days at intake

FIGURE 3.17. GENDER DIFFERENCES 30-DAY OPIOID USE AT INTAKE AND FOLLOW-UP[a]



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

HEROIN

HEROIN USE, PAST 12 MONTHS

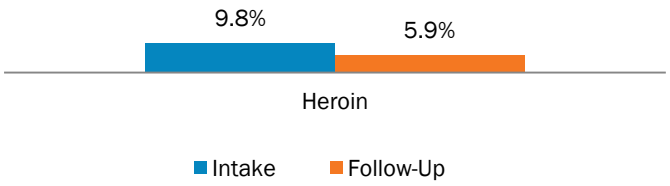
Nearly 1 in 10 clients (9.8%) reported using heroin in the 12 months before entering treatment, which decreased 39.8% to 5.9% at follow-up (see Figure 3.18).

The number of clients reporting heroin use decreased by 40%

[23] Two cases had missing values on 30-day opioid use at follow-up.

FIGURE 3.18. PAST 12-MONTH HEROIN USE AT INTAKE AND FOLLOW-UP (N = 1,255)

↓39.8%***

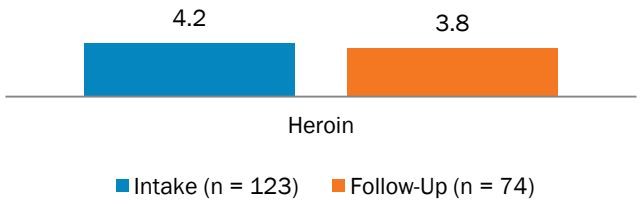


*p < .05, **p < .01, ***p < .001.

Average Number of Months Used Heroin

Among the clients who reported using heroin in the 12 months before entering treatment (n = 123), they reported using heroin, on average, 4.2 months (see Figure 3.19). Among clients who reported using heroin at follow-up (n = 74), they reported using, on average, 3.8 months.

FIGURE 3.19. AVERAGE NUMBER OF MONTHS CLIENTS USED HEROIN



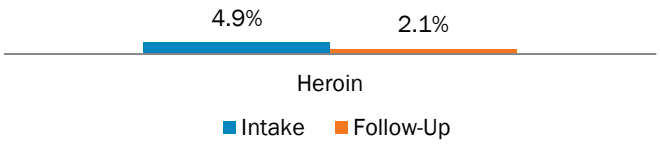
HEROIN USE, PAST 30 DAYS

A minority of clients (4.9%) reported using heroin in the 30 days before intake, with a significant decrease of 57.1%. At follow-up, 2.1% reported using heroin in the past 30 days (see Figure 3.20).

The number of clients who used heroin decreased significantly by 57%

FIGURE 3.20. PAST 30-DAY HEROIN USE AT INTAKE AND FOLLOW-UP (N = 1,141)

↓57.1%***



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

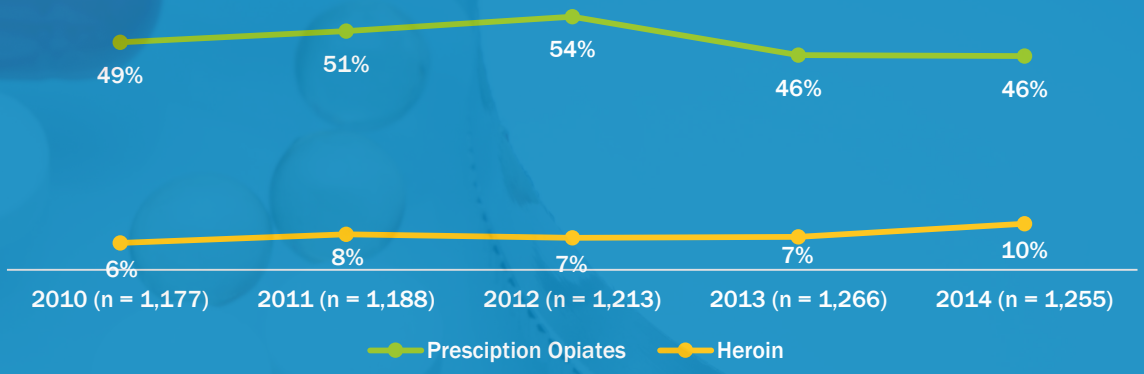
TREND REPORT

HEROIN AND PRESCRIPTION OPIATE USE

Past 12 month misuse of prescription opiates at intake has remained somewhat stable across the past 5 years. In 2010, 49% of clients reported prescription opiate misuse at intake and 46% reported prescription opiate misuse in 2014. The reported use of prescription opiates increased until 2012 (at 54%) and began to decline.

Heroin use in the past 12 months at intake has slowly increased from 2010 to 2014.In 2010, 6% of clients reported using heroin and by 2014, 10% of clients reported heroin use at intake.

Presciption Opiates and Heroin - Past 12 months at Intake

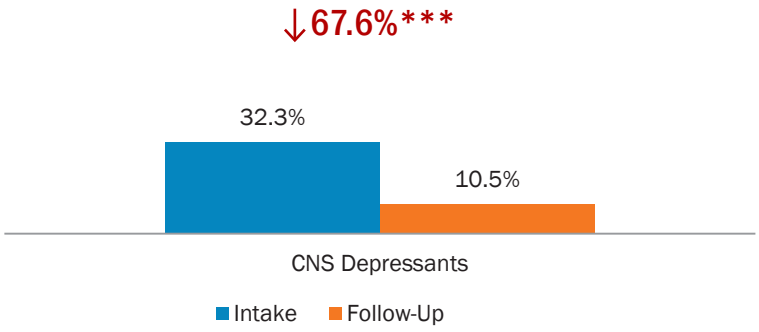


CNS DEPRESSANT USE, PAST 12 MONTHS

About one third of clients (32.3%) reported using CNS depressants, including tranquilizers, benzodiazepines, sedatives, and barbiturates in the 12 months before entering treatment, which decreased to 10.5% at follow-up. Overall, for the KTOS follow-up sample, there was a 67.6% decrease in the number of clients reporting CNS depressant use (see Figure 3.21).

The number of clients reporting CNS depressant use decreased by 68%

FIGURE 3.21. PAST 12-MONTH CNS DEPRESSANT USE AT INTAKE AND FOLLOW-UP (N = 1,252)[24]



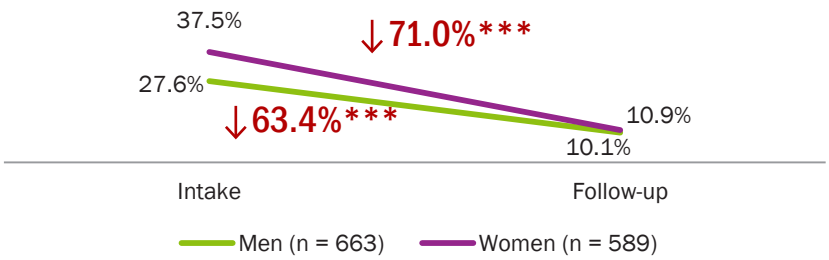
*p < .05, **p < .01, ***p < .001.

Gender Differences in CNS Depressant Use, Past 12 Months

Significantly more women than men reported CNS depressant use in the 12 months before intake, 37.5% vs. 27.6% (see Figure 3.22). The number of women and men who reported CNS depressant use significantly decreased from intake to follow-up by 71.0% and 63.4% respectively.

Significantly more women than men reported CNS depressant use at intake

FIGURE 3.22. GENDER DIFFERENCES IN CNS DEPRESSANT USE IN THE PAST 12 MONTHS FROM INTAKE TO FOLLOW-UP[a]



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

Average Number of Months Used CNS Depressants

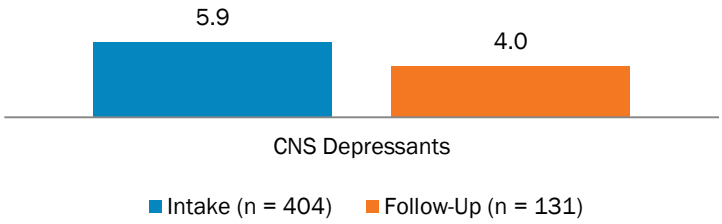
Figure 3.23 shows the average maximum number of months clients who used CNS depressants reported using these illegal drugs.[25] Among the clients who reported using these substances in the 12 months before entering treatment (n = 404), they reported using CNS depressants an average 5.9 months. Among clients who reported using CNS depressants in the 12 months before follow-up (n =

[24] Three cases had missing values on past 12- month CNS depressant use at follow-up.

[25] Because the number of months of barbiturates and tranquilizers/sedatives/benzodiazepines use were measured separately, the value is a calculation of the maximum number of months clients used any substance class.

131), they reported using on average 4.0 months.

FIGURE 3.23. AVERAGE NUMBER OF MONTHS OF CNS DEPRESSANT USE

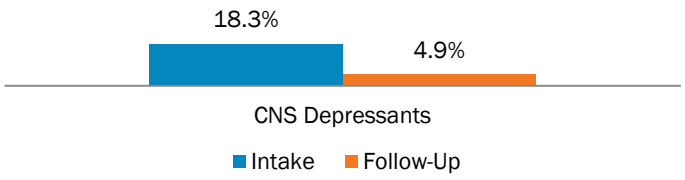


CHANGE CNS DEPRESSANT USE, PAST 30 DAYS

The number of clients who reported using CNS depressants decreased significantly by 73.2%, from 18.3% at intake to 4.9% at follow-up (see Figure 3.24).

The number of clients who used CNS depressants in the past 30 days decreased significantly by 73%

FIGURE 3.24. PAST 30-DAY CNS DEPRESSANT USE AT INTAKE AND FOLLOW-UP (N = 1,139)[26]



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

STIMULANTS

STIMULANT USE, PAST 12 MONTHS

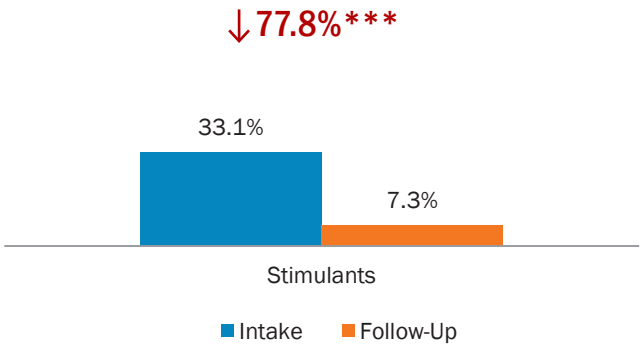
About 1 in 3 clients (33.1%) reported using stimulants, including cocaine, methamphetamine, Ecstasy, MDMA, and non-prescription Adderall and Ritalin in the 12 months before entering treatment, which decreased to 7.3% at follow-up. Overall, for the KTOS follow-up sample, there was a 77.8% decrease in the number of clients reporting stimulant use (see Figure 3.25).

The number of clients reporting stimulant use decreased by 78%

> *"It taught me about how to live life on life's terms and I learned more about myself."*
>
> - KTOS Client quote

[26] Two cases had missing values on past 30-day CNS depressant use at follow-up.

FIGURE 3.25. PAST 12-MONTH STIMULANT USE AT INTAKE AND FOLLOW-UP (N = 1,254)[27]



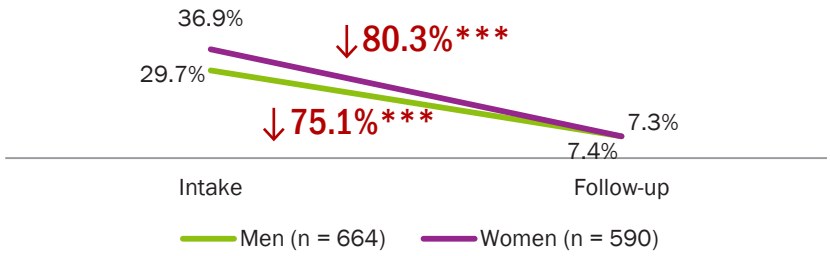
*p < .05, **p < .01, ***p < .001.

Gender Differences in Stimulant Use, Past 12 Months

Significantly more women than men reported stimulant use in the 12 months before intake, 36.9% vs. 29.7% (see Figure 3.26). The number of women and men who reported stimulant use significantly decreased from intake to follow-up by 80.3% and 75.1% respectively.

Significantly more women than men reported stimulant use at intake

FIGURE 3.26. GENDER DIFFERENCES IN STIMULANT USE IN THE PAST 12 MONTHS FROM INTAKE TO FOLLOW-UP[a]

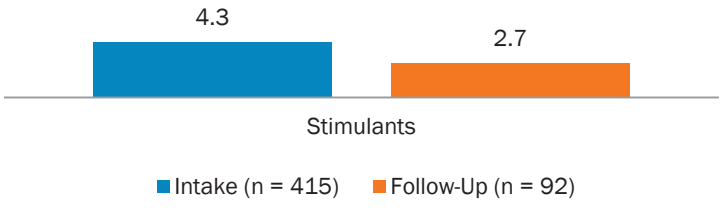


a—Significant difference by gender at intake; p < .01.
*p < .05, **p < .01, ***p < .001.

Average Number of Months Used Stimulants

Among the clients who reported using stimulants in the 12 months before entering treatment (n = 415), they reported stimulants an average 4.3 months in the 12 months before entering treatment (see Figure 3.27). Among clients who reported using stimulants in the 12 months before follow-up (n = 92), they reported using stimulants, on average, 2.7 months.

FIGURE 3.27. AVERAGE NUMBER OF MONTHS OF STIMULANT USE

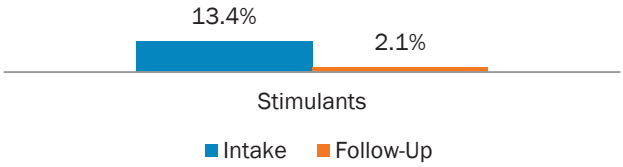


[27] One case had missing values on past 12-month stimulant use at intake and follow-up.

STIMULANT USE, PAST 30 DAYS

The number of clients who reported using stimulants decreased significantly by 84.3%, from 13.4% at intake to 2.1% at follow-up (see Figure 3.28).

FIGURE 3.28. PAST 30-DAY STIMULANT USE AT INTAKE AND FOLLOW-UP (N = 1,140)[28]



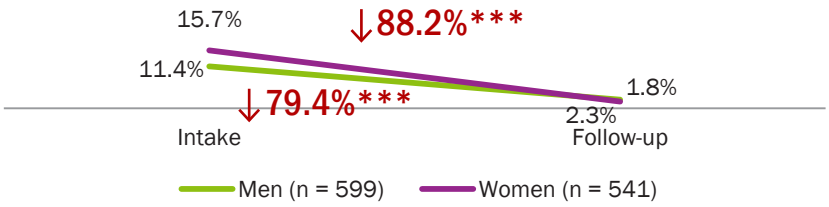
*p < .05, **p < .01, ***p < .001.

Gender Differences in Stimulant Use, Past 30 Days

Significantly more women than men reported stimulant use in the 30 days before intake, 15.7% vs. 11.4% (see Figure 3.29). The number of women and men who reported stimulant use significantly decreased from intake to follow-up by 88.2% and 79.4% respectively.

Significantly more women than men reported stimulant use in the 30 days before intake

FIGURE 3.29. GENDER DIFFERENCES IN STIMULANT USE IN THE PAST 30 DAYS FROM INTAKE TO FOLLOW-UP[a]



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

OTHER ILLEGAL DRUGS

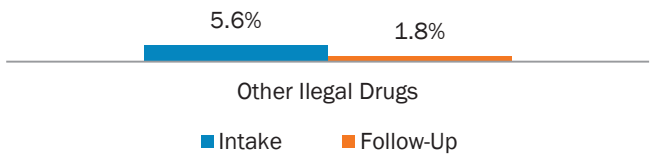
OTHER ILLEGAL DRUGS, PAST 12 MONTHS

A small minority of KTOS clients (5.6%) reported using any other illegal drugs (i.e., hallucinogens, inhalants) in the 12 months before entering treatment (5.6%). The number of clients who reported using other illegal drugs decreased significantly to 1.8% at follow-up – a significant decrease of 68.6% from intake to follow-up (see Figure 3.30).

The number of clients reporting use of other illegal drugs in the past 12 months decreased by 69%

[28] One case had missing values on past 30-day stimulant use at intake and follow-up.

FIGURE 3.30. PAST 12-MONTH USE OF OTHER ILLEGAL DRUGS AT INTAKE AND FOLLOW-UP (N = 1,238)[29]



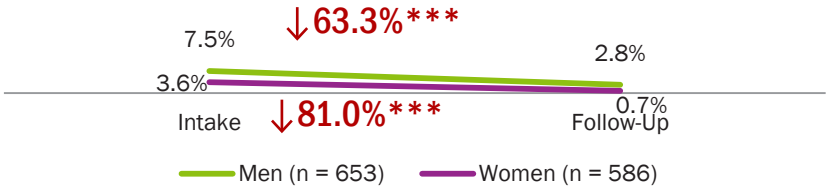
*p < .05, **p < .01, ***p < .001.

Gender Differences in Use of Other Illegal Drugs

At both intake and follow-up, significantly more men reported using other illegal drugs (i.e., hallucinogens and inhalants) in the past 12 months compared to women (see Figure 3.31). The number of men and women who reported use of other illegal drugs decreased significantly from intake to follow-up by 63.3% and 81.0% respectively.

Significantly more men than women reported using other illegal drugs at follow-up

FIGURE 3.31. GENDER DIFFERENCES IN PAST 12-MONTH USE OF OTHER ILLEGAL DRUGS AT INTAKE AND FOLLOW-UP[a]

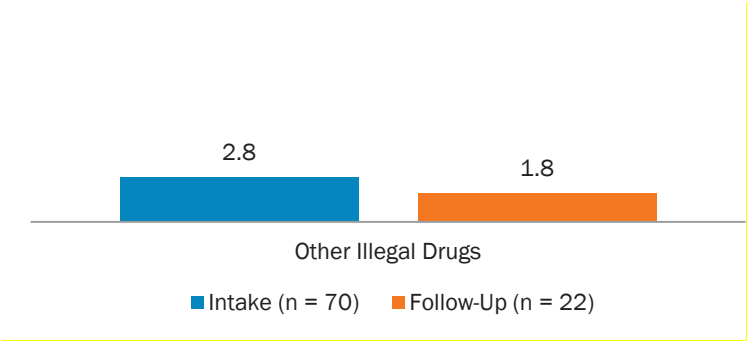


a—Significant difference by gender at follow-up; p < .01.
*p < .05, **p < .01, ***p < .001.

Average Number of Months Used Other Illegal Drugs

Figure 3.32 shows the average maximum number of months clients who used other illegal drugs (e.g., hallucinogens and inhalants) reported using those illegal drugs[30] in the 12 months before entering treatment. Among the clients who reported using these substances in the 12 months before entering treatment (n = 70), they reported using other illegal drugs an average 2.8 months. Among clients who reported using other illegal drugs in the 12 months before follow-up (n = 22), they reported using an average 1.8 months.

FIGURE 3.32. AVERAGE NUMBER OF MONTHS OF OTHER ILLEGAL DRUG USE



[29] 17 cases had missing data on past 12-month use of other illegal drugs at follow-up.

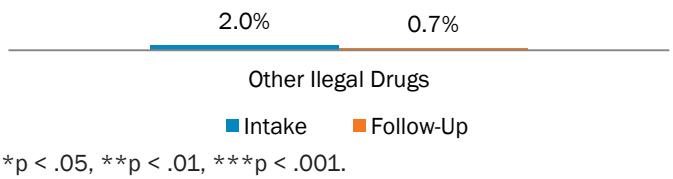
[30] Because number of months of use of each class of substance was measured separately (e.g., hallucinogens and inhalants), the value is a calculation of the maximum number of months clients used any substance class.

OTHER ILLEGAL DRUG USE, PAST 30 DAYS

The number of clients who reported using other illegal drugs in the 30 days before the intake and follow-up interviews decreased significantly by 63.6%, from 2.0% at intake to 0.7% at follow-up (see Figure 3.33).

A small percentage of clients used hallucinogens or inhalants at intake and follow-up

FIGURE 3.33. PAST 30-DAY USE OF OTHER ILLEGAL DRUGS AT INTAKE AND FOLLOW-UP (N = 1,126)[31]



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

ALCOHOL USE

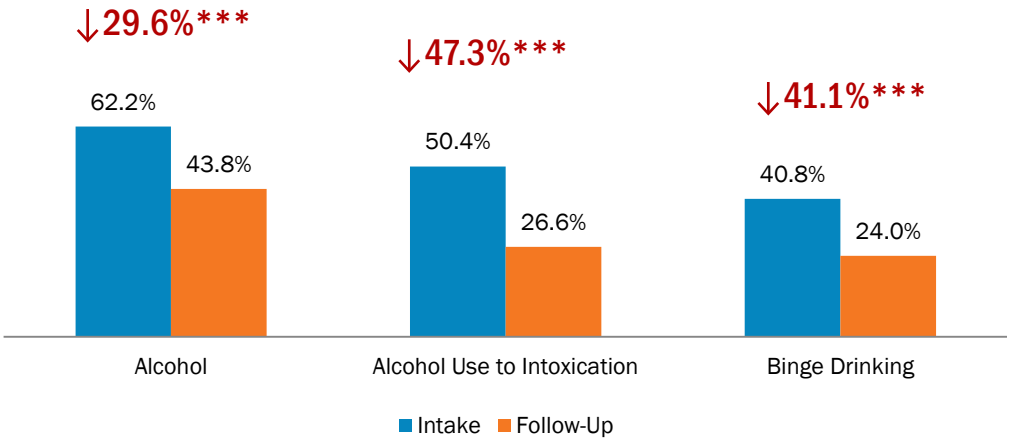
There were three measures of alcohol use including: (1) any alcohol use, (2) alcohol use to intoxication, and (3) binge drinking. Binge drinking was defined as having 5 or more (4 or more if client was female) alcoholic drinks in a period of about 2 hours.

ALCOHOL USE, PAST 12 MONTHS

The majority of clients (62.2%) reported using alcohol in the 12 months before entering treatment while 43.8% of clients reported alcohol use in the 12 months before follow-up (see Figure 3.34). Overall, for the KTOS follow-up sample, there was a 29.6% decrease in the number of clients reporting alcohol use. Half of clients reported using alcohol to intoxication at intake, with 26.6% reporting alcohol use to intoxication in the 12 months before follow-up—a significant decrease of 47.3%. Similarly there was a significant decrease of 41.1% in the number of clients who reported binge drinking from intake to follow-up (40.8% vs. 24.0%).[32,33]

The number of clients reporting alcohol use decreased by 30%

FIGURE 3.34. PAST 12-MONTH ALCOHOL USE AT INTAKE AND FOLLOW-UP (N = 1,255)



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

[31] 16 cases had missing data on past 30-day use of other illegal drugs at follow-up.

[32] Missing data on alcohol to intoxication and binge drinking at intake and follow-up for 2 cases.

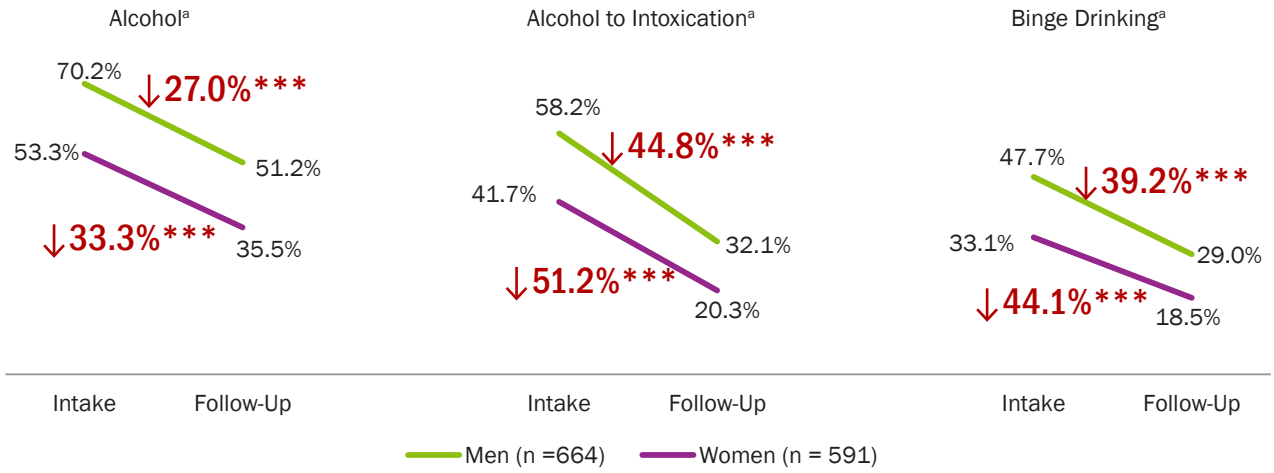
[33] Binge drinking was defined as having 5 or more alcoholic drinks within a two hour period for men and 4 or more drinks for women.

Gender Differences in Alcohol Use

Significantly more men than women reported alcohol use at intake and at follow-up (see Figure 3.35). The number of men and women who reported alcohol use in the 12 months before follow-up was significantly decreased by 27.0% and 33.3% respectively. Significantly more men than women reported alcohol use to intoxication at intake and at follow-up. The number of men and women who reported alcohol use to intoxication in the 12 months before follow-up was significantly decreased by 44.8% and 51.2% respectively. Significantly more men than women also reported binge drinking at intake and at follow-up. The number of men and women who reported binge drinking in the 12 months before follow-up was significantly decreased by 39.2% and 44.1% respectively.

Significantly more men than women reported using alcohol, alcohol to intoxication, and binge drinking in the 12 months before entering treatment and the 12 months before follow-up

FIGURE 3.35. GENDER DIFFERENCES IN PAST 12-MONTH ALCOHOL USE, ALCOHOL TO INTOXICATION, AND BINGE DRINKING AT INTAKE AND FOLLOW-UP

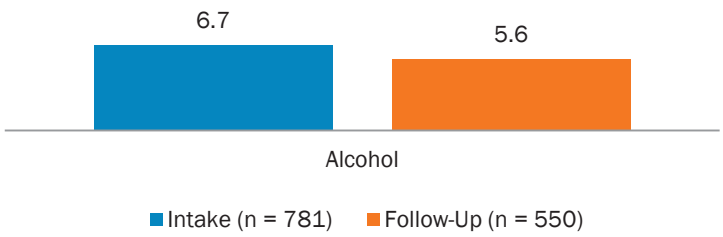


a—Significant difference by gender at intake and follow-up; p < .001.
*p < .05, **p < .01, ***p < .001.

Average Number of Months Used Alcohol

Figure 3.36 shows the average number of months alcohol users reported using alcohol at intake and follow-up. Among the clients who reported using alcohol in the 12 months before entering treatment (n = 781), they reported using alcohol, on average, 6.7 months. Among clients who reported using alcohol in the 12 months before follow-up (n = 550), they reported using, on average, 5.6 months.

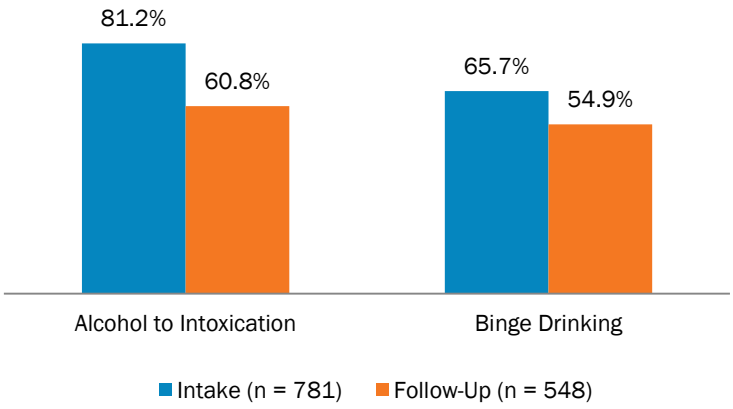
FIGURE 3.36. AVERAGE NUMBER OF MONTHS OF ALCOHOL USE



Alcohol Intoxication and Binge Drinking Among Those Who Used Alcohol, Past 12 Months

Of the clients who used alcohol in the 12 months before entering treatment (n = 781), 81.2% used alcohol to intoxication in the 12 months before intake (see Figure 3.37). Of the clients who used alcohol in the 12 months before follow-up (n = 548)[34], 60.8% of clients reported alcohol use to intoxication. Of the clients who used alcohol in the 12 months before intake, 65.7% reported binge drinking in the 12 months before intake. At follow-up, of those reporting alcohol use, 54.9% reported binge drinking.

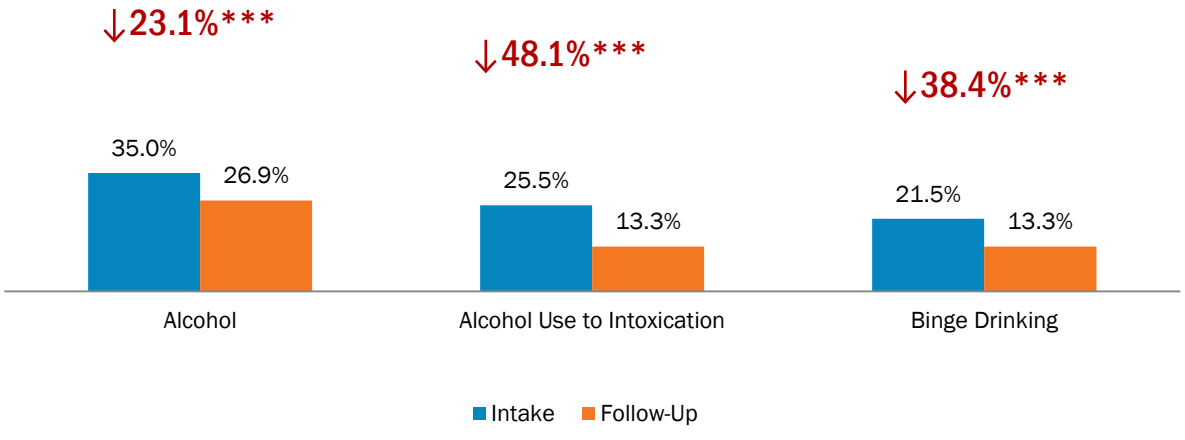
FIGURE 3.37. PAST 12-MONTH ALCOHOL USE TO INTOXICATION AND BINGE DRINKING AT INTAKE AND FOLLOW-UP, AMONG THOSE REPORTING ALCOHOL USE AT EACH POINT



ALCOHOL USE, PAST 30 DAYS

There was a decrease in the percentage of clients who reported using alcohol in the past 30 days from intake (35.0%) to follow-up (26.9%). This means that the number of clients reporting alcohol use decreased 23.1% from intake to follow-up (see Figure 3.38). The decrease in the number of clients who reported using alcohol to intoxication was even greater at 48.1%. There was a similar significant decrease (38.4%) in the number of clients who reported binge drinking at follow-up compared to the 30 days before entering treatment.[35]

FIGURE 3.38. PAST 30-DAY ALCOHOL USE AT INTAKE AND FOLLOW-UP (N = 1,141)



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

[34] Two cases had missing data on alcohol use to intoxication and binge drinking at follow-up.

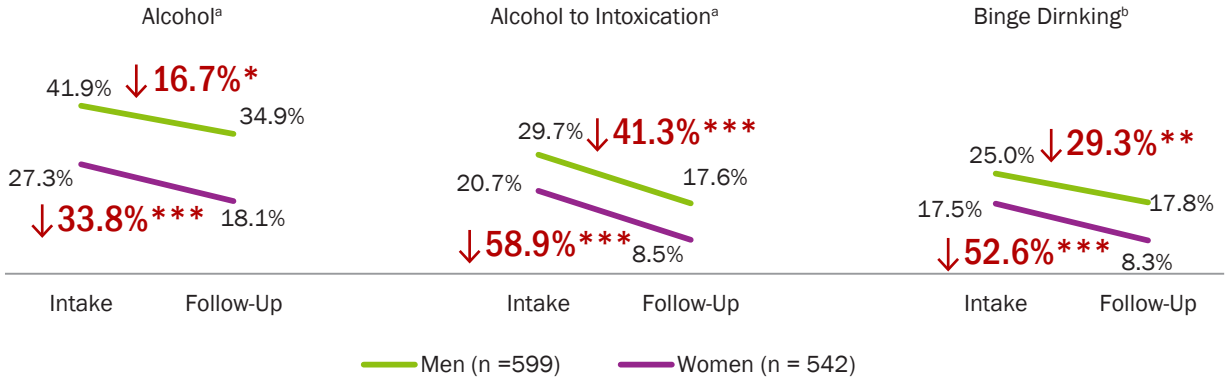
[35] Three cases had missing data on alcohol intoxication and two cases had missing data on binge drinking at follow-up.

Gender Differences in Alcohol Use in the Past 30 Days

Significantly more men than women reported using alcohol, alcohol to intoxication, and binge drinking in the 30 days before entering treatment and the 30 days before follow-up

Significantly more men than women reported alcohol use in the 30 days before intake and follow-up (see Figure 3.39). The number of men and women who reported past 30-day alcohol use decreased significantly by 16.7% and 33.8%, respectively. Additionally, significantly more men than women reported alcohol use to intoxication and binge drinking at intake and follow-up. The number of men and women who reported alcohol use to intoxication decreased significantly by 41.3% and 58.9% respectively. The number of men and women who reported binge drinking decreased significantly by 29.3% and 52.6% respectively.

FIGURE 3.39. GENDER DIFFERENCES IN PAST 30-DAY ALCOHOL USE, ALCOHOL TO INTOXICATION, AND BINGE DRINKING AT INTAKE AND FOLLOW-UP[36]



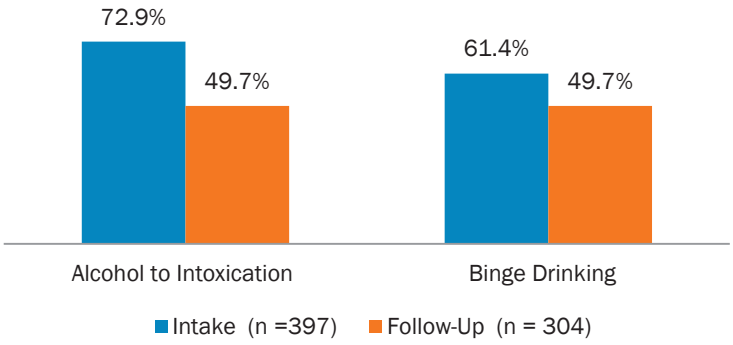
a—Significant difference by gender at intake and follow-up; p < .001.
b—Significant difference by gender at intake (p <.01) and follow-up (p < .001).
*p < .05, **p < .01, ***p < .001.

Alcohol Intoxication and Binge Drinking Among Those Who Used Alcohol in the Past 30 Days

Of the 397 clients who used alcohol in the 30 days before intake, 72.9% used alcohol to intoxication and 61.4% binge drank in the 30 days before intake (see Figure 3.40).

Of the 304 clients who reported using alcohol in the 30 days before follow-up, 49.7% reported using alcohol to intoxication and 49.7% reported binge drinking in the 30 days before follow-up.

FIGURE 3.40. PAST 30-DAY ALCOHOL USE TO INTOXICATION AND BINGE DRINKING AT INTAKE AND FOLLOW-UP, AMONG THOSE REPORTING ALCOHOL USE AT EACH POINT



[36] Three cases were missing data on alcohol use to intoxication and binge drinking in the past 30 days at follow-up.

SELF-REPORTED SEVERITY OF ALCOHOL AND DRUG USE

Another way to examine overall change in degree of severity of substance use is to use the Addiction Severity Index (ASI) composite score 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:

- The number of days of alcohol (or drug) use,
- Money spent on alcohol,
- The number of days individuals used multiple drugs (for drug use composite score),
- The number of days individuals experienced problems related to their alcohol (or drug) use,
- How trouble or bothered they are by their alcohol (or drug) use, and
- How important treatment is to them for their alcohol (or drug) problems (see sidebar).

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

The average ASI alcohol and drug composite scores decreased significantly from intake to follow-up

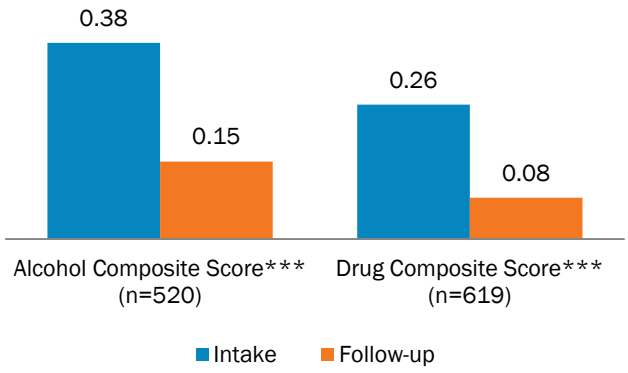
Figure 3.41 displays the change in average composite scores.[37] The average for the alcohol composite score decreased significantly from 0.38 at intake to 0.15 at follow-up. The average for the drug composite score decreased significantly from 0.26 at intake to 0.08 at follow-up.

[37] The following numbers of cases were not included in the analysis of change in alcohol composite score: 614 clients reported abstaining from alcohol at intake and follow-up, 125 were in a controlled environment all 30 days before treatment, and 7 clients had missing data from items included in the calculation of the alcohol composite. The following numbers were not included in the analysis of change in drug composite score: 516 clients reported abstaining from drugs at intake and follow-up, 125 clients were in a controlled environment all 30 days before entering treatment, and 6 clients had missing data from items included in the calculation of the drug composite score at follow-up.

ASI Alcohol and Drug Composite Scores and Substance Dependence

Rikoon et al. (2006) conducted two studies to determine the relationship between the ASI alcohol and drug use composite scores and DSM-IV substance dependence diagnosis. They identified alcohol and drug use composite score cutoffs that had 85% sensitivity and 80% specificity with regard to identifying DSM-IV substance dependence diagnosis: .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 percentage 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. While the clients who were followed up in this study were provided with treatment under previous DSM-IV-TR conditions, we relate their severity of use in terms that are compatible with current nosology. 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 (American Psychiatric Association, 2013), where we would have previously referred to them as meeting the threshold for dependence. Change from intake to follow-up in the severity rating has the same clinical relevance as moving from dependence to abuse in the older criteria.

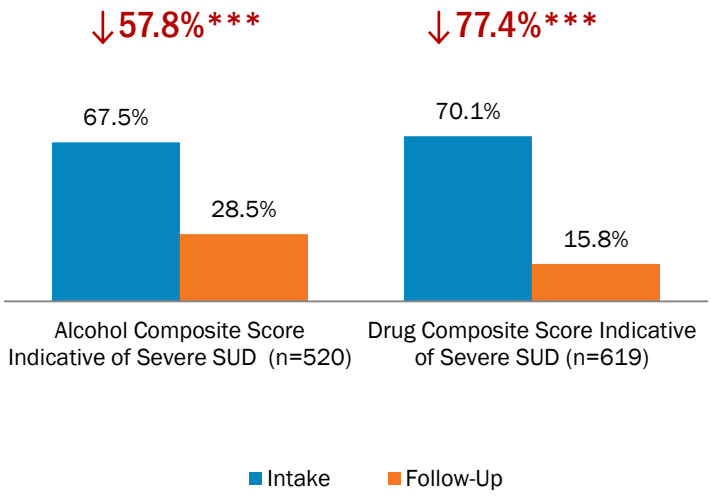
FIGURE 3.41. AVERAGE ASI ALCOHOL AND DRUG COMPOSITE SCORES AT INTAKE AND FOLLOW-UP



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

The percentage 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 3.42). The majority of individuals had alcohol and drug composite scores that met the cutoff for severe SUD at intake (67.5% and 70.1% respectively), while the percentages of clients with alcohol and drug composite scores that met the cutoff for severe SUD decreased significantly at follow-up (see Figure 3.42). Only 28.5% of clients had an alcohol composite score that met the cutoff for severe SUD at follow-up. This was a significant decrease of 57.8% in the number of individuals who met criteria for severe alcohol use disorder. At follow-up, there was a significant decrease of 77.4% in the number of individuals who met criteria for severe drug use disorder.

FIGURE 3.42. INDIVIDUALS WITH ASI COMPOSITE SCORES MEETING THE CUTOFF FOR SEVERE SUBSTANCE USE DISORDER AT INTAKE AND FOLLOW-UP

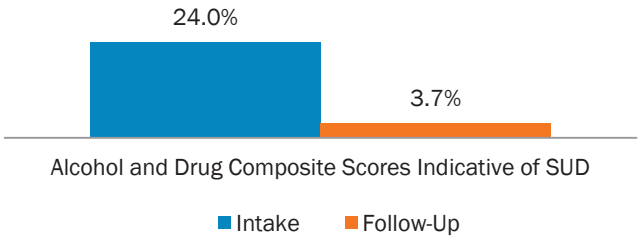


*p < .05, **p < .01, ***p < .001.

Among the individuals who were not in a controlled environment all 30 days before entering treatment and who reported using alcohol and/or drugs at intake or follow-up, nearly one quarter had alcohol and drug composite scores that met the cutoff for severe SUD at intake (see Figure 3.43). The percentage of clients who had composite scores that met the cutoff for severe SUD for both alcohol and drugs decreased significantly by 84.7% to only 3.7% (n = 29) at follow-up.

FIGURE 3.43. CLIENTS WITH ASI COMPOSITE SCORES MEETING THE CUTOFF FOR BOTH ALCOHOL AND DRUG SEVERE USE DISORDERS AT INTAKE AND FOLLOW-UP (N = 793)

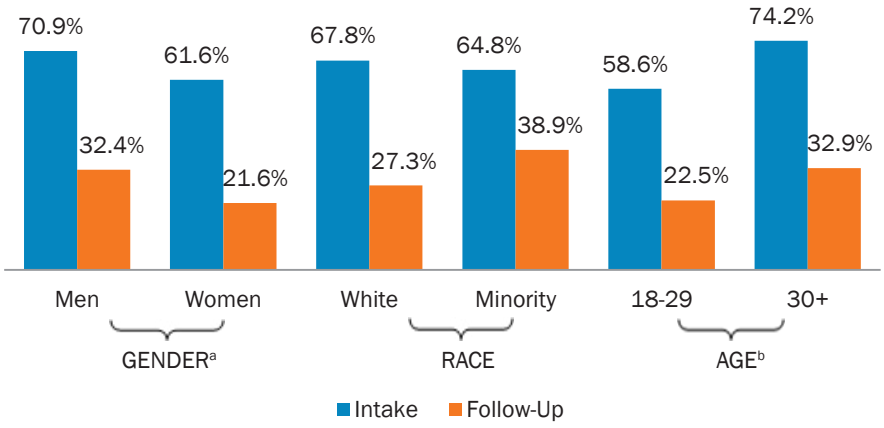
↓84.7%***



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

The data were examined to determine whether clients who had alcohol composite scores indicative of severe SUD at intake and follow-up differed by gender, race/ethnicity, or age (see Figure 3.44). Significantly more men had an alcohol composite score indicative of severe SUD at intake and follow-up compared to women. Also, significantly more clients who were 30 years or older had an alcohol composite score indicative of severe SUD at intake and follow-up compared to clients who were younger than 30 years old.

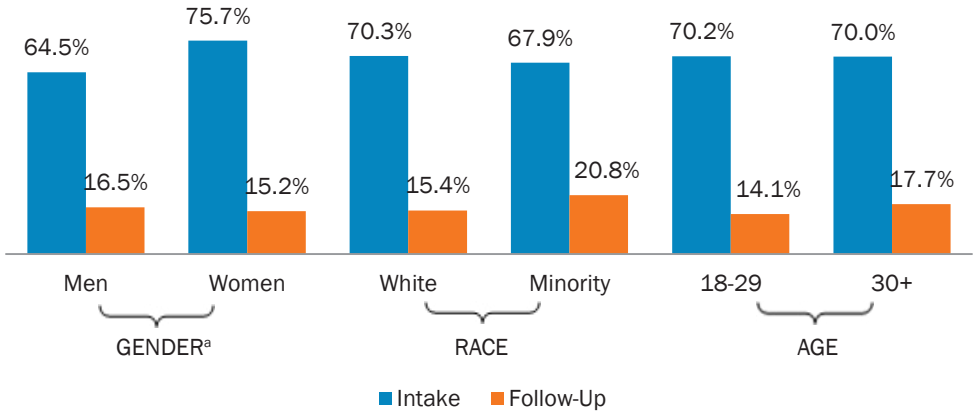
FIGURE 3.44. ALCOHOL-USING CLIENTS WITH AN ALCOHOL COMPOSITE SCORE INDICATIVE OF SEVERE SUD AT INTAKE AND FOLLOW-UP BY DEMOGRAPHIC FACTORS (N = 520)



a—There was a significant difference by group at intake (p < .05) and follow-up (p < .01).
b—There was a significant difference by group at intake (p < .001) and follow-up (p < .01).

Analyses were also conducted to determine if clients who had a drug composite score indicative of severe SUD at intake and follow-up differed by gender, race/ethnicity, or age (see Figure 3.45). Significantly more women had a drug composite score indicative of severe SUD at intake compared to men. There were no significant differences in the percentage of clients who had a drug composite score indicative of severe SUD at intake or follow-up by race or age group. In other words, at intake and follow-up, White and racial minority clients did not differ on the percentage of clients who had a drug composite score indicative of severe SUD at intake or follow-up. Younger and older clients did not differ on the percentage of clients who met criteria for severe drug use disorder at either intake or follow-up.

FIGURE 3.45. DRUG-USING CLIENTS WITH A DRUG COMPOSITE SCORE INDICATIVE OF SEVERE SUD AT INTAKE AND FOLLOW-UP BY DEMOGRAPHIC FACTORS (N = 619)



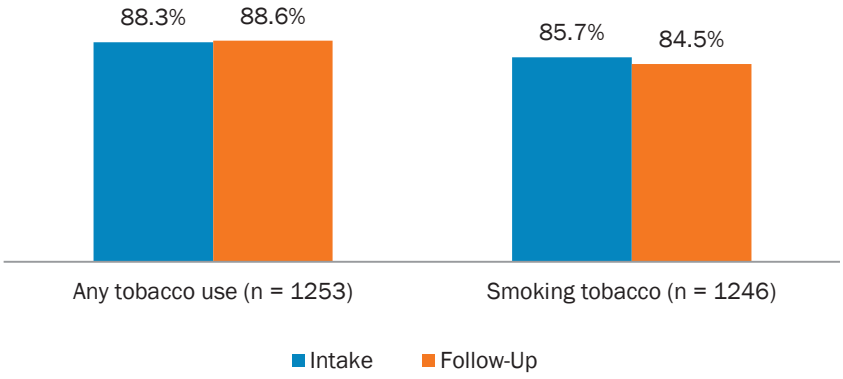
a—There was a significant difference by group at intake ($p < .01$).

TOBACCO USE

TOBACCO USE AND SMOKING, PAST 12 MONTHS

Overall, there was no change in tobacco use from intake to follow-up (see Figure 3.46). Most clients reported using tobacco in the 12 months before entering treatment (88.3%) and in the 12 months before follow-up (88.6%).[38] The majority of clients (85.7%) reported smoking tobacco in the 12 months before entering treatment, remaining stable at follow-up (84.5%).[39]

FIGURE 3.46. CHANGE IN TOBACCO USE FROM INTAKE TO FOLLOW-UP



Gender Differences in Any Tobacco Use, Past 12 Months

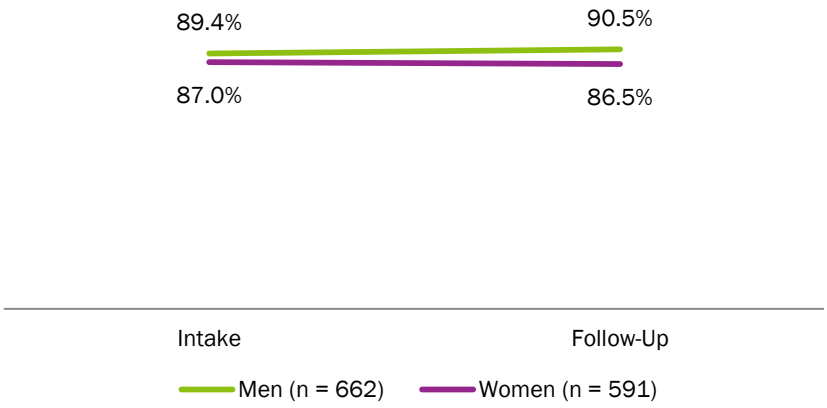
Significantly more men than women reported tobacco use at follow-up (see Figure 3.47). The number of men and women who reported tobacco use in the past 12 months remained stable from intake to follow-up.

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

[38] Missing data on tobacco use at intake or follow-up for 2 cases.

[39] Missing data on smoking tobacco use at follow-up for 7 cases.

FIGURE 3.47. GENDER DIFFERENCES IN ANY TOBACCO USE FROM INTAKE TO FOLLOW-UP[a]

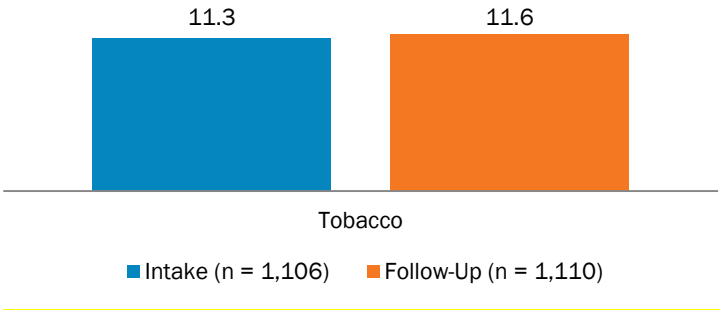


a—Significant difference by gender at follow-up ($p < .05$).
*p < .05, **p < .01, ***p < .001.

Mean Number of Months of Tobacco Use

Figure 3.48 shows the number of months clients who used tobacco reported using tobacco at intake and follow-up. Among the clients who reported using tobacco in the 12 months before entering treatment (n = 1,106), they reported using tobacco, on average, 11.3 months. Among clients who reported using tobacco in the 12 months before follow-up (n = 1,110), they reported using, on average, 11.6 months.

FIGURE 3.48. NUMBER OF MONTHS OF TOBACCO USE

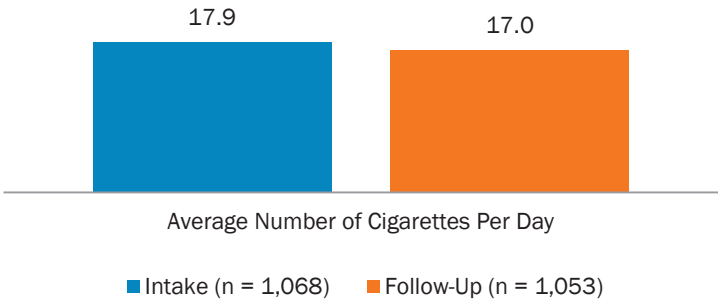


Average Number of Cigarettes Smoked

The average number of cigarettes clients reported smoking at intake and follow-up remained stable (see Figure 3.49). Of those who smoked tobacco at intake, clients reported smoking an average of 17.9 cigarettes. At follow-up, among clients who reported smoking tobacco, they also reported smoking an average of 17 cigarettes.

> *"It was my first time and I felt reluctant but so grateful. I thought it was very organized, it educated me, and gave good steps to follow."*
>
> *- KTOS Client quote*

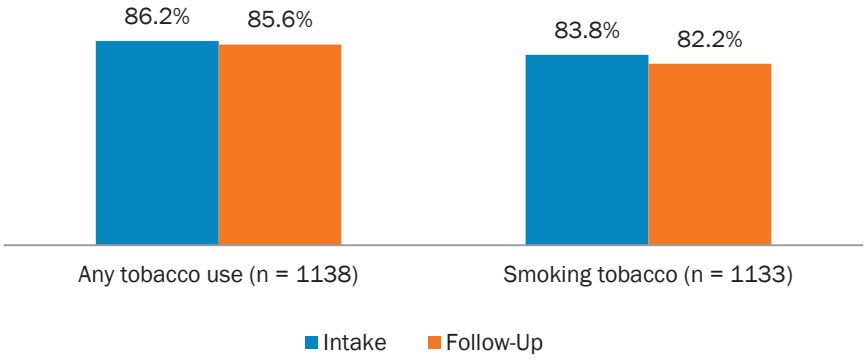
FIGURE 3.49. average NUMBER OF CIGARETTES SMOKED per DAY AMONG CLIENTS WHO SMOKED TOBACCO



TOBACCO, PAST 30-DAY USE

The number of clients who reported any past 30-day tobacco use (including smoking and smokeless tobacco) did not change from intake to follow-up. Similarly, there was no change in the number of clients who reported smoking tobacco from intake to follow-up (see Figure 3.50).

FIGURE 3.50. TOBACCO USE AT INTAKE AND FOLLOW-UP[40]

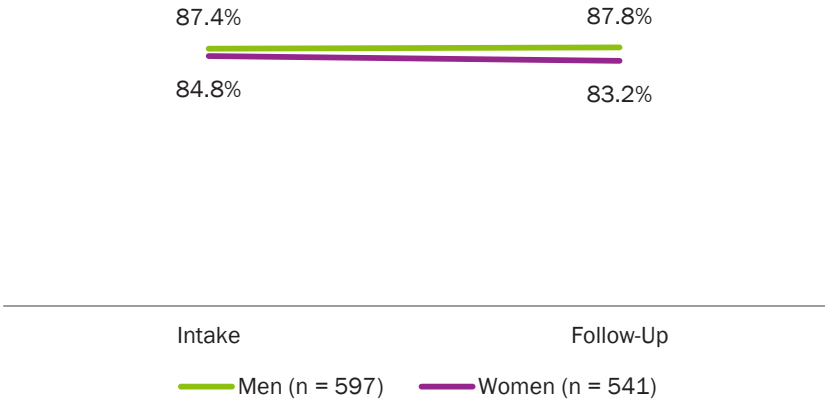


Gender Differences in Any Tobacco Use in the Past 30 Days

Significantly more men than women reported smoking tobacco in the 30 days before follow-up (see Figure 3.51). The number of men and women who reported smoking tobacco in the past 30 days remained stable from intake to follow-up.

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

FIGURE 3.51. GENDER DIFFERENCES IN PAST 30 DAY TOBACCO USE FROM INTAKE TO FOLLOW-UP[a]



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

[40] Three individuals had missing data on tobacco use and 8 individuals had missing data on smoking tobacco at follow-up.

SECTION 4: OTHER TARGETED FACTORS

This section describes pre-program compared to post-program change on five primary targeted factors including: (1) mental and physical health, (2) education, (3) employment, (4) housing/homelessness, and (5) criminal justice system involvement. Results for each targeted factor are presented for the overall sample and separately by gender when there were significant differences.

4A. MENTAL HEALTH PROBLEMS

This subsection examines changes in mental health and stress symptoms from intake to follow-up. Specifically, this subsection examines: (1) depression; (2) generalized anxiety; (3) comorbid depression and generalized anxiety; (4) suicide ideation and attempts; and, (5) perceptions of physical and mental health. The mental and physical health questions in the KTOS intake and follow-up surveys were self-report measures.

DEPRESSION SYMPTOMS

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

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

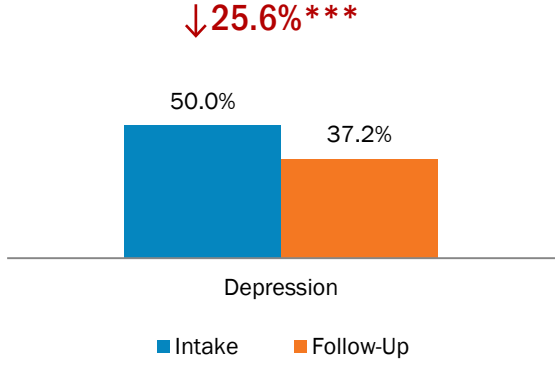
(2) "Did you have a two-week period when you were much less interested in most things or much less able to enjoy the things you used to enjoy most of the time?"

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

The percentage of clients meeting criteria for depression decreased significantly by 26% from intake to follow-up

Half of clients (50.0%) met criteria for depression in the 12 months before they entered treatment (See Figure 4A.1). At follow-up, 37.2% met criteria for depression—a significant decrease of 25.6%.

FIGURE 4A.1. MEETING STUDY CRITERIA FOR DEPRESSION AT INTAKE AND FOLLOW-UP (N = 1,266)



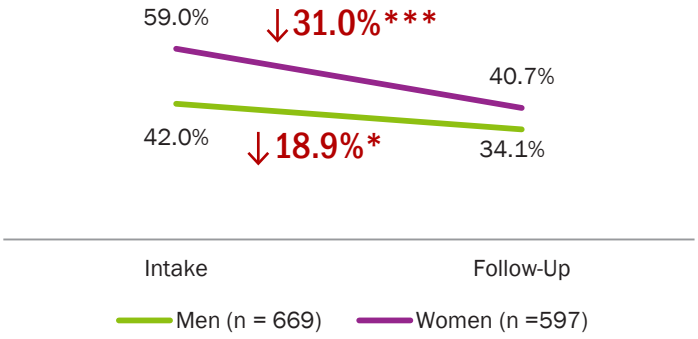
*p < .05, **p < .01, ***p < .001.

Gender Differences in Depression

Significantly more women met study criteria for depression at intake and follow-up compared to men (see Figure 4A.2). The number of women and men who met criteria for depression decreased significantly by 31.0% and 18.9%, respectively.

Significantly more women met criteria for depression at intake and follow-up compared to men

FIGURE 4A.2. GENDER DIFFERENCES IN PERCENTAGE OF CLIENTS MEETING CRITERIA FOR DEPRESSION[ab]

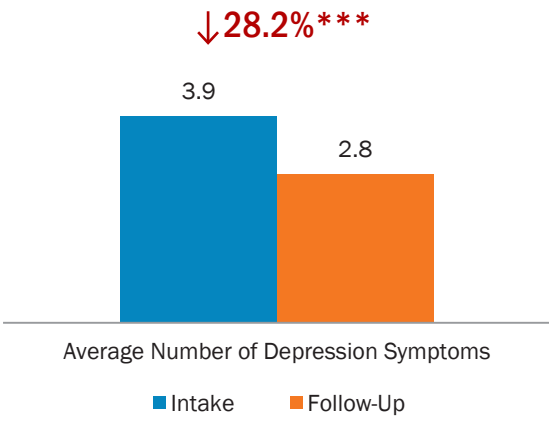


a—Statistical difference by gender at intake; p < .001.
b—Statistical difference by gender at follow-up; p < .05.
*p < .05, **p < .01, ***p < .001.

Average Number of Depression Symptoms

At intake, clients reported an average of 3.9 depressions symptoms and at follow-up, clients reported an average of 2.8 symptoms—a significant decrease of 28.2% (see Figure 4A.3).

FIGURE 4A.3. AVERAGE NUMBER OF DEPRESSION SYMPTOMS AT INTAKE AND FOLLOW-UP (N = 1,266)



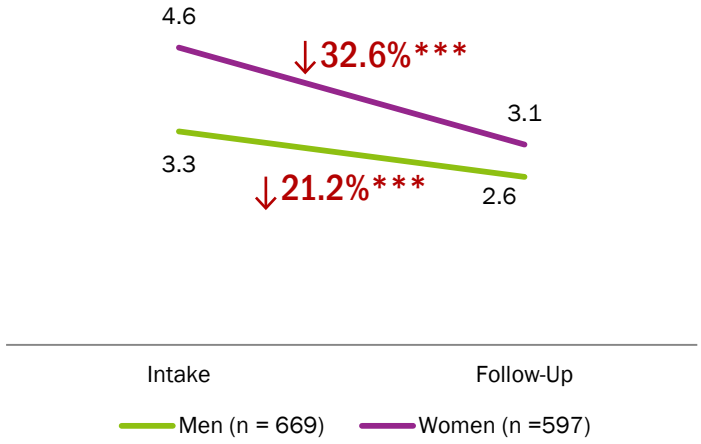
*p < .05, **p < .01, ***p < .001.

Gender Differences in the Average Number of Depression Symptoms

Women reported significantly more depression symptoms at intake and follow-up compared to men. Women reported an average of 4.6 depression symptoms at intake and an average of 3.1 depression symptoms at follow-up – a significant decrease of 32.6% (see Figure 4A.4). At intake, men reported an average of 3.3 symptoms and at follow-up men reported an average of 2.6 symptoms—a significant decrease of 21.2%.

Women reported significantly more depression symptoms at intake and follow-up compared to men

FIGURE 4A.4. GENDER DIFFERENCES IN THE AVERAGE NUMBER OF SYMPTOMS FOR DEPRESSION[ab]



*p < .05, **p < .01, ***p < .001.
a—Statistical difference by gender at intake; p < .001.
b—Statistical difference by gender at follow-up; p < .05.

ANXIETY SYMPTOMS

To assess for generalized anxiety symptoms, participants were first asked:

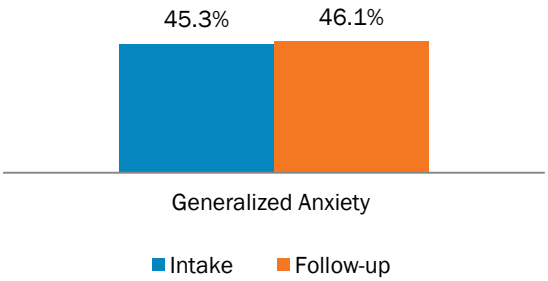
(1) "In the 12 months before you entered this program, did you have a period lasting 6 months or longer where you worried excessively or were anxious about multiple things on more days than not (like family, health, finances, school, or work difficulties)?"

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). To meet study criteria for generalized anxiety, clients had to answer "yes" to the screening question and to at least 3 of the symptom items.

In the 12 months before entering treatment, 45.3% of clients reported symptoms that met study criteria for generalized anxiety and about the same number of clients (46.1%) reported symptoms at follow-up (see Figure 4A.5).

The percentage of clients meeting criteria for generalized anxiety did not change from intake follow-up

FIGURE 4A.5. CLIENTS MEETING STUDY CRITERIA FOR GENERALIZED ANXIETY AT INTAKE AND FOLLOW-UP (N = 1,265)[41]



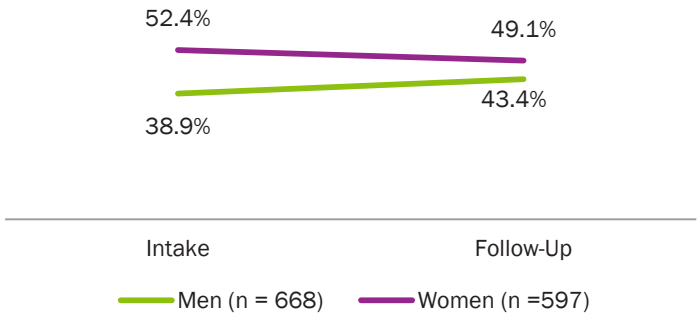
[41] Missing data on generalized anxiety at follow-up for 1 case.

Gender Differences in Generalized Anxiety Symptoms

Significantly more women met criteria for generalized anxiety at intake and follow-up compared to men (see Figure 4A.6). The number of women and men who met criteria for generalized anxiety did not change significantly for men or women.

Significantly more women met criteria for generalized anxiety at intake and follow-up compared to men

FIGURE 4A.6. GENDER DIFFERENCES IN PERCENTAGE OF CLIENTS MEETING SELF-REPORTED DSM-IV CRITERIA FOR GENERALIZED ANXIETY[ab]

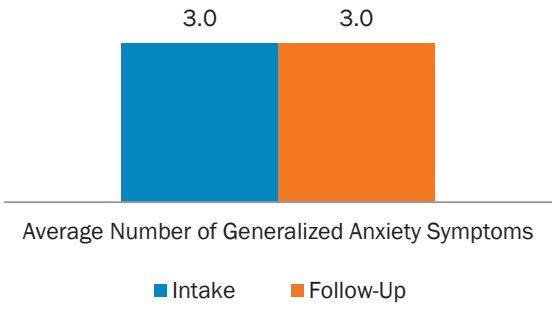


a—Statistical difference by gender at intake; p < .001.
b—Statistical difference by gender at follow-up; p < .05.
*p < .05, **p < .01, ***p < .001.

Average Number of Generalized Anxiety Symptoms

The same average number of generalized anxiety symptoms (3.0) was reported at both intake and follow-up. There were also no significant differences in generalized anxiety symptoms for either gender (see Figure 4A.7).

FIGURE 4A.7. AVERAGE NUMBER OF GENERALIZED ANXIETY SYMPTOMS AT INTAKE AND FOLLOW-UP (N = 1,263)[42]



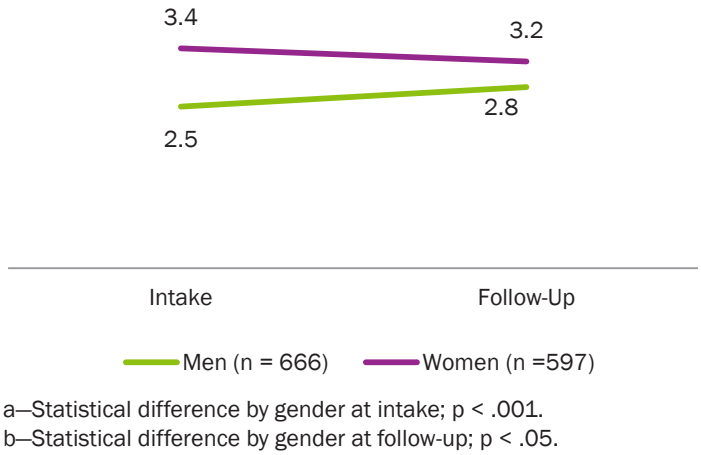
Gender Differences in the Average Number of Generalized Anxiety Symptoms

While there was no significant decrease for either gender from intake to follow-up, there were differences between genders at both points (see Figure 4A.8). Women reported an average of 3.4 generalized anxiety symptoms at intake and an average of 3.2 symptoms at follow-up. At intake, men reported an average of 2.5 generalized anxiety symptoms and at follow-up men reported an average of 2.8 symptoms.

Women reported significantly more generalized anxiety symptoms at intake and follow-up compared to men

[42] Missing data for 3 cases on anxiety symptoms at follow-up.

FIGURE 4A.8. GENDER DIFFERENCES IN THE AVERAGE NUMBER OF SYMPTOMS FOR GENERALIZED ANXIETY[ab]



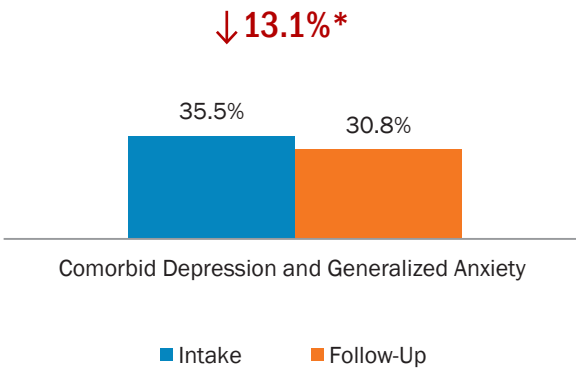
a—Statistical difference by gender at intake; p < .001.
b—Statistical difference by gender at follow-up; p < .05.

COMORBID DEPRESSION AND ANXIETY SYMPTOMS

Figure 4A.9 shows that at intake, a little more than 1 in 3 (35.5%) met study criteria for both depression and generalized anxiety and there was slight, but significant decrease of 13.1% at follow-up.

The percentage of clients meeting criteria for both depression and generalized anxiety decreased 13%

FIGURE 4A.9. CLIENTS MEETING STUDY CRITERIA FOR COMORBID DEPRESSION AND GENERALIZED ANXIETY AT INTAKE AND FOLLOW-UP (N = 1,265)[43]



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

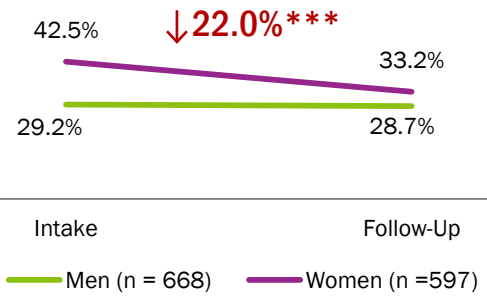
Gender Differences in Comorbid Depression and Generalized Anxiety Symptoms

Significantly more women met criteria for comorbid depression and generalized anxiety at intake compared to men (see Figure 4A.10). The number of women who met criteria for comorbid depression and generalized anxiety decreased significantly by 22.0%. The number of men who reported comorbid depression and anxiety symptoms did not change significantly.

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

[43] One case missing data for generalized anxiety at follow-up.

FIGURE 4A.10. GENDER DIFFERENCES IN PERCENTAGE OF CLIENTS MEETING STUDY CRITERIA FOR COMORBID DEPRESSION AND GENERALIZED ANXIETY AT INTAKE AND FOLLOW-UP[a]



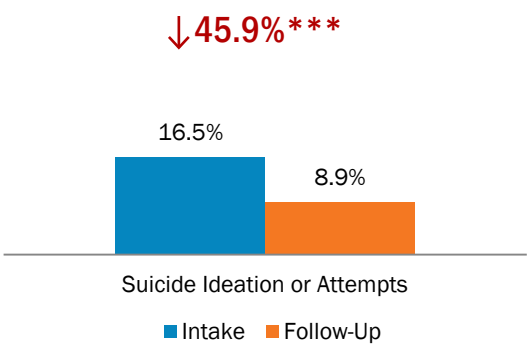
a—Statistical difference by gender at intake; p < .001.
*p < .05, **p < .01, ***p < .001.

SUICIDE IDEATION AND/OR ATTEMPTS

The percentage of clients reporting suicidal ideation and/or attempts decreased 46% at follow-up

Suicide ideation and attempts were measured with self-reported questions about thoughts of suicide, specific plans for suicide, and actual attempts to commit suicide. In the 12 months before entering treatment 16.5% of clients reported thoughts of suicide or attempted suicide and 8.9% of clients reported thoughts of suicide or attempted suicide in the 12 months before follow-up. There was a 45.9% decrease from intake to follow-up in the number of clients reporting suicidal ideation and attempts (see Figure 4A.11).

FIGURE 4A.11. CLIENTS REPORTING SUICIDAL IDEATION AND/OR ATTEMPTS AT INTAKE AND FOLLOW-UP (N = 1,266)



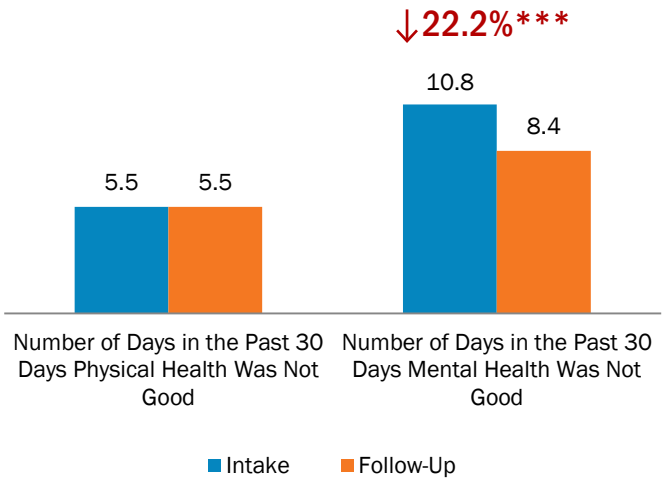
*p < .05, **p < .01, ***p < .001.

PERCEPTIONS OF PHYSICAL AND MENTAL HEALTH

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

Clients were asked how many days in the past 30 days their physical and mental health were not good, at intake and follow-up (see Figure 4A.12). There was no significant change from intake to follow-up in the number of days clients reported their physical health was not good. The number of days clients' mental health was not good decreased significantly by 22.2% from intake to follow-up.

FIGURE 4A.12. PERCEPTIONS OF POOR PHYSICAL HEALTH AND MENTAL HEALTH IN THE PAST 30 DAYS AT INTAKE AND FOLLOW-UP (N = 1,265)[44,45]

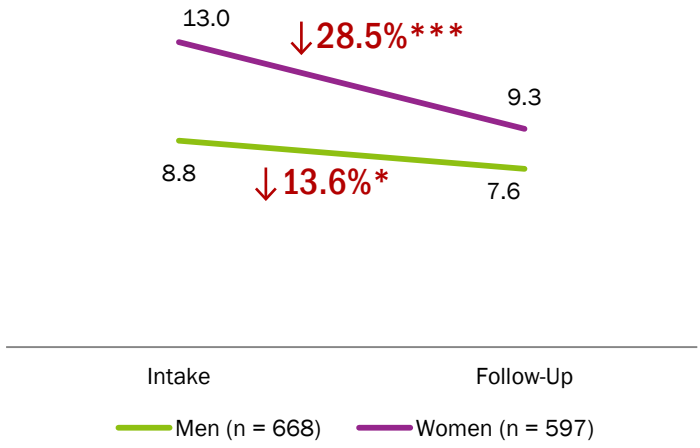


*p < .05, **p < .01, ***p < .001.

Gender Differences in Perceptions of Mental Health

Women's reported number of days their mental health was not good was higher at intake and follow-up compared to men (see Figure 4A.13).

FIGURE 4A.13. GENDER DIFFERENCES IN NUMBER OF DAYS IN THE PAST 30 DAYS MENTAL HEALTH WAS NOT GOOD[ab]



a—Statistical difference by gender at intake; p < .001.
b—Statistical difference by gender at follow-up; p < .01.
*p < .05, **p < .01, ***p < .001.

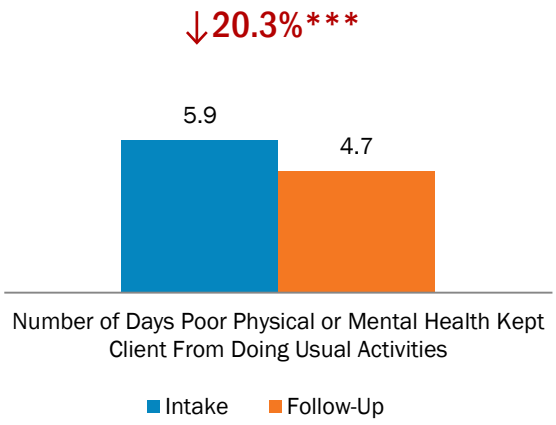
Perceptions of Poor Physical or Mental Health Limiting Activities

Clients 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. The number of days clients reported their physical or mental health kept them from doing their usual activities decreased significantly by 20.3% from 5.9 days at intake to 4.7 days at follow-up (see Figure 4A.14).

[44] One client refused to answer item about perception of physical health at follow-up.

[45] One client refused to answer item about perception of mental health at follow-up.

FIGURE 4A.14. PERCEPTIONS OF POOR PHYSICAL HEALTH AND MENTAL HEALTH LIMITING ACTIVITIES IN THE PAST 30 DAYS AT INTAKE AND FOLLOW-UP (N = 1,260)[46]

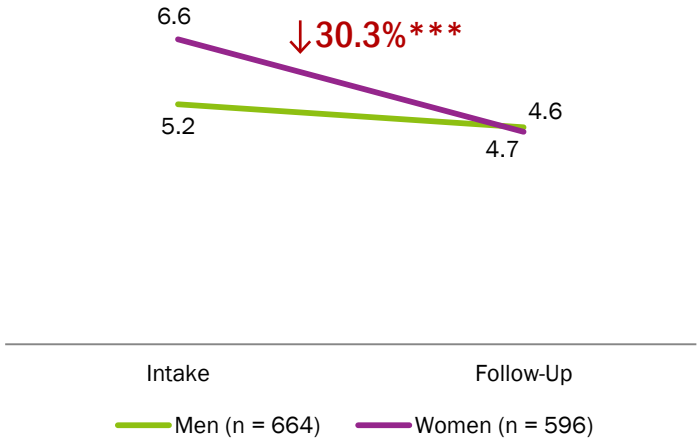


*p < .05, **p < .01, ***p < .001.

Gender Differences in Perceptions of Physical or Mental Health

The mean number of days clients indicated their poor physical or mental health had kept them from doing their usual activities was higher for women than for men at intake (see Figure 4A.15). The number of days poor physical or mental health limited activities did not change significantly for men but decreased by 30.3% for women.

FIGURE 4A.15. GENDER DIFFERENCES IN THE NUMBER OF DAYS POOR PHYSICAL OR MENTAL HEALTH KEPT CLIENT FROM DOING USUAL ACTIVITIES[a]



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

4B. EDUCATION AND EMPLOYMENT

This subsection examines changes in education and employment from intake to follow-up. Specifically, this subsection examines: (1) highest level of education completed; (2) current employment status; and (3) the number of months clients were employed full-time or part-time.

[46] Data was missing for 6 cases at follow-up.

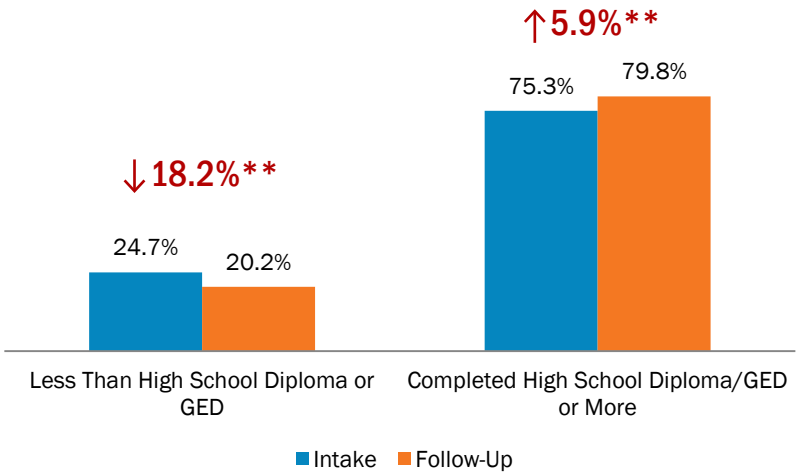
EDUCATION

Overall, the highest number of years of education completed increased significantly from 11.9 at intake to 12.2 at follow-up.

Another way to examine change in education was to categorize clients 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 4B.1). At intake, 24.7% of the follow-up sample reported that they had less than a high school diploma or GED. At follow-up, 20.2% reported that they had completed less than a high school diploma or GED. At intake, 75.3% of the follow-up sample had attended school beyond a high school diploma or GED and at follow-up the percentage had increased significantly by 5.9% to 79.8%.

The number of clients with at least a high school diploma or GED increased significantly by 6%

FIGURE 4B.1. CHANGE IN HIGHEST LEVEL OF EDUCATION COMPLETED (N = 1,265)[47]

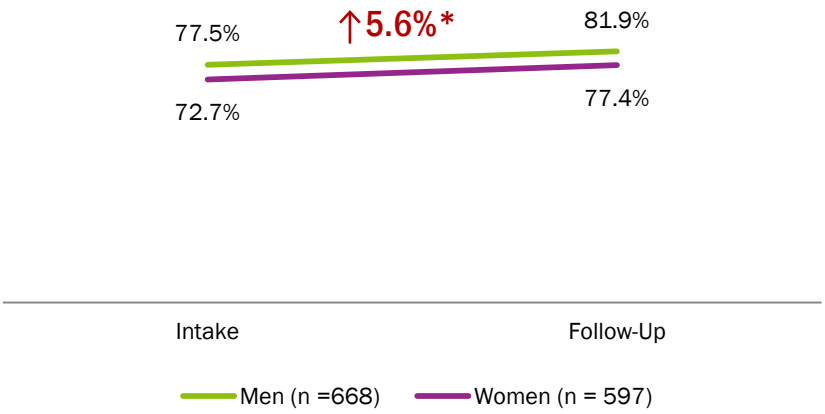


*p < .05, **p < .01, ***p < .001.

Gender Differences in Having a High School Diploma or GED

Significantly more men reported at intake and follow-up that they had at least a high school diploma or GED compared to women: 77.5% vs. 72.7% at intake and 81.9% vs. 77.4% at follow-up (see Figure 4B.2).

FIGURE 4B.2. GENDER DIFFERENCES IN HIGH SCHOOL DIPLOMA OR GED AT INTAKE AND FOLLOW-UP (N = 1,265)[a]



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

[47] One case was excluded because of inconsistencies in data on highest level of education at intake and follow-up.

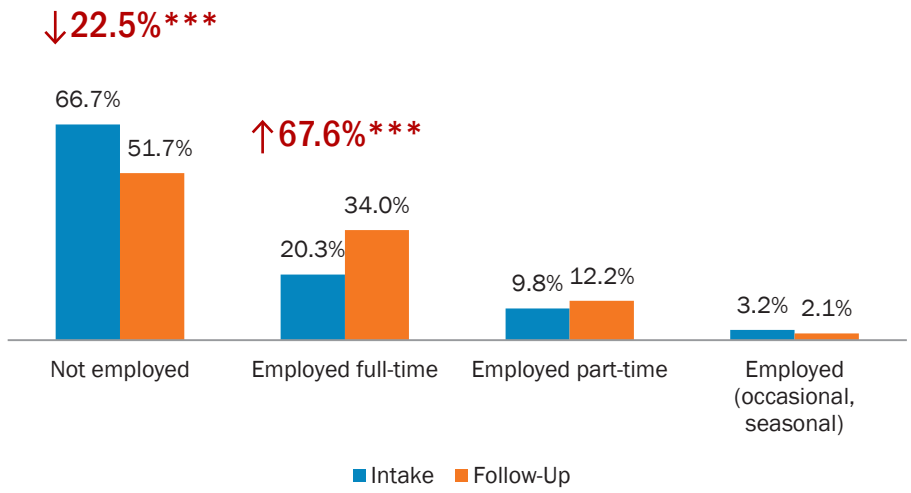
EMPLOYMENT

Current Employment Status

There were significant changes in current employment status from intake to follow-up (see Figure 4B.3). Two thirds (66.7%) of clients reported they were not employed when they entered treatment, while just over half of clients (51.7%) reported they were unemployed at follow-up. This represents a 22.5% significant decrease in the number of clients who were unemployed. The number of clients who were employed full-time increased significantly by 67.6% from intake to follow-up (20.3% vs. 34.0%).

The number of clients who were employed full-time increased by 68% and the number of clients who were unemployed decreased by 23%

FIGURE 4B.3. CHANGE IN CURRENT EMPLOYMENT STATUS (N = 1,263)[48]



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

Gender Differences in Current Employment Status

Currently Unemployed

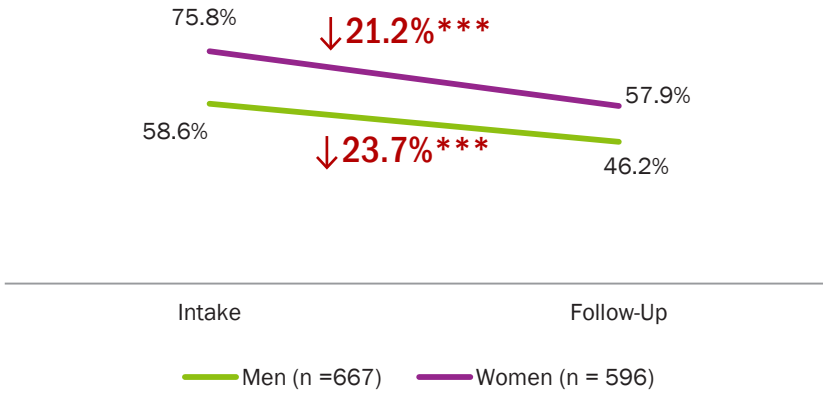
Significantly more women reported at intake and follow-up that they were currently unemployed compared to men: 75.8% vs. 58.6% at intake and 57.9% vs. 46.2% at follow-up. The number of clients who were currently unemployed decreased significantly for both women and men (see Figure 4B.4).

Significantly more women reported at intake and follow-up that they were currently unemployed compared to men

> ***"If I didn't understand something, they'd personally sit down and explain it to me. When you are in there, some people think you are a bad person, but they didn't. They helped me realize I'd made a mistake."***
>
> *- KTOS Client quote*

[48] Current employment status at intake was missing for 1 case and missing for 3 cases at follow-up.

FIGURE 4B.4. GENDER DIFFERENCES IN UNEMPLOYMENT STATUS AT INTAKE AND FOLLOW-UP[a]



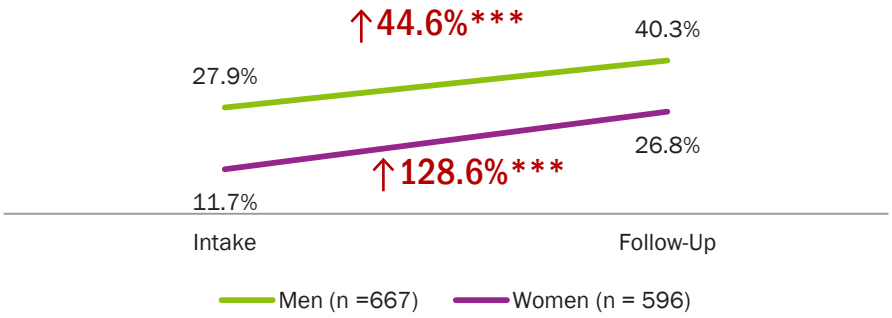
a—Significant difference by gender at intake and follow-up: p < .001.
*p < .05, **p < .01, ***p < .001.

Currently Employed Full-Time

The number of men who reported they were employed full-time was more than twice as high as the number of women at intake (27.9% vs. 11.7%) as well as much higher at follow-up (40.3% vs. 26.8%; see Figure 4B.5). Both genders, however, had significant increases in full-time employment from intake to follow-up (128.6% for women and 44.6% for men).

Significantly more men than women reported full-time employment at both intake and follow-up.

FIGURE 4B.5. GENDER DIFFERENCES IN CURRENT FULL-TIME EMPLOYMENT STATUS AT INTAKE AND FOLLOW-UP[a]



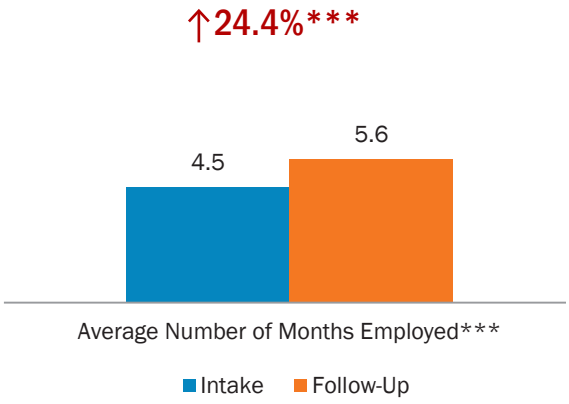
a—Significant difference by gender at intake and follow-up,: p < .001.
*p < .05, **p < .01, ***p < .001

Average Number of Months Employed

Clients reported working significantly more months at follow-up than at intake

Clients were asked in the intake survey and follow-up survey to report the number of months they were employed full-time or part-time in the 12 months before they entered treatment (past 12 months). Of the 1,265 clients who indicated the number of months they were employed at intake, 37.6% reported working 0 months. At follow-up, 32.0% reported working 0 months in the past 12 months. As seen in Figure 4B.6, however, clients reported working significantly more months at follow-up (5.6) than at intake (4.5).

FIGURE 4B.6. AVERAGE NUMBER OF MONTHS EMPLOYED AT INTAKE AND FOLLOW-UP (N = 1,265)[49]



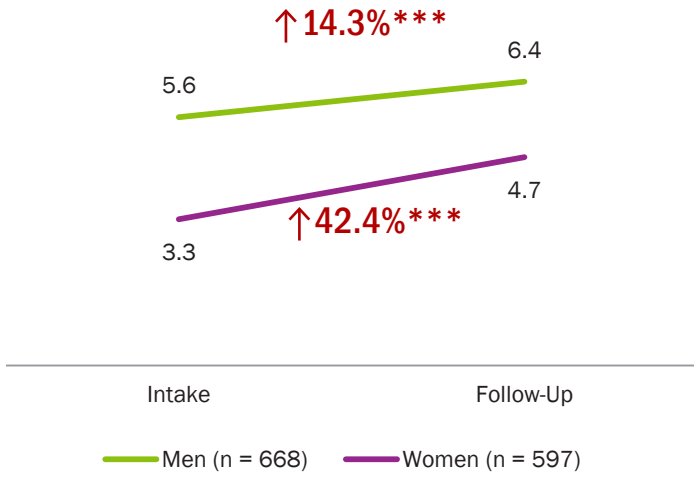
*p < .05, **p < .01, ***p < .001.

Gender Differences in the Number of Months Employed

Men reported working significantly more months at both periods compared to women (intake 5.6 vs. 3.3 and follow-up 6.4 vs. 4.7). The number of months men were employed in the past 12 months increased significantly by 14.3% from intake to follow-up, and the number of months women were employed increased significantly by 42.4% (see Figure 4B.7).

Men reported more months of employment than women at intake and follow-up

FIGURE 4B.7 GENDER DIFFERENCES IN NUMBER OF MONTHS EMPLOYED AT INTAKE AND FOLLOW-UP[a]



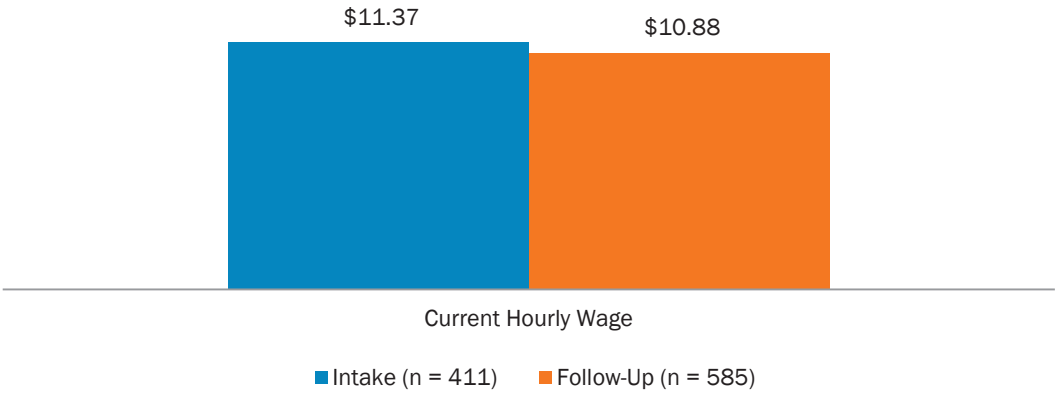
a—Significant difference in number of months worked at intake and follow-up by gender; p < .001.
*p < .05, **p < .01, ***p < .001.

Hourly Wage

Of those clients who were employed at intake (n = 411), the average hourly wage was $11.37. At follow-up, the average hourly wage was $10.88 (see Figure 4B.8).

[49] One cases had missing data on the variable at follow-up.

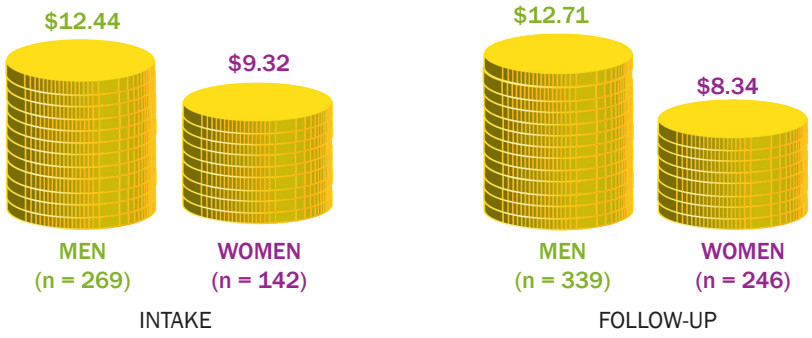
FIGURE 4B.8. CURRENT HOURLY WAGE AT INTAKE AND FOLLOW-UP, AMONG THOSE WHO WORKED



Gender Differences in Hourly Wage

Of those clients who were employed at each period, men had significantly higher hourly wages than women.

FIGURE 4B.9 GENDER DIFFERENCES IN CURRENT HOURLY WAGE AT INTAKE AND FOLLOW-UP



a—Significant difference in hourly wage at intake and follow-up by gender; $p < .001$.
*p < .05, **p < .01, ***p < .001.

> *"I am a recovering addict and have been drug-free for a year and a half. It's been great. I even got custody of my son back."*
>
> *- KTOS Client quote*

4C. LIVING SITUATION

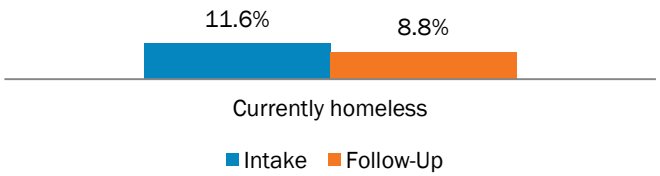
This subsection of targeted factors examines the clients' living situation at intake and follow-up. Specifically, clients are asked at both points: (1) if they consider themselves currently homeless; (2) in what type of situation they have lived in for most of the past 12 months (i.e., own home or someone else's home, residential program, shelter); and (3) their ability to meet basic living and health care needs in the past 12 months.

HOMELESSNESS

A little over 1 in 10 clients (11.6%) reported at treatment intake they were currently homeless and at follow-up 8.8% of clients reported they were currently homeless – a significant decrease of 24.5% (see Figure 4C.1).

The number of clients reporting homelessness decreased 25% from intake to follow-up

FIGURE 4C.1. CURRENT HOMELESSNESS AT INTAKE AND FOLLOW-UP (N=1,263)[50]



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

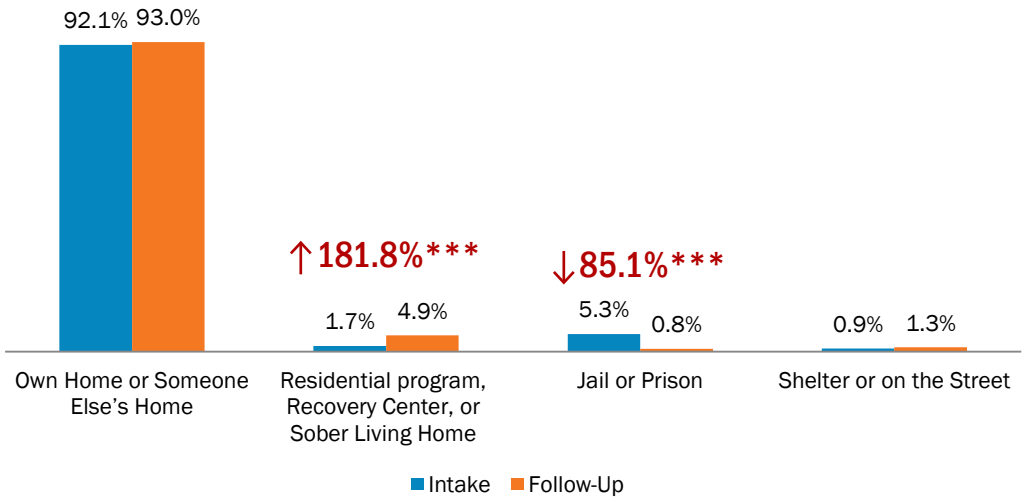
LIVING SITUATION

Change in usual living situation from intake to follow-up was examined for the KTOS follow-up sample (see Figure 4C.2). At intake clients were asked about where they lived for the majority of the time in the 12 months before entering treatment and at follow-up clients were asked where they lived for the majority of the time in the 12 months before the follow-up interview.

The percentage of clients reporting living in their own home or someone else's home for most of the past 12 months was high and did not change from intake to follow-up. There was a significant increase of 181.8% in the number of clients who reported their usual living situation was in a residential program, Recovery Center, or Sober Living home (from 1.7% at intake to 4.9% at follow-up). There was a significant decrease of 85.1% in the number of clients who reported their usual living situation in the past 12 months was in a jail or prison. Only a small number of clients reported living in a shelter or on the street at intake or follow-up.

[50] Three cases had missing information for homelessness at follow-up.

FIGURE 4C.2. USUAL LIVING SITUATION AT INTAKE AND FOLLOW-UP (N=1,259)[51]



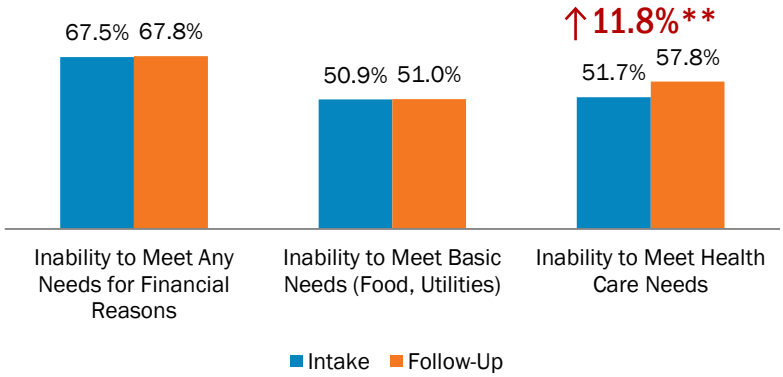
*p < .05, **p < .01, ***p < .001.

DIFFICULTY MEETING BASIC LIVING AND HEALTH CARE NEEDS

Economic hardship may be a better indicator of the actual day-to-day stressors clients face than a measure of income. Therefore, the intake and follow-up surveys included several questions about clients' ability to meet expenses for basic needs and food insecurity.[52] Clients were asked eight items, five of which asked about inability to meet basic living needs such as food, shelter, utilities, and telephone, and three items asked about inability to receive medical care for financial reasons.

The number of clients who reported having difficulty meeting basic needs such as food, shelter, telephone, and utilities remained stable and the number of clients who had difficulty obtaining medical care for financial reasons increased significantly from intake to follow-up (see Figure 4C.3). At intake 67.5% of clients reported they were unable to meet at least one of the basic living or health care needs and this number did not change at follow-up. Specifically, half of clients reported at both intake and follow-up that they had difficulty meeting basic needs such as food, shelter or utilities. Similarly, a little more than half of clients (51.7%) reported their household had difficulty meeting health care needs in the 12 months before clients entered treatment, with an 11.8% increase in the number of clients having difficulty meeting health care needs in the 12 months before follow-up.

FIGURE 4C.3. DIFFICULTY IN MEETING BASIC AND HEALTH CARE NEEDS FOR FINANCIAL REASONS (N = 1,266)



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

[51] 7 cases had missing information on usual living situation in the 12 months before follow-up.

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

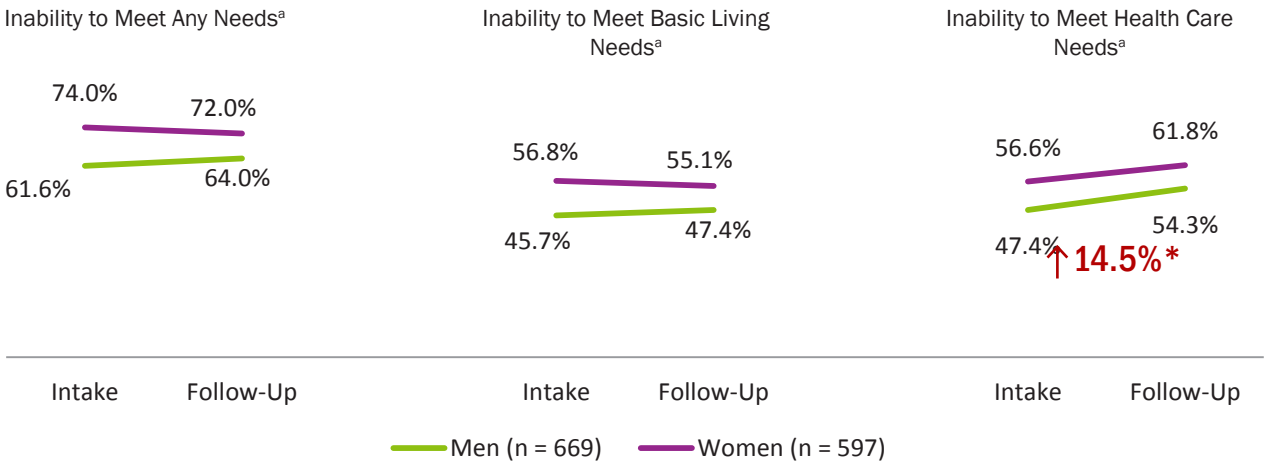
Gender Differences in Difficulty Meeting Basic Living and Health Care Needs

There were significant gender differences in clients' inability to meet basic living needs and health care needs at intake and follow-up (see Figure 4C.4). More specifically, compared to men, more women reported having difficulty meeting their basic living needs (e.g., housing, utilities, telephone, and food) at intake and follow-up. Over half of women (56.8%) reported difficulty meeting basic living needs at intake compared to 45.7% of men. At follow-up, 55.1% of women reported having difficulty meeting their basic living needs compared to 47.4% of men. There was no significant change for women or men in the inability to meet basic living needs.

Further, over half of women (56.6%) reported inability to meet health care needs at intake compared to 47.4% of men. Similarly, at follow-up, 61.8% of women reported the inability to meet health care needs compared to 54.3% for men. The number of men who reported difficulty meeting health care needs, however, increased significantly by 14.5% at follow-up.

Women reported greater inability to meet basic living needs and health care needs than men at intake and follow-up

FIGURE 4C.4 GENDER DIFFERENCES IN INABILITY TO MEET BASIC LIVING NEEDS AND HEALTH CARE NEEDS FOR FINANCIAL REASONS (N = 1,266)



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

SPECIAL REPORT

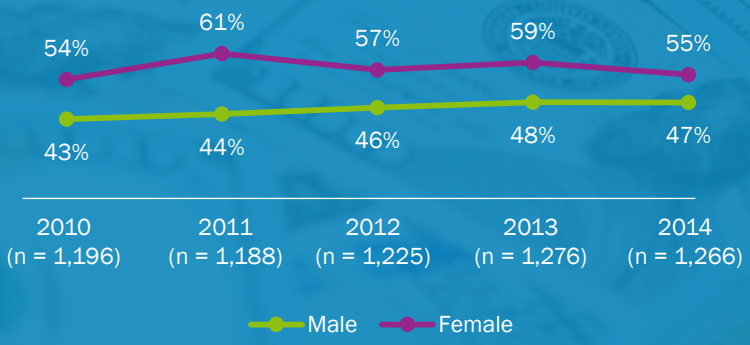
SOCIOECONOMIC PREDICTORS OF RELAPSE

Financial difficulties and substance abuse are reciprocally associated. A review of 51 treatment outcome studies found that unemployment and lower socioeconomic status were important predictors of alcohol use relapse following treatment (Adamson, Sellman, & Frampton, 2009). Employed individuals who use substances are at greater risk of losing their jobs or experiencing other negative consequences to their jobs (i.e., demotions, loss of pay for missed work). And, lower income individuals are at greater risk of abusing substances. Lack of employment drives people deeper into poverty, which limits their ability to access behavioral health treatment and is associated with other adverse effects such as increased stress which increase individuals' risk of abusing substances. One study found that individuals with higher resource needs (e.g., housing, employment, child care) were more likely to relapse 2 years after substance abuse treatment (Walton, Blow, Bingham, & Chermack, 2003). Financial difficulties for this analysis are defined as employment and number of different basic needs the individual had trouble meeting in the prior 12 months.

DIFFICULTY MEETING BASIC LIVING NEEDS

Compared to men, significantly more women continue to report having difficulty meeting basic living needs (rent, utilities, food) at follow-up. While the number of men reporting this financial difficulty has steadily increased over the past 4 years (from 43% in 2010 to 47% in 2014), the number of women reporting difficulty has remained relatively steady. In 2010, 54% of female clients reported having difficulty meeting basic living needs compared to 55% in 2014.

Gender Differences in Difficulty Meeting Basic Living Needs at Follow-up



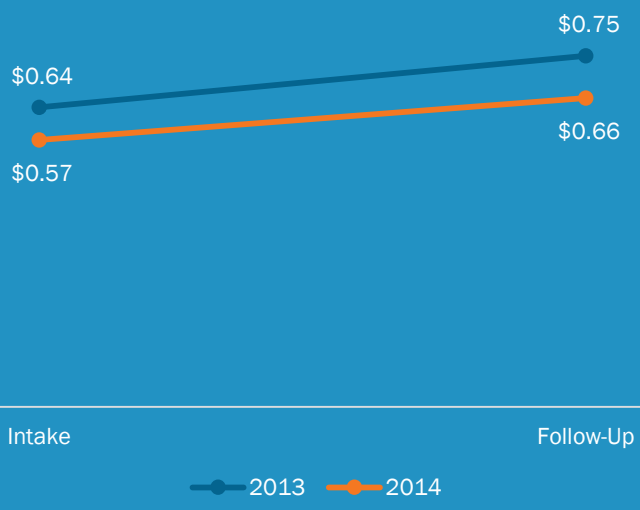
INCOME

The findings of this report that employment and income, overall, are increased after substance abuse treatment confirm prior research (Ouimette, Gima, Moos, & Finney, 1999). However, this report also found that women entered treatment with lower education, employment rates, and incomes compared to men which has also been found in other research

(French, Zarkin, Hubbard, & Rachal, 1991; Green, Polen, Dickinson, Lynch, & Bennett, 2002; Wechsberg et al., 1998). Another study found that participation in substance abuse treatment was associated with increases in work income; however, women made smaller gains in work income than men did in a study of 261 adults enrolled in day or residential treatment (Oggins et al., 2001).

In fact, KTOS data for the past 2 years indicates women make substantially less than men. For clients who were employed at each point in 2013, women made $0.64 for every dollar men made at intake and $0.57 for every dollar men made at follow-up. In 2014, at intake, women made $0.75 for every dollar men made and, at follow-up, women made $0.66 for every dollar men made. While the hourly wage women reported increased slightly from 2013 to 2014, it was still well below the hourly wage men reported at both points.

Average Hourly Wage Employed Women Make for Every Dollar Employed Men Make



THE RELATIONSHIP BETWEEN FINANCIAL PROBLEMS AND RELAPSE

Based on previous research on the relationship between education, employment, socioeconomic status and substance use relapse, and the finding that women often enter treatment with lower levels of education, employment, and lower socioeconomic status than men and have smaller gains in these factors following treatment, we examined the association of these factors with relapse in the sample of 1,266 men and women who entered treatment in FY 2012 and were followed up 12 months later.

Using a binary logistic regression model to regress substance use (any alcohol and/or drug use) in the 12-month follow-up period on the intake demographic variables (gender, race, age, number of children under the age of 18) and the follow-up variables (highest level of education, number of months employed in the past 12 months, sum of basic needs had difficulty meeting in the past 12 months), the results showed that all of the demographic variables and socioeconomic predictor variables were significantly associated with substance use at follow-up (see the table below). Specifically, males, younger individuals, minority individuals, and individuals with fewer children (under the age of 18) were significantly more likely to use alcohol and/or drugs at follow-up. Further, individuals with higher levels of education and individuals who worked fewer months in the 12-month follow-up period were more likely to use alcohol and/or drugs at follow-up. Finally, individuals who reported having difficulty meeting more basic needs were significantly more likely to report using alcohol and/or drugs at follow-up. The finding that individuals with higher levels of education were more likely to report using

alcohol and/or drugs at follow-up runs contrary to previous research.

Sociodemographic Factors Associated With Substance Use In The 12-Month Follow-Up Period (n = 1,266)

	b	Adj. Odds Ratio	95% Confidence Intervals
Gender [0 = Male, 1 = Female]	-.757***	.469	[.366, .601]
Age	-.016**	.984	[.973, .996]
Race [0 = Minority, 1 = White]	-.699**	.497	[.313, .790]
Number of children under age 18	-.120**	.887	[.812, .969]
Highest level of education at follow-up	.118**	1.125	[1.049, 1.206]
Number of months worked in the 12 months before follow-up	-.055***	.946	[.923, .971]
Number of basic needs had difficulty meeting in the 12 months before follow-up	.171***	1.186	[1.124, 1.253]

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

The high percentage of individuals who reported having trouble meeting basic needs at both intake and follow-up (see Section 4C) shows that economic difficulties continue to be a problem for adults after they are in substance abuse treatment. The finding that the number of basic needs they have trouble meeting during the follow-up period is associated with alcohol and/or drug use at follow-up suggests that greater attention to linking clients to financial assistance may be needed.

REFERENCES

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French, M., Zarkin, G., Hubbard, R., & Rachal, J. (1993). The effects of time in drug abuse treatment and employment on posttreatment drug use and criminal activity. American Journal of Drug and Alcohol Abuse, 19(1), 19-33.

Green, C., Polen, M., Dickinson, D., Lynch, F., & Bennett, M. (2002). Gender differences in predictors of initiation, retention, and completion in an HMO-based substance abuse treatment program. Journal of Substance Abuse Treatment, 23(4), 285-295.

Oggins, J., Guydish, J., & Delucchi, K. (2001). Gender differences in income after substance abuse treatment. Journal of Substance Abuse Treatment, 20, 215-224.

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Walton, M., Blow, F., Bingham, C. R., & Chermack, S. (2003). Individual and social/environmental predictors of alcohol and drug use 2 years following substance abuse treatment. Addictive Behaviors, 28(4), 627-642.

Wechsberg, W. M. (1995). Strategies for working with female substance abusers. In B. Brown (Ed.), Substance abuse treatment in the era of AIDS (pp. 119-152). Rockville, MD: Center for Substance Abuse Treatment.

4D. INVOLVEMENT IN THE CRIMINAL JUSTICE SYSTEM

This subsection describes change in client involvement with the criminal justice system during the 12-month period before entering treatment and during the 12-month period before the follow-up interview. Specifically, results include changes in: (1) any arrest; (2) the number of times arrested; (3) any incarceration; (4) the number of nights incarcerated; and (5) criminal justice supervision status.

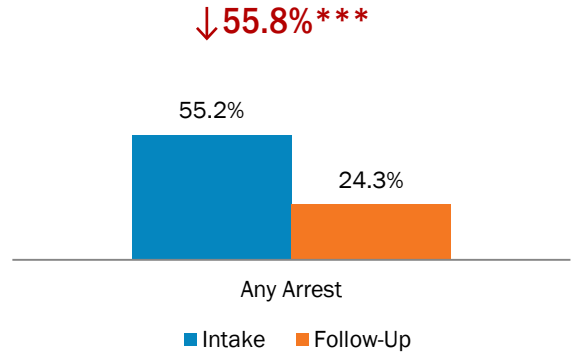
ARRESTS

Arrests in The Past 12 Months

Clients were asked about their arrests in the 12 months before they entered treatment (at intake) and the past 12 months (at follow-up). Over half of clients (55.2%) reported an arrest in the 12 months before entering treatment (see Figure 4D.1). At follow-up, this percentage had decreased significantly by 55.8% to 24.3%.

Percentage of clients reporting any arrest significantly decreased 56% at follow-up

FIGURE 4D.1. CLIENTS REPORTING ARRESTS AT INTAKE AND FOLLOW-UP (N = 1,261)[53]

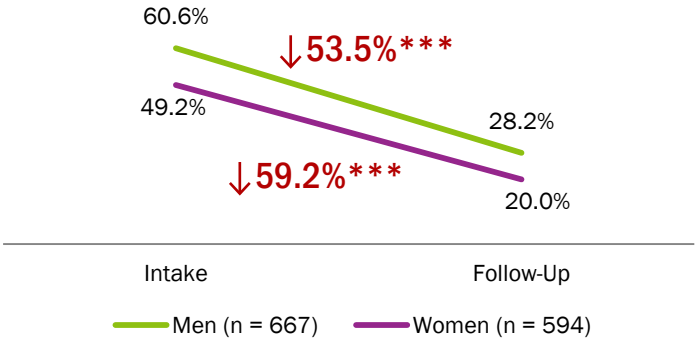


*p < .05, **p < .01, ***p < .001.

Gender Differences In Arrests

Significantly more men than women reported being arrested in the 12 months before entering treatment and the 12 months before follow-up (see Figure 4D.2). The number of men and women who reported being arrested decreased significantly from intake to follow-up.

FIGURE 4D.2 GENDER DIFFERENCES IN BEING ARRESTED AT INTAKE AND FOLLOW-UP[a]



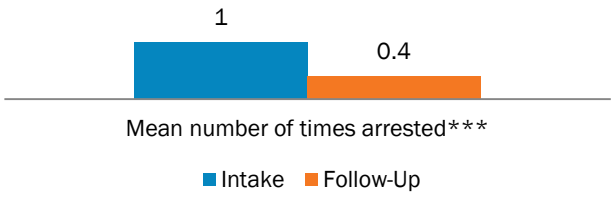
a—Significant difference in the number of clients arrested at intake (p < .001) and follow-up (p < .01) by gender.
*p < .05, **p < .01, ***p < .001.

[53] Five cases had missing data on arrests in the 12 months before follow-up.

Average Number of Arrests

At intake, the average number of times clients reported being arrested in the past 12 months was 1.0 time (see Figure 4D.3). In the 12 months before follow-up, the average number of times arrested was 0.4 times, which was a statistically significant decrease.[54]

FIGURE 4D.3. AVERAGE NUMBER OF TIMES ARRESTED AT INTAKE AND FOLLOW-UP (N = 1,261)

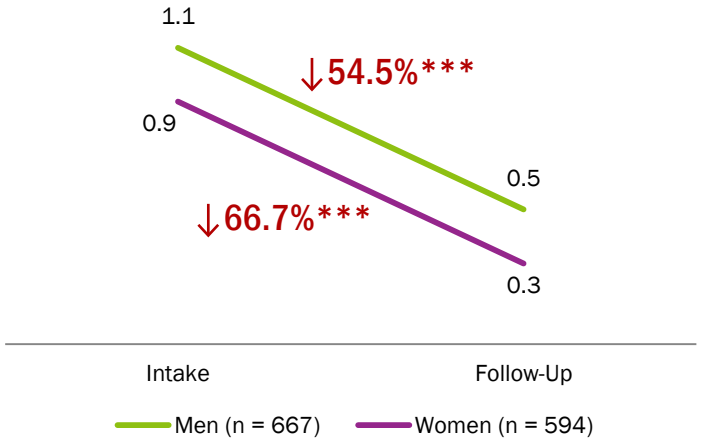


*p < .05, **p < .01, ***p < .001.

Gender Differences in Average Number of Arrests

Men reported significantly more arrests in the 12 months before entering treatment and the 12 months before follow-up compared to women (see Figure 4D.4). Significant decreases in number of arrests were found for men and women.

FIGURE 4D.4 GENDER DIFFERENCES IN NUMBER OF ARRESTS AT INTAKE AND FOLLOW-UP[a]



a—Significant difference in number of arrests at intake and follow-up by gender; p < .05.
*p < .05, **p < .01, ***p < .001.

INCARCERATION AND SELF-REPORTED CRIMINAL JUSTICE SYSTEM SUPERVISION

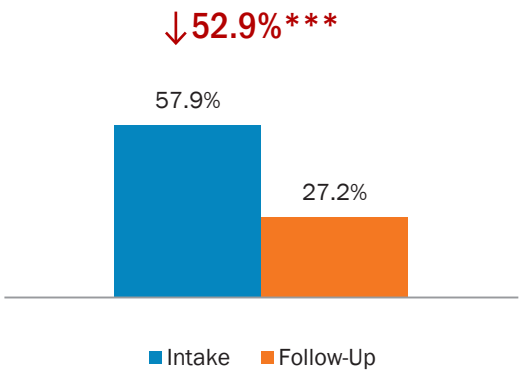
Incarceration

The majority of clients (57.9%) reported spending at least one day in jail or prison in the 12 months prior to entering treatment (See Figure 4D.5). At follow-up, 27.2% of clients reported spending at least one day incarcerated in the past 12 months; a significant decrease of 52.9%.

The number of clients who spent at least one day incarcerated decreased by 53%

[54] Five cases had missing data for number of arrests in the 12 months before follow-up.

FIGURE 4D.5. CLIENTS REPORTING INCARCERATION AT INTAKE AND FOLLOW-UP (N = 1,263)[55]



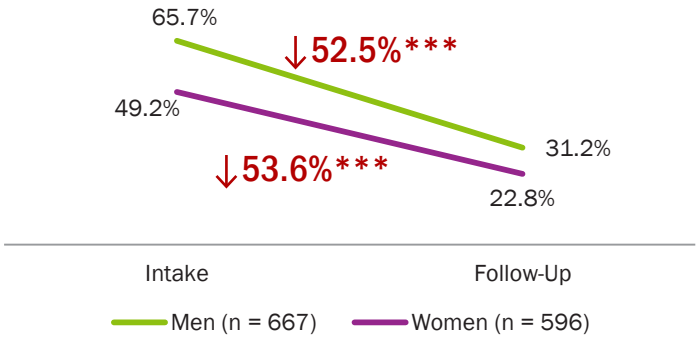
*p < .05, **p < .01, ***p < .001.

Gender Differences in Incarceration

Significantly more men than women reported being incarcerated in the 12 months before entering treatment and in the 12 months before follow-up (see Figure 4D.6). The number of men and women who reported being incarcerated decreased significantly from intake to follow-up.

Significantly more men than women reported being incarcerated before intake and before follow-up

FIGURE 4D.6. GENDER DIFFERENCES IN PERCENTAGE OF CLIENTS REPORTING INCARCERATION (N = 1,263)[a]



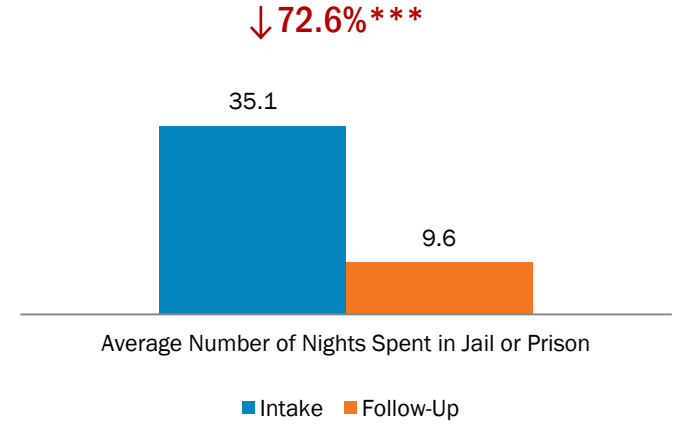
a— Significant difference by gender at intake (p < .001) and follow-up (p < .01).
*p < .05, **p < .01, ***p < .001.

Average Number of Nights Spent Incarcerated

There was a significant decrease in the average number of nights spent in jail or prison from 35.1 days at intake to 9.6 days at follow-up (see Figure 4D.7).

[55] Three cases had missing data for incarceration at follow-up.

FIGURE 4D.7. AVERAGE NUMBER OF NIGHTS INCARCERATED AT INTAKE AND FOLLOW-UP (N = 1,263)

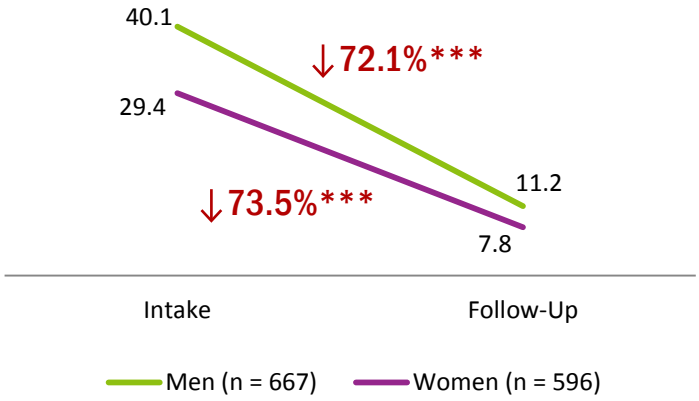


*p < .05, **p < .01, ***p < .001.

Gender Differences in Average Number of Nights Incarcerated

Men reported spending more days incarcerated in the 12 months before entering treatment compared to women. There were significant decreases in the average number of nights spent incarcerated from intake to follow-up for men and women. By follow-up there were no significant differences in the average number of nights incarcerated between men and women (see Figure 4D.8).

FIGURE 4D.8. GENDER DIFFERENCES IN AVERAGE NUMBER OF NIGHTS INCARCERATED AT INTAKE AND FOLLOW-UP[a]

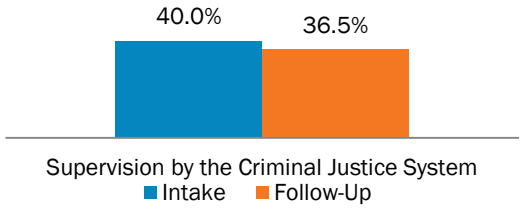


a— Significant difference by gender at intake; p < .05
*p < .05, **p < .01, ***p < .001.

Self-reported Criminal Justice System Supervision

The number of clients that self-reported they were under criminal justice system supervision (e.g., drug court, probation, or parole) decreased slightly from 40.0% at intake to 36.5% at follow-up (see Figure 4D.9).

FIGURE 4D.9. CLIENTS REPORTING SUPERVISION BY THE CRIMINAL JUSTICE SYSTEM AT INTAKE AND FOLLOW-UP (N = 1,263)[56]



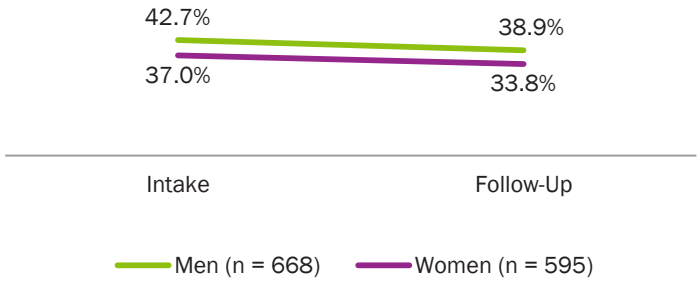
[56] Missing data on supervision at follow-up for three individuals.

Gender Differences in Clients Reporting Criminal Justice Supervision

Significantly more men than women reported they were under supervision by the criminal justice system at treatment intake (see Figure 4D.10). However, there was no significant difference by gender at follow-up.

Significantly more men reported they were under supervision by the criminal justice system at treatment intake

FIGURE 4D.10. GENDER DIFFERENCES IN CLIENTS REPORTING CRIMINAL JUSTICE SUPERVISION[a]



a—There was a significant difference by gender at intake; $p < .05$.
*p < .05, **p < .01, ***p < .001.

SECTION 5. RECOVERY SUPPORTS

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

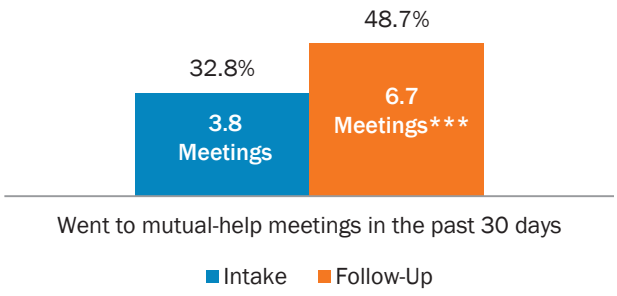
MUTUAL HELP RECOVERY GROUP MEETING ATTENDANCE

At intake, only 32.8% of clients reported going to mutual help recovery group meetings (e.g., AA, NA, or faith-based) in the past 30 days (See Figure 5.1). At follow-up, there was a significant increase of 48.4%, with 48.7% of clients reporting they had gone to mutual help recovery group meetings in the past 30 days.

There was a 48% increase in the percentage of clients reporting attending mutual help recovery groups

The number of meetings attended increased significantly from 3.8 at intake to 6.7 at follow-up; a 76.3% increase for the overall sample.

FIGURE 5.1. CLIENTS REPORTING MUTUAL HEALTH RECOVERY GROUP ATTENDANCE AT INTAKE AND FOLLOW-UP (N=1,265)[57]



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

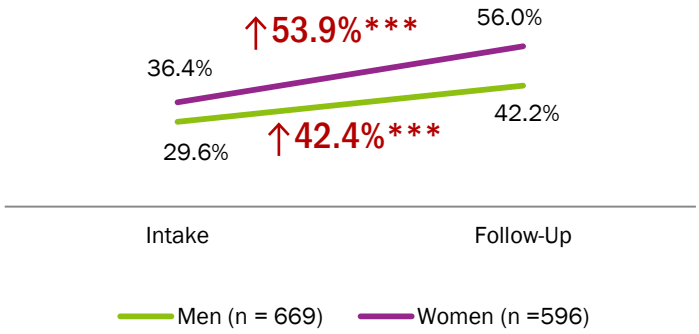
GENDER DIFFERENCES IN MUTUAL HELP RECOVERY GROUP MEETING ATTENDANCE

Significantly more women than men reported they attended mutual help recovery group meetings in the 30 days before intake and follow-up (see Figure 5.2). The number of men and women that attended mutual help recovery meetings increased significantly by 42.4% and 53.9% respectively.

Compared to men more women reported attending mutual help recovery group meetings at intake and follow-up

[57] Data was missing for mutual help recovery group meetings at follow-up for one client.

FIGURE 5.2. GENDER DIFFERENCES IN CLIENTS ATTENDING MUTUAL HELP RECOVERY GROUP MEETINGS[a]



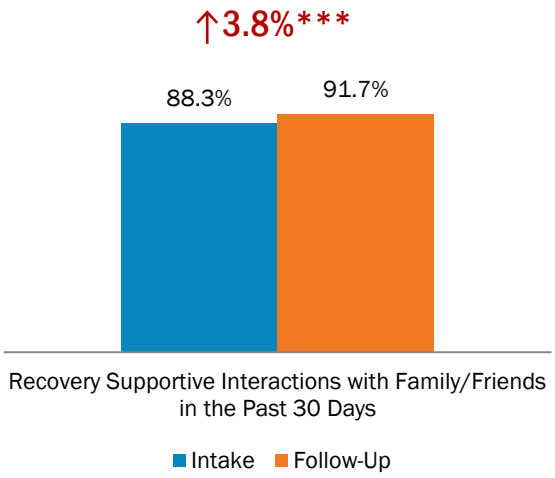
a—There was a significant difference by gender at intake ($p < .01$) and follow-up ($p < .001$).
*p < .05, **p < .01, ***p < .001.

RECOVERY SUPPORTIVE INTERACTIONS

RECOVERY SUPPORTIVE INTERACTIONS WITH FAMILY/FRIENDS

The majority of clients reported they had interactions with family or friends who were supportive of their recovery in the 30 days before treatment intake and before follow-up (see Figure 5.3). There was a small but significant increase in the number of clients overall who reported having recovery supportive interactions with family or friends.

FIGURE 5.3. CLIENTS REPORTING RECOVERY SUPPORTIVE INTERACTIONS WITH FAMILY/FRIENDS IN THE PAST 30 DAYS (N=1,252)[58]



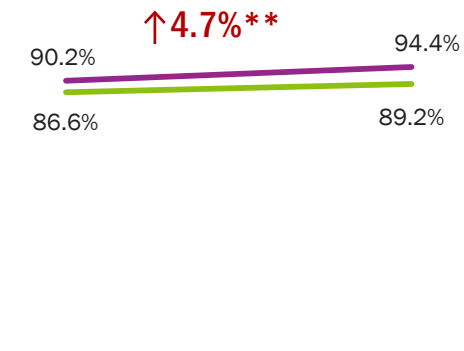
*p < .05, **p < .01, ***p < .001.

Gender Differences in Recovery Supportive Interactions with Family/Friends

More women than men reported interactions with family and friends who were supportive of their recovery in the past 30 days at intake (90.2% compared to 86.6%) and at follow-up (94.4% compared to 89.2%). The number of women reporting having recent interactions with family and friends who were supportive of their recovery increased significantly by 4.7% from intake to follow-up (see Figure 5.4).

[58] Data on recovery supportive interactions was missing at follow-up for 14 cases.

FIGURE 5.4 GENDER DIFFERENCES IN RECOVERY SUPPORTIVE INTERACTIONS WITH FAMILY/FRIENDS IN THE PAST 30 DAYS[a]

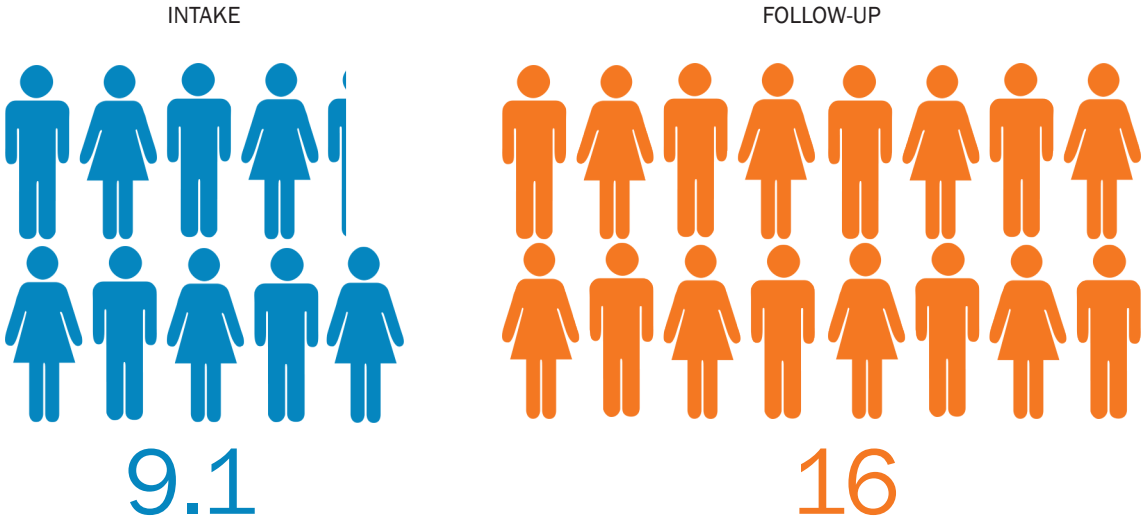


a—Significant difference by gender at intake ($p < .05$) and follow-up, $p < .01$.
*p < .05, **p < .01, ***p < .001.

AVERAGE NUMBER OF PEOPLE CLIENT COULD COUNT ON FOR RECOVERY SUPPORT

The average number of people clients reported that they could count on for recovery support increased significantly by 75.8%, from 9.1 people at intake to 16.0 people at follow-up (see Figure 5.5).

FIGURE 5.5. AVERAGE NUMBER OF PEOPLE CLIENTS COULD COUNT ON FOR RECOVERY SUPPORT AT INTAKE AND FOLLOW-UP (N = 1,259)[59]



[59] Data on the number of people the client could count on for recovery support was missing for 7 cases at follow-up.

SECTION 6. CLINICAL DIAGNOSTIC AND SERVICE INFORMATION

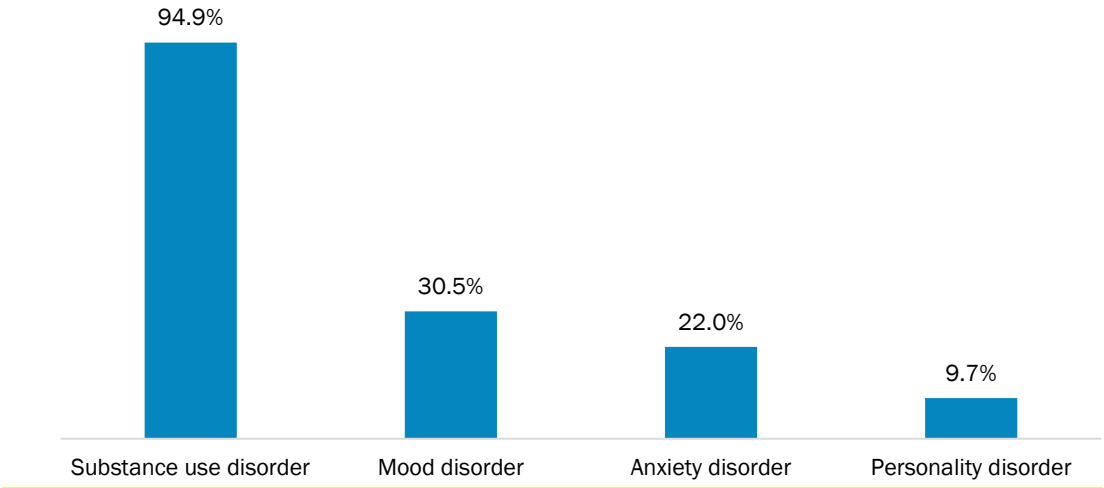
This section examines mental health diagnosis and service event data submitted by Community Mental Health Center (CMHC) providers to the Department for Behavioral Health, Developmental and Intellectual Disabilities.

DIAGNOSIS

Information on mental health diagnosis codes and service event data for clients receiving treatment at Community Mental Health Centers is submitted to DBHDID and is managed by the University of Kentucky Institute for Pharmaceutical Outcomes and Policy (IPOP). Service event data was matched with KTOS survey data for the follow-up sample, using encrypted social security numbers, for the period between the date of submission of the baseline survey and the completion of the follow-up survey. Diagnosis codes were entered for 1,124 clients.

Figure 6.1 shows the percentage of clients with a diagnosis for various types of mental health disorders. Classes of diagnoses that were found in fewer than 5% of clients are not included in the figure. The vast majority of clients had a diagnosis of a substance use disorder (e.g., alcohol and/or drug abuse or dependence). The next most frequently noted type of diagnosis was for mood disorders (30.5%; e.g., depression or non-psychotic bipolar disorder). A little more than one in five had an anxiety disorder diagnosis (e.g., generalized anxiety disorder, panic disorder, or obsessive-compulsive disorder). Nearly one in ten had a diagnosis for a personality disorder.

FIGURE 6.1. DSM-IV DIAGNOSES FOR CLIENTS IN SUBSTANCE ABUSE TREATMENT BETWEEN JULY 1, 2011 AND JUNE 30, 2012 (N = 1,124)



Of the 1,266 clients in the KTOS follow-up sample, 258 had no services in the clinical service event data set for the period from date of the baseline survey submission to the date the follow-up survey was completed. The types of services that were most commonly provided to KTOS clients are shown in Figure 6.2. The majority of KTOS clients (66.3%) received individual therapy, and nearly half received

evaluation or diagnostic services. A little more than 1 in 3 received group therapy and less than one fourth received substance abuse residential services. About 1 in 5 received substance abuse case management services. Smaller percentages received psychiatric individual therapy, intensive outpatient services, and mental health-related case management.[60]

FIGURE 6.2. PERCENTAGE OF CLIENTS RECEIVING EACH TYPE OF SERVICE OF THOSE WITH ANY SERVICES INCLUDED IN THE DATA (N = 1,008)[61]

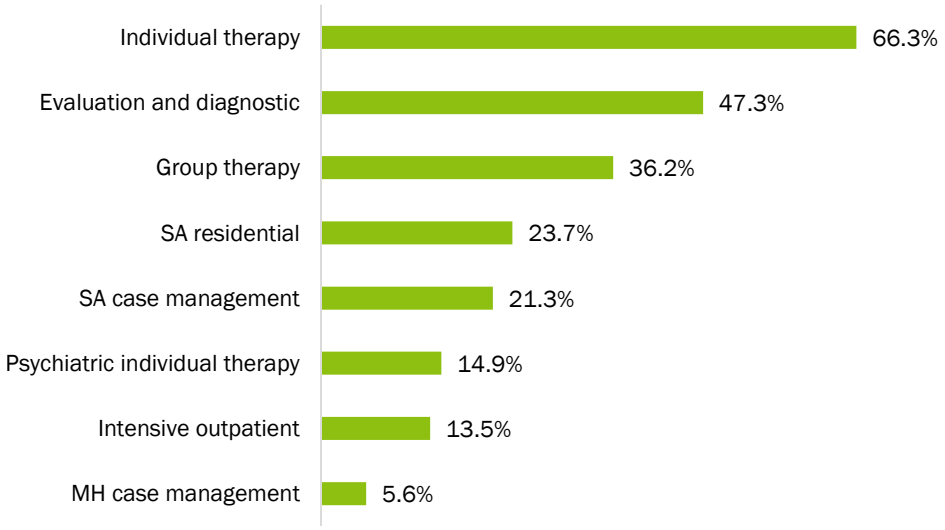
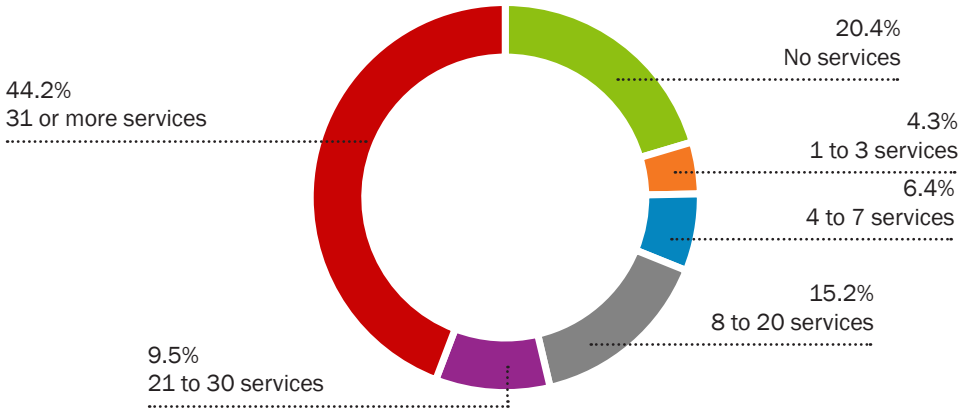


Figure 6.3 shows the range in the number of clinical services KTOS clients received. More than two-fifths (44.2%) received 31 services or more while 20.4% of clients received no services.

FIGURE 6.3. NUMBER OF CLINICAL SERVICES (N = 1,266)



[60] Service categories found for fewer than 5% of the 1,008 clients are not shown in the figure.

[61] A total of 258 cases had no clinical services in the IPOP data for the period examined. Of these 126 cases had no match on diagnostic or clinical services in the data set for the period examined. A total of 33 cases had services in the data file that are not included in the calculation of the total cost of treatment (e.g., DUI assessment, DUI education, outreach and education, other non-DBHDID service, non-medical detoxification, miscellaneous services, miscellaneous purchases, and social club (drop in).

SECTION 7. COST SAVINGS OF SUBSTANCE ABUSE TREATMENT IN KENTUCKY

This section examines cost reductions or avoided costs to society after client participation in publicly funded substance abuse treatment. Using the number of clients who met criteria for drug dependence and alcohol dependence at intake and follow-up in the KTOS sample, a cost per person based on national aggregate data was applied to this study sample. This information is then used to estimate the cost to society for the year prior to when clients entered treatment and then for the same clients during the year after treatment intake.

IMPORTANCE OF COST SAVINGS ANALYSIS

There is great policy interest in examining cost reductions or avoided costs to society after individuals participate in publicly funded substance abuse treatment. 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 thorough assessment requires a great number of econometrics. In order to accommodate these complexities at an aggregate level, data was extrapolated from a large federal study that was published in 1998 to give an estimate of the separate annual costs of alcohol abuse and drug abuse in the United States.[62] In 2000 the estimated costs of alcohol abuse in the United States was updated[63] and in 2011 the National Drug Intelligence Center updated the estimates of drug abuse in the United States for 2007.[64] These updated costs were used in the calculations for the cost savings analysis in this KTOS follow-up report.

COST OF ALCOHOL AND DRUG ABUSE AND DEPENDENCE

The national report and the subsequent revisions of estimates of costs referenced in this report factored in all the many explicit and implicit costs of alcohol and drug abuse to the nation, such as the costs of lost labor due to illness, accidents, the costs of crime to victims, costs of incarceration, hospital and other medical treatment, social services, motor accidents, and other costs. Thus each of these reports analyzes the hidden and obvious costs that are caused by clients with substance abuse. For this analysis, the national costs of alcohol abuse/dependence and the costs of drug abuse/dependence were updated from the original reports to 2012 dollars using Consumer Price Indexes (monthly data on the average change in prices paid over time in the market for goods and services released by the Bureau of Labor Statistics) from a federal reserve bank.[65]

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[62] 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. http://www.nida.nih.gov/EconomicCosts/Index.html

[63] Harwood, H. (2000). Updating estimates of the economic costs of alcohol abuse in the United States: Estimates, update methods, and data. Report prepared by The Lewin Group for the National Institute on Alcohol Abuse and Alcoholism.

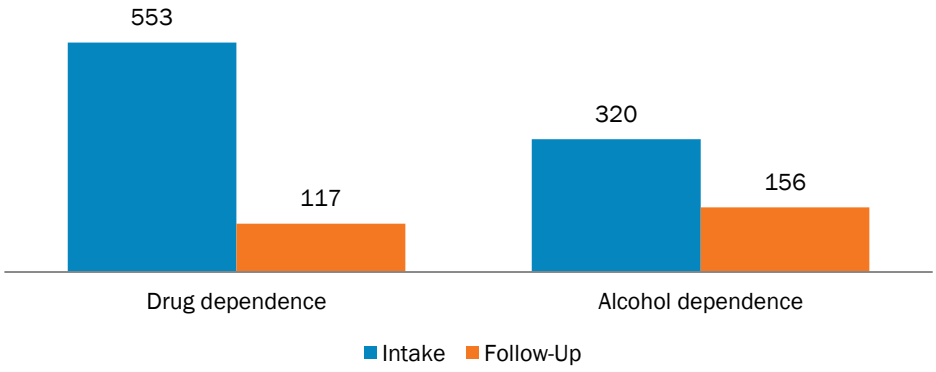
[64] National Drug Intelligence Center. (2011). *The economic impact of illicit drug use on American Society.* Washington, DC: United States Department of Justice.

[65] http://www.minneapolisfed.org

Next, to calculate an estimate of the cost of alcohol and drug abuse per person, those updated national costs were divided by the 2012 federally derived estimates of the number of clients with alcohol abuse/dependence (14.9 million) and drug abuse/dependence (4.5 million) and 2.8 million clients who had abuse/dependence on alcohol and drugs in the nation.[66] Because the national cost estimates of alcohol abuse/dependence were examined separately from drug abuse/dependence, the 2.8 million clients who were alcohol and drug misusers were assigned to either the alcohol abuse/dependent category or the drug abuse/dependent category to estimate the cost of alcohol abuse/dependence and drug abuse/dependence per person.[67] 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 clients were in treatment and then for the same clients during the 12 year period after treatment intake. Analyses hinged on estimating the differences in cost to society between persons who are actively addicted compared to those who are abstinent from drug and/or alcohol use. Thus reductions in the number of clients who met criteria for dependence from the period before treatment to after treatment was examined.

Figure 7.1 shows the change in the number of clients who met criteria for drug dependence or alcohol dependence (based on ASI drug and alcohol composite scores) at intake and follow-up. Clients who met criteria for drug dependence only or drug dependence and alcohol dependence were counted in the drug dependence category because the cost per person of drug abuse was higher than the cost per person of alcohol abuse. Clients who met criteria for alcohol dependence were in the alcohol dependence category. The change from intake to follow-up was significant. At intake 553 clients were classified in the drug dependent category and 320 in the alcohol dependent category. At follow-up, 117 clients were classified in the drug dependent category and 156 clients in the alcohol dependent category.

FIGURE 7.1 THE NUMBER OF CLIENTS WHO MET CRITERIA FOR DRUG DEPENDENCE OR ALCOHOL DEPENDENCE AT INTAKE AND FOLLOW-UP



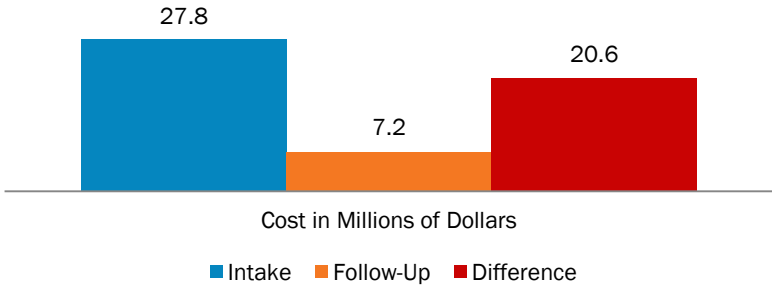
The average annual cost to society of an active drug user in 2012 dollars was $41,524. The average annual cost to society of an active alcohol user was $15,252. Thus, when this average annual cost per individual drug user was applied to the 553 clients who met criteria for drug dependence at intake, the annual cost to society was estimated at $22,962,772. When the average annual cost per individual alcohol user was applied to the 320 clients who met criteria for alcohol dependence at intake, the

[66] SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 and 2011 (2010 Data – Revised March 2012). http://www.samhsa.gov/data/NSDUH/2k11State/NSDUHsaeCountTabs2011.pdf.

[67] To do this the proportion of clients who were not in the alcohol and drug abuse/dependent category who were in the alcohol category (0.77) and the drug category (0.23) was estimated and then that proportion was multiplied by the 2.8 million to assign the cross-addicted clients to one of the categories (drug abuse or alcohol abuse).

estimated cost to society was $4,858,308. The estimated total cost of drug and alcohol dependence applied to the sample of clients in KTOS in the 12 months before intake was $27,843,412. By follow-up, the estimated cost of the 117 clients who met criteria for drug dependence was $4,858,308 and the estimated cost of the 156 clients who met criteria for alcohol dependence was $2,379,312, for a total of $7,237,620. Thus, as shown in Figure 7.2, after participation in publicly-funded substance abuse treatment, the aggregate cost to society for these 1,266 clients was reduced by $20,605,792.

FIGURE 7.2. COST TO SOCIETY AT INTAKE AND FOLLOW-UP (AMOUNTS IN MILLIONS OF DOLLARS) (N=1,266)



COST OF TREATMENT

The clinical service event data described in Section 6 was matched to the KTOS survey data for the KTOS follow-up sample. Unit costs for different types of services was provided by the Department for Behavioral Health, Developmental and Intellectual Disabilities (DBHDID) and applied to the total number of services KTOS clients received wherein the payer was Medicaid or the DBHDID from the date of the baseline survey submission to the follow-up survey completion date. When the clinical service data was matched to clients in the KTOS follow-up sample (n = 1,266), 263 cases had no services listed. The mean cost of behavioral health treatment services per client for the 1,003 clients that had services in the clinical service data set was $3,029. This mean value was applied to the cases that had no service event data. Thus, the cost of providing publicly funded behavioral health treatment services to the 1,266 clients in the KTOS follow-up sample totaled $3,214,620.

COST SAVINGS

The cost savings of providing treatment to the KTOS follow-up sample was estimated using the net difference in costs of alcohol and drug abuse/dependence divided by the cost of providing treatment: $20,605,792/$3,214,620, which equals $6.41 (see Table 7.1). In other words, for every dollar spent on publicly funded substance abuse treatment there is a savings of $6.41 in costs to society associated with alcohol and drug addiction.

TABLE 7.1. COST SAVINGS OF PROVIDING TREATMENT TO SUBSTANCE ABUSING/DEPENDENT CLIENTS

	ALCOHOL AND DRUG DEPENDENCE BASED ON ASI COMPOSITE SCORES	
	INTAKE	FOLLOW-UP
DRUG DEPENDENCE		
Number of clients	553	117
ALCOHOL DEPENDENCE		
Number of clients	320	156
TOTAL COST TO SOCIETY OF DRUG AND ALCOHOL DEPENDENCE	$27,843,412	$7,237,620
COST DIFFERENCE FROM INTAKE TO FOLLOW-UP	$20,605,792	
COST OF TREATMENT	$3,214,620	
SAVINGS/COST RATIO	$20,605,792/$3,214,620	
RETURN ON $1.00 INVESTMENT	$6.41	

SECTION 8. IMPLICATIONS AND CONCLUSIONS

This report describes outcomes for 1,268 clients who participated in publicly-funded substance abuse treatment in FY 2012 and a follow-up telephone interview 12 months after the intake survey was submitted to UK CDAR. Findings from the 2014 Kentucky Treatment Outcome Study (KTOS) evaluation showed positive changes in clients at the 12-month follow-up.

First, clients reported high levels of satisfaction with the substance abuse treatment programs. The majority of clients agreed that the programs helped them get better and feel better about themselves, program staff treated them with respect, and clients understood their treatment plan and what staff expected of them in the program. The majority of clients also gave an overall rating of the program that was highly positive (between 8 and 10, where 1 represents the worst possible experience and 10 represents the best experience).

Second, KTOS clients reported significant reductions in substance use and severity of substance use. At intake, nearly three fourths of clients reported using any illegal drugs in the past 12 months. By follow-up, the number of clients reporting past 12-month drug use decreased by 54% to one third (33.9%). Moreover, of those individuals who reported any past 12-month use of illegal drugs at intake or follow-up, the average number of months they used was lower at follow-up than at intake. Specifically, the number of individuals who reported using each of the drug classes we examined decreased significantly: marijuana (55% decrease), opioids (62% decrease), heroin (40% decrease) CNS depressants (68% decrease), stimulants (78% decrease), and other illegal drugs (69% decrease). The number of individuals who reported using alcohol, using alcohol to intoxication, or binge drinking also decreased significantly. Not only were significant decreases in substance use found, but also self-reported severity of substance use also significantly decreased.

Clients' mental health also showed significant improvements. Specifically, significant reductions in depression symptoms and suicidality were found at follow-up. Moreover, individuals reported significantly fewer days in the past 30 days their mental health was not good at follow-up compared to intake. Between the intake and follow-up a significant number of individuals had completed a high school diploma or GED. The number of individuals who were employed full-time increased from 1 in 5 to 1 in 3. Further, there were significant reductions in arrests and incarceration for individuals at follow-up.

Reductions in criminal justice system involvement, and significant increases in education and employment over the 12-month period between intake and follow-up were also found. Individuals also reported significant increases in recovery supports from intake to follow-up, which is critical in maintaining substance abuse recovery. Cost analysis suggests that for every dollar spent on publicly funded substance abuse treatment services there was an estimated $6.41 in costs to society that would have been expected had the drug and alcohol dependence rates for these clients not been reduced. The following discusses potential implications to be considered based on these findings including co-occurring and gender differences.

> *"It was a life saving event, taught me more about who I really was and what I was trying to hide from. It taught me to face them head on."*
>
> *- KTOS Client quote*

Co-occurring Problems. Several findings suggest opportunities to target co-occurring problem areas including tobacco smoking, mental health symptoms, and economic difficulties reported by participants.

Smoking. Smoking rates are very high for these clients with 84.5% reporting smoking at follow-up. There is a commonly held belief that individuals should not attempt to quit smoking while in substance abuse treatment, because smoking cessation can endanger their sobriety. This belief has been debunked by recent empirical research studies.[68] Voluntary smoking cessation during substance abuse treatment has been associated with lower relapse. Tobacco use is associated with increased mental health symptoms in addition to well-known physical health problems, including increased mortality, and because smoking cessation has been associated with lower alcohol and drug relapse, smoking cessation interventions should be promoted (but not required) in substance abuse treatment programs.[69]

Mental Health. Anxiety rates were stable from intake to follow-up, with almost half of clients meeting self-reported anxiety criteria at follow-up. Addressing co-occurring disorders is an essential element of treatment provision and according to SAMHSA (2012) only about 7.4% of individuals in the U.S. receive needed co-occurring treatment services. Inclusion of and integrated screening and brief intervention for co-occurring issues may be helpful in CMHC protocols.[70]

Basic Needs for Recovery Success. Half of clients reporting difficulty in meeting basic living needs such as paying for rent/mortgage, utilities, phone, or food at intake and at follow-up. Further, the proportion of clients who had difficulty meeting health care needs such as seeing a doctor when needed or obtaining a needed medical prescription increased slightly, but not significantly, from 51.7% at intake to 57.8% at follow-up. Meeting basic needs including health, stable living arrangements, having a purpose with daily meaningful activities, and recovery community are the four key dimensions to recovery.[71] Providing referrals and support for these dimensions may help improve basic living situations for many clients and support continued recovery living for long-term positive results from treatment.

Gender Differences. More men than women reported alcohol use, using alcohol to intoxication, and binge drinking in the 12 months and 30 days before intake and follow-up. More women reported using illegal drugs at intake. The decrease in the number of women who used illegal drugs was greater than the decrease for men, such that by follow-up, significantly more men reported using illegal drugs compared to women. This pattern was found for both the 12-month and 30-day measures in illegal drug use.

More women than men reported mental health symptoms including depression and anxiety. Further, women reported their mental health was not good more days than men at intake and follow-up and women also indicated their physical or mental health had kept them from doing their usual activities at intake. Men and women have been shown to use different coping styles and thus may benefit from separate groups to plan recovery support.

Women also reported more economic difficulties at both intake and follow-up compared to men.

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

[69] 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.

[70] http://www.samhsa.gov/co-occurring/topics/screening-and-assessment/index.aspx

[71] http://blog.samhsa.gov/2012/03/23/defintion-of-recovery-updated/

Specifically, the number of women who reported unemployment was significantly higher than the number of men who reported unemployment at intake and follow-up. More than twice as many men reported full-time employment at intake compared to women. Even among those employed, men had significantly higher hourly wages than women at both intake and follow-up. At intake, women made only $0.75 for every dollar men made and by follow-up the gap in hourly wages was even greater with women making only $0.66 for every dollar men made. The majority of employed women reported working in the service industry whereas the majority of employed men reported working in natural resource, construction, and maintenance jobs, which are typically higher wage jobs. Moreover, women reported significantly lower levels of education at intake and follow-up than men. Also, more women than men reported difficulty in accessing basic needs and more difficulty in meeting health care needs at intake and follow up. Even though overall women made significant gains in their education and employment by follow-up, they still lagged behind men in their economic standing.

STUDY LIMITATIONS

The study findings must be considered within the context of the study's limitations. First, because there is no appropriate group of substance using individuals who would like treatment but do not receive it to compare with the KTOS individuals who participate in treatment, one can attribute all changes from intake to follow-up to substance abuse treatment. Second, because not all clients agree to participate in the 12 month follow-up survey, it is unclear how generalizable the findings are to the entire client population that completes an intake survey. Nonetheless, analysis comparing those individuals who completed a follow-up survey with those who did not complete a follow-up survey (for any reason, for example, they did not agree to be in the follow-up study, they were not randomly selected into the follow-up sample, or they were not successfully contacted for the follow-up survey) found few significant differences between the two groups, suggesting that the findings may generalize fairly well to the entire client population.

Third, data included in this report, with the exception of clinical diagnostic and service event data, were self-reported by clients. There is reason to question the validity and reliability of self-reported data, particularly with regard to sensitive topics, such as illegal behavior and stigmatizing issues such as mental health and substance use. However, recent research has supported findings about the reliability and accuracy of individuals' reports of their substance use (Del Boca & Noll, 2000; Harrison, Marin, Enev, & Harrington, 2007; Rutherford, Cacciola, Alterman, McKay, & Cook, 2000; Shannon, Mathias, Marsh, Dougherty, & Liguori, 2007). Earlier studies found that the context of the interview influences reliability (Babor, Stephens, & Marlatt, 1987). During the informed consent process for the KTOS follow-up study, interviewers tell participants that the research team operates independently from the Community Mental Health Centers, responses will be reported in group format and will not be identifiable at the individual level, and that the research team has a Federal Certificate of Confidentiality. These assurances of confidentiality and lack of affiliation with the data collectors may minimize individuals' concern about reporting stigmatizing or illegal behavior or conditions.

> ***"Treatment as a whole had its ups and downs, but I've been clean for a year. I don't know how to express my gratititude."***
>
> *- KTOS Client quote*

Collecting all of the secondary data that would be required to estimate the costs and cost savings for the individuals who participated in the KTOS follow-up study is labor intensive, expensive, and beyond the scope of the treatment outcome study; thus funding constraints prevented estimating actual costs of alcohol and drug abuse for the clients. Thus,

the cost-offset analysis included in this report is based on using national estimates of the annual cost of alcohol and drug abuse and the annual NSDUH estimate of the number of individuals with alcohol dependence and drug dependence in the U.S. to estimate a cost per dependent person. This cost per person was then applied to the KTOS clients based on their self-reported alcohol and drug use at intake and follow-up. As with any cost-offset analysis, there are several assumptions underlying the logic of this approach—any of which could prove to be faulty. Thus, we have clearly laid out the assumptions in Section 7 to help interpret the findings. Further, because the measure of alcohol or drug dependence used in KTOS was based on a 30-day measure, it is likely an underestimate of the number of individuals with severe substance use disorders.

CONCLUSION

This KTOS 2014 report provides a valuable look at the client outcomes of publicly funded substance abuse treatment in Kentucky. Overall, clients of publicly-funded substance abuse treatment, including a variety of treatment modalities, made significant strides in all of the targeted outcomes. Specifically, there were significant decreases in use of alcohol and all drugs (except tobacco), a significant increase in full-time employment, decrease in depression and suicidality, decrease in arrests and incarceration, and increased recovery supports. Moreover, an estimate of the cost to society for alcohol and drug dependence in the year before treatment compared to the cost to society for alcohol and drug dependence in the year after treatment intake, while taking into account the cost of publicly-funded treatment, showed a significant cost savings.

APPENDIX A. METHODS

The KTOS evaluation uses a pre- and post-intervention research design, meaning that client data is collected at treatment intake and compared to data collected 12 months later at follow-up. All publicly funded substance abuse treatment programs in Kentucky are required to collect intake data on individuals entering treatment. Intake data are collected by clinicians on-site via a structured web-based survey. At the end of the intake survey, clinicians explain the follow-up study to clients and give them the opportunity to volunteer to participate in the follow-up study. To participate in the follow-up study, clients must first volunteer and give informed consent. During the consent process clients are informed that the research staff at the University of Kentucky have obtained a Certificate of Confidentiality from the U.S. Department of Health and Human Services to protect the research team from being forced to release client-identifying data to law enforcement or other government agencies. Identifying data are encrypted as the data are submitted on the web-based survey. Electronic data are stored on password protected computers and servers in secure facilities. Clients who agree to participate in the follow-up study give their consent using an electronic consent form on the web survey, which is approved by the University of Kentucky Medical Institutional Review Board (IRB).

Of the 5,012 clients who completed an intake survey, 3,076 (61.4%) agreed to be contacted for the follow-up study. From this group of clients who voluntarily agreed to be contacted for the follow-up study, the research team pulled the follow-up sample by first identifying clients who had provided the minimum amount of contact information (e.g., two phone numbers or one phone number and one address), and then randomly selected over half of the clients by intake month (n = 2,039).

Follow-up surveys were conducted by interviewers on the research team at the University of Kentucky Center on Drug and Alcohol Research via telephone 12 months after the intake survey was submitted. Of the 2,039 clients included in the follow-up sample, 363 were ineligible for participating in the follow-up survey for a variety of reasons (e.g., incarcerated, in residential treatment, deceased), which left 1,676 clients eligible for follow-up. Of these clients, 1,268 completed a follow-up survey (see Table AA.1). Thus, the follow-up rate was 75.7%. The remaining clients either (1) refused (0.7%) to complete the follow-up survey, or (2) were never successfully contacted, or if contacted they never completed the follow-up survey (23.6%).

TABLE AA.1. FINAL CASE OUTCOMES FOR FOLLOW-UP EFFORTS (N = 2,039)

	Number of Records	Percent (n = 2,039)
Ineligible for follow-up survey	363	17.8%
	Number of cases eligible for follow-up (n = 1,676)	
Completed follow-up surveys	1,268	
Follow-up rate is calculated by dividing the number of completed surveys by the number of eligible cases and multiplying by 100		75.7%
Expired cases (i.e., never contacted, did not complete the survey during the follow-up period)	396	
Expired rate ((the number of expired cases/eligible cases)*100)		23.6%
Refusal	12	
Refusal rate (the number of refusal cases/eligible cases)*100)		0.7%
Cases accounted for (i.e., records ineligible for follow-up + completed surveys + refusals)	1,643	
Percent of cases accounted for ((# of cases accounted for/total number of records in the follow-up sample)*100		80.6%

Clients 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 363 cases that were ineligible for follow-up, the majority (81.3%) were ineligible because they were incarcerated during the follow-up period. Forty-nine clients were ineligible because they were in residential treatment at the time of follow-up. Other reasons a small number of clients were ineligible for follow-up were because they were deceased, had a health condition that kept them from completing a survey, had been included recently in the prior year's follow-up study, or were living overseas.

TABLE AA.2. REASONS CLIENTS WERE INELIGIBLE FOR FOLLOW-UP (N = 363)

	Number	Percent
Incarcerated	295	81.3%
In residential treatment	49	13.5%
Deceased	10	2.8%
Health condition	5	1.4%
Recently in prior follow-up sample	2	0.5%
Living overseas	2	0.5%

Appendix B presents analysis on comparisons between clients who completed a follow-up interview and clients who did not complete a follow-up interview for any reason on key variables included in the intake survey.

APPENDIX B. CLIENT CHARACTERISTICS AT INTAKE FOR THOSE WHO COMPLETED FOLLOW-UP INTERVIEWS AND THOSE WHO DID NOT COMPLETE A FOLLOW-UP INTERVIEW

Clients who completed a follow-up interview are compared in this section with clients who did not complete a follow-up interview for any reason[72] (e.g., did not agree to be contacted for the follow-up survey, not selected into the follow-up sample, ineligible for follow-up, unable to be located for the follow-up).

DEMOGRAPHICS

The majority of the sample for this annual report was White and male (see Table AB.1).[73] Significantly more clients who completed a follow-up survey were female compared to clients who did not complete a follow-up survey. There were no significant differences on other demographics between clients who completed a follow-up survey and those who did not. The average client age for both groups was in the early 30s with no difference by follow-up status. More clients reported their marital status as never married than any other category in both groups. The percentages of clients who reported being married or cohabiting, or separated or divorced were similar (ranging from 27.7% to 32.3%).

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

	FOLLOWED UP	
	NO n = 3,744	YES n = 1,268
AGE	33.2 years	32.8 years
GENDER**		
Female	39.6%	47.1%
RACE		
White	91.2%	92.5%
African American	6.6%	5.7%
Other or Multiracial	2.2%	1.8%
MARITAL STATUS		
Never married	35.5%	39.3%
Married or cohabiting	29.9%	31.5%
Separated or divorced	32.3%	27.7%
Widowed	2.2%	1.6%

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

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

[73] 1 case had missing data on race.

SOCIOECONOMIC INDICATORS

A little more than half of clients reported that their usual living arrangement in the 12 months before entering substance abuse treatment was living in their own home or apartment (see Table AB.2). More than one-third were living in someone else's home or apartment. Over 5% reported that a controlled environment, such as jail, prison, or a hospital was their usual living environment. Small numbers of clients reported their usual living situation was in a residential treatment, sober living home, or in a shelter or on the streets. At the time clients entered treatment, over 11% considered themselves to be homeless, with most saying they considered themselves to be homeless because they were staying temporarily with friends or family or they didn't have a home to go to after leaving treatment (see Table AB.2). There were no significant differences in living situation at baseline between clients who completed a follow-up interview and clients who did not.

TABLE AB.2 LIVING SITUATION OF CLIENTS BEFORE ENTERING TREATMENT

	FOLLOWED UP	
	NO n = 3,744	YES n = 1,268
USUAL LIVING ARRANGEMENT IN THE 12 MONTHS BEFORE ENTERING THE PROGRAM		
Own home or apartment	53.6%	52.4%
Someone else's home or apartment	37.7%	39.7%
Residential treatment	1.5%	1.2%
In a controlled environment (jail, prison, hospital)	5.4%	5.3%
Sober living home	0.6%	0.6%
Shelter or on the street	1.1%	0.9%
CONSIDERS SELF TO BE CURRENTLY HOMELESS	11.2%	11.7%
Why the individual considers himself/herself to be homeless	(n = 418)	(n = 148)
Staying in a shelter	13.2%	10.8%
Staying temporarily with friends or family	49.3%	58.1%
Have no home to go to after leaving treatment	34.0%	27.0%
Staying in hotel/motel	1.4%	0.7%
Staying on the street or in the car	1.0%	1.4%
Other reason	1.2%	2.0%

Measures of economic hardship may be better indicators of the actual day-to-day stressors clients face than a measure of income. Therefore, the baseline survey included several questions about clients' ability to meet expenses for basic needs and food insecurity (SIPP; She and Livermore, 2007). Clients were asked eight items, five of which asked about inability to meet basic needs such as food, shelter, utilities, and telephone, and three items asked about inability to receive medical care for financial reasons.

Table AB.3 presents the percentage of clients who reported inability to meet any of the basic needs, any of the basic living needs (e.g., food, shelter, utilities, telephone), and any of the health care needs, along with the percentages that reported each item. Well over half of clients reported they were unable to meet at least one of the basic needs for financial reasons. Significantly more clients who were followed up reported that in the 12 months before they entered treatment their household had difficulty meeting the basic needs of food, shelter, utilities, or telephone because of financial reasons.

In addition, significantly more clients in the follow-up sample reported they were unable to receive needed health care for financial reasons (51.7% compared to 44.7%). Specifically, significantly more clients in the follow-up sample reported they were unable to see a dentist because of financial reasons (42.4%) compared to clients who were not followed-up (36.5%).

TABLE AB.3. INABILITY TO MEET BASIC NEEDS IN THE 12 MONTHS BEFORE ENTERING TREATMENT

	FOLLOWED UP	
	NO n = 3,744	YES n = 1,268
HAD INABILITY TO MEET ANY OF THE BASIC NEEDS LISTED BELOW**	59.4%	67.4%
Was unable to meet basic living needs (e.g. shelter, utilities, phone, food)*	46.8%	50.9%
Had difficulty paying the full amount of rent or mortgage	31.7%	34.2%
Evicted from home/apartment for not paying the rent or mortgage	9.2%	9.7%
Unable to pay the gas or electric bill	26.4%	27.9%
Had telephone service disconnected because of non-payment	21.1%	23.9%
There was a time when there was not enough food in the household*	17.6%	20.8%
Was unable to receive needed health care for financial reasons**	44.7%	51.7%
Needed to see a doctor or go to the hospital but wasn't able to because of financial reasons	29.9%	32.0%
Needed to see a dentist but wasn't able to because of financial reasons**	36.5%	42.4%
Needed to fill a prescription but wasn't able to because of financial reasons	28.5%	31.2%

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

Clients were asked to place themselves on a ladder, representing their perception of their standing in society, Adler's Ladder (Adler e al., 2000). The bottom rung, 1, represents "people who are the worst off, those who have the least money, least education, and worst jobs or no jobs" and the top rung, 10, represents "people who are the best off, those who have the most money, most education, and best jobs." The majority of KTOS clients (54.2%) rated themselves as being on the 5th, 6th, or 7th rung on the ladder (see Figure AB.1). Clients who were followed up did not have a significantly different rating than clients who were not followed up (4.7 vs. 4.9).

FIGURE AB.1 SUBJECTIVE SOCIAL STANDING OF THE FOLLOW-UP SAMPLE BEFORE ENTERING TREATMENT

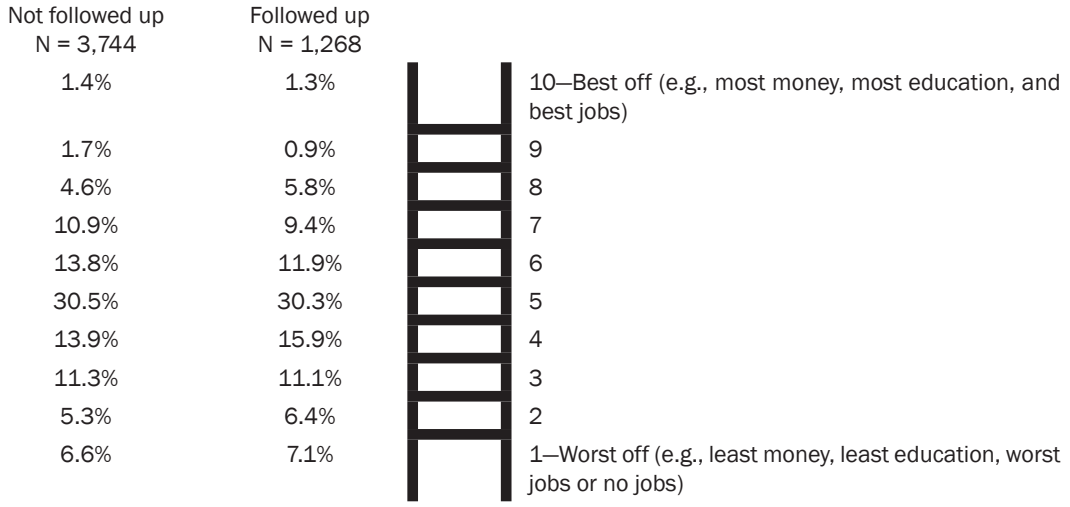

Table AB.4 describes clients' level of education when entering treatment. Over one-quarter of clients had less than a high school diploma or GED. There was no difference in highest level of education completed by follow-up status.

TABLE AB.4. CLIENTS' HIGHEST LEVEL OF EDUCATION COMPLETED AT BASELINE

	FOLLOWED UP	
	NO n = 3,744	YES n = 1,268
HIGHEST LEVEL OF EDUCATION COMPLETED		
Less than GED or high school diploma	26.8%	24.7%
GED or high school diploma or more	73.2%	75.3%

There were no differences in number of months clients were employed in the 12 months before entering treatment by follow-up status. Two in five clients who did not complete a follow-up interview and 37.6% of clients who completed a follow-up interview reported working 0 months in the 12 months before entering treatment. About 1 in 5 clients reported working 1 to 5 months and over one third reported working 6 months or more (see Table AB.5). Of the clients who reported working at least part-time in the 12 months before entering treatment, the average number of months worked was 7.3 for clients not followed up and 7.2 for clients followed up, with no difference by group.

TABLE AB.5. EMPLOYMENT IN THE 12 MONTHS BEFORE ENTERING TREATMENT

	FOLLOWED UP	
	NO n = 3,744	YES n = 1,268
EMPLOYMENT		
Percentage of clients who reported working for:		
0 months	42.3%	37.6%
1 to 5 months	20.5%	22.9%
6 months or more	37.2%	39.4%
Among those who were employed:	n = 2161	n = 791
Average # of months employed in the past 12 months	7.3 months	7.2 months

CRIMINAL JUSTICE SYSTEM INVOLVEMENT AT INTAKE

A sizable minority of clients was under supervision by the criminal justice system when they entered treatment (e.g., probation, parole, drug court), with no significant difference by follow-up status (see Table AB.6).

The majority of clients reported they had been arrested in the 12 months before entering treatment (see Table AB.6). Of the clients who reported being arrested, followed-up clients reported an average of 1.8 arrests and clients who were not followed up reported an average of 1.7 arrests in the 12 months before entering treatment, with no significant difference by follow-up status.

TABLE AB.6. CRIMINAL JUSTICE SYSTEM INVOLVEMENT WHEN ENTERING TREATMENT

	FOLLOWED UP	
	NO n = 3,744	YES n = 1,268
Currently under supervision by the criminal justice system	40.4%	40.0%
Arrested for any charge in the 12 months before entering treatment	59.1%	55.2%
Of those with an arrest	n = 2213	n = 700
Mean number of arrests	1.7 arrests	1.8 arrests

Table AB.7 displays the percentage of clients arrested and charged with different types of criminal charges among those who reported being arrested in the 12 months before entering treatment. Arrests for DUI were the most commonly reported criminal offense, followed by drug charges (e.g., trafficking, possession). Property crime arrests were reported by a little less than one-fifth of clients in both groups. Less than 1 in 10 clients reported an arrest for a crime against a person. The criminal offense category reported by the smallest number of clients in both groups was domestic violence-related offense (i.e., a crime against a person wherein the victim was a family member or intimate partner). Other criminal offenses were reported by 26.7% of clients who were not followed up and 25.1% of clients who were followed up.

TABLE AB.7. AMONG THOSE WHO REPORTED BEING ARRESTED IN THE 12 MONTHS BEFORE TREATMENT, PERCENTAGE OF CLIENTS ARRESTED AND CHARGED WITH TYPES OF CRIMINAL OFFENSES

TYPES OF CRIMINAL CHARGES	FOLLOWED UP	
	NO n = 2,213	YES n = 700
DUI	38.0%	39.4%
Drug charge	31.0%	29.4%
Property crime	17.8%	18.7%
Probation or parole violation	14.9%	18.0%
Crimes against a person	9.0%	8.3%
Domestic violence offense (i.e., crime against family member of intimate partner)	4.8%	6.0%
Other crimes (e.g. contempt, criminal mischief, disorderly conduct, endangering minor, failure to pay child support, failure to comply with court order, moving violations, public intoxication, trespassing, resisting arrest)	26.7%	25.1%

About three-fifths of clients reported being incarcerated for at least one day in the past 12 months before entering treatment (See Table AB.8). Among the clients who were incarcerated at least one night, the average incarceration time in the 12 months before entering treatment was 57.4 days for clients who were not followed up and 60.4 days for clients who were followed up.

TABLE AB.8. INCARCERATION HISTORY IN THE 12 MONTHS BEFORE ENTERING TREATMENT

	FOLLOWED UP	
	NO n = 3,744	YES n = 1,268
Incarcerated at least one day	60.8%	57.9%
Of those incarcerated	(n = 2,276)	(n = 734)
Mean number of days incarcerated in the past 12 months	57.4	60.4

PHYSICAL HEALTH AT INTAKE

To give an idea of the physical health of clients when they entered treatment, Table AB.9 presents the percentage of the follow-up sample that reported health problems at intake. About 3 in 10 clients were experiencing chronic pain (pain that lasted more than 3 months) at intake. A sizable minority of clients had ever experienced a head injury that resulted in loss of consciousness or hospitalization in their lifetime. Finally, clients were asked at intake if a doctor had ever told them they had any of the 12 chronic medical problems listed (e.g., asthma, arthritis, cardiovascular disease, diabetes, chronic obstructive pulmonary disease (COPD), tuberculosis, severe dental disease, cancer, Hepatitis B, Hepatitis C, HIV, and other sexually transmitted diseases). Significantly more clients who were followed up reported they had been told by a doctor that they had at least one of the chronic medical problems compared to clients who were not followed up (38.1% vs. 33.4%). The most commonly reported chronic medical problems are presented in Table AB.9: arthritis, asthma, severe dental disease, and Hepatitis C. Compared to clients who were not followed up, significantly more clients who were followed up reported they had been diagnosed with diabetes .

TABLE AB.9. PHYSICAL HEALTH STATUS AT BASELINE

	FOLLOWED UP	
	NO n = 3,744	YES n = 1,268
Chronic pain (lasting at least 3 months)	28.5%	31.9%
Ever had a head injury that resulted in being knocked out or hospitalized for at least one night	34.4%	37.4%
Ever told by a doctor that client had one of the 12 chronic medical problems listed*	33.4%	38.1%[a]
Arthritis	10.9%	13.0%
Asthma	8.7%	9.6%
Severe dental disease	8.2%	9.7%
Hepatitis C	5.6%	6.1%
Diabetes*	3.4%	5.2%

a- 4 clients in the followed up group had missing information on types of medical problems.
*p < .01, **p < .001.

MENTAL HEALTH AT INTAKE

The mental health questions included in the KTOS intake and follow-up surveys are not clinical measures, but instead are research measures. A total of 9 questions were asked to determine if clients met DSM-IV self-reported criteria for depression, including at least one of the two leading 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?" Significantly more clients who completed a follow-up interview than clients who did not complete a follow-up interview reported symptoms that met criteria for depression: 50.1% vs. 44.0% (see Table AB.10).

A total of 7 questions were asked to determine if clients met criteria for Generalized Anxiety Disorder, including the leading question: "In the 12 months before you entered this program, did you have a period lasting 3 months or longer where you worried excessively or were anxious about multiple things on more days than not (like family, health, finances, school, or work difficulties?)" Significantly more clients who completed a follow-up interview than clients who did not complete a follow-up interview reported symptoms that met criteria for Generalized Anxiety Disorder (GAD): 45.3% vs. 40.9%.

Two questions were included in the baseline survey that asked about thoughts of suicide and attempted suicide in the 12 months before clients entered treatment. A minority of clients reported suicidal ideation or attempts, with no difference by follow-up status (see Table AB.10).

TABLE AB.10. PERCENTAGE OF CLIENTS REPORTING MENTAL HEALTH PROBLEMS IN THE 12 MONTHS BEFORE ENTERING TREATMENT

	FOLLOWED UP	
	NO n = 3,744	YES n = 1,268
Depression**	44.0%	50.1%
Generalized Anxiety Disorder*	40.9%	45.3%
Suicidality (e.g., thoughts of suicide or suicide attempts)	15.5%	16.6%

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

SUBSTANCE USE AT INTAKE

Use of illegal drugs in the 12 months before entering treatment is presented by follow-up status in Table AB.11. There were no significant differences by follow-up status in the percentage of clients who reported using any illegal drug or specific types of illegal drugs. The most frequently reported illegal drugs used in the 12 months before entering treatment were marijuana, prescription opioids/opiates, and tranquilizers (including sedatives, benzodiazepines, hypnotics). About 1 in 5 clients reported using cocaine. A relatively small number of clients in both groups reported using amphetamines, non-prescribed buprenorphine, and non-prescribed methadone. Less than 10% of clients reported heroin use in the 12 months before entering treatment and even smaller percentages of clients used barbiturates, hallucinogens, and inhalants.

TABLE AB.11. PERCENTAGE OF CLIENTS REPORTING ILLEGAL DRUG USE IN THE 12 MONTHS BEFORE ENTERING TREATMENT

	FOLLOWED UP	
	NO n = 3,744	YES n = 1,268
Any illegal drug	70.7%	73.1%
Marijuana	46.4%	48.7%
Prescription opioid/opiate (illegal use)	47.3%	45.5%
Tranquilizers, sedatives, benzodiazepines	30.9%	31.3%
Cocaine	19.0%	21.1%
Amphetamines	17.0%	19.8%
Non-prescribed buprenorphine (Suboxone, Subutex)	17.9%	18.8%
Non-prescribed methadone	11.4%	11.8%
Heroin	8.5%	9.8%
Barbiturates	3.7%	3.5%

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

The majority of clients reported alcohol use in the 12 months before entering treatment. About half of clients in both groups reported alcohol use to intoxication in the same period. Smaller percentages of clients reported binge drinking in the 12 months before entering treatment. There were no differences in alcohol use in the 12 months before entering treatment by follow-up status (see Table AB.12).

TABLE AB.12. PERCENTAGE OF CLIENTS REPORTING ALCOHOL USE IN THE 12 MONTHS BEFORE ENTERING TREATMENT

	FOLLOWED UP	
	NO n = 3,744	YES n = 1,268
Alcohol	60.5%	61.8%
Alcohol to intoxication	47.6%	50.2%
Binge drank alcohol (i.e., drank 5 or more (4 for women) drinks in 2 hours)	38.2%	40.6%

In the 12 months before entering substance abuse treatment, the vast majority of the clients reported use of tobacco products, including smoked and smokeless tobacco, with no difference between those who completed a follow-up interview and those who did not (see Table AB.13).

TABLE AB.13. PERCENTAGE OF CLIENTS REPORTING TOBACCO USE IN THE 12 MONTHS BEFORE ENTERING TREATMENT

	FOLLOWED UP	
	NO n = 3,744	YES n = 1,268
Tobacco (smoke and smokeless)	86.9%	88.0%
Smoked tobacco	83.8%	85.3%

Self-reported severity of alcohol and drug use was measured with Addiction Severity Index (ASI) alcohol and drug composite scores. Alcohol and drug composite scores are presented in Table AB.14 separately for those clients who were not in a controlled environment all 30 days before entering

treatment and clients who were in a controlled environment all 30 days. The highest composite score is 1.0 for each of the two substance categories.

The majority of clients who were not in a controlled environment all 30 days met or surpassed the Addiction Severity Index (ASI) composite score cutoff for alcohol and/or drug severe SUD, with no difference by follow-up status (67.2% for not followed up and 68.2% for followed up; see Table AB.14). Among clients who were not in a controlled environment all 30 days before entering the program, the average score on the alcohol composite score was .24 for clients who did not complete a follow-up interview and .25 for followed up clients. 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 .18 for clients regardless of follow-up status (see Table AB.14). These average cutoff scores include clients with scores of 0 on the composites.

Of the clients who were in a controlled environment all 30 days before entering treatment, the majority met or surpassed the cutoff score for severe alcohol and drug use disorder, with no significant difference by follow-up status (see Table AB.14). Among clients who were in a controlled environment all 30 days before entering the program, the average for the alcohol composite score were .20 for all clients, regardless of follow-up status. Of clients who were in a controlled environment all 30 days, there was also no difference by follow-up status in average drug composite scores.

TABLE AB.14. SUBSTANCE ABUSE AND DEPENDENCE PROBLEMS AT BASELINE

Recent substance use problems among clients who were....	Not in a controlled environment all 30 days before entering treatment		In a controlled environment all 30 days before entering treatment	
	FOLLOWED UP		FOLLOWED UP	
	NO (n = 3386)	YES (n = 1143)	NO (n = 358)	YES (n = 125)
Percentage of clients with ASI composite score equal to or greater than cutoff score for ...				
Severe alcohol or drug use disorder	67.2%	68.2%	68.4%	76.0%
Severe alcohol use disorder	42.2%	43.0%	42.7%	45.6%
Severe drug use disorder	42.6%	43.5%	43.6%	46.4%
Average composite score for alcohol use[a]	.24	.25	.20	.20
Average composite score for drug use[b]	.18	.18	.17	.17

[a] Score equal to or greater than .17 is indicative of severe alcohol use disorder.
[b] Score equal to or greater than .16 is indicative of severe drug use disorder.
*p < .01, **p < .001.

More than half of clients reported ever having been in substance abuse treatment in their lifetime, with no significant difference by follow-up status (see Table AB.15). Among clients who reported a history of substance abuse treatment, the mean number of lifetime treatment episodes was the same (2.6) for the two groups.

TABLE AB.15. HISTORY OF SUBSTANCE ABUSE TREATMENT IN LIFETIME

	FOLLOWED UP	
	NO n = 3,744	YES n = 1,268
Ever been in substance abuse treatment in lifetime	54.6%	56.1%
Among those who had ever been in substance abuse treatment in lifetime,	(n = 2,045)	(n = 711)
Mean number of times in treatment	2.6	2.6

Thus, there were very few significant differences between clients who were followed up and those who were not.