

Findings from the  
**Kentucky Treatment  
Outcome Study**  
2013 Report



## EXECUTIVE SUMMARY

The 2013 Kentucky Treatment Outcome Study (KTOS) report presents findings on outcomes for 1,277 men and women who participated in publicly funded substance abuse treatment from July 2010 through June 2011 and then completed a follow-up interview about 12 months later. 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.

Of the 1,277 clients who completed follow-up interviews, 51.6% were men and 48.3% were women. Most clients were White (90.0%) and were an average age of 33 years old at the time of treatment intake. The majority of clients were not married at intake: 37.5% were never married and 31.3% were separated or divorced. Most clients (52.2%) said they were referred to treatment by the criminal justice system (e.g., judge, probation officer).

**PROGRAM SATISFACTION.** The vast majority of clients reported satisfaction with the treatment programs.

- On a scale of 1 to 10, with 1 being the worst possible experience and 10 being the best possible experience, the mean rating was 7.8 indicating that most clients had a largely positive treatment experience.
- When clients were asked about specific aspects of the program, over 90% of clients reported that they received the services they needed to get better, understood what was expected of them, understood their treatment plan, and were treated with respect.

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Clients rated their satisfaction with the substance abuse treatment program, on average, as 7.8 with 10 being the highest.

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- Clients significantly increased their perception of social standing from intake to follow-up.

**TARGETED FACTORS.** At follow-up, there were significant reductions in substance use and involvement in the criminal justice system, significant increases in education and employment, and living situation remained stable. However, difficulty in meeting basic living needs and anxiety symptoms increased at follow-up.

### *Substance use*

- At intake, three-fourths of KTOS clients reported using any type of illegal drug in the 12 months before entering substance abuse treatment. At follow-up, 37.5% of clients reported any illegal drug use in the 12 months before follow-up. This was a 50.1% decrease in the number of clients reporting any use of any illegal drugs.

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Overall illegal drug use decreased 50% from intake to follow-up.

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- Almost half of clients reported using opioids such as prescription opiates, methadone, and buprenorphine in the 12 months before treatment intake. At follow-up, 21.4% reported opioid use which is a 55.6% decrease in the percentage of clients reporting opioid use.
- About one third of clients (34.7%) reported using CNS depressants, including tranquilizers, benzodiazepines, sedatives, and barbiturates in the 12 months before entering treatment, which decreased to 14.9% at follow-up.
- Fewer than 1 in 5 clients (18.1%) reported using stimulants, including methamphetamine, Ecstasy, MDMA, Adderall, and Ritalin in the 12 months before entering treatment, which

decreased to 5.6% at follow-up.

- Clients reporting other illegal drug use such as marijuana, cocaine, heroin, hallucinogens, and inhalants decreased from 57.4% at intake to 26.8% at follow-up.
- Alcohol use was reported by 62.6% of clients at intake and by 46.6% of clients at follow-up; a significant decrease of 25.5%.
- Alcohol intoxication decreased by 39.8% (from 49.8% at intake to 29.9% at follow-up) and binge drinking decreased by 35.4% (from 39.1% at intake to 25.3% at follow-up).

#### *Involvement with the criminal justice system*

- Over half of clients (59.4%) reported an arrest in the 12 months before entering treatment and at follow-up, this percentage had decreased significantly by 47.9% to 31.0%.
- About 61% of clients reported spending at least one day in jail or prison in the 12 months prior to entering treatment and at follow-up, 34.2% of clients reported spending at least one day incarcerated in the past 12 months; a significant decrease of 44.0%.

#### *Education and employment*

- At intake, 70.5% of the follow-up sample had attended school beyond a high school diploma or GED and at follow-up the percentage had increased significantly to 76.9%.

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### The number of clients employed full-time increased by 67%.

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- The number of clients who were employed full-time increased significantly from intake to follow-up (18.1% vs. 30.2%) by 67.4%. The number of clients who reported they had part-time employment increased by 67.9% (from 8.6% at intake to 14.4% at follow-up).
- Clients also reported working significantly

more months in the past 12 months at follow-up (5.2) compared to intake (4).

#### *Living Situation*

- Clients' reported living situation remained stable with 92.2% of clients reporting living in their own home or someone else's home at intake and 93.5% reporting this living situation at follow-up.

#### *Economic Difficulties*

- At intake 46.0% of clients reported they were unable to meet at least one of their basic living needs (e.g., housing, utilities, telephone, and food) for financial reasons. At follow-up, over half (52.8%) of clients were unable to meet at least one of the basic living needs, which was a significant increase of 16.8%.
- Similarly, 47.5% of clients reported their household had difficulty meeting health care needs in the 12 months before entering treatment and 61.3% of clients had difficulty meeting health care needs in the 12 months before follow-up (a significant increase of 29.0%).

#### *Mental Health*

- Suicide ideation and/or attempts dropped significantly from 15.9% of the clients at intake to 11.8% at follow-up.
- The percentage of clients meeting self-reported DSM-IV criteria for depression remained stable with 47.5% of clients meeting criteria in the 12 months before entering substance abuse treatment and 44.5% of clients meeting criteria for depression at follow-up.
- In the 12 months before entering treatment, 2 in 5 clients (42.8%) reported symptoms that met self-reported DSM-IV criteria for generalized anxiety and 53.7% reported symptoms at follow-up representing a 25.4% significant increase in the number of clients meeting the study criteria for generalized anxiety.
- The number of clients meeting self-reported DSM-IV criteria for co-morbid depression and generalized anxiety remained stable from

intake (34.4%) to follow-up (38.1%).

- Clients reported the number of days in the past 30 days their physical health (5.9 at intake and 6.5 at follow-up) and mental health (10.6 at intake and 9.4 at follow-up) was not good remained relatively stable over time.

**RECOVERY SUPPORTS.** Overall, clients indicated significant improvements with connections to recovery supports at follow-up.

- At intake, about 32% of clients reported attending mutual help recovery group meetings (e.g., AA, NA, or faith-based) in the past 30 days, and at follow-up 52.2% of clients reporting they had gone to mutual help recovery group meetings, which was a significant increase of 63.8%.
- In addition, the number of meetings attended increased significantly from 3.5 at intake to 7.2 at follow-up; a 105.7% increase.
- 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.

**CLINICAL SERVICES.** Data submitted by community mental health center (CMHC) providers revealed that:

- Over 95% of clients were diagnosed as having alcohol or drug abuse/dependence
- 59.3% of clients received individual therapy services, 34.8% received group therapy and 30.4% received residential treatment.
- Over one-third (38.2%) received 31 services or more while 22.7% of clients received no services.

### **COST SAVINGS OF SUBSTANCE ABUSE**

**TREATMENT SERVICES.** Estimating the total costs of drug and alcohol abuse to society in relation to expenditures on substance abuse treatment services suggests that for every dollar spent on publicly funded substance abuse treatment there is a savings of \$5.26 in costs to society associated with alcohol and drug addiction.

### **CONCLUSIONS AND IMPLICATIONS.**

Overall, clients had significant reductions in illegal drug use and alcohol use, significant reductions in criminal justice system involvement, and increases in education and employment. Clients also had significant increases in recovery supports which is critical for maintaining abstinence. Further, clients were satisfied with the treatment programs they attended and appreciated many aspects of the programs. In addition, their overall quality of life improved over the 12-month study. For every dollar spent on these publicly funded treatment programs there was an estimated savings of \$5.26 in costs to society.

Estimates suggest that for every dollar spent on publicly-funded substance abuse treatment services there was a \$5.26 return in avoided costs to society

However, the clients in this study reported continued struggles with mental health and difficulty in meeting basic needs and accessing health care. There were also a couple of areas where gender differences emerged that are important to note. More men reported using illegal drugs and alcohol at follow-up than women while women reported more mental health symptoms, and more difficulty meeting basic needs and accessing health care. Also, more women than men reported unemployment and smoking tobacco at both intake and follow-up.

This 2013 outcome report for KTOS provides a valuable look at the outcomes of publicly funded substance abuse treatment in Kentucky. The significant increases in abstinence across all substances except tobacco, increased employment, and decreased rates of criminal justice system involvement indicate successful achievement of the overall treatment goals for the clients and substance abuse treatment programs in Kentucky.

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## FINDINGS FROM THE KENTUCKY TREATMENT OUTCOME STUDY 2013 REPORT

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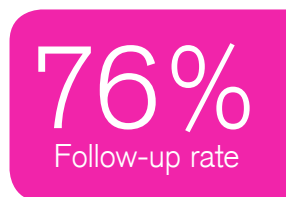


## INTRODUCTION AND OVERVIEW

The Behavioral Health Outcome Study 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 of 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. Kentucky Treatment Outcome Study (KTOS) is an important part of the Division of Behavioral Health's performance-based measurement of treatment outcomes in Kentucky's communities. The objectives for KTOS are to: (1) provide highly credible data through ethical standards to support the Community for Mental Health Center's substance abuse treatment programs; and (2) translate the research findings to practitioners, community members, politicians, and other key stakeholders in ways that are useful and meaningful.

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 1,277 men and women who participated in publicly funded substance abuse treatment from July 2010 through June 2011 and then completed a follow-up interview about 12 months later (an average of 334 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 professionalism of the UK CDAR research team is reflected in the high follow-up rate (76.4%) and low refusal rate (1.6%) for participation in the interviews. Only 22% of clients were not successfully contacted to complete the follow-up telephone interviews (see Appendix A for detailed information on study methods).



Of the 1,277 clients who completed follow-up interviews, 51.6% were men and 48.3% were women. Most clients were White (90.0%), 7.5% were African American, and 2.4% were "other" race or multiracial. Clients were an average age of 33 years old at the time of treatment intake. The majority of clients were not married at intake with 37.5% reporting they had never been married and 31.3% were separated or divorced. Over half of clients (52.2%) said they were referred to treatment by the criminal justice system (e.g., judge, probation officer).

When those with follow-up interviews were compared with those who did not have a follow-up interview (e.g., did not agree to be followed up, not selected in the follow-up sample, not located or contacted by the research team) there were few significant differences in demographics, socioeconomic indicators, substance use, treatment history, mental health, or criminal justice system involvement (see Appendix B). Significantly more women completed a follow-up interview and more clients who completed a follow-up reported a chronic medical problem and depression at intake, while fewer clients who completed a follow-up had a DUI charge in the 12 months before treatment intake.

Results are reported in six main sections:

**Section 1: 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 2: Changes in Targeted Factors.** Section 2 examines change in targeted risk factors including substance use (illegal drugs, alcohol, and tobacco), mental health symptoms, education and employment, living situation, and involvement with the criminal justice system from intake to follow-up for the overall sample. Significant gender differences are reported where applicable.

**Section 3: Change in Recovery Supports.** Section 3 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 4: Clinical Service Information.** Section 4 examines diagnosis and clinical service information provided by the Community Mental Health Center (CMHC) providers to the Department of Behavioral Health, Developmental and Intellectual Disabilities.

**Section 5: Cost Savings of Substance Abuse Treatment in Kentucky.** Section 5 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 6: Conclusion and Implications.** Section 6 summarizes the highlights from the evaluation results and suggests implications from these findings for the state.



## **Section 1: Client Satisfaction with Substance Abuse Treatment Programs**

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*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 for 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 (64.6%) gave a positive rating between 8 and 10 of their satisfaction with the treatment program (not in a table). The mean rating was 7.8.

## 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 1.1)<sup>1</sup>. Most 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 1.1. PERCENTAGE OF CLIENTS WHO AGREED/STRONGLY AGREED WITH THE FOLLOWING STATEMENTS ABOUT THE TREATMENT PROGRAM AT FOLLOW-UP (n = 1277)



## QUALITY OF LIFE RATINGS

One way to measure quality of life is to assess individuals' 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<sup>2</sup>. 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 5.2 (just above the middle) at follow-up, which was a significant increase.

<sup>1</sup> Answers of don't know/don't remember were treated as missing on these items. The number of missing values ranged from 3 to 12 on the items represented in the above figure.

<sup>2</sup> 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.

FIGURE 1.2 DISTRIBUTION OF CLIENTS' PERCEPTIONS OF THEIR STANDING IN SOCIETY (n = 1272)<sup>3</sup>

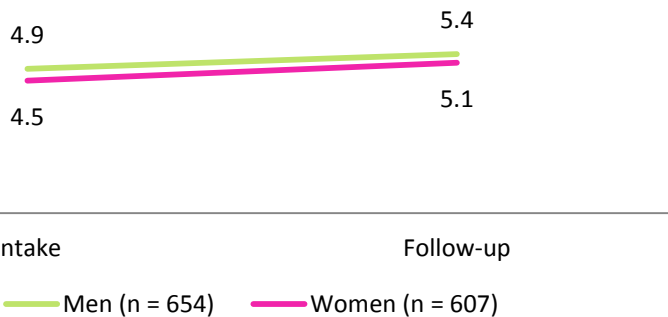


\*p < .05, \*\*p < .01, \*\*\*p < .001.

### GENDER DIFFERENCES IN SOCIAL STANDING

When gender differences in social standing were compared, results indicated that men gave themselves significantly higher ratings on perceived social standing than women both at intake (4.9 vs. 4.5) and at follow-up (5.4 vs. 5.1; see Figure 1.3).

FIGURE 1.3. GENDER DIFFERENCES IN HOW CLIENTS SEE THEMSELVES IN SOCIETY



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

<sup>3</sup> Subjective social standing at follow-up was missing for five cases.



## Section 2: Targeted Factors

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*This section describes pre-program compared to post-program change over time on six primary targeted factors including: (1) use of illegal drugs, alcohol, and tobacco, (2) mental health, (3) education, (4) employment, (5) housing/homelessness, and (6) criminal justice system involvement. Results for each targeted factor are presented for the overall sample and by gender when there were significant gender differences.*

## SUBSTANCE USE

This subsection examines substance use changes over time including the use of any illegal drugs, alcohol, and tobacco from intake to follow-up. In addition to examining the overall use of illegal drugs, several specific categories of illegal drugs were examined separately including: (a) opioids [i.e., prescription opiates, methadone, and buprenorphine], (b) Central Nervous System (CNS) depressants [including tranquilizers, benzodiazepines, sedatives, and barbiturates], (c) stimulants [i.e., methamphetamine, Ecstasy, MDMA, Adderall, and Ritalin], and (d) other illegal drugs not mentioned above [i.e., marijuana, cocaine, heroin, 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, opioids, CNS depressants, stimulants, and other illegal drugs, alcohol use, and tobacco use 12 months before the client entered the program<sup>4</sup> and any use of these substances during the 12-month follow-up period (n = 1266)<sup>5</sup> are presented.
- 2. Mean number of months clients used substances.** 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 opioids, CNS depressants, stimulants, and other illegal drugs), alcohol use, and tobacco use (n = 1136)<sup>6</sup> 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 = 140), changes in drug, alcohol, and tobacco use from intake to follow-up was analyzed for only clients who were not in a controlled environment all 30 days before entering treatment<sup>7</sup>.
- 4. Change in Addiction Severity Index scores from intake to follow-up.** The Addiction Severity Index (ASI) composite scores are examined for change over time for illegal drugs (n = 592), alcohol (n = 526) and those with both alcohol and illegal drug use (n = 784). The ASI composite score assesses addiction severity even among those reporting no substance use in the past 30 days and takes into consideration substance use, as well as the impact of substance use on an individual's life.

### ANY ILLEGAL DRUGS

#### ANY ILLEGAL DRUG USE, PAST 12 MONTHS

Three in four clients (75.2%) reported using illegal drugs in the 12 months before entering substance abuse treatment, which decreased to 37.5% at follow-up. Overall, for the KTOS follow-up sample, there was a 50.1%

The number of clients reporting illegal drug use decreased by 50%

<sup>4</sup> 11 cases were excluded from this analysis because 10 clients were incarcerated all 365 days before entering treatment and one individual was transgender.

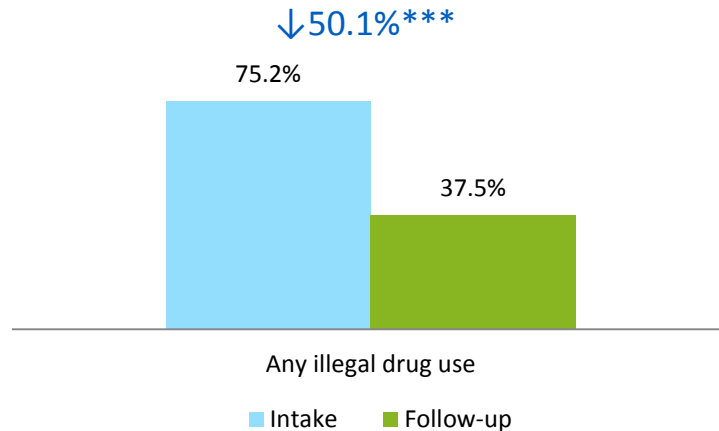
<sup>5</sup> Missing data on illegal drug use at follow-up for 5 cases.

<sup>6</sup> 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 from the change in past-30-day substance use analysis is that being in a controlled environment inhibits opportunities for alcohol and drug use.

<sup>7</sup> 140 cases were excluded because they were in a controlled environment all 30 days before intake, and 1 person was transgender.

decrease in the number of clients reporting use of any illegal drug (see Figure 2A.1).

FIGURE 2A.1. OVERALL CHANGE IN DRUG USE FROM INTAKE TO FOLLOW-UP (n = 1261)<sup>8</sup>

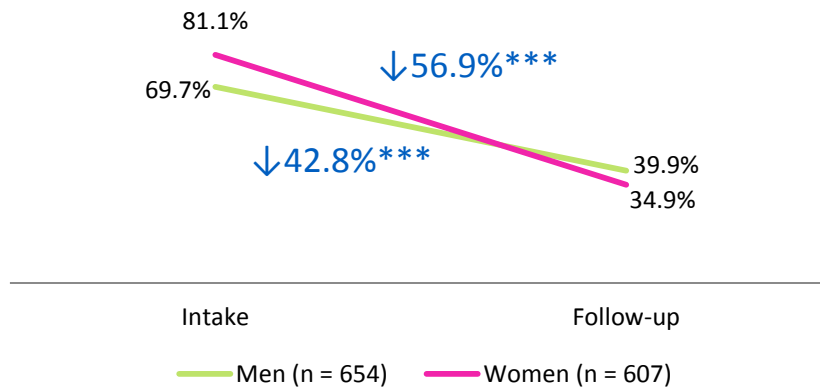


\*p < .05, \*\*p < .01, \*\*\*p < .001.

**GENDER DIFFERENCES IN OVERALL ILLEGAL DRUG USE, PAST 12 MONTHS**

Significantly more women than men reported any illegal drug use at intake, 81.1% vs. 69.7% (see Figure 2A.2). The number of men and women who reported illegal drug use significantly decreased from intake to follow-up by 42.8% and 56.9% respectively.

FIGURE 2A.2. GENDER DIFFERENCES IN ILLEGAL DRUG USE FROM INTAKE TO FOLLOW-UP<sup>a</sup>



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

*“Because the treatment program I did was wonderful. I gained my steady foundation and it opened a lot of doors for me.”*

-KTOS client on why they chose their rating

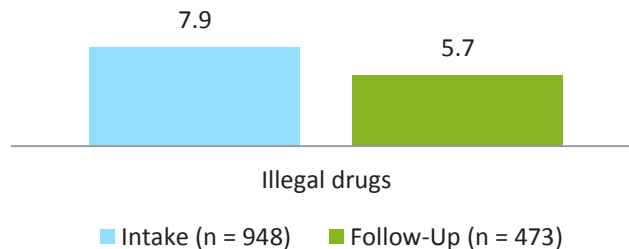


<sup>8</sup> Five cases had missing data on illegal drugs in the 12 months before follow-up

### MEAN NUMBER OF MONTHS USED ANY ILLEGAL DRUGS

Among the clients who reported using illegal drugs in the 12 months before entering treatment (n = 948), they reported using illegal drugs on average 7.9 months (see Figure 2A.3). Among clients who reported using illegal drugs at follow-up (n = 473), they reported using on average 5.7 months<sup>9</sup>.

FIGURE 2A.3. MEAN NUMBER OF MONTHS CLIENTS USED ILLEGAL DRUGS

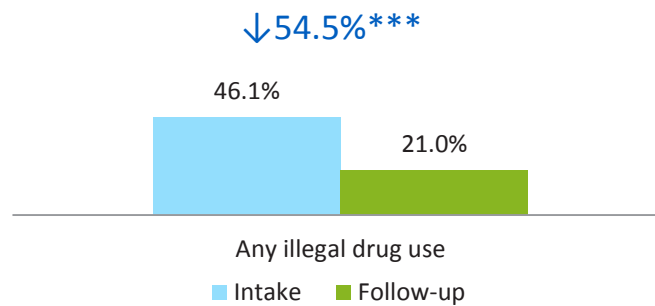


### ANY ILLEGAL DRUG USE, PAST 30 DAYS

There was a significant reduction of 55% in the number of clients who reported past 30-day illegal drug use

A little less than one half of clients (46.1%) 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 2A.4). At follow-up, only 21.0% of clients reported they had used illegal drugs in the past 30 days—a significant decrease of 54.5%.

FIGURE 2A.4. OVERALL CHANGE IN PAST 30 DAY USE OF ANY ILLEGAL DRUG FROM INTAKE TO FOLLOW-UP (n = 1130)



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

### GENDER DIFFERENCES IN ANY ILLEGAL DRUG USE, PAST 30 DAYS

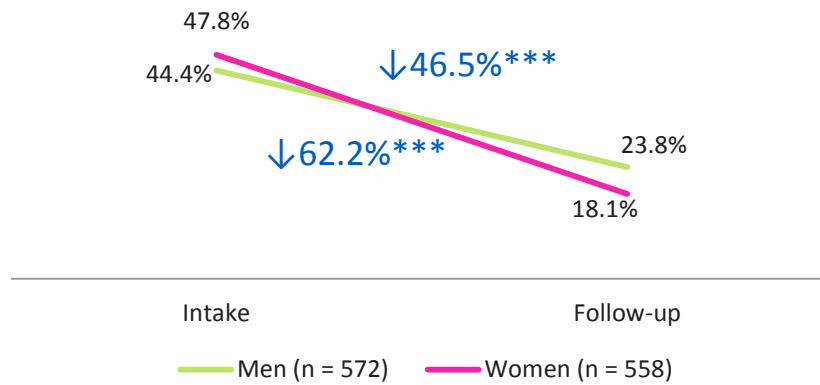
There were no gender differences in illegal drug use for the 30 days before intake; however, significantly more men than women reported using any illegal drug in the 30 days before follow-up (23.8% vs. 18.1%). The number of men and women who reported illegal drug use decreased significantly by 46.5% and 62.2% respectively (see Figure 2A.5).



Significantly more men reported using any illegal drugs in the past 30 days at follow-up

<sup>9</sup> 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 2A.5. GENDER DIFFERENCES IN PAST 30 DAY ILLEGAL DRUG USE FROM INTAKE TO FOLLOW-UP<sup>a</sup>



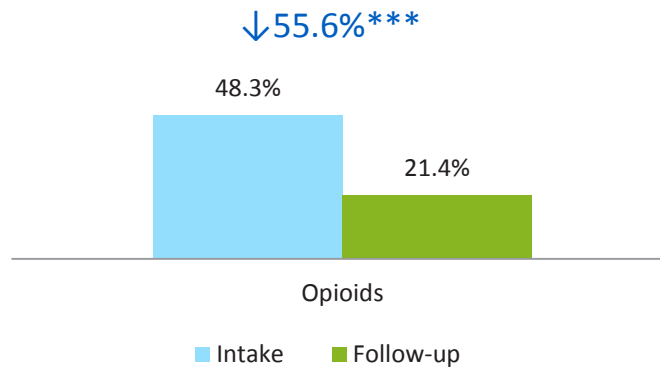
a—Significant difference by gender at follow-up, \*p < .05.  
\*p < .05, \*\*p < .01, \*\*\*p < .001.

## OPIOIDS

### OPIOID MISUSE, PAST 12 MONTHS

Nearly half of clients (48.3%) reported misusing opioids other than heroin, including prescription opiates, methadone, and buprenorphine in the 12 months before entering treatment, which decreased to 21.4% at follow-up. Overall, for the KTOS follow-up sample, there was a 55.6% decrease in the number of clients reporting opioid use other than heroin (see Figure 2A.6).

FIGURE 2A.6. OVERALL CHANGE IN PAST 12 MONTH OPIOID USE (n = 1266)



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

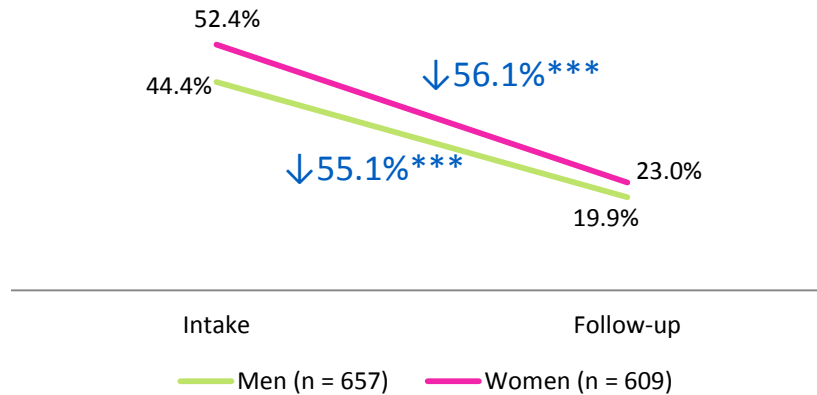
### GENDER DIFFERENCES IN OPIOID USE, PAST 12 MONTHS

*Significantly more women than men reported opioid use in the past 12 months at intake*



Significantly more women than men reported opioid use in the 12 months before intake, 52.4% vs. 44.4% (see Figure 2A.7). The number of women and men who reported opioid use significantly decreased from intake to follow-up by 56.1% and 55.1% respectively.

FIGURE 2A.7. GENDER DIFFERENCES IN OPIOID USE IN THE PAST 12 MONTHS FROM INTAKE TO FOLLOW-UP<sup>a</sup>

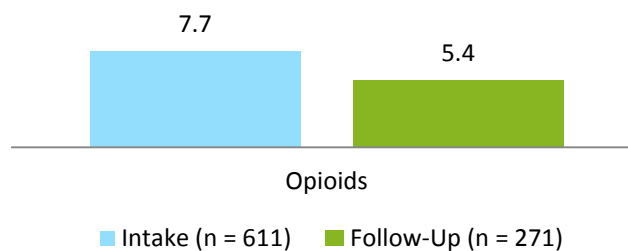


a—Significant difference by gender at intake; \*p < .01.  
 \*p < .05, \*\*p < .01, \*\*\*p < .001.

### MEAN NUMBER OF MONTHS USED OPIOIDS

Among the clients who reported using opioids in the 12 months before entering treatment (n = 611), they reported using opioids on average 7.7 months (see Figure 2A.8). Among clients who reported using opioids at follow-up (n = 271), they reported using an average 5.4 months<sup>10</sup>.

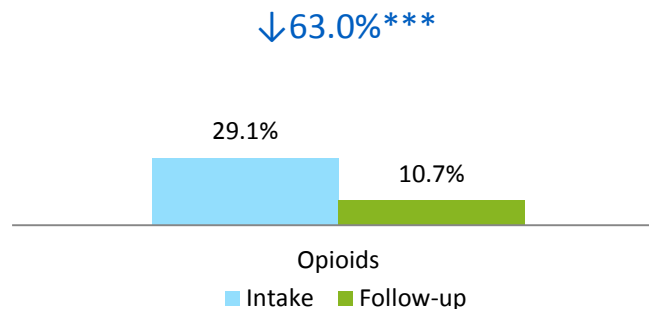
FIGURE 2A.8. MEAN NUMBER OF MONTHS CLIENTS USED OPIOIDS



### OPIOID MISUSE, PAST 30 DAYS

The number of clients who reported using opioids decreased significantly by 63.0%, from 29.1% at intake to 10.7% at follow-up (see Figure 2A.9).

FIGURE 2A.9. OVERALL CHANGE IN 30-DAY OPIOID USE FROM INTAKE TO FOLLOW-UP (n = 1135)



The number of clients who used opioids decreased significantly by 63%

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

<sup>10</sup> 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.



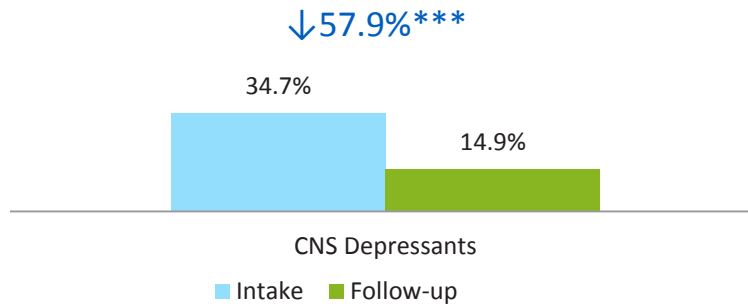
## CNS DEPRESSANTS

### CNS DEPRESSANT USE, PAST 12 MONTHS

The number of clients reporting CNS depressant use in the past 12 months decreased by 58%

About one third of clients (34.7%) reported using CNS depressants, including tranquilizers, benzodiazepines, sedatives, and barbiturates in the 12 months before entering treatment, which decreased to 14.9% at follow-up. Overall, for the KTOS follow-up sample, there was a 57.9% decrease in the number of clients reporting CNS depressant use (see Figure 2A.10).

FIGURE 2A.10. OVERALL CHANGE IN PAST 12 MONTH CNS DEPRESSANT USE (n = 1266)



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

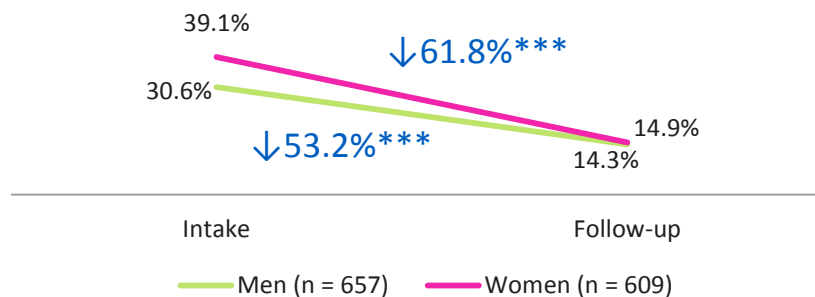
### GENDER DIFFERENCES IN CNS DEPRESSANT USE, PAST 12 MONTHS

Significantly more women than men reported CNS depressant use in the 12 months before intake, 39.1% vs. 30.6% (see Figure 2A.11). The number of women and men who reported CNS depressant use significantly decreased from intake to follow-up by 61.7% and 53.2% respectively.



Significantly more women than men reported CNS depressant use at intake

FIGURE 2A.11. GENDER DIFFERENCES IN CNS DEPRESSANT USE IN THE PAST 12 MONTHS FROM INTAKE TO FOLLOW-UP<sup>a</sup>



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

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

*“I got to talk to people and got pointed in the right direction. I had been on drugs for 20 years and I’ve been clean for a year now.”*

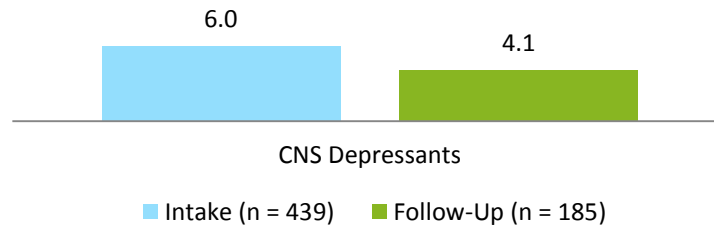
-KTOS client on why they chose their rating



## MEAN NUMBER OF MONTHS USED CNS DEPRESSANTS

Figure 2A.12 shows the mean maximum number of months clients who used CNS depressants reported using these illegal drugs<sup>11</sup>. Among the clients who reported using these substances in the 12 months before entering treatment (n = 439), they reported using CNS depressants an average 6.0 months in the 12 months before entering treatment. Among clients who reported using CNS depressants in the 12 months before follow-up (n = 185), they reported using on average 4.1 months.

FIGURE 2A.12. MEAN NUMBER OF MONTHS OF CNS DEPRESSANT USE

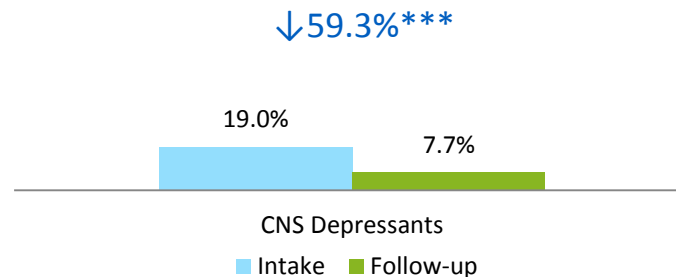


## CNS DEPRESSANT USE, PAST 30 DAYS

The number of clients who reported using CNS depressants decreased significantly by 59.3%, from 19.0% at intake to 7.7% at follow-up (see Figure 2A.13).

The number of clients who used CNS depressants decreased significantly by 59%

FIGURE 2A.13. OVERALL CHANGE IN 30-DAY CNS DEPRESSANT USE FROM INTAKE TO FOLLOW-UP (n = 1136)



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

## STIMULANTS

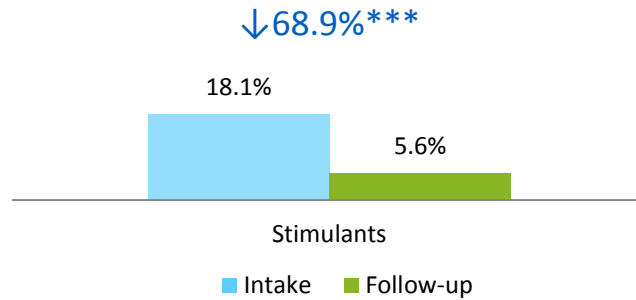
### STIMULANT USE, PAST 12 MONTHS

The number of clients reporting stimulant use decreased by 69%

Fewer than 1 in 5 clients (18.1%) reported using stimulants, including methamphetamine, Ecstasy, MDMA, and non-prescription Adderall and Ritalin in the 12 months before entering treatment, which decreased to 5.6% at follow-up. Overall, for the KTOS follow-up sample, there was a 68.9% decrease in the number of clients reporting stimulant use (see Figure 2A.14).

<sup>11</sup> Because number of months of use barbiturates and tranquilizers/sedatives/benzodiazepines were measured separately, the value is a calculation of the maximum number of months clients used any substance class

FIGURE 2A.14. OVERALL CHANGE IN STIMULANT USE (n = 1263)<sup>12</sup>

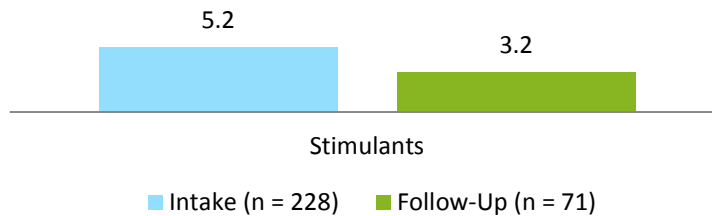


\*p < .05, \*\*p < .01, \*\*\*p < .001.

### MEAN NUMBER OF MONTHS USED STIMULANTS

Among the clients who reported using stimulants in the 12 months before entering treatment (n = 228), they reported stimulants an average 5.2 months in the 12 months before entering treatment (see Figure 2A.15). Among clients who reported using stimulants in the 12 months before follow-up (n = 71), they reported using stimulants on average 3.2 months.

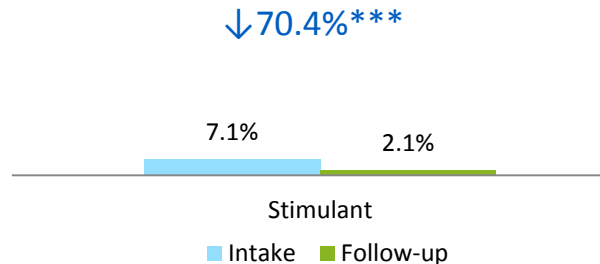
FIGURE 2A.15. MEAN NUMBER OF MONTHS OF STIMULANT USE



### STIMULANT USE, PAST 30 DAYS

The number of clients who reported using stimulants decreased significantly by 70.4%, from 7.1% at intake to 2.1% at follow-up (see Figure 2A.16).

FIGURE 2A.16. OVERALL CHANGE IN 30-DAY STIMULANT USE FROM INTAKE TO FOLLOW-UP (n = 1134)



The number of clients who used stimulants decreased significantly by 70%

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

<sup>12</sup> Three cases had missing values on stimulant use at follow-up

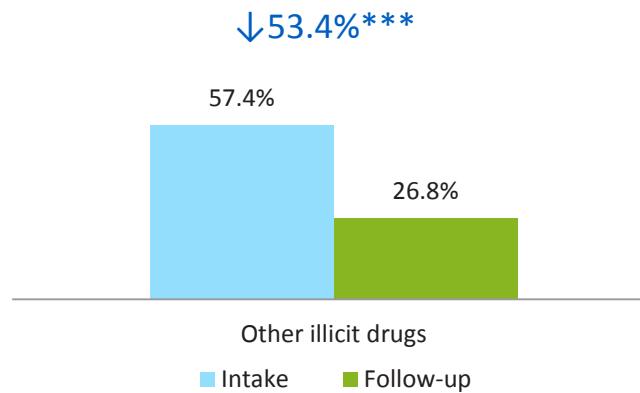
## OTHER ILLEGAL DRUGS

### OTHER ILLEGAL DRUGS, PAST 12 MONTHS

The number of clients reporting use of other illegal drugs decreased by 53%

The majority of KTOS clients reported using illegal drugs other than opioids, CNS depressants, and stimulants in the 12 months before entering treatment (57.4%). Drugs in this category include marijuana, cocaine, heroin, hallucinogens, and inhalants. The number of clients who reported using other illegal drugs decreased significantly to 26.8% at follow-up – a significant decrease of 53.4% from intake to follow-up (see Figure 2A.17).

FIGURE 2A.17. OVERALL CHANGE IN USE OF OTHER ILLEGAL DRUGS (N = 1262)<sup>13</sup>



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

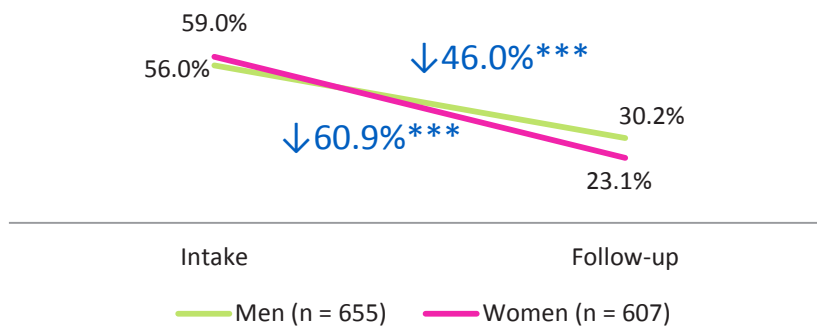
### GENDER DIFFERENCES IN USE OF OTHER ILLEGAL DRUGS

There was no difference in the percentage of men and women who reported using other illegal drugs in the 12 months before entering treatment. However, at follow-up, significantly more men than women reported using other illegal drugs in the 12 months before follow-up, 30.2% vs. 23.1% (see Figure 2A.18). The number of men and women who reported use of other illegal drugs decreased significantly from intake to follow-up by 46.0% and 60.9% respectively.



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

FIGURE 2A.18. GENDER DIFFERENCES IN OTHER ILLEGAL DRUG USE FROM INTAKE TO FOLLOW-UP<sup>a</sup>



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

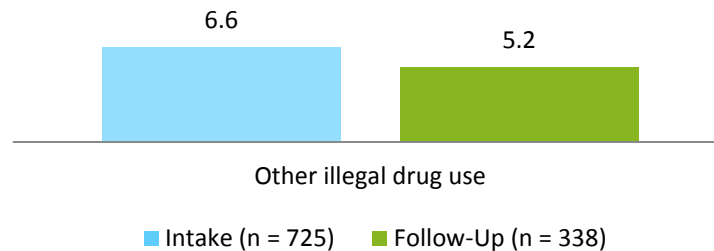
a—Significant difference by gender at follow-up \*p < .01.

<sup>13</sup> Four cases had missing data on use of other illegal drugs at follow-up.

## MEAN NUMBER OF MONTHS USED OTHER ILLEGAL DRUGS

Figure 2A.19 shows the mean maximum number of months clients who used other illegal drugs (e.g., marijuana, cocaine, heroin, hallucinogens, and inhalants) reported using those illegal drugs<sup>14</sup> in the 12 months before entering treatment. Among the clients who reported use before entering treatment (n = 725), they reported using other illegal drugs an average 6.6 months. Among clients who reported using other illegal drugs in the 12 months before follow-up (n = 338), they reported using an average 5.2 months.

FIGURE 2A.19. MEAN NUMBER OF MONTHS OF OTHER ILLEGAL DRUG USE

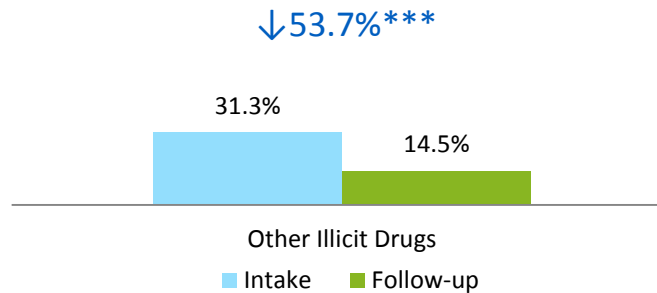


## OTHER ILLEGAL DRUG USE, PAST 30 DAYS

*The number of clients who used other illegal drugs decreased significantly by 54%*

The number of clients who reported using other illegal drugs (e.g., marijuana, cocaine, heroin, hallucinogens, and inhalants) in the 30 days before the intake and follow-up interviews decreased significantly by 53.7%, from 31.3% at intake to 14.5% at follow-up (see Figure 2A.20).

FIGURE 2A.20. OVERALL CHANGE IN 30-DAY OTHER ILLEGAL DRUG USE FROM INTAKE TO FOLLOW-UP (n = 1130)



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

*“I liked how they asked how you got to your problems. They tried to find the source.”*

-KTOS client on why they chose their rating

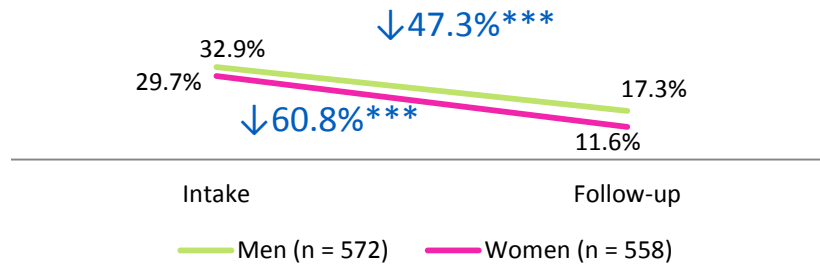


<sup>14</sup> Because number of months of use of each class of substance was measured separately (e.g., marijuana, cocaine, heroin, hallucinogens, inhalants), the value is a calculation of the maximum number of months clients used any substance class.

### GENDER DIFFERENCES IN OTHER ILLEGAL DRUG USE

There were no gender differences in use of other illegal drugs in the 30 days before intake; however, significantly more men than women reported using other illegal drugs in the 30 days before follow-up (17.3% vs. 11.6%). The number of men and women who reported illegal drug use decreased significantly by 47.3% and 60.8% respectively (see Figure 2A.21).

FIGURE 2A.21. GENDER DIFFERENCES IN USE OF OTHER ILLEGAL DRUGS FROM INTAKE TO FOLLOW-UP<sup>a</sup>



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

a—Significant difference by gender at follow-up \*p < .01.

### ALCOHOL USE

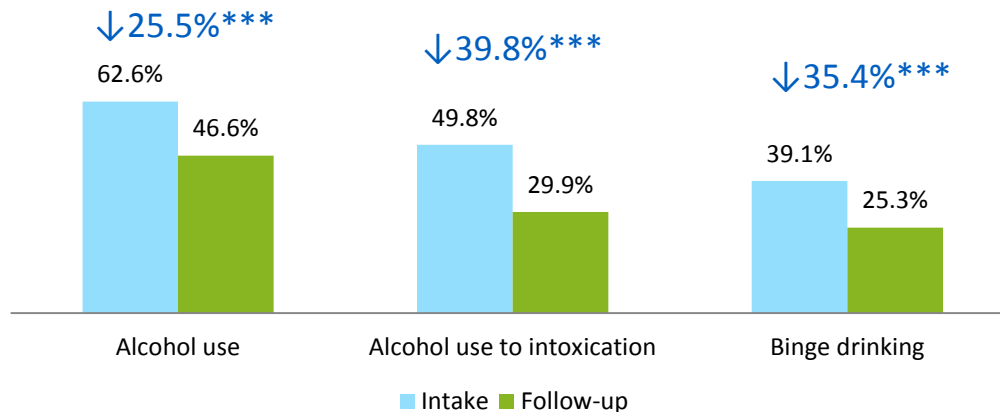
There were three measures of alcohol use including: (1) any alcohol use, (2) alcohol use to intoxication, and (3) binge drinking. Binge drinking was defined as having 5 or more (4 or more if the client was female) alcoholic drinks in a period of about 2 hours.

### ALCOHOL USE, PAST 12 MONTHS

The majority of clients (62.6%) reported using alcohol in the 12 months before entering treatment while 46.6% of clients reported alcohol use in the 12 months before follow-up (see Figure 2A.22). Overall, for the KTOS follow-up sample, there was a 25.5% decrease in the number of clients reporting alcohol use. Half of clients reported using alcohol to intoxication at intake, with 29.9% reporting alcohol use to intoxication in the 12 months before follow-up—a significant decrease of 39.8%. Similarly there was a significant decrease of 35.4% in the number of clients who reported binge drinking from intake to follow-up (39.1% vs. 25.3%)<sup>15,16</sup>.

The number of clients reporting alcohol use decreased by 26%

FIGURE 2A.22. CHANGE IN ALCOHOL USE FROM INTAKE TO FOLLOW-UP (N = 1266)



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

<sup>15</sup> Missing data on binge drinking at follow-up for 8 cases.

<sup>16</sup> Binge drinking was defined as having 5 or more alcohol drinks within a two hour period for men and 4 or more drinks for women.

**GENDER DIFFERENCES IN ALCOHOL USE**

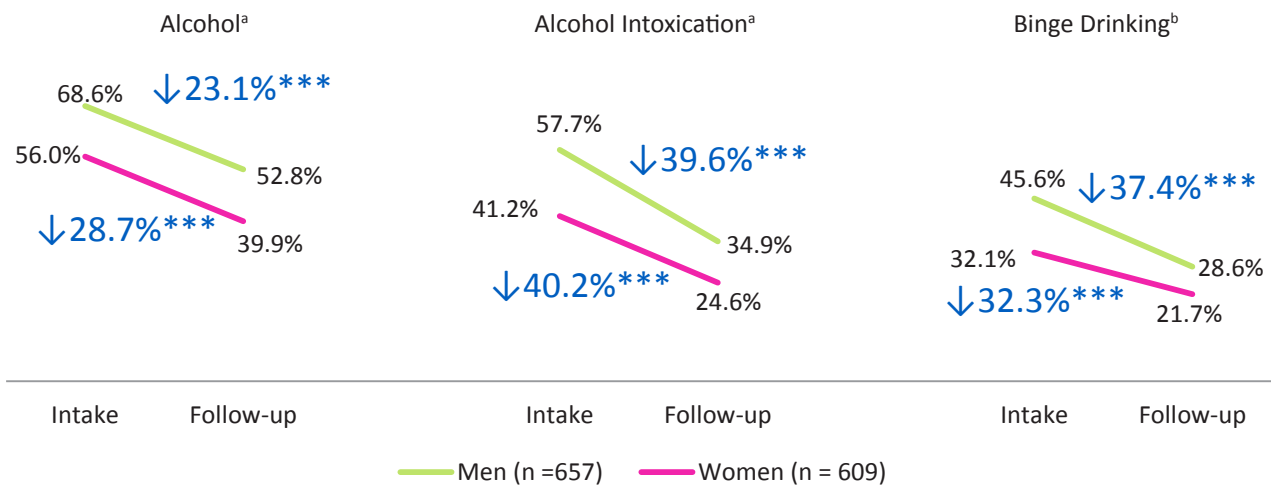
*Significantly more men than women reported using alcohol, alcohol to intoxication, and binge drinking in the 12 months before entering treatment and the 12 months before follow-up*



Significantly more men than women reported alcohol use at intake and at follow-up (see Figure 2A.23). The number of men and women who reported alcohol use in the 12 months before follow-up was significantly decreased by 23.1% and 28.7% 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 39.6% and 40.2% 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 37.4% and 32.3% respectively.

significantly decreased by 39.6% and 40.2% 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 37.4% and 32.3% respectively.

FIGURE 2A.23. GENDER DIFFERENCES IN ALCOHOL USE, ALCOHOL TO INTOXICATION, AND BINGE DRINKING FROM INTAKE TO FOLLOW-UP

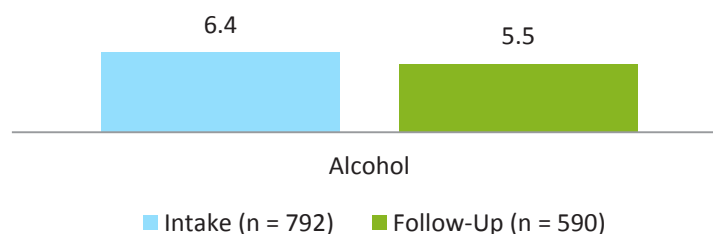


a—Significant difference by gender at intake and follow-up (p < .001).  
 b—Significant difference by gender at intake and follow-up (p < .01).  
 \*p < .05, \*\*p < .01, \*\*\*p < .001

**MEAN NUMBER OF MONTHS USED ALCOHOL**

Figure 2A.24 shows the 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 = 792), they reported using alcohol, on average, 6.4 months. Among clients who reported using alcohol in the 12 months before follow-up (n = 590), they reported using, on average, 5.5 months.

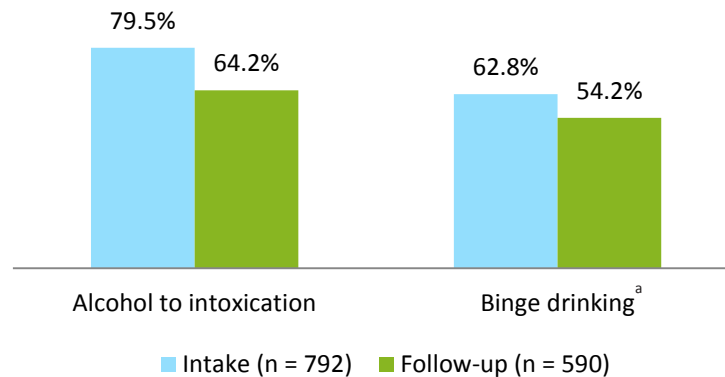
FIGURE 2A.24. MEAN NUMBER OF MONTHS OF ALCOHOL USE



## 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 = 792), 79.5% used alcohol to intoxication in the 12 months before intake (see Figure 2A.25). Of the clients who used alcohol in the 12 months before follow-up (n = 590), 64.2% of clients reported alcohol use to intoxication. Of the clients who used alcohol in the 12 months before intake, 62.8% reported binge drinking in the 12 months before intake. At follow-up, of those reporting alcohol use, 54.2% reported binge drinking.

FIGURE 2A.25. CHANGE IN ALCOHOL USE TO INTOXICATION AND BINGE DRINKING FROM INTAKE TO FOLLOW-UP, AMONG THOSE REPORTING ALCOHOL USE AT EACH POINT

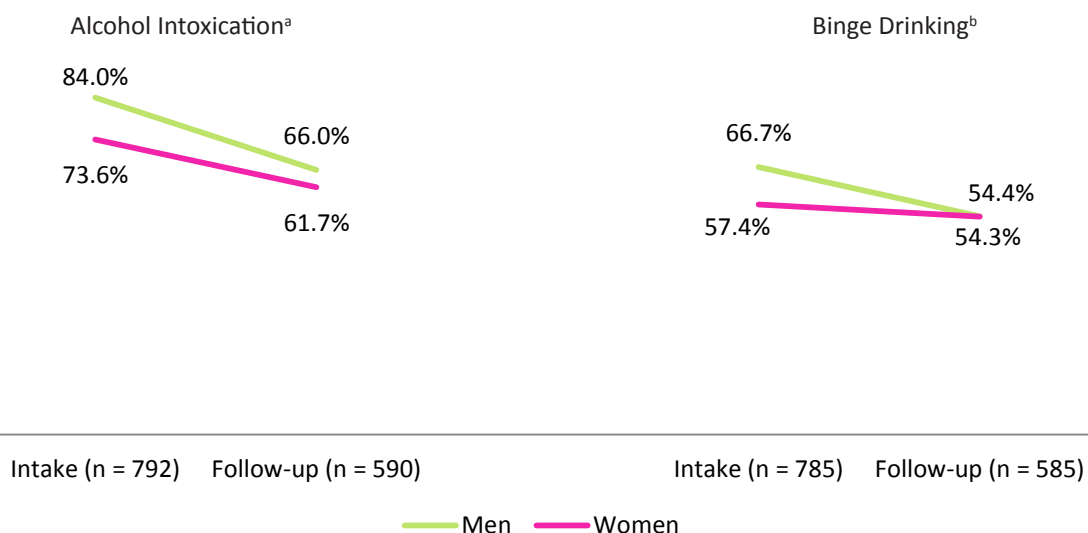


a—Eight cases were excluded because data on binge drinking at follow-up was missing.

## GENDER DIFFERENCES IN ALCOHOL TO INTOXICATION AND BINGE DRINKING AMONG THOSE REPORTING ALCOHOL USE, PAST 12 MONTHS

Of the clients who used alcohol in the 12 months before intake (n = 792), significantly more men reported alcohol use to intoxication compared to women: 84.0% vs. 73.6% (see Figure 2A.26). Similarly, among alcohol users at intake (n = 785), significantly more men reported binge drinking compared to women (66.7% vs. 57.4%). There were no gender differences on alcohol to intoxication or binge drinking at follow-up among those clients who used alcohol.

FIGURE 2A.26. GENDER DIFFERENCES IN ALCOHOL TO INTOXICATION AND BINGE DRINKING FROM INTAKE TO FOLLOW-UP, AMONG THOSE REPORTING ALCOHOL USE AT EACH POINT



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

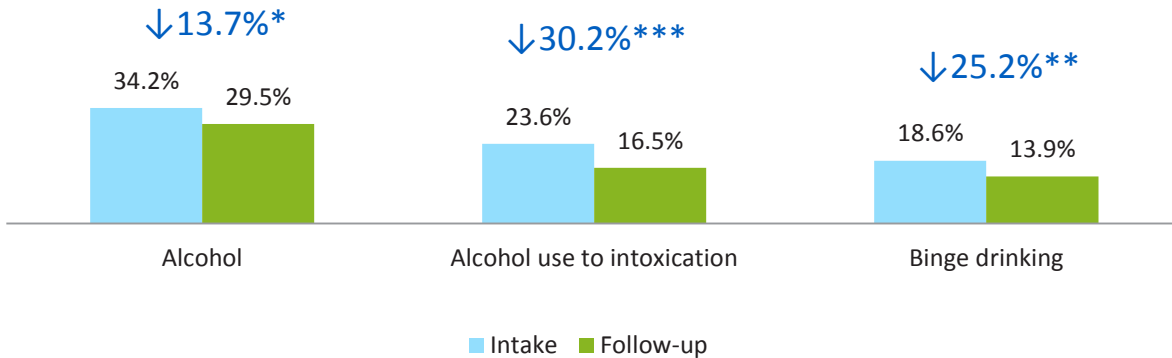
b—Significant difference by gender at intake, p < .01.



## 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 (34.2%) to follow-up (29.5%). This means that the number of clients reporting alcohol use decreased 13.7% from intake to follow-up (see Figure 2A.27). The decrease in the number of clients who reported using alcohol to intoxication was even greater at 30.2%. There was a similar significant decrease (25.2%) in the number of clients who reported binge drinking at follow-up compared to the 30 days before entering treatment<sup>17</sup>.

FIGURE 2A.27. OVERALL CHANGE IN 30-DAY ALCOHOL USE FROM INTAKE TO FOLLOW-UP (n = 1136)



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

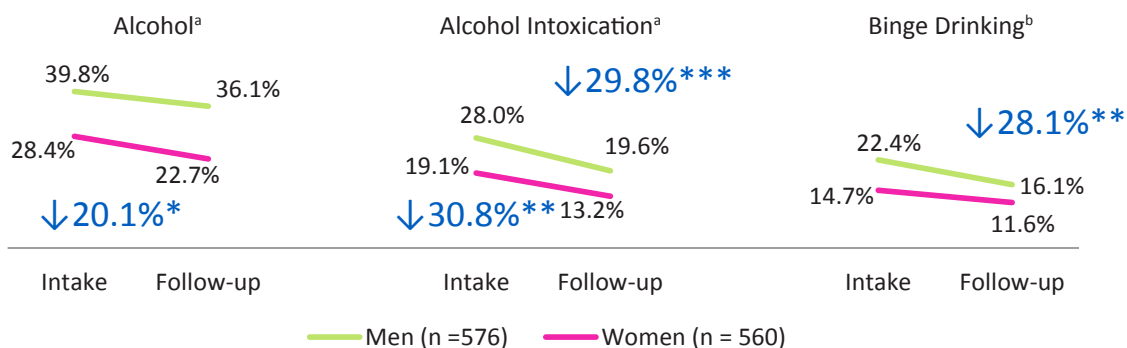
## GENDER DIFFERENCES IN ALCOHOL USE IN THE PAST 30 DAYS

Significantly more men than women reported alcohol use in the 30 days before intake and follow-up (see Figure 2A.28). The number of men who reported alcohol use did not change significantly from intake to follow-up. The number of women who reported past-30-day alcohol use decreased significantly by 20.1%. 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 29.8% and 30.8% respectively. The number of men who reported binge drinking decreased significantly by 28.1%. The number of women who reported binge drinking did not change significantly from intake to follow-up.



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

FIGURE 2A.28. GENDER DIFFERENCES IN ALCOHOL USE, ALCOHOL TO INTOXICATION, AND BINGE DRINKING FROM INTAKE TO FOLLOW-UP



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

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

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

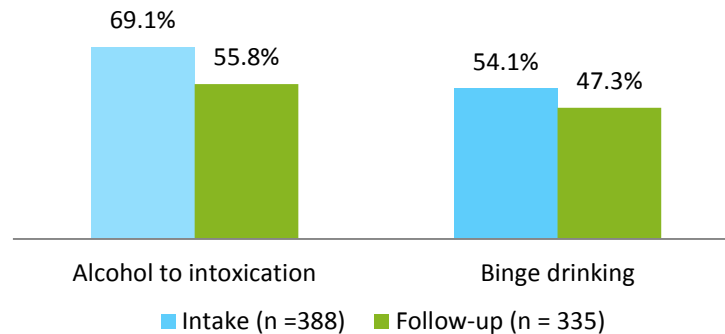
<sup>17</sup> Six cases had missing data on binge drinking at follow-up.

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

Of the 388 clients who used alcohol in the 30 days before intake, 69.1% used alcohol to intoxication and 54.1% binge drank in the 30 days before intake (see Figure 2A.29).

Of the 335 clients who reported using alcohol in the 30 days before follow-up, 55.8% reported using alcohol to intoxication and 47.3% reported binge drinking in the 30 days before follow-up.

FIGURE 2A.29. PERCENTAGE OF CLIENTS WHO USED ALCOHOL TO INTOXICATION AND BINGE DRANK, AMONG THOSE REPORTING ALCOHOL USE AT EACH POINT

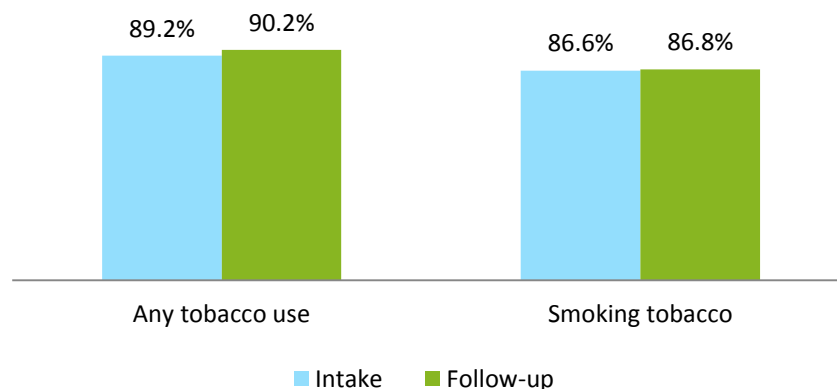


## TOBACCO USE

### TOBACCO USE AND SMOKING, PAST 12 MONTHS

Overall, there was no change in tobacco use from intake to follow-up (see Figure 2A.30). Most clients reported using tobacco in the 12 months before entering treatment (89.2%) and in the 12 months before follow-up (90.2%). The majority of clients (86.6%) reported smoking tobacco in the 12 months before entering treatment, remaining stable at follow-up<sup>18</sup> (86.8%).

FIGURE 2A.30. CHANGE IN TOBACCO USE FROM INTAKE TO FOLLOW-UP (N = 1266)



<sup>18</sup> Missing data on smoking tobacco use at intake or follow-up for 9 cases.

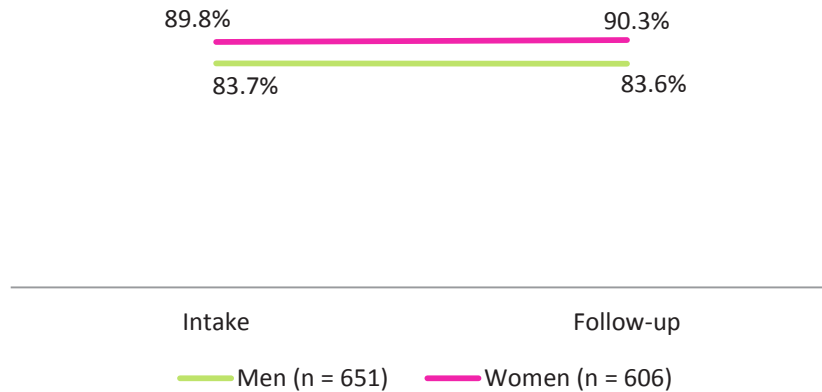
**GENDER DIFFERENCES IN SMOKING TOBACCO, PAST 12 MONTHS**

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



Significantly more women than men reported smoking tobacco at intake and follow-up (see Figure 2A.31). The number of men and women who reported smoking tobacco in the past 12 months remained stable from intake to follow-up.

FIGURE 2A.31. GENDER DIFFERENCES IN SMOKING TOBACCO FROM INTAKE TO FOLLOW-UP<sup>a</sup>

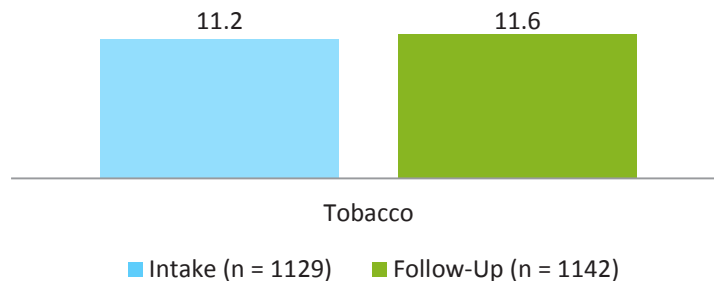


a—Significant difference by gender at intake ( $p < .01$ ) and follow-up ( $p < .001$ ).

**MEAN NUMBER OF MONTHS OF TOBACCO USE**

Figure 2A.32 shows the number of months clients who used smoking or smokeless tobacco reported using tobacco at intake and follow-up. Among the clients who reported using tobacco in the 12 months before entering treatment (n = 1129), they reported using tobacco, on average, 11.2 months. Among clients who reported using tobacco in the 12 months before follow-up (n = 1142), they reported using, on average, 11.6 months.

FIGURE 2A.32. NUMBER OF MONTHS TOBACCO USE



*“I learned a lot about addiction. I didn’t understand addiction before.”*

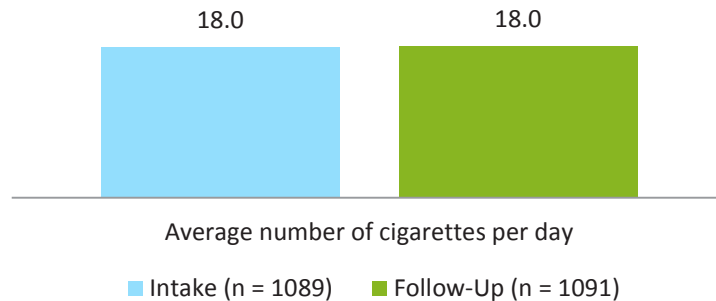
-KTOS client on why they chose their rating



### AVERAGE NUMBER OF CIGARETTES SMOKED

The average number of cigarettes clients report smoking at intake and follow-up remained stable. Of those who smoked tobacco at intake, clients reported smoking an average of 18.0 cigarettes per day. At follow-up, among clients who reported smoking tobacco, they also reported smoking an average of 18.0 cigarettes per day.

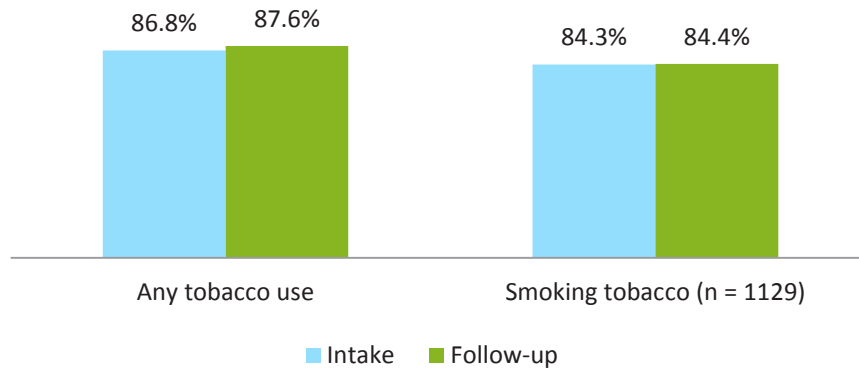
FIGURE 2A.33. NUMBER OF CIGARETTES SMOKED IN AN AVERAGE DAY AMONG CLIENTS WHO SMOKED TOBACCO



### 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 2A.34).

FIGURE 2A.34. CHANGE IN TOBACCO USE FROM INTAKE TO FOLLOW-UP (N = 1136)

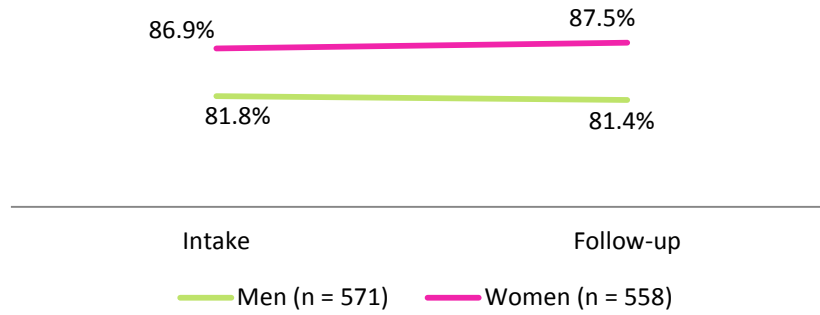


### GENDER DIFFERENCES IN SMOKING TOBACCO IN THE PAST 30 DAYS

Significantly more women than men reported smoking tobacco in the 30 days before intake and follow-up (see Figure 2A.35). The number of men and women who reported smoking tobacco in the past 30 days remained stable from intake to follow-up.



*Significantly more women reported smoking tobacco in the past 30 days at intake and follow-up compared to men*

FIGURE 2A.35. GENDER DIFFERENCES IN PAST 30 DAY SMOKING TOBACCO USE FROM INTAKE TO FOLLOW-UP<sup>a</sup>

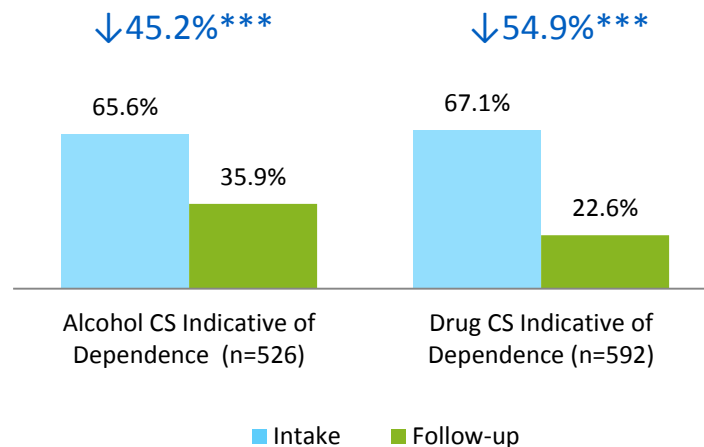
a—Significant difference by gender at intake and follow-up; \*p < .05.

### ADDICTION SEVERITY INDEX COMPOSITE SCORE

Another way to examine overall change in degree of severity of substance use disorder is to use the Addiction Severity Index (ASI) composite score (CS)<sup>19</sup>. This can be used to estimate the prevalence of clients who are likely to meet criteria for active alcohol or drug dependence and to show mean reductions in severity scores. Change in the mean ASI CS for alcohol and drugs from intake to follow-up was examined for clients who were not in a controlled environment all 30 days before entering treatment, because the ASI CS are based on clients' self-reported substance use and problems associated with substance use in the past 30 days. Clients who reported abstaining from alcohol or drugs at intake and follow-up were not included in the analysis of change for each composite score.

The majority of clients had Alcohol CS and Drug CS that met the cutoff for dependence at intake (65.6% and 67.1% respectively), while the percentages of clients with Alcohol CS and Drug CS that met the cutoff for dependence decreased significantly at follow-up (see Figure 2A.36). Only 35.9% of clients had an Alcohol CS that met the cutoff for dependence at follow-up, and only 22.6% had a Drug CS that met the cutoff for dependence at follow-up. This represents a significant decrease of 45.2% for alcohol CS and a decrease of 54.9% for Drug CS.

FIGURE 2A.36. PERCENTAGE OF CLIENTS WITH ASI COMPOSITE SCORES MEETING THE CUTOFF FOR ALCOHOL OR DRUG DEPENDENCE AT INTAKE AND FOLLOW-UP

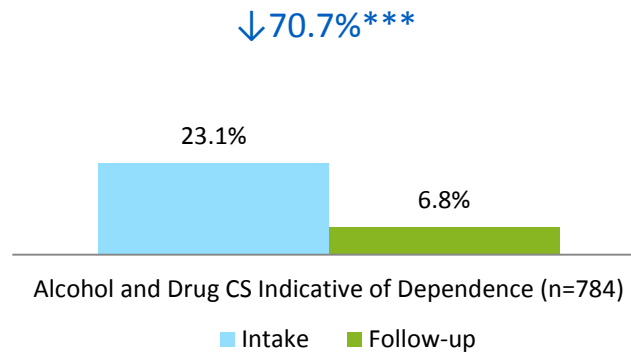


\*p < .05, \*\*p < .01, \*\*\*p < .001.

<sup>19</sup> McLellan, A. T., Kushner, H., Metzger, D., Peters, R., Smith, I., Grissom, G., Pettinati, H., and Argeriou, M. (1992). The fifth addition of the addiction severity index. *Journal of Substance Abuse Treatment*, 9, 199-213.

Nearly one quarter of clients who used both alcohol and drugs at intake or follow-up had ASI CS scores that met the cutoff for dependence for alcohol and drugs at intake (see Figure 2A.37). The percentage of clients who had ASI CS scores that met the cutoff for dependence for both alcohol and drugs decreased significantly by 70.7% to only 6.8% (n = 53) at follow-up.

FIGURE 2A.37. PERCENTAGE OF CLIENTS WITH ASI COMPOSITE SCORES MEETING THE CUTOFF FOR BOTH ALCOHOL AND DRUG DEPENDENCE AT INTAKE AND FOLLOW-UP

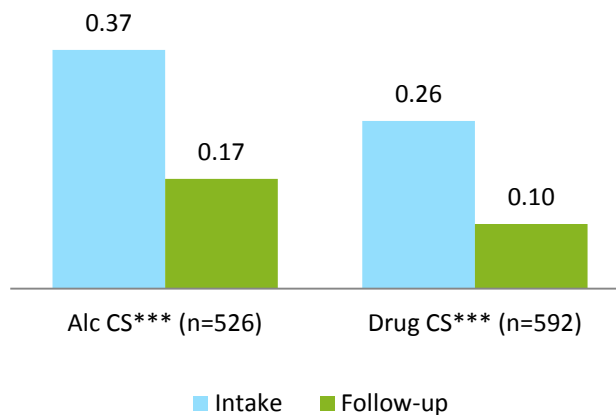


\*p < .05, \*\*p < .01, \*\*\*p < .001.

*The ASI Composite scores indicating alcohol or drug dependence decreased significantly at follow-up*

Figure 2A.38 displays the change in ASI CS mean scores<sup>20</sup>. Mean score for the Alcohol CS decreased significantly from 0.37 at intake to 0.17 at follow-up. The mean score for the Drug CS decreased significantly from 0.26 at intake to 0.10 at follow-up.

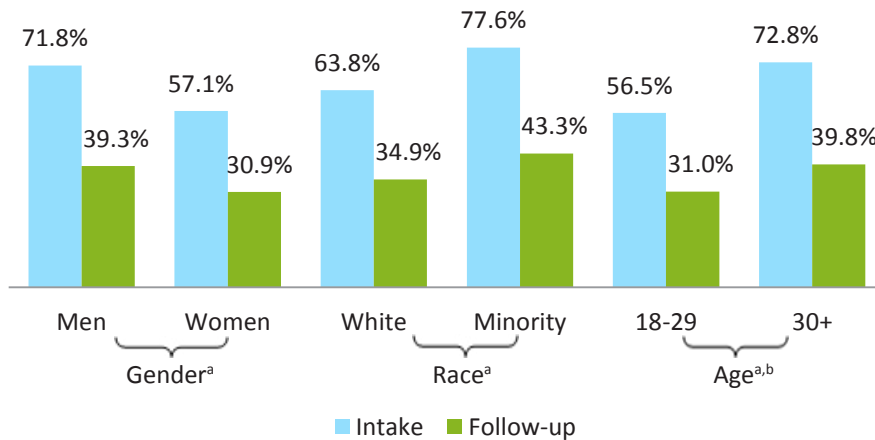
FIGURE 2A.38. MEAN ALCOHOL ASI ALCOHOL AND DRUG COMPOSITE SCORES AT INTAKE AND FOLLOW-UP



The data were examined to determine whether clients who had Alcohol CS indicative of dependence at intake and follow-up differed by gender, race/ethnicity, or age (see Figure 2A.39). Significantly more men had an Alcohol CS indicative of dependence at intake compared to women. Significantly more minority clients had an Alcohol CS indicative of dependence at intake compared to White clients. Finally, significantly more clients who were 30 years or older had an Alcohol CS indicative of dependence at intake and follow-up compared to clients who were younger than 30 years old.

<sup>20</sup> The following numbers of cases were not included in the analysis of change in Alcohol CS: 608 clients reported abstaining from alcohol at intake and follow-up, 39 were in a controlled environment all 30 days before treatment, and 3 clients had missing data from items included in the calculation of the alcohol CS. The following numbers were not included in the analysis of change in Drug CS: 536 clients reported abstaining from drugs at baseline and follow-up, 52 clients were in a controlled environment all 30 days before entering treatment, and 10 clients had missing data from items included in the calculation of the Drug CS at follow-up.

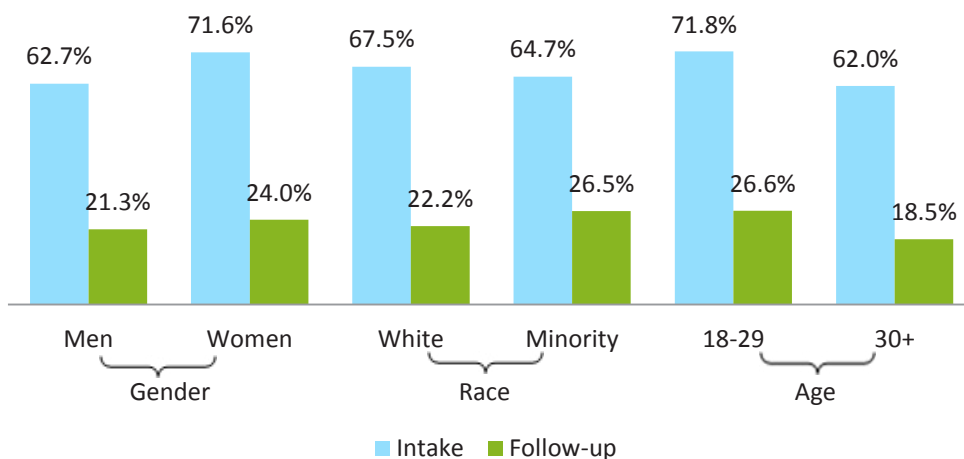
FIGURE 2A.39. PERCENTAGE OF ALCOHOL-USING CLIENTS WITH AN ALCOHOL CS INDICATIVE OF DEPENDENCE AT INTAKE AND FOLLOW-UP BY DEMOGRAPHIC FACTORS (N = 526)



a—There was a significant difference by group at intake;  $p < .05$ .  
 b—There was a significant difference by group at follow-up;  $p < .05$ .

Analyses were also conducted to determine if clients who had a Drug CS indicative of dependence at intake and follow-up differed by gender, race/ethnicity, or age (see Figure 2A.40). There were no significant differences in the percentage of clients who had a Drug CS indicative of dependence at intake or follow-up by gender, race, or age group. In other words, at intake and follow-up, men and women did not differ on the percentage of clients who had a Drug CS indicative of dependence. Similarly, White and racial minority clients did not differ on the percentage of clients who had a Drug CS indicative of dependence at intake or follow-up. Younger and older clients did not differ on the percentage of clients who met criteria for drug dependence at either intake or follow-up.

FIGURE 2A.40. PERCENTAGE OF DRUG-USING CLIENTS WITH A DRUG CS INDICATIVE OF DEPENDENCE AT INTAKE AND FOLLOW-UP BY DEMOGRAPHIC FACTORS (N = 592)

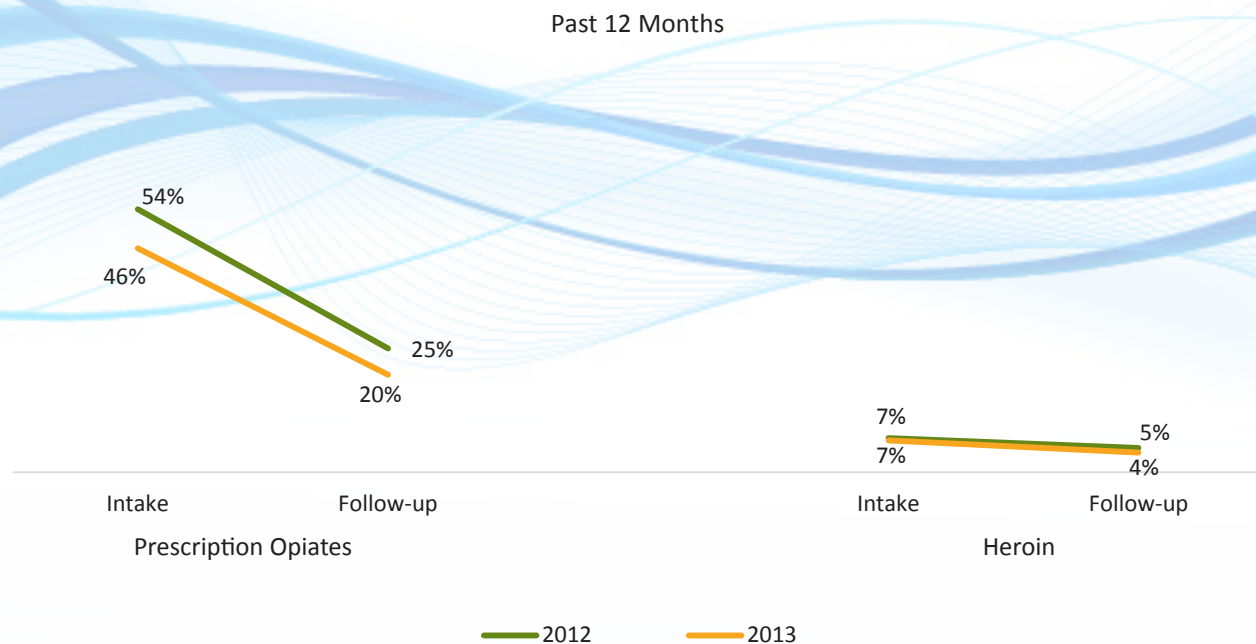


# TREND REPORT ON HEROIN AND PRESCRIPTION OPIATE USE FROM THE 2012 AND 2013 KTOS ANNUAL REPORTS

Past 12 month misuse of prescription opiates at intake has declined from 2012 to 2013. In 2012, 54% of KTOS clients reported using prescription opiates at intake. At follow-up 25% of clients reported misusing prescription opiates. In 2013, 46% of clients reported prescription opiate misuse at intake and 20% reported prescription misuse at follow-up.

Heroin use remained stable from 2012 to 2013. At intake in both years, 7% of clients reported using heroin. In 2012, 5% of clients reported using heroin at follow-up and 4% of clients in 2013 reported heroin use at follow-up.

Past 30 day use revealed a similar trend pattern with both prescription drug misuse and heroin use declining slightly from 2012 to 2013.





## CHANGE IN MENTAL HEALTH PROBLEMS FROM INTAKE TO FOLLOW-UP

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

### SELF-REPORTED 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

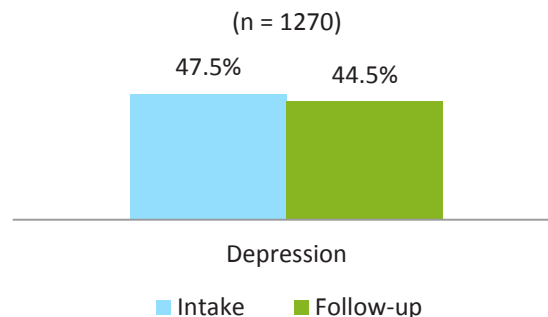
(2) “Did you have a two-week period when you were much less interested in most things or much less able to enjoy the things you used to enjoy most of the time?”

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 the self-reported DSM-IV 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.

Nearly half of clients (47.5%) met self-reported DSM-IV criteria for depression in the 12 months before they entered treatment (See Figure 2B.1). At follow-up, a similar percentage of clients (44.5%) met self-reported DSM-IV criteria for depression<sup>21</sup>.

The percentage of clients meeting criteria for depression remained stable

FIGURE 2B.1. CHANGE IN PERCENTAGE OF CLIENTS MEETING SELF-REPORTED DSM-IV CRITERIA FOR DEPRESSION



### GENDER DIFFERENCES IN DEPRESSION SYMPTOMS

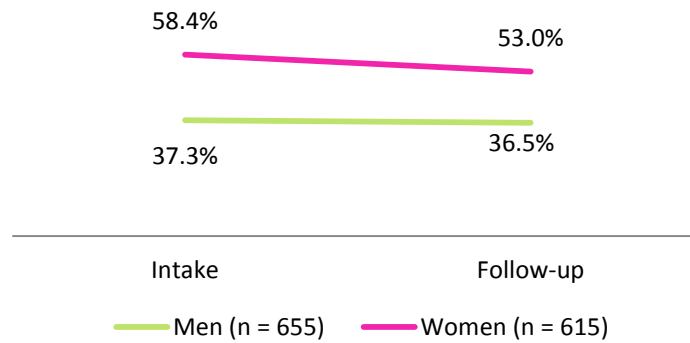
*Significantly more women met criteria for depression at intake and follow-up compared to men*



Significantly more women met self-reported DSM-IV criteria for depression at intake and follow-up compared to men (see Figure 2B.2). However, there was no significant change in the number of women and men who met self-reported DSM-IV criteria for depression.

<sup>21</sup> Data was missing for depression symptoms at follow-up for 7 cases and for anxiety symptoms at follow-up for 8 cases.

FIGURE 2B.2. GENDER DIFFERENCES IN PERCENTAGE OF CLIENTS MEETING SELF-REPORTED DSM-IV CRITERIA FOR DEPRESSION<sup>a</sup>



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

### SELF-REPORTED ANXIETY SYMPTOMS

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

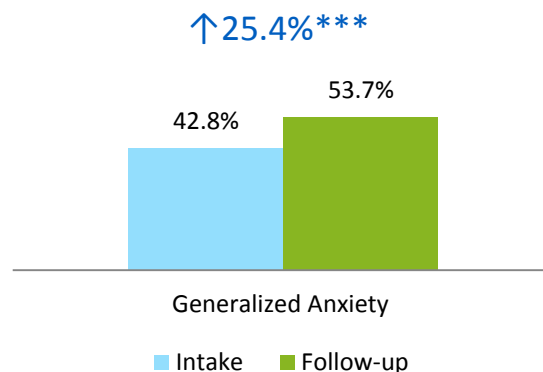
(1) “In the 12 months before you entered this program, were you worried excessively or were anxious about multiple things on more days than not (like family, health, finances, school, or work difficulties?”

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 self-reported DSM-IV 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, 2 in 5 clients (42.8%) reported symptoms that met the self-reported DSM-IV criteria for generalized anxiety and 53.7% reported symptoms at follow-up (see Figure 2B.3). This indicates there was a 25.4% significant increase in the number of clients meeting the study criteria for generalized anxiety.

The percentage of clients meeting criteria for generalized anxiety increased 25% at follow-up

FIGURE 2B.3. CHANGE IN PERCENTAGE OF CLIENTS MEETING SELF-REPORTED DSM-IV CRITERIA FOR GENERALIZED ANXIETY (n = 1270)

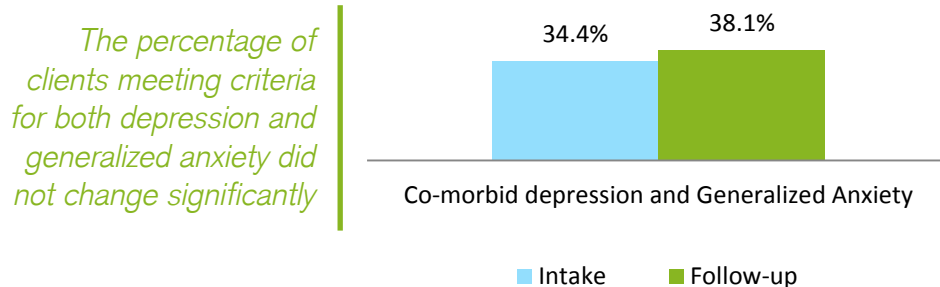


\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

## SELF-REPORTED CO-MORBID DEPRESSION AND ANXIETY SYMPTOMS

Figure 2B.4 shows that at intake, about 1 in 3 (34.4%) met self-reported DSM-IV criteria for both depression and generalized anxiety and there was no significant change at follow-up (38.1%).

FIGURE 2B.4. CHANGE IN PERCENTAGE OF CLIENTS MEETING SELF-REPORTED DSM-IV CRITERIA FOR CO-MORBID DEPRESSION AND GENERALIZED ANXIETY (n = 1270)

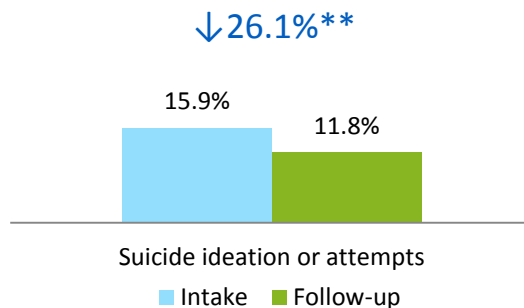


## SUICIDE IDEATION AND/OR ATTEMPTS

Suicide ideation and attempts were measured with self-reported questions about thoughts of suicide, specific plans for suicide, and actual attempts to commit suicide. Sixteen percent of clients reported thoughts of suicide or attempted suicide in the 12 months before entering treatment and 11.8% of clients reported thoughts of suicide or attempted suicide in the 12 months before follow-up. There was a 26.1% decrease from intake to follow-up in the number of clients reporting suicidal ideation and attempts (see Figure 2B.5).

The percentage of clients reporting suicidal ideation and/or attempts decreased 26% at follow-up

FIGURE 2B.5. CHANGE IN PERCENTAGE OF CLIENTS REPORTING SUICIDAL IDEATION AND/OR ATTEMPTS (n = 1276)



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

## PERCEPTIONS OF PHYSICAL AND MENTAL HEALTH

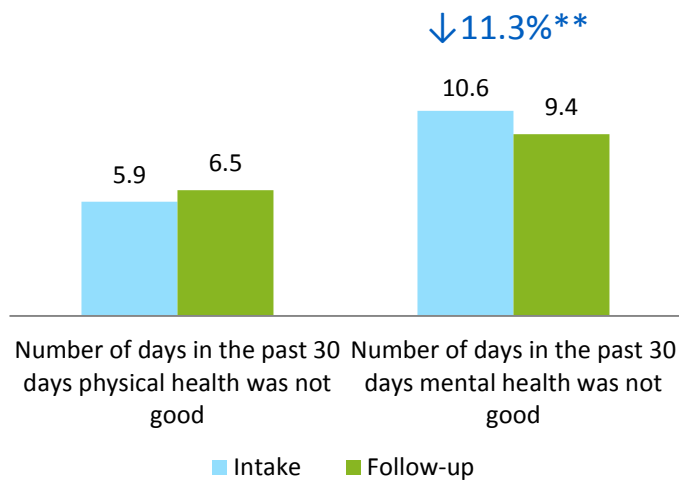
The number of days clients' mental health was not good decreased significantly

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 2B.6). There was no significant change from intake to follow-up in the number of days clients reported their physical health was not good<sup>22</sup>. The number of days mental health was not good decreased significantly by 11.3% from intake to follow-up<sup>23</sup>.

<sup>22</sup> Data on perception of physical health was missing at follow-up for one case.

<sup>23</sup> Data on perception of mental health was missing at follow-up for three cases.

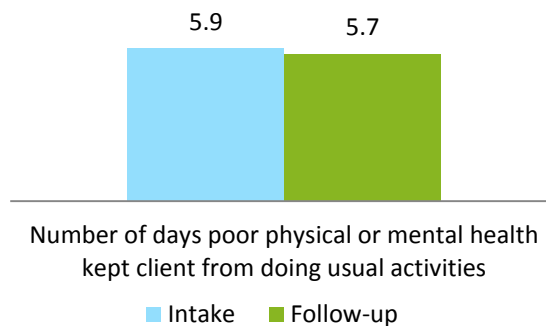
FIGURE 2B.6. CHANGE IN PERCEPTIONS OF POOR PHYSICAL HEALTH AND MENTAL HEALTH IN THE PAST 30 DAYS (n = 1276)



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

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<sup>24</sup>. The number of days clients reported their physical or mental health kept them from doing their usual activities decreased slightly, but not significantly.

FIGURE 2B.7. CHANGE IN PERCEPTIONS OF POOR PHYSICAL HEALTH AND MENTAL HEALTH IN THE PAST 30 DAYS (n = 1272)



*“It gave me back my life. I found out who I really I am. I didn’t know before; I was lost. They gave me a better outlook on my future and myself.”*

-KTOS client on why they chose their rating

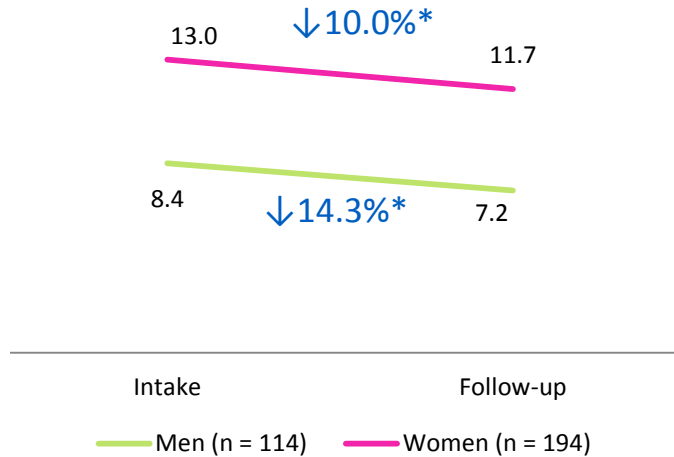


<sup>24</sup> Data was missing for 5 cases at follow-up.

## GENDER DIFFERENCES IN PERCEPTIONS OF PHYSICAL AND MENTAL HEALTH

Women’s reported number of days mental health was not good was higher at intake and follow-up compared to men (see Figure 2B.8).

FIGURE 2B.8. GENDER DIFFERENCES IN NUMBER OF DAYS IN THE PAST 30 DAYS MENTAL HEALTH WAS NOT GOOD<sup>a</sup>

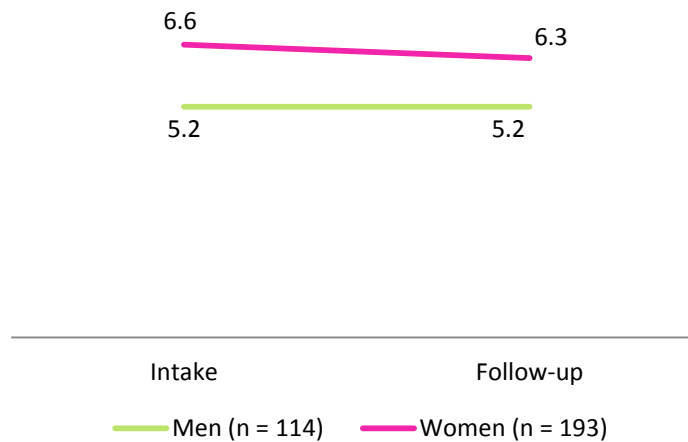


\*p < .05, \*\*p < .01, \*\*\*p < .001.

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

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 and follow-up (see Figure 2B.9). The number of days poor physical or mental health limited activities did not change significantly for men or women.

FIGURE 2B.9. GENDER DIFFERENCES IN THE NUMBER OF DAYS POOR PHYSICAL OR MENTAL HEALTH KEPT CLIENT FROM DOING USUAL ACTIVITIES<sup>a,b</sup>



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

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

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

## EDUCATION AND EMPLOYMENT

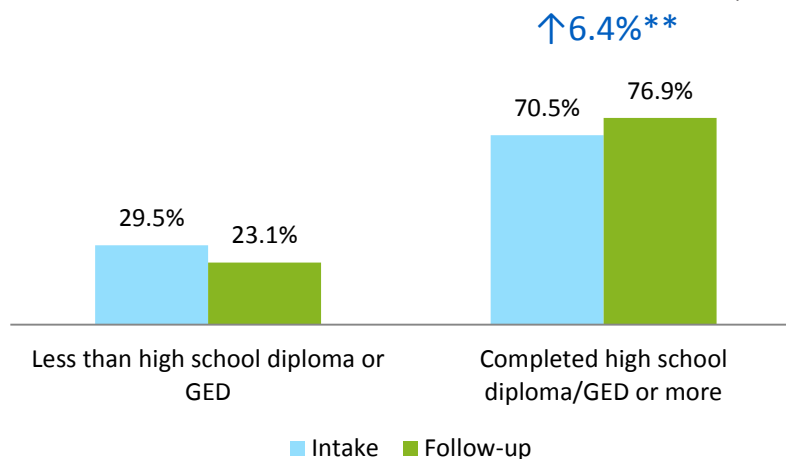
This subsection examines changes in education and employment from intake to follow-up. Specifically, this subsection examines: (1) highest level of education completed; (2) current employment status; and (3) the number of months clients were employed full-time or part-time.

### EDUCATION

Overall, the highest number of years of education completed increased significantly from 12.4 at intake to 12.6 at follow-up<sup>25</sup>.

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 2C.1). At intake, 29.5% of the follow-up sample reported that they had less than a high school diploma or GED. At follow-up, 23.1% reported that they had completed less than a high school diploma or GED. At intake, 70.5% 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 6.4% to 76.9%.

FIGURE 2C.1. CHANGE IN HIGHEST LEVEL OF EDUCATION COMPLETED (n = 1255)



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

### EMPLOYMENT

#### CURRENT EMPLOYMENT STATUS

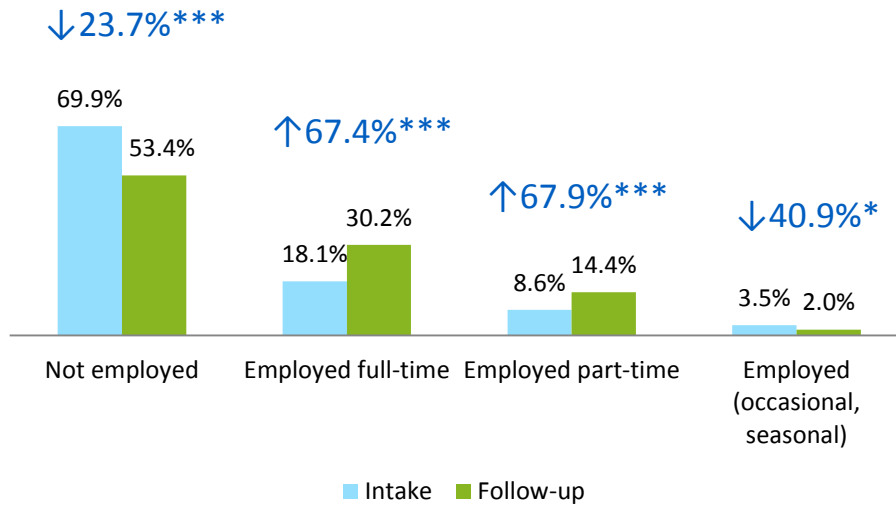
There were significant changes in current employment status from intake to follow-up (see Figure 2C.2)<sup>26</sup>. Seven in ten (69.9%) clients reported they were not employed when they entered treatment, while just over half of clients (53.4%) reported at follow-up they were unemployed. This represents a 23.7% significant decrease in the number of clients who were unemployed. The number of clients who were employed full-time increased significantly by 67.4% from intake to follow-up (18.1% vs. 30.2%). The number of clients who reported they had part-time employment increased by 67.9%. Finally, the number of clients who reported they had occasional, seasonal work decreased significantly by 40.9%.

*The number of clients who were employed full-time increased by 67% and the number of clients who were unemployed decreased by 24%*

<sup>25</sup> Twenty-two cases were not included because of inconsistencies in data from intake to follow-up.

<sup>26</sup> Current employment status at follow-up was missing for 3 cases.

FIGURE 2C.2. CHANGE IN CURRENT EMPLOYMENT STATUS (n = 1274)



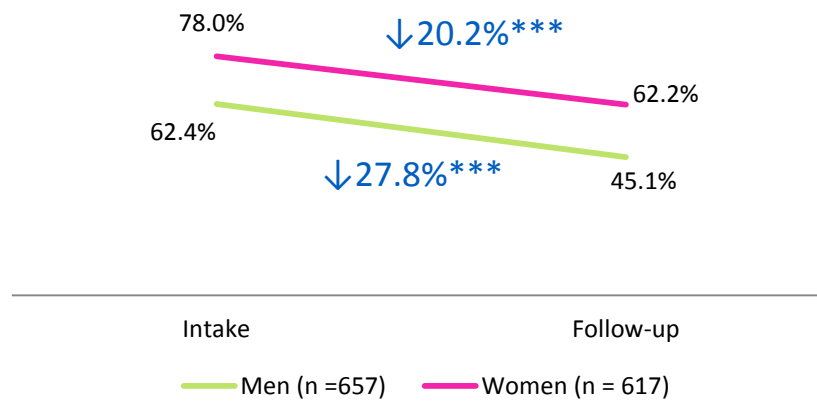
\*p < .05, \*\*p < .01, \*\*\*p < .001.

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: 78.0% vs. 62.4% at intake and 62.2% vs. 45.1% at follow-up. The number of clients who were currently unemployed decreased significantly for both women and men (see Figure 2C.3).

FIGURE 2C.3. GENDER DIFFERENCES IN CURRENT EMPLOYMENT STATUS AT INTAKE AND FOLLOW-UP-- UNEMPLOYED<sup>a</sup>



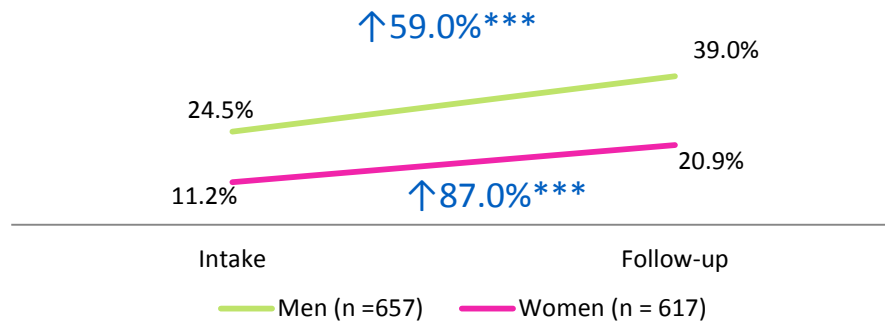
\*p < .05, \*\*p < .01, \*\*\*p < .001

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

### CURRENTLY EMPLOYED FULL-TIME

The number of men who reported they were employed full-time was twice as high as the number of women at intake (24.5% vs. 11.2%) as well as at follow-up (20.9% vs. 39%). Both genders, however, had significant increases in full-time employment from intake to follow-up (87.0% for women and 59.0% for men).

FIGURE 2C.4. GENDER DIFFERENCES IN CURRENT EMPLOYMENT STATUS AT INTAKE AND FOLLOW-UP – EMPLOYED FULL-TIME<sup>a</sup>



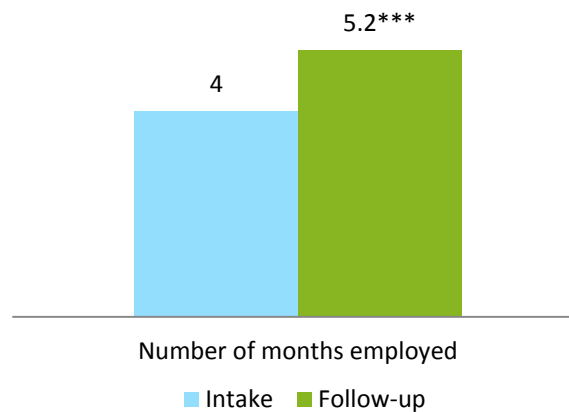
\*p < .05, \*\*p < .01, \*\*\*p < .001

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

### NUMBER OF MONTHS EMPLOYED

Clients were asked in the intake survey to report the number of months they were employed full-time or part-time in the 12 months before they entered treatment. At follow-up they were asked to report the number of months they were employed full-time or part-time in the 12 months before the follow-up survey. Of the 1270 clients who indicated the number of months they were employed at intake<sup>27</sup>, 43.1% reported working 0 months. At follow-up, 35.0% reported working 0 months in the past 12 months. As seen in Figure 2C.5, clients reported working significantly more months at follow-up (5.2) than at intake (4.0).

FIGURE 2C.5. CHANGE IN NUMBER OF MONTHS EMPLOYED (n = 1270)



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

<sup>27</sup> 7 cases had missing data on the variable at follow-up.



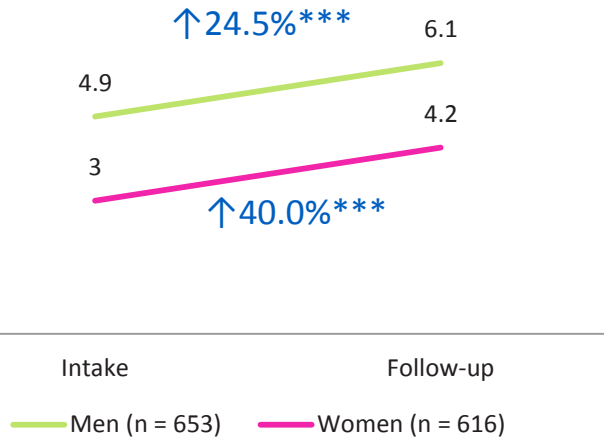
**GENDER DIFFERENCES IN THE NUMBER OF MONTHS EMPLOYED**

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



Men reported working a significantly greater number of months at both periods compared to women (intake 4.9 vs. 3 and follow-up 6.1 vs. 4.2). The number of months men were employed in the past 12 months increased significantly by 24.5% from intake to follow-up, and the number of months women were employed increased significantly by 40%.

FIGURE 2C.6 GENDER DIFFERENCES IN NUMBER OF MONTHS EMPLOYED<sup>a</sup>



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

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

*“The people, the staff, everything was top notch. They treated me like family.”*

-KTOS client on why they chose their rating



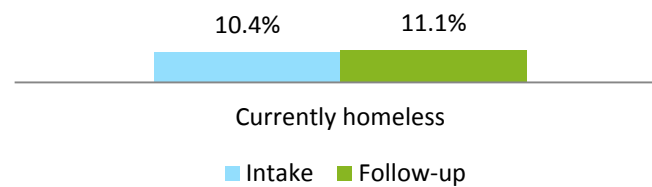
## LIVING SITUATION

*This subsection of target 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

About 1 in 10 clients reported at treatment intake they were currently homeless with no significant change at follow-up (see Figure 2D.1).

FIGURE 2D.1. CHANGE IN CURRENT HOMELESSNESS (N=1274)



About 1 in 10 clients reported they were currently homeless at intake and follow-up

## LIVING SITUATION

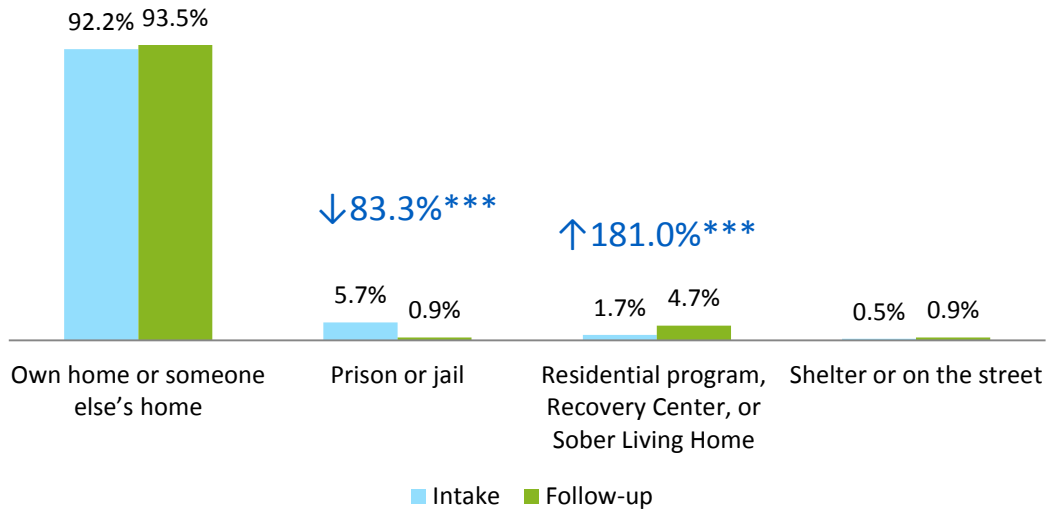
Change in usual living situation from intake to follow-up was examined for the KTOS follow-up sample (see Figure 2D.2)<sup>28</sup>. At intake clients were asked about where they lived for the majority of the time in the 12 months before entering treatment and at follow-up clients were asked where they lived for the majority of the time in the 12 months before the follow-up interview.

*The number of clients residing in a prison or jail decreased significantly by 83%*

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 decrease of 83.3% in the number of clients who reported their usual living situation was incarceration in jail or prison (from 5.7% at intake to 0.9% at follow-up). There was a significant increase of 181% in the number of clients who reported their usual living situation in the past 12 months was in a residential program, Recovery Center, or Sober Living home, although the percentage of clients reporting this living situation was still low at follow-up: 4.7%. Only a small number of clients reported living in a shelter or on the street at intake or follow-up.

<sup>28</sup> 9 cases had missing information on usual living situation in the 12 months before follow-up.

FIGURE 2D.2. CHANGE IN USUAL LIVING SITUATION (n=1268)



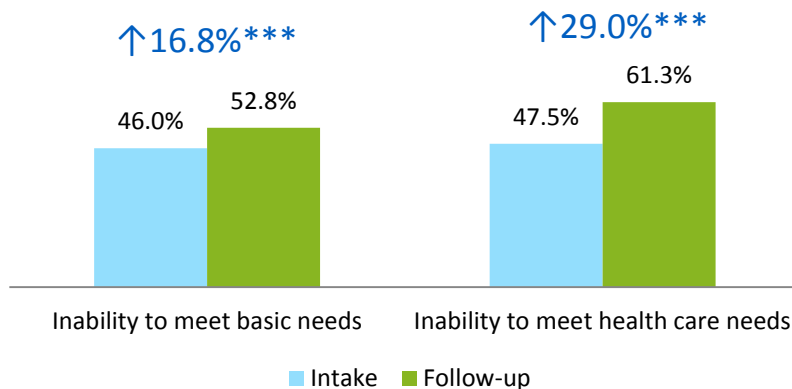
\*p < .05, \*\*p < .01, \*\*\*p < .001.

### 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<sup>29</sup>. 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 and the number of clients who had difficulty obtaining medical care for financial reasons increased significantly from intake to follow-up (see Figure 2D.3). At intake 46.0% of clients reported they were unable to meet at least one of the basic living needs for financial reasons. At follow-up, over half of clients were unable to meet at least one of the basic needs, which was a significant increase of 16.8%. Similarly, a little less than half of clients (47.5%) reported their household had difficulty meeting health care needs in the 12 months before clients entered treatment, with a 29.0% increase in the number of clients having difficulty meeting health care needs in the 12 months before follow-up.

FIGURE 2D.3. DIFFICULTY IN MEETING BASIC AND HEALTH CARE NEEDS FOR FINANCIAL REASONS (n = 1276)



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

<sup>29</sup> 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**

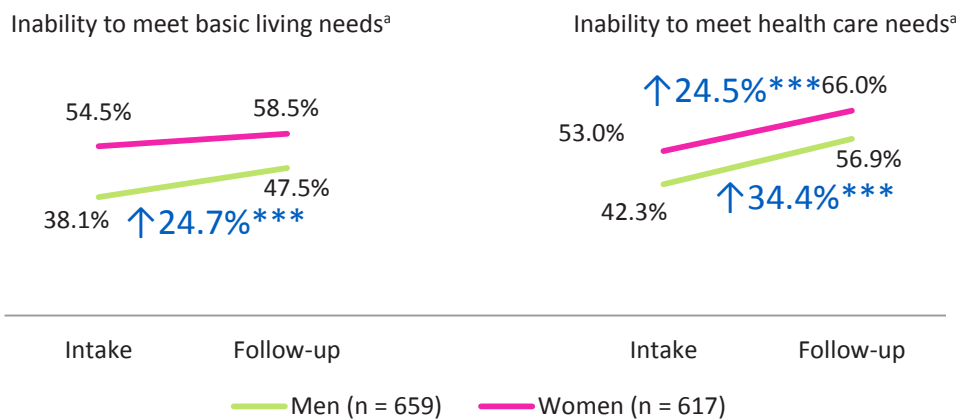
There were significant gender differences in clients’ inability to meet basic living needs at intake and follow-up (see Figure 2D.4). Compared to men, more women reported having difficulty meeting their basic living needs (e.g., housing, utilities, telephone, and food) at intake and follow-up. Over half of women (54.5%) reported difficulty meeting basic living needs at intake compared to 38.1% of men. There was a significant increase of 24.7% in the number of men who reported having difficulty meeting basic living needs at follow-up, with 47.5% reporting difficulty meeting basic needs at follow-up. However, there was no significant change for women in the inability to meet basic living needs.



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

Further, over half of women (53.0%) reported inability to meet health care needs at intake compared to 42.3% of men. Similarly, at follow-up, two-thirds of women reported the inability to meet health care needs compared to 56.9% for men. The number of men and women who reported difficulty meeting health care needs increased significantly by 34.4% and 24.5% at follow-up.

FIGURE 2D.4 GENDER DIFFERENCES IN INABILITY TO MEET BASIC LIVING NEEDS AND HEALTH CARE NEEDS FOR FINANCIAL REASONS<sup>a,b</sup>



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

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

## CRIMINAL JUSTICE SYSTEM INVOLVEMENT

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.

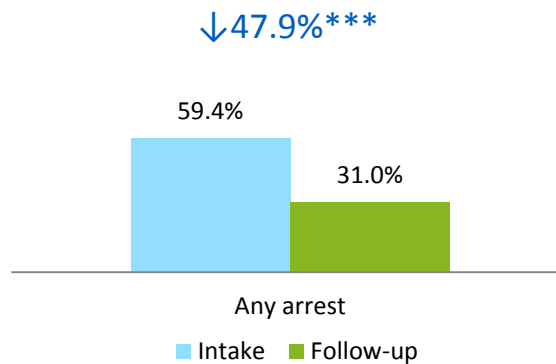
### ARRESTS

#### ARRESTS IN THE PAST 12 MONTHS

Percentage of clients reporting any arrest significantly decreased 48% at follow-up

At intake clients were asked about their arrests in the 12 months before they entered treatment<sup>30</sup>. At follow-up clients were asked about their arrests in the 12 months prior to the follow-up interview. Over half of clients (59.4%) reported an arrest in the 12 months before entering treatment (see Figure 2E.1). At follow-up, this percentage had decreased significantly by 47.9% to 31.0%.

FIGURE 2E.1. CHANGE IN PERCENTAGE OF CLIENTS REPORTING ARRESTS IN THE PAST 12 MONTHS (n = 1273)

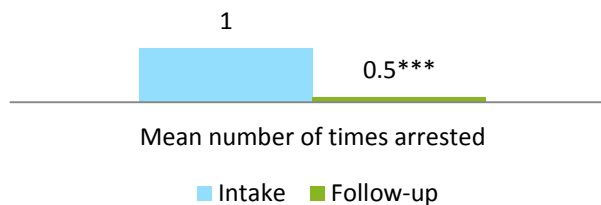


\*p < .05, \*\*p < .01, \*\*\*p < .001.

#### MEAN NUMBER OF ARRESTS

At intake, the mean number of times clients reported being arrested in the past 12 months was 1.0 time (see Figure 2E.2). In the 12 months before follow-up, the mean number of times arrested was 0.5 times, which was a statistically significant decrease<sup>31</sup>.

FIGURE 2E.2. CHANGE IN MEAN NUMBER OF TIMES ARRESTED (n = 1273)



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

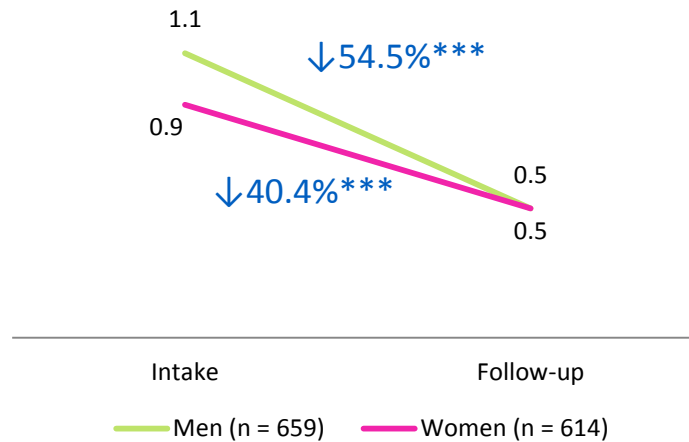
<sup>30</sup> Three cases had missing data on arrests in the 12 months before follow-up.

<sup>31</sup> Three cases had missing data for number of arrests in the 12 months before follow-up.

### GENDER DIFFERENCES IN MEAN NUMBER OF ARRESTS

Men reported significantly more arrests in the 12 months before entering treatment compared to women (see Figure 2E.3). Significant decreases in number of arrests were found for men and women. At follow-up, there was no difference in the mean number of arrests by gender.

FIGURE 2E.3 GENDER DIFFERENCES IN NUMBER OF ARRESTS (n = 1273)<sup>a</sup>



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

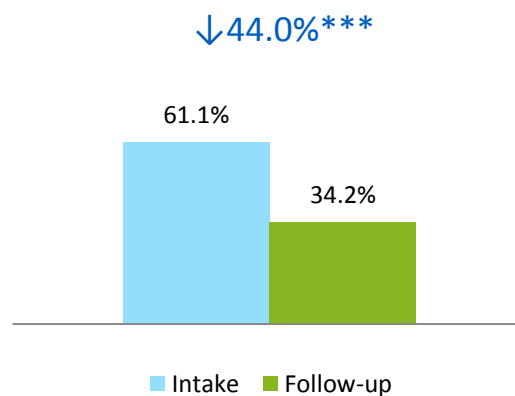
a—Significant difference in number of arrests at intake by gender; p < .05.

## INCARCERATION AND SELF-REPORTED CRIMINAL JUSTICE SYSTEM SUPERVISION

### INCARCERATION

About six in ten clients reported spending at least one day in jail or prison in the 12 months prior to entering treatment (See Figure 2E.4). At follow-up, 34.2% of clients reported spending at least one day incarcerated in the past 12 months; a significant decrease of 44.0%.

FIGURE 2E.4. CHANGE IN PERCENTAGE OF CLIENTS REPORTING INCARCERATION (n = 1274)



The number of clients who spent at least one day incarcerated decreased by 44%

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

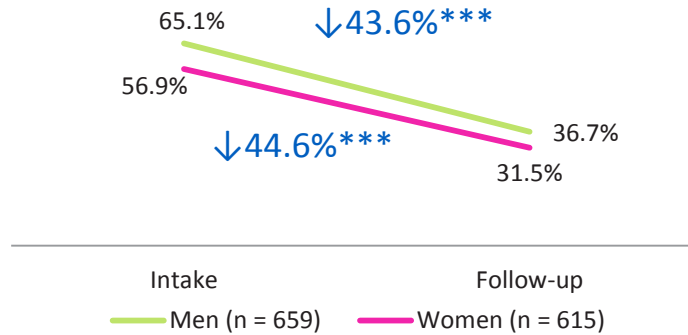
### GENDER DIFFERENCES IN INCARCERATION

Significantly more men than women reported being incarcerated in the 12 months before entering treatment; however, by follow-up there were no significant differences in the number of men and women who were incarcerated (see Figure 2E.5)<sup>32</sup>.



Significantly more men than women reported being incarcerated before intake

FIGURE 2E.5. GENDER DIFFERENCES IN PERCENTAGE OF CLIENTS REPORTING INCARCERATION (n = 1274)<sup>a</sup>

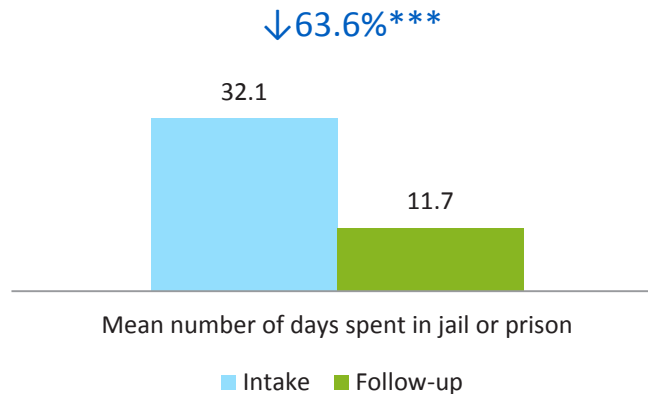


\*p < .05, \*\*p < .01, \*\*\*p < .001.  
a— Significant difference by gender at intake; p < .01.

### MEAN NUMBER OF DAYS SPENT INCARCERATED

There was a significant decrease in the mean number of days spent in jail or prison from 32.1 days at intake to 11.7 days at follow-up (see Figure 2E.6).

FIGURE 2E.6. CHANGE IN MEAN NUMBER OF DAYS INCARCERATED (n = 1275)



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

*“I loved the counselors there. They’re really blunt. They help you understand. All of them are really helpful. All the information, if you’re really serious about it, it’ll stay in you.”*

-KTOS client on why they chose their rating



<sup>32</sup> Data missing for incarceration on two clients at follow-up and one transgender person was not included in the gender comparison.

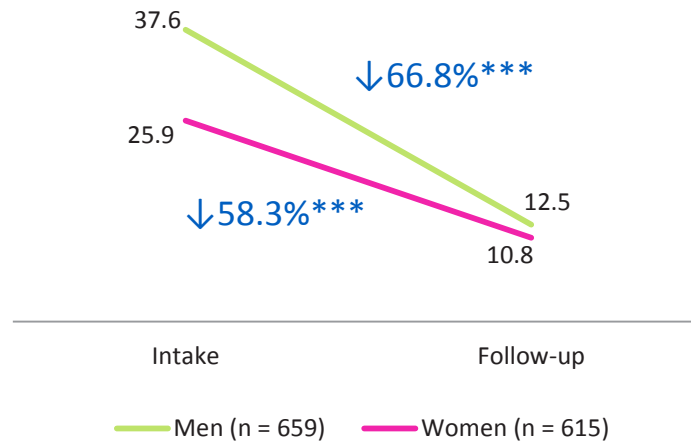
### GENDER DIFFERENCES IN INCARCERATION

*Men reported significantly more days incarcerated in the 12 months before intake compared to women*



Men reported spending more days incarcerated in the 12 months before entering treatment compared to women. There were significant decreases in the mean number of days spent incarcerated from intake to follow-up for men and women<sup>33</sup>. By follow-up there were no significant differences in the mean days incarcerated between men and women (see Figure 2E.7).

FIGURE 2E.7. GENDER DIFFERENCES IN MEAN NUMBER OF DAYS INCARCERATED<sup>a</sup>

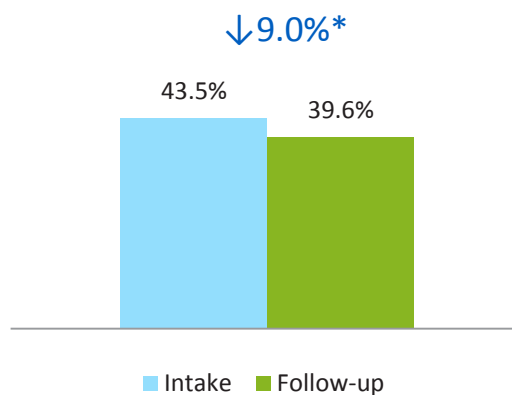


\*p < .05, \*\*p < .01, \*\*\*p < .001.  
 a— Significant difference by gender at intake; p < .01.

### 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 43.5% at intake to 39.6% at follow-up (See Figure 2E.8)<sup>34</sup>.

FIGURE 2E.8. CHANGE IN PERCENTAGE OF CLIENTS REPORTING SUPERVISION BY THE CRIMINAL JUSTICE SYSTEM (n = 1275)



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

<sup>33</sup> Data missing for incarceration on two clients at follow-up and one transgender person was not included in the gender comparison.

<sup>34</sup> Data was missing on supervision at follow-up for one individual and one transgender person was not included.



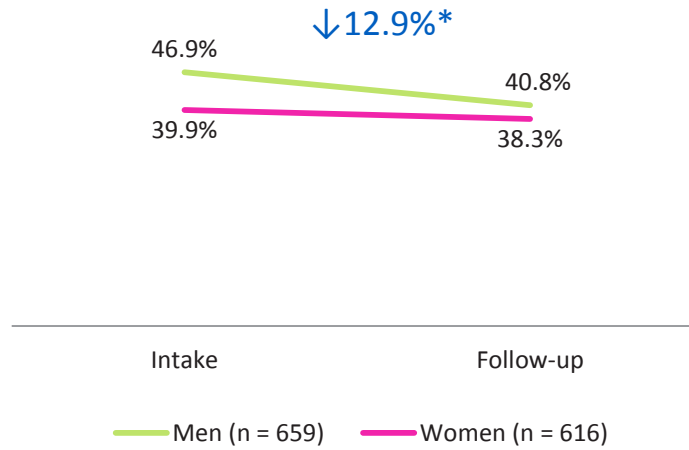
**GENDER DIFFERENCES IN CLIENTS REPORTING CRIMINAL JUSTICE SUPERVISION**

Significantly more men than women reported they were under supervision by the criminal justice system at treatment intake (see Figure 2E.9). However, there was no difference by gender at follow-up<sup>35</sup>.



*More men than women reported they were under supervision by the criminal justice system at treatment intake*

FIGURE 2E.9. GENDER DIFFERENCES IN CLIENTS REPORTING CRIMINAL JUSTICE SUPERVISION<sup>a</sup>



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

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

<sup>35</sup> Data was missing on supervision at follow-up for one individual and one transgender person was not included in the analysis of difference by gender.



## Section 3: Recovery Services

---

*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.*

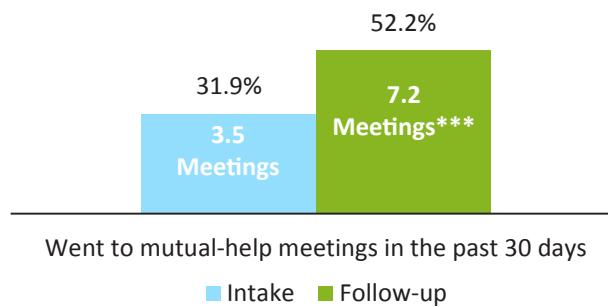
## MUTUAL HELP RECOVERY GROUP MEETING ATTENDANCE

*There was a 64% increase in the percentage of clients reporting attending mutual help recovery groups*

At intake, only 31.9% of clients reported going to mutual help recovery group meetings (e.g., AA, NA, or faith-based) in the past 30 days (See Figure 3.1). At follow-up, there was a significant increase of 63.8%, with 52.2% of clients reporting they had gone to mutual help recovery group meetings in the past 30 days.

The number of meetings attended increased significantly from 3.5 at intake to 7.2 at follow-up; a 105.7% increase for the overall sample.

↑63.8%\*\*\*

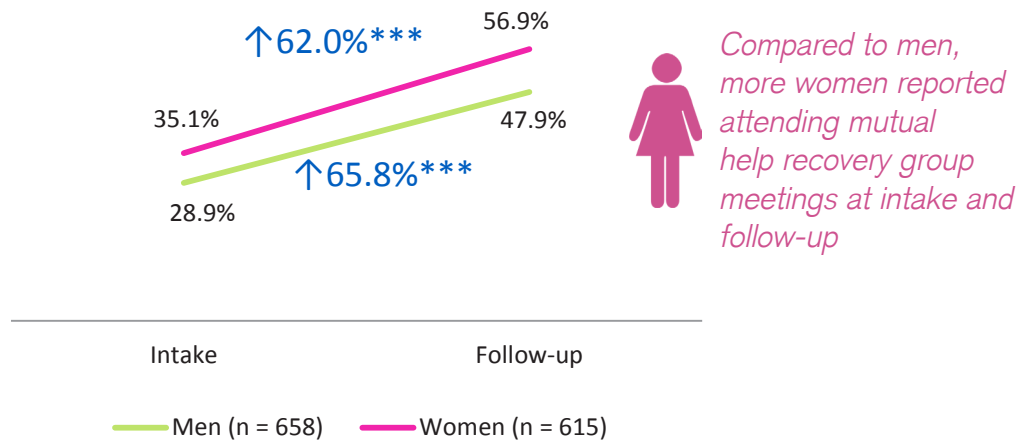


\*p < .05, \*\*p < .01, \*\*\*p < .001.

## 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 3.2)<sup>36</sup>.

FIGURE 3.2. GENDER DIFFERENCES IN CLIENTS ATTENDING MUTUAL HELP RECOVERY GROUP MEETINGS<sup>a</sup>



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

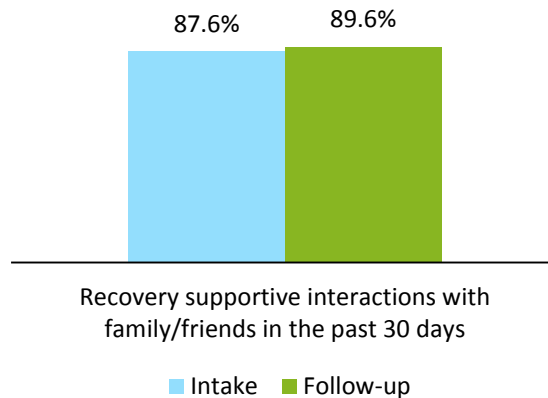
a—Significant difference by gender at intake (p < .05) and follow-up (p < .01).

<sup>36</sup> Data was missing at follow-up for three clients

## 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 3.3)<sup>37</sup>. There was no significant change in the number of clients overall who reported having recovery supportive interactions with family or friends.

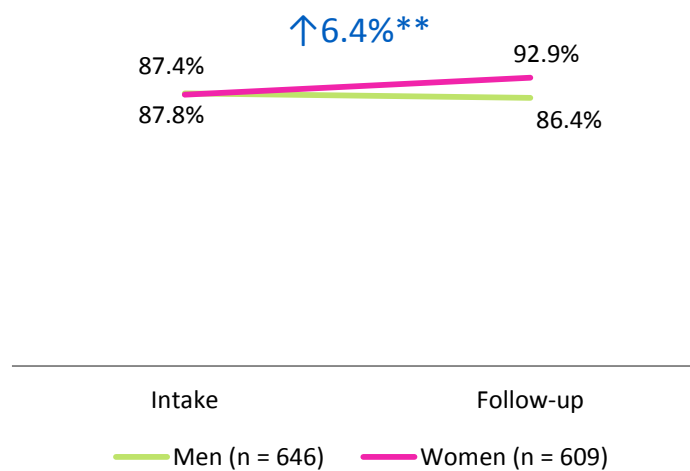
FIGURE 3.3. CHANGE IN RECOVERY SUPPORTIVE INTERACTIONS WITH FAMILY/FRIENDS IN THE PAST 30 DAYS (n=1255)



## 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 follow-up (92.9% compared to 86.4%). The number of men who reported having recent interactions with family and friends who were supportive of their recovery decreased slightly from intake (87.8%) to follow-up (86.4%). The number of women reporting having recent interactions with family and friends who were supportive of their recovery increased significantly by 6.4% from intake to follow-up (see Figure 3.4).

FIGURE 3.4 GENDER DIFFERENCES IN RECOVERY SUPPORTIVE INTERACTIONS WITH FAMILY/FRIENDS IN THE PAST 30 DAYS<sup>a</sup>



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

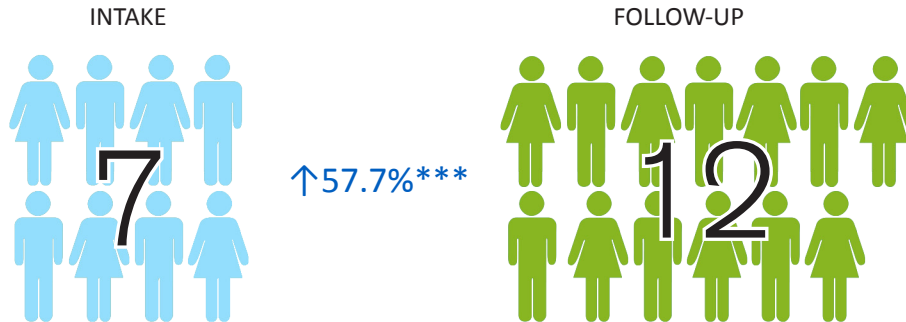
a—Significant difference by gender at follow-up, p < .001.

<sup>37</sup> Data was missing at follow-up for 21 cases.

## MEAN NUMBER OF PEOPLE CLIENT COULD COUNT ON FOR RECOVERY SUPPORT

The mean number of people clients reported that they could count on for support increased significantly by 57.7%, from 7.8 people at intake to 12.3 people at follow-up (see Figure 3.5)<sup>38</sup>.

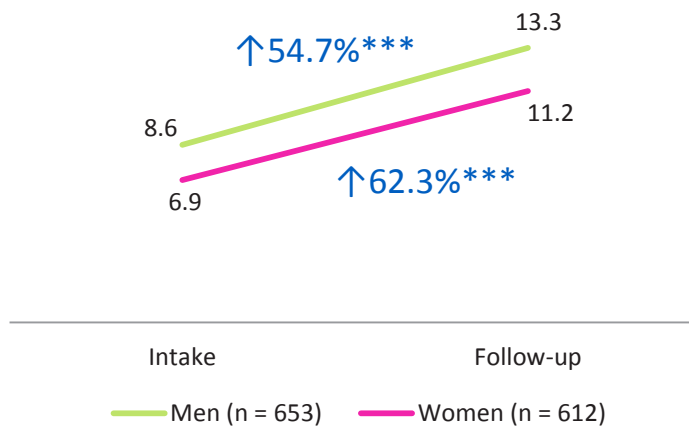
FIGURE 3.5. CHANGE IN THE NUMBER OF PEOPLE CLIENTS COULD COUNT ON FOR RECOVERY SUPPORT (n = 1266)



## GENDER DIFFERENCES IN THE MEAN NUMBER OF PEOPLE CLIENTS COULD COUNT ON FOR RECOVERY SUPPORT

Men reported they had more people they could count on for recovery support compared to women at both intake and follow-up (see Figure 3.6) although there were increases over time for both men and women.

FIGURE 3.6 GENDER DIFFERENCES IN THE MEAN NUMBER OF PEOPLE CLIENTS COULD COUNT ON FOR RECOVERY SUPPORT<sup>a</sup>



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

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

*“I went in there not knowing a lot about why I did the things I did. They gave me some insight and helped me get better.”*

-KTOS client on why they chose their rating



<sup>38</sup> 11 cases had missing data on the intake survey



**Section 4:**  
**Clinical Service and  
Diagnostic Information**

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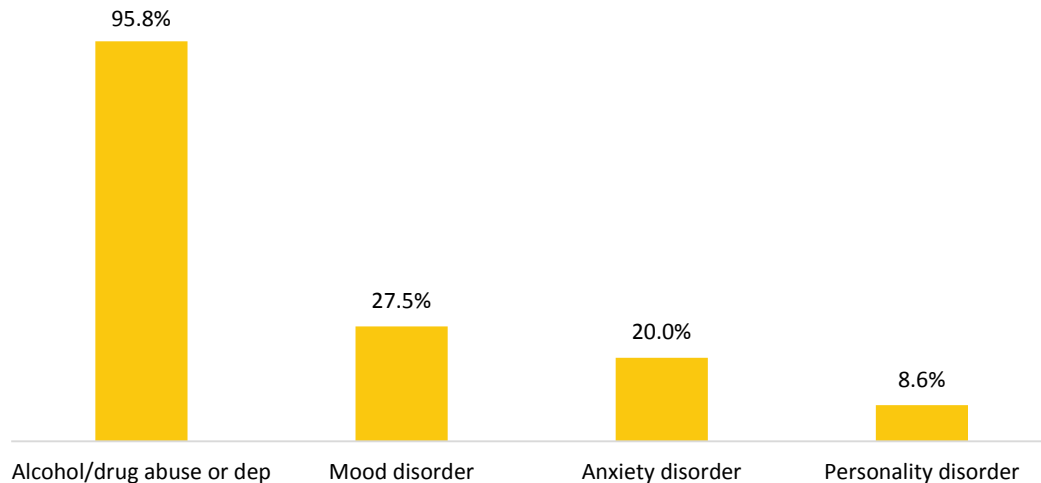
*This section examines mental health diagnosis and service event data submitted by community mental health center (CMHC) providers to the Department for Behavioral Health, Developmental and Intellectual Disabilities.*

## 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 1,165 clients.

Figure 4.1 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. Nearly all clients had a diagnosis of alcohol and/or drug abuse/dependence. A little more than one quarter had a mood disorder diagnosis (e.g., depression or non-psychotic bipolar disorder). One in five had an anxiety disorder diagnosis (e.g., generalized anxiety disorder, panic disorder, or obsessive-compulsive disorder).

FIGURE 4.1. DSM-IV DIAGNOSES FOR CLIENTS IN SUBSTANCE ABUSE TREATMENT BETWEEN JULY 1, 2010 AND JUNE 30, 2011 (n = 1,165)



Of the 1,277 clients in the KTOS follow-up sample, 290 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 4.2. The majority of KTOS clients (59.3%) received individual therapy, about 1 in 3 received group therapy and 3 in 10 received substance abuse residential services. About 1 in 5 received evaluation and diagnostic services. Smaller percentages received substance abuse-related case management, psychiatric individual therapy, intensive outpatient services, other family services, and mental health-related case management<sup>39</sup>.

<sup>39</sup> Service categories found for fewer than 5% of the 987 clients are not shown in the figure.

FIGURE 4.2. PERCENTAGE OF CLIENTS RECEIVING EACH TYPE OF SERVICE OF THOSE WITH ANY SERVICES INCLUDED IN THE DATA (n = 987)

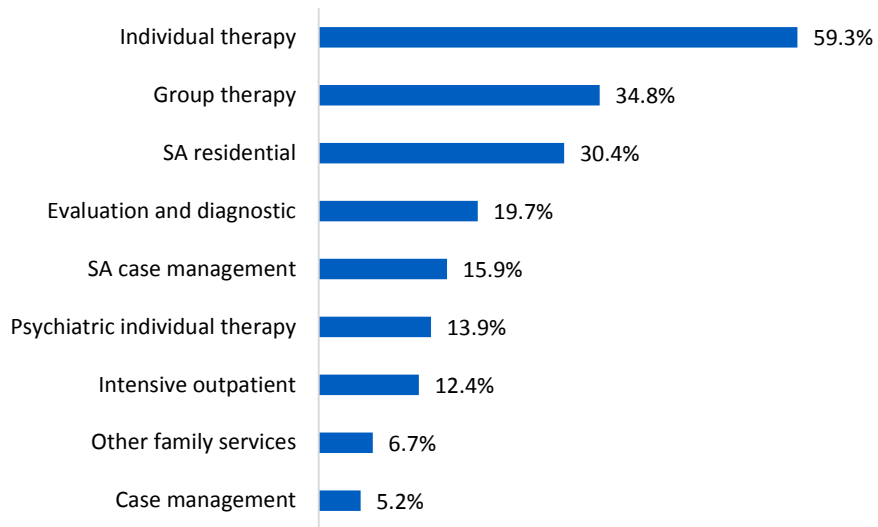
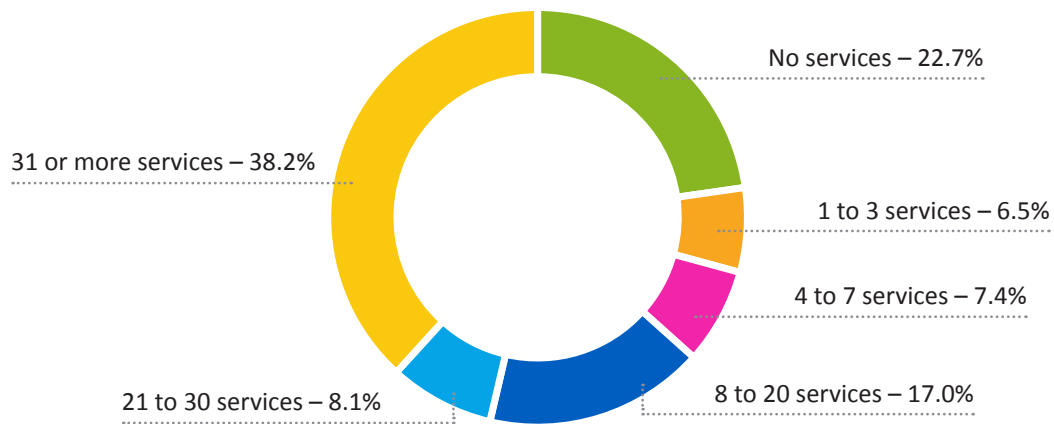
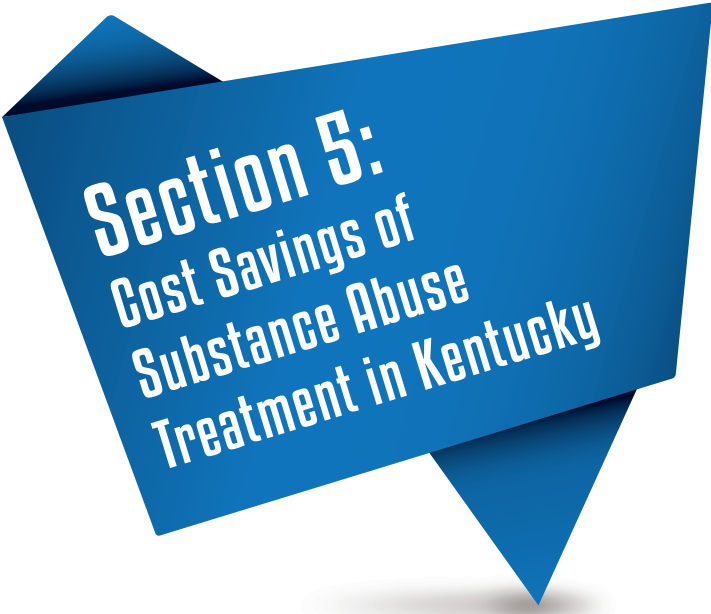


Figure 4.3 shows the range in the number of clinical services KTOS clients received. Over one-third (38.2%) received 31 services or more while 22.7% of clients had no recorded services.

FIGURE 4.3. DISTRIBUTION IN NUMBER OF CLINICAL SERVICES (n = 1,277)







**Section 5:  
Cost Savings of  
Substance Abuse  
Treatment in Kentucky**

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*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 and drug abuse in the United States<sup>40</sup>. In 2000 the estimated costs of alcohol abuse in the United States was updated<sup>41</sup> and in 2004 the U.S. Office of Drug Control Policy updated the estimates of drug abuse in the United States<sup>42</sup>. 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 2011 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<sup>43</sup>.

Next, to calculate an estimate of the cost of alcohol and drug abuse per person, those updated national costs were divided by the 2011 federally derived estimates of the number of clients with alcohol abuse/dependence (14.1 million) and drug abuse/dependence (3.9 million) and 2.6 million clients who had abuse/dependence on alcohol and drugs in the nation<sup>44</sup>. Because the national cost estimates of alcohol abuse/dependence were examined separately from drug abuse/dependence, the 2.6 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<sup>45</sup>. 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

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<sup>40</sup> 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>

<sup>41</sup> Harwood, H. (2000). Harwood, H. 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.

<sup>42</sup> U.S. Office of National Drug Control Policy. (2004). National drug control strategy. <http://www.state.gov/documents/organization/30228.pdf>

<sup>43</sup> <http://www.minneapolisfed.org>

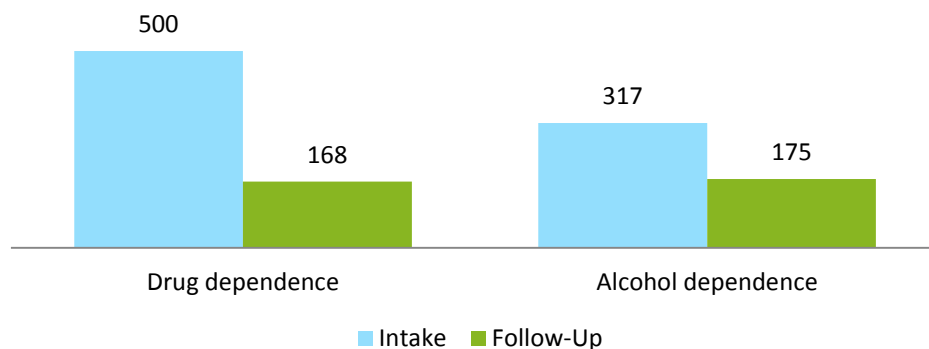
<sup>44</sup> SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 and 2011 (2010 Data – Revised March 2012). <http://www.samhsa.gov/data/NSDUH/2k11State/NSDUHsaeCountTabs2011.pdf>

<sup>45</sup> To do this the proportion of clients who were not in the alcohol and drug abuse/dependent category who were in the alcohol category (0.78) and the drug category (0.22) was estimated. Then that proportion was multiplied by the 2.6 million to assign the cross-addicted clients to one of the categories (drug abuse or alcohol abuse).

for dependence from the period before treatment to after treatment was examined.

Figure 5.1 shows the change in the number of clients who met criteria for drug dependence or alcohol dependence (based on ASI drug and alcohol composite severity 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 500 clients were classified in the drug dependent category and 317 in the alcohol dependent category. At follow-up, 168 clients were classified in the drug dependent category and 175 clients in the alcohol dependent category.

FIGURE 5.1 CHANGE FROM INTAKE TO FOLLOW-UP IN THE NUMBER OF CLIENTS WHO MET CRITERIA FOR DRUG DEPENDENCE OR ALCOHOL DEPENDENCE



The average annual cost to society of an active drug user in 2011 dollars was \$50,677. The average annual cost to society of an active alcohol user was \$15,786. Thus, when this average annual cost per individual drug user was applied to the 500 clients who met criteria for drug dependence at intake, the annual cost to society was estimated at \$25,338,500. When the average annual cost per individual alcohol user was applied to the 317 clients who met criteria for alcohol dependence at intake, the estimated cost to society was \$5,004,162. The estimated total cost of drug and alcohol dependence applied to the sample of clients in KTOS in the 12 months before intake was \$30,342,662. By follow-up, the estimated cost of the 168 clients who met criteria for drug dependence was \$8,513,736 and the estimated cost of the 175 clients who met criteria for alcohol dependence was \$2,762,550, for a total of \$11,276,286. Thus, as shown in Figure 5.2, after participation publicly-funded substance abuse treatment, the aggregate cost to society for these 1,277 clients was reduced by \$19,066,376.

FIGURE 5.2. CHANGE IN COST TO SOCIETY AT INTAKE AND FOLLOW-UP (AMOUNTS IN MILLIONS OF DOLLARS) (n=1277)



### COST OF TREATMENT

The clinical service event data described in Section 4 were 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 units 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 were matched to clients in the KTOS follow-up sample (n = 1,277) 290 cases had no services listed<sup>46</sup>. The mean cost of behavioral health treatment services per client for the 987 clients that had services in the clinical service data set was \$2,831. 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 1,277 clients in the KTOS follow-up sample was calculated by summing the cost per person, resulting in a total of \$3,622,446.

### COST SAVINGS

For every dollar spent on publicly funded substance abuse treatment, there was a **\$5.26** return in avoided costs

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: \$19,066,376/\$3,622,446, which equals \$5.26 (see Table 5.1). In other words, for every dollar spent on publicly funded substance abuse treatment there is a savings of \$5.26 in costs to society associated with alcohol and drug addiction.

TABLE 5.1. COST SAVINGS OF PROVIDING TREATMENT TO SUBSTANCE ABUSING/DEPENDENT CLIENTS

	ALCOHOL AND DRUG DEPENDENCE BASED ON ASI SEVERITY COMPOSITE SCORES	
	INTAKE	FOLLOW-UP
DRUG DEPENDENCE		
Number of clients	500	168
ALCOHOL DEPENDENCE		
Number of clients	317	175
TOTAL COST TO SOCIETY OF DRUG AND ALCOHOL DEPENDENCE	\$30,342,662	\$11,276,286
COST DIFFERENCE FROM INTAKE TO FOLLOW-UP	\$19,066,376	
COST OF TREATMENT	\$3,622,446	
SAVINGS/COST RATIO	\$19,066,376/\$3,622,446	
RETURN ON \$1.00 INVESTMENT	\$5.26	

<sup>46</sup> Reasons that services are not included in the clinical service data can include the following: the payer source was not Medicaid or DBHDID, data entry error, error in social security number which is used to match data from the two data sets.



**Section 6:**  
Conclusions and  
Implications

Findings from the 2013 Kentucky treatment outcome evaluation suggest positive results in terms of significant reductions in substance use and criminal justice system involvement and significant increases in education and employment over the 12-month period between intake and follow-up. Further, clients were satisfied with their treatment experience and saw value in the services they received. Clients 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 \$5.26 in costs to society that would have been expected had the drug and alcohol use 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.

**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 86.8% reporting smoking at follow-up. In particular, a higher percentage of women reported smoking compared to men at both intake and follow-up. Tobacco use has been associated with increased mental health symptoms in addition to the well-known physical health problems linked to smoking<sup>47</sup>. Recent studies also suggest that while some treatment programs neglect tobacco use, smoking cessation during substance abuse treatment can actually enhance successful treatment outcomes because of the association of tobacco smoking and drinking and/or drug use<sup>48,49,50,51</sup>.

**Mental Health.** Depression rates were nearly unchanged by follow-up, with almost half of clients meeting self-reported DSM-IV depression criteria at follow-up. Reported anxiety symptoms rose by 25% with 54.7% meeting self-report DSM-IV criteria for generalized anxiety at follow-up. Furthermore, the proportion of clients meeting self-report criteria for both depression and generalized anxiety remained stable with 38.1% of clients reporting co-morbidity at follow-up. Addressing co-occurring disorders may be an important element of treatment. According to SAMHSA (2012), only about 7.4% of individuals in the U.S. with co-occurring disorders received needed co-occurring treatment services; therefore, inclusion of integrated screening and brief intervention for co-occurring issues may be helpful.

**Meeting Basic Needs.** The number of clients reporting continued or increased difficulty in meeting basic living needs such as paying for rent/mortgage, utilities, phone, or food rose from intake (46%) to follow-up (52.8%). Similarly, 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 from 47.5% at intake to 61.3% at follow-up. Providing referrals and support for these problems may help improve basic living situations for many clients and support continued recovery living for long-term positive results from treatment.

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<sup>47</sup> 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.

<sup>48</sup> Baca, C., & Yahne, C. (2009). Smoking cessation during substance abuse treatment: What you need to know. *Journal of Substance Abuse Treatment*, 36, 205-219.

<sup>49</sup> Friend, K. B., & Pagano, M. E. (2004). Smoking initiation among nonsmokers during and following treatment for alcohol use disorders. *Journal of Substance Abuse Treatment*, 26, 219-224.

<sup>50</sup> Frosch, D. L., Shoptaw, S., Nahom, D., & Jarvik, M. E. (2000). Associations between tobacco smoking and illicit drug use among methadone-maintained opiate-dependent individuals. *Experimental and Clinical Psychopharmacology*, 8, 97-103.

<sup>51</sup> McCool, R. M., & Richter, K. P. (2003). Why do so many drug users smoke? *Journal of Substance Abuse Treatment*, 25, 43-49.

**Gender Differences.** More men than women reported illegal drug and alcohol use, using alcohol to intoxication, and binge drinking in the 12 months and 30 days before follow-up. Focusing on men's need for person-specific coping mechanisms that aid the individual in maintaining abstinence may be helpful, as well as including gender-specific support groups<sup>52</sup>.

More women than men reported mental health symptoms including depression. Further, women reported their mental health was not good more days than compared to men and also indicated their physical or mental health had kept them from doing their usual activities. Again, 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 which may have contributed to the lower quality of life ratings at both intake and follow-up compared to men. Specifically, the number of men who reported full-time employment was twice as high as the number of women, while women were significantly more likely to report unemployment compared to men at intake. Thus, more women than men reported difficulty in accessing basic needs and more difficulty in meeting health care needs.

### **Conclusions**

This 2013 outcome report for KTOS provides a valuable look at the outcomes of publicly funded substance abuse treatment in Kentucky. The significant increases in abstinence across all substances except tobacco, increased employment, and decreased rates of criminal justice system involvement indicate successful achievement of the overall treatment goals for the clients and substance abuse treatment programs in Kentucky.

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<sup>52</sup> Cook, L., Epperson, L., & Gariti, P. (2005). Determining the need for gender-specific chemical dependence treatment: Assessment of treatment variables. *American Journal of Addictions, 14*(4), 328-338. doi/abs/10.1080/10550490591003648.

## Appendix A: Methods

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*Appendix A describes the sampling strategy for the KTOS follow-up surveys. The goal of this plan is to target clients for a follow-up survey 12 months after an intake survey is submitted to UK CDAR.*



The KTOS evaluation uses a pre- and post-intervention research design, meaning that client data is collected at treatment intake and compared to client 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 5,700 clients who completed an intake survey, 3,401 (59.7%) 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 selecting over half of the clients by intake month (n = 2,033).

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 is submitted. Of the 2,033 clients included in the follow-up sample, 362 were ineligible for participating in the follow-up survey for a variety of reasons (e.g., incarcerated, in residential treatment, deceased), which left 1,671 clients eligible for follow-up. Of these clients, 1,277 completed a follow-up survey (see Table AA.1). Thus, the follow-up rate was 76.4%. The remaining clients either (1) refused (1.6%) to complete the follow-up survey, or (2) were never successfully contacted, or if contacted they never completed the follow-up survey (22.0%).

TABLE AA.1. FINAL CASE OUTCOMES FOR FOLLOW-UP EFFORTS (n = 2,033)

	Number of Records	Percent (n = 2,033)
Ineligible for follow-up survey	362	17.8%
	Number of cases eligible for follow-up (n = 1,671)	
Completed follow-up surveys	1,277	
Follow-up rate is calculated by dividing the number of completed surveys by the number of eligible cases and multiplying by 100		76.4%
Expired cases (i.e., never contacted, did not complete the survey during the follow-up period)	368	
Expired rate ((the number of expired cases/eligible cases)*100)		22.0%
Refusal	26	
Refusal rate (the number of refusal cases/eligible cases)*100)		1.6%
Cases accounted for (i.e., records ineligible for follow-up + completed surveys + refusals)	1,665	
Percent of cases accounted for ((# of cases accounted for/total number of records in the follow-up sample)*100		81.9%

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 362 cases that were ineligible for follow-up, the majority (79.3%) were ineligible because they were incarcerated during the follow-up period. Fifty-seven 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 = 362)

	Number	Percent
Incarcerated	287	79.3%
In residential treatment	57	15.7%
Deceased	13	3.6%
Health condition	3	0.8%
Recently in prior follow-up sample	1	0.3%
Overseas	1	0.3%

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

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*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<sup>53</sup> (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).*

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<sup>53</sup> Significance is reported for  $p < .01$ .

## DEMOGRAPHICS

The majority of the sample for this annual report was White and male (see Table AB.1)<sup>54</sup>. 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. More clients reported their marital status as never married than any other category, yet the percentages of clients who reported being married or cohabiting, or separated or divorced were similar (ranging from 29.6% to 31.2%).

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

	FOLLOWED UP	
	NO n = 4423	YES n = 1277
AGE	32.8 years	33.0 years
GENDER**		
Female	40.5%	48.3%
RACE		
White	90.9%	90.0%
African American	7.0%	7.5%
American Indian/Native Alaskan	0.3%	0.5%
Asian	0.1%	0.1%
Hispanic	0.9%	0.6%
Multiracial	0.8%	1.3%
MARITAL STATUS		
Never married	37.3%	37.5%
Married or cohabiting	30.3%	29.6%
Separated or divorced	30.9%	31.2%
Widowed	1.5%	1.6%

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

## 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. Nearly 6% of clients reported that a controlled environment, such as jail, prison, or a hospital was their usual living environment before entering treatment. Small numbers of clients reported their usual living situation was in a residential treatment or a Recovery Center, sober living home, or in a shelter or on the streets. At the time clients entered treatment, a little more than 10% 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.

<sup>54</sup> 14 cases had missing data on race.

TABLE AB.2 LIVING SITUATION OF CLIENTS BEFORE ENTERING TREATMENT

	FOLLOWED UP	
	NO n =4423	YES n =1277
USUAL LIVING ARRANGEMENT IN THE 12 MONTHS BEFORE ENTERING THE PROGRAM		
Own home or apartment	53.9%	54.5%
Someone else's home or apartment	38.1%	37.6%
Residential treatment, Recovery Center	1.0%	1.3%
In a controlled environment (jail, prison, hospital)	5.5%	5.7%
Sober living home	0.5%	0.4%
Shelter or on the street	1.1%	0.5%
CONSIDERS SELF TO BE CURRENTLY HOMELESS		
Why the individual considers himself/herself to be homeless	11.5% (n = 508)	10.4% (n = 133)
Staying in a shelter	13.4%	7.6%
Staying temporarily with friends or family	49.4%	62.6%
Have no home to go to after leaving treatment	33.3%	28.2%
Staying on the street or in the car	0.8%	0.0%
Other reason	3.1%	1.5%

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 (e.g., food, shelter, utilities, telephone), and any of the health care needs, along with the percentages that reported each item. There were no statistically significant differences by follow-up status. The majority of clients reported they were unable to meet at least one of the basic needs for financial reasons. Additionally, a little less than half of clients 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. Inability to meet health care needs was common in the sample.

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

	FOLLOWED UP	
	NO n =4423	YES n =1277
HAD INABILITY TO MEET ANY OF THE BASIC NEEDS LISTED BELOW	57.8%	61.1%
<i>Was unable to meet basic needs (e.g. shelter, utilities, phone, food)</i>	45.4%	46.0%
Had difficulty paying the full amount of rent or mortgage	30.3%	30.1%
Evicted from home/apartment for not paying the rent or mortgage	9.6%	8.8%
Unable to pay the gas or electric bill	26.1%	25.9%
Had telephone service disconnected because of non-payment	21.6%	19.7%
There was a time when there was not enough food in the household	16.6%	18.1%
<i>Was unable to receive needed health care for financial reasons</i>	43.6%	47.5%
Needed to see a doctor or go to the hospital but wasn't able to because of financial reasons	28.6%	31.5%
Needed to see a dentist but wasn't able to because of financial reasons	35.6%	39.0%
Needed to fill a prescription but wasn't able to because of financial reasons	27.0%	30.1%

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 (53.9%) rated themselves as being on the 5th, 6th, or 7th rung on the ladder (see Figure AB.1). Clients who were followed up had a significantly lower mean 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

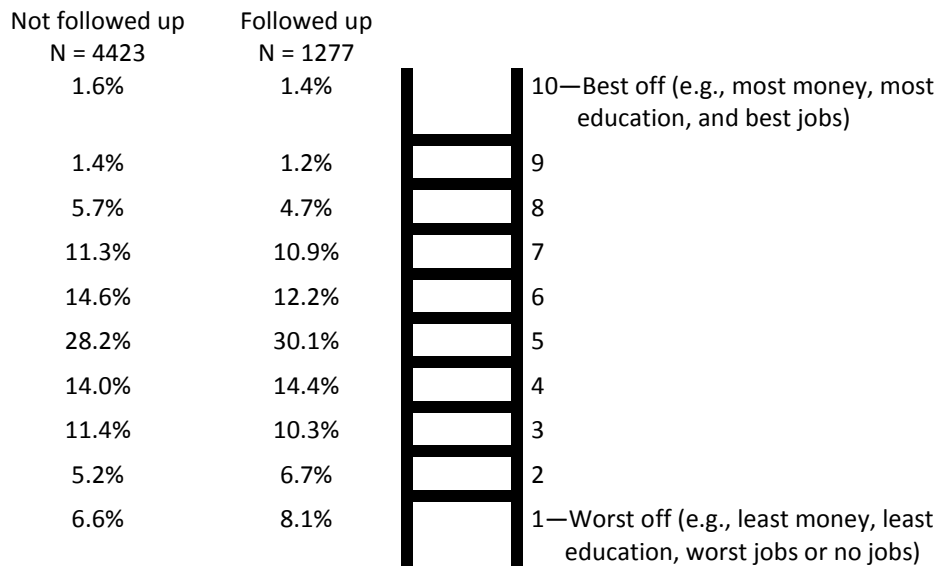


Table AB.4 describes clients’ level of education when entering treatment. Almost 1 in 5 clients had less than a high school diploma or GED. There was no difference in highest level of education completed by follow-up status.

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

	FOLLOWED UP	
	NO n =4423	YES n =1277
HIGHEST LEVEL OF EDUCATION COMPLETED		
Less than GED or high school diploma	19.5%	19.4%
GED or high school diploma or more	79.5%	79.6%

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 43.1% 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 mean number of months worked was 7.3 and 7.0 for clients not followed up and for clients followed up respectively, with no difference by group.

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

	FOLLOWED UP	
	NO n =4423	YES n =1277
<b>EMPLOYMENT</b>		
Percentage of clients who reported working for:		
0 months	40.8%	43.1%
1 to 5 months	21.5%	20.8%
6 months or more	37.7%	36.0%
Among those who were employed:	n = 2618	n = 726
Mean # of months employed in the past 12 months	7.3 months	7.0 months

## CRIMINAL JUSTICE SYSTEM INVOLVEMENT AT INTAKE

A sizeable minority of clients were under supervision by the criminal justice system when they entered treatment (e.g., probation, parole, drug court), with no 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, they reported an average of 1.7 arrests in the 12 months before entering treatment.

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

	FOLLOWED UP	
	NO n =4423	YES n =1277
Currently under supervision by the criminal justice system	42.2%	43.6%
Arrested for any charge in the 12 months before entering treatment	59.3%	59.3%
Of those with an arrest,	n = 2624	n = 757
Mean number of arrests	1.7 arrests	1.7 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<sup>55</sup>. Arrests for DUI were the most commonly reported criminal offense, with significantly more clients who were not followed up reporting they had been arrested for a DUI compared to clients who were followed up (40.3% vs. 34.9%). The criminal offense reported by the second largest percentage of clients was drug charges (e.g., trafficking, possession). Property crime arrests were reported by a little less than one-fifth of clients in both groups. About 1 in 10 clients reported an arrest for a crimes 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 27.1% of clients who were not followed up and 28.0% of clients who were followed up.

<sup>55</sup> 125 clients reported being arrested in the 12 months before entering treatment but reported no arrests in the 7 categories of criminal offenses in the survey; thus they had missing data for types of criminal offenses.

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 = 2528)	YES (n = 728)
DUI	40.3%	34.9%*
Drug charge	33.5%	37.4%
Property crime	18.5%	19.8%
Probation or parole violation	15.8%	16.8%
Crimes against a person	10.1%	9.9%
Domestic violence offense (i.e., crime against family member of intimate partner)	5.9%	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)	27.1%	28.0%

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

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 52.8 days for clients who were not followed up and 52.5 days for clients who were followed up.

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

	FOLLOWED UP	
	NO (n = 4423)	YES (n = 1277)
Incarcerated at least one day	60.6%	61.1%
Of those incarcerated	(n = 2681)	(n = 780)
Mean number of days incarcerated in the past 12 months	52.8	52.5

## 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 baseline. About 3 in 10 clients were experiencing chronic pain (pain that lasted more than 3 months) at baseline. A sizeable 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 baseline 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 (39.5% vs. 33.2%). The most commonly reported chronic medical problems are presented in Table 3.10: 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 asthma and severe dental disease<sup>56</sup>.

<sup>56</sup> The following medical problems were reported by fewer than 5% of clients in both groups and therefore are not presented in the table above: cardiovascular disease, diabetes, chronic obstructive pulmonary disease, cancer, sexually transmitted infections, hepatitis B, tuberculosis, and HIV.



TABLE AB.9. PHYSICAL HEALTH STATUS AT BASELINE

	FOLLOWED UP	
	NO (n = 4423)	YES (n = 1277)
Chronic pain (lasting at least 3 months)	29.9%	31.8%
Ever had a head injury that resulted in being knocked out or hospitalized for at least one night	36.1%	38.6%
Ever told by a doctor that client had one of the 12 chronic medical problems listed	33.2%	39.5%**
Arthritis	11.7%	12.8%
Asthma	8.5%	11.0%*
Severe dental disease	7.7%	11.6%**
Hepatitis C	5.2%	5.6%

\*p < .05, \*\*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 they 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: 47.5% vs. 42.0% (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?” In the 12 months before entering treatment, about 2 in 5 clients reported symptoms that met the criteria for Generalized Anxiety Disorder (GAD).

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 = 4423)	YES (n = 1277)
Depression	42.0%	47.5%**
Generalized Anxiety Disorder	39.0%	42.8%
Suicidality (e.g., thoughts of suicide or suicide attempts)	14.0%	15.9%

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

## SUBSTANCE USE AT INTAKE

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.11).

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

	FOLLOWED UP	
	NO (n = 4423)	YES (n = 1277)
Tobacco (smoke and smokeless)	87.1%	89.0%
Smoked tobacco	83.8%	86.4%

The majority of clients reported alcohol use in the 12 months before entering treatment. A little less than one 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 = 4423)	YES (n = 1277)
Alcohol	61.3%	61.8%
Alcohol to intoxication	48.5%	49.4%
Binge drank alcohol (i.e., drank 5 or more (4 for women) drinks in 2 hours)	37.9%	38.9%

Use of illegal drugs in the 12 months before entering treatment is presented by follow-up status in Table AB.13. There were no significant differences in the percentage of clients who reported using different types of illegal drugs by follow-up status. The most frequently reported illegal drugs used in the 12 months before entering treatment were marijuana, prescription 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. Significantly fewer clients who were followed up used heroin compared to clients who were not followed up. Even smaller percentages of clients used barbiturates, hallucinogens, and inhalants.

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

Substances	FOLLOWED UP	
	NO (n = 4423)	YES (n = 1277)
Marijuana	48.2%	50.0%
Prescription opiates (illegal use)	48.1%	45.5%
Tranquilizers, sedatives, benzodiazepines	33.2%	33.4%
Cocaine	19.8%	19.8%
Amphetamines	16.2%	17.9%
Non-prescribed buprenorphine (Suboxone, Subutex) <sup>a</sup>	16.3%	15.7%
Non-prescribed methadone	13.3%	13.2%
Heroin	8.7%	6.4%*
Barbiturates	3.6%	3.1%
Hallucinogens	3.8%	3.3%
Inhalants	1.8%	2.0%

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).

Alcohol and drug composite severity scores were calculated from items included in the baseline survey. Because the ASI composite severity scores are based on past-30-day measures, it is important to take into account clients being in a controlled environment all 30 days when examining composite severity scores. Thus, alcohol and drug severity composite scores are presented in Table 3.15 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 (CS) cutoff for alcohol and/or drug dependence, with no difference by follow-up status (66.9% for not followed up and 63.5% for followed up; see Table AB.14). Among clients who were not in a controlled environment all 30 days before entering the program, the mean score on the alcohol severity composite score was .24, regardless of follow-up status. Among clients who were not in a controlled environment all 30 days before entering the program, the mean score for the drug severity composite score was .17 for clients who did not complete a follow-up interview and .16 for clients who did complete a follow-up interview (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 for the ASI CS for alcohol and/or drug dependence, with no 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 mean scores for the alcohol severity composite score were .22 and .23 for not followed up and for followed up clients respectively. Of clients who were in a controlled environment all 30 days, there was no difference by follow-up status in mean drug severity 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 = 3963)	YES (n = 1137)	NO (n = 460)	YES(n = 140)
Percentage of clients with ASI CS equal to or greater than cutoff score for ...				
alcohol <u>or</u> drug dependence	66.9%	63.5%	68.0%	67.9%
alcohol dependence	43.5%	41.0%	44.3%	45.7%
drug dependence	42.1%	39.5%	45.2%	36.4%
Mean Addiction Severity Index composite score for alcohol use <sup>-a</sup>	.24	.24	.22	.23
Mean Addiction Severity Index composite score for drug use <sup>-b</sup>	.17	.16	.17	.15

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

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

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

More than half of clients reported ever having been in substance abuse treatment in their lifetime, with no 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 similar for the two groups: 2.5 for clients who were not followed up and 2.4 for clients who were followed up.

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

	FOLLOWED UP	
	NO (n = 4423)	YES (n = 1277)
Ever been in substance abuse treatment in lifetime	55.7%	54.0%
Among those who had ever been in substance abuse treatment in lifetime,	(n = 2464)	(n = 690)
Mean number of times in treatment	2.5	2.4

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