KENTUCKY TREATMENT OUTCOME STUDY

2024 ANNUAL REPORT

|Project Acknowledgments

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|Executive Summary

This report summarizes client outcomes from a statewide evaluation of publicly-funded substance use disorder (SUD) programs administered through the Community Mental Health Centers for adults (i.e., 18 years and older). The goal of the Kentucky Treatment Outcome Study (KTOS) is to examine client perceptions of care and outcomes for several targeted factors including: (1) substance use and severity of substance use, (2) mental health, physical health, and victimization, (3) economic and living circumstances, (4) criminal justice system involvement, (5) subjective quality of life, and (6) recovery supports. Report findings support continued funding of SUD treatment programs, which improve the lives of clients and greatly reduce the cost of untreated SUD to society.

State-funded SUD programs in Kentucky are required by Kentucky Revised Statute (222.465) to collect data on SUD clients in a client outcome study. KTOS is an important part of the Division of Substance Use Disorder's performance-based measurement of treatment outcomes in Kentucky's communities. The study includes an evidence-based assessment administered by treatment staff at the time of intake (n = 3,474), which took place in FY 2022. Twelve months later, a follow-up interview was administered by University of Kentucky Center on Drug & Alcohol Research (UK CDAR) staff with 554 adults. In previous years' reports, the follow-up sample was randomly selected by month in which individuals completed the intake survey—170 cases per month. However, the number of individuals eligible for follow-up in this year's report was lower than in previous years, because of the lower number of intake surveys completed in FY 2022--a pattern that began during the COVID-19 pandemic and has continued. Thus, all eligible cases were included in the sample of individuals to be contacted to complete a follow-up survey (n = 822). The follow-up rate for this year's report was 76.4%. Furthermore, trend analyses across multiple report years are presented in this report.

Substance Use

Results show that there were significant reductions in drug and alcohol use as well as self-reported substance use severity. The percent of individuals who reported using illicit drugs decreased from 88% at intake to 31% at follow-up. A trend report of illicit drug use at intake and follow-up over the past 16 years shows that around three-quarters of KTOS clients reported any illicit drug use in the 12 months before treatment each year, except for the past six years (87%-91%) because the selection criteria for including individuals in the follow-up sample was changed to include alcohol and/or illicit drug use in the 12 months before intake. The percent of individuals who reported using alcohol in the past 12 months decreased from 51% at intake to 17% at follow-up.

Overall, the percent of clients who

met DSM-5 study criteria suggesting no substance use (alcohol and/or drug use) disorder increased from 23% at intake to 81% at follow-up. Along the same lines, the percent of individuals who met DSM-5 study criteria for severe substance use disorder decreased from 63% to 12%. Additionally, among individuals who reported using any illicit drugs in the 30 days before intake or follow-up, the percent who had Addiction Severity Index (ASI) drug composite scores that met the cutoff for severe drug use disorder decreased from 59% at intake to 12% at follow-up. Among individuals who reported using alcohol in the 30 days before intake or follow-up, the percent who had Addiction Severity Index (ASI) alcohol composite scores that met the cutoff for severe alcohol use disorder decreased from 55% at intake to 28% at follow-up.

Past-12-month (81%) and past-30-day (78%) rates of smoking tobacco use were very high at intake, and even though there was a significant decrease at follow-up, the percent of individuals smoking tobacco was still high (70% and 68%, respectively). Vaporized nicotine use did not change significantly from intake to follow-up (for 12-month use), and increased significantly at follow-up (for 30-day use).

> *I really needed the help and I did not want to ask for the help but it was pushed upon me – but realized I needed the help.*
>
> - KTOS FOLLOW-UP CLIENT

Overall, Kentucky SUD treatment clients made significant improvements in all targeted areas

REPORTED ANY ILLEGAL DRUG USE***

88%	31%
at intake	at follow-up

MET STUDY CRITERIA FOR DEPRESSION AND ANXIETY***

45%	20%
at intake	at follow-up

REPORTED INTERPERSONAL VICTIMIZATION***

34%	13%
at intake	at follow-up

CURRENTLY EMPLOYED FULL-TIME***

28%	43%
at intake	at follow-up

REPORTED ANY ARREST***

57%	24%
at intake	at follow-up

For the fifth consecutive year, among individuals who completed an intake survey, a higher percentage of clients reported using methamphetamine (49%) in the 12 months before entering treatment than reported illicit use of prescription opioids (24%), buprenorphine-naloxone (14%), heroin (14%), and methadone (3%).

For the fifth consecutive year, among individuals who completed an intake survey, a higher percentage of clients reported using methamphetamine (49%) in the 12 months before entering treatment than reported illicit use of prescription opioids (24%), buprenorphine-naloxone (14%), heroin (14%), and methadone (3%).

Mental Health, Physical Health, and Victimization

The mental health of clients who participated in treatment also significantly improved from treatment intake to 12-month follow-up. Over half of clients (54%) met study criteria for depression at intake compared to 29% of clients at follow-up. Over half of clients (57%) met study criteria for generalized anxiety at intake compared to 30% at follow-up. A sizeable minority of clients (45%) met study criteria for both depression and generalized anxiety compared to 20% at follow-up. In addition, 19% of clients reported suicidal ideation or attempts at intake compared to 7% at follow-up. The average number of days individuals reported their mental health was not good out of the past 30 decreased significantly from 13.1 at intake to 3.7 at follow-up. There was no significant change in the percent of individuals who screened positive for PTSD: at intake, 26% screened positive for PTSD, while at follow-up, 28% screened positive for PTSD. Trends for the past 12 years show that the average number of days clients reported poor mental health in the past 30 days has increased from 9.7 in the 2016 report to 13.2 in the 2023 report and 13.1 in the 2024 report. Nonetheless, the average number of days clients reported their mental health was not good decreased significantly from intake to follow-up in each report since the 2015 report. Finally, a significantly smaller percentage of individuals reported they had used substances to cope with negative affect at follow-up (20%) relative to intake (44%).

Physical health was also improved at follow-up. Specifically, clients reported a significantly higher rating of overall health at follow-up than at intake. Also, clients reported fewer average days their physical health was poor in the past 30 days at follow-up compared to intake (3.1 vs. 6.7). Trends for the past 12 years show that while the average number of days clients reported poor physical health in the past 30 days increased at intake from 5.5 in the 2014 report to a high of 7.3 in the 2018 report, clients have reported significantly fewer days of poor physical health at follow-up when compared to intake since the 2015 report. A significantly smaller percentage of individuals (19%) reported they had experienced chronic pain at follow-up relative to intake (29%). Additionally, interpersonal victimization experiences in the past 12 months decreased from 34% of clients at intake to 13% at follow-up.

Economic and Living Circumstances

KTOS clients showed improvements from intake to follow-up in economic and living circumstances. First, significantly fewer clients reported they were homeless at follow-up (7%) than at intake (27%). Trend data shows that the percent of clients reporting homelessness at treatment intake increased from the 2016 report (8%) to the 2023 report (32%), while at follow-up, the percent of clients reported homelessness has been 3% to 9% in the same timeframe.

Significantly fewer individuals reported their usual living situation was in a jail or prison in the 12 months before follow-up compared to the 12 months before intake. Also, at follow-up, significantly more clients reported their usual living situation and in a residential program, recovery center, or sober living home at follow-up (11%) when compared to intake (2%).

Furthermore, about 43% of clients reported being currently employed full time at follow-up compared to only 28% at intake. The average number of months clients reported working in the past 12 months increased significantly from 5.0 months at intake to 6.1 months at follow-up. Additionally, at intake, 44% of clients reported having difficulty meeting basic living needs (e.g., food, shelter, utilities, and telephone) for financial reasons in the past 12 months. At follow-up, this number decreased to 35%. The percent of clients who reported they had difficulty obtaining health care (e.g., doctor visits, dental visits, and prescription medications) for financial reasons did not change significantly from intake (25%) to follow-up (24%).

Criminal Justice Involvement

Involvement in the criminal justice system, in terms of being arrested and incarcerated, decreased significantly from intake to follow-up. The percent of individuals who reported they had been arrested in the past 12 months decreased from 57% to 24%. The percent of individuals who reported they had been incarcerated in the past 12 months decreased from 57% to 27%. Trend analyses show that, overall, the percent of clients who reported an arrest was fluctuated over the past 16 years at intake (minimum of 51% in the 2023 report, maximum of 62% in the 2021 report) with greater fluctuation at follow-up (minimum of 20% in the 2017 report, maximum of 33% in the 2012 report). Trend analysis for percent of individuals who were incarcerated in the past 12 months showed a pattern of greater stability at intake and greater fluctuation at follow-up. Finally, at follow-up significantly fewer individuals reported they had been convicted of a misdemeanor (9% vs. 36%) and felony (6% vs. 25%) than at intake.

Subjective Quality of Life

Compared to intake (7.2), individuals rated their quality of life as significantly higher at follow-up (8.3) on a scale from 1 to 10, with 10 representing “best imaginable.”

Recovery Supports

Compared to intake (28%), significantly more individuals reported they had attended mutual help recovery group meetings in the past 30 days at follow-up (53%). Compared to intake, significantly more individuals reported they had recovery supportive interactions with a sponsor at follow-

up (14% vs. 30%). Also, individuals reported having more people they could count on for recovery support at follow-up (11.7) than at intake (6.4). The majority of clients said they had a moderately or very good chance of getting and/or staying off of drugs or alcohol at intake (89%) and follow-up (92%).

Multidimensional Recovery Status

Consistent with the framework that recovery is a multidimensional construct, encompassing multiple dimensions of individuals' lives and functioning, items from the intake and follow-up surveys were combined to measure change in multiple key dimensions of individuals' lives. The multidimensional recovery measure uses items from the intake and follow-up surveys to classify individuals who have all positive dimensions of recovery. At intake, as expected, a small percent of the followed-up sample (5%) was classified as having all eight dimensions of recovery. At follow-up, there was a significant increase of 42% which means that 47% had all eight dimensions of recovery.

Return to Use

Results of multivariate analysis show that when controlling for other variables in the model, being male and have greater depression and anxiety symptoms were significantly associated with greater odds of illicit drug use and/or problematic alcohol use (i.e., return to use) in the 12 months before follow-up.

> When controlling for other variables in the model, gender and total number of depression and anxiety symptoms were significantly associated with illicit drug and/or problem alcohol use in the follow-up period.

Clients' Perceptions of Treatment

Program clients were predominately satisfied with the treatment services they received at Kentucky's community mental health centers. Overall, clients rated their treatment experience as an 8.4 out of 10. Overall, the majority of clients (84%) reported that the treatment episode was working/ worked pretty well or extremely well for them. Most clients (91%) indicated they would refer a close friend or family member to their treatment provider. Around 4 in 5 individuals reported the program staff believed in them and believed that treatment would work for them, they felt listened to and heard by staff when they told them personal things, the program staff cared about them and their treatment progress, they worked on the things that were most important to them in treatment, their expectations and hopes for treatment and recovery were met, and they had a connection with their counselor or staff person. More than three-fourths reported that the treatment approach and method was a good fit for them and they had input into their treatment goals, plans, and how they were progressing over time. The majority reported the length of the program was just right (68.0%) and that they fully discussed or talked about everything they wanted to with their counselor or program staff (61.2%). The majority of individuals who completed the follow-up survey self-reported that they had completed

treatment/program (59.3%, n = 322), while similarly smaller percentages reported they had not completed the program (19.9%, n = 108), or were currently in the program (20.4%, n = 113). Individuals who had not completed treatment gave lower overall ratings for their experiences in the program relative to individuals who had completed treatment and individuals who were currently in treatment.

Participants' perceptions of care in SUD treatment were examined by program completion status to better understand if there were aspects of treatment that individuals who did not complete perceived of differently from individuals who had completed treatment or were currently in treatment at follow-up. For each of the domains (shared decision-making, respect, communication, therapeutic alliance, and perceived effectiveness) the group of individuals who had not completed treatment gave significantly lower ratings than individuals in the other two groups: completed treatment and currently in treatment.

Association of Program Completion and Treatment Outcomes

Among the individuals who had not completed the SUD program and among individuals who were currently in the program, a higher percentage were female than male. Individuals in the three different program completion groups did not differ significantly on average age or race/ethnicity.

As for overall substance use at follow-up, a significantly higher percentage of individuals who had not completed the program (52.8%) reported problem alcohol use and/or illicit drug use in the 12 months before follow-up than individuals who had completed the program (27.9%) and individuals who were currently in the program (27.4%). Significantly higher percentages of individuals who had not completed treatment reported they had used cannabis, opioids (including heroin), and stimulants/cocaine (including methamphetamine) in the 12 months before follow-up compared to individuals who had completed treatment and individuals who were currently in treatment. A significantly higher percent of individuals who had not completed the program reported criteria that were consistent with severe SUD at follow-up (24.1%) compared to individuals who had completed the program (7.2%).

A significantly higher percent of individuals who had not completed the program reported criteria that were consistent with severe SUD at follow-up compared to individuals who had completed the program.

Mental health issues were associated with program completion status. A significantly smaller percentage of individuals who had completed the SUD program (32.1%) met criteria for depression and/or generalized anxiety during the follow-up period than individuals who had not completed the program (52.8%) and individuals who were currently in the program (46.4%). A significantly higher percentage of individuals who had not completed the program (12.0%) reported suicidal

ideation and/or suicide attempts in the follow-up period compared to individuals who had completed the program (3.7%). Individuals who were currently in the program reported significantly greater number of days of poor mental health and greater number of days poor health limited their usual activities compared to individuals who had completed the program.

A significantly higher percentage of individuals who had not completed the program reported they were homeless at follow-up compared to individuals who had completed the program. There was no association between program completion status and difficulty meeting basic needs and current employment at follow-up.

The only criminal justice outcome that was significantly differently by program completion was arrests in the follow-up period. A significantly higher percentage of individuals who did not complete the program reported they had been arrested in the 12-month follow-up period compared to individuals who were currently in the program.

A significantly higher percentage of individuals who were still involved in the program at follow-up (68.1%) reported they had participated in mutual help recovery meetings in the past 30 days compared to individuals who had not completed the program (49.1%) and individuals who had completed the program (48.8%).

Significant Gender Differences

There were several important gender differences at treatment intake and follow-up. Most, but not all of these, indicate that women had more comorbid mental health problems, worse physical health, more interpersonal victimization experiences, and greater economic hardship than their male counterparts. Significantly more women than men reported they had used illicit drugs, in general, and specifically, stimulants in the 12 months and 30 days before intake and opioids in the 30 days before intake. Vaporized nicotine was more frequent among women in the 30 days before follow-up than among men. Significantly more women than men reported symptoms that were consistent with severe substance use disorder at intake. Significantly more women reported they were bothered considerably or extremely by problems related to substance use and that treatment for a substance use problem was considerably or extremely important in the 30 days before treatment. However, more men reported alcohol use and smokeless tobacco use. Specifically, significantly more men than women reported using alcohol in the 12 months before follow-up as well as past-12-month binge drinking and alcohol to intoxication at intake. In the 30 days before intake and follow-up, significantly more men reported alcohol use, binge drinking, and alcohol to intoxication compared to women. In the 30 days before follow-up, significantly more men reported using cannabis compared to women. Significantly more men reported using smokeless tobacco in the 12 months and 30 days before intake and follow-up. Finally, more men than women reported cannabis use in the 12 months and 30 days before follow-up.

Significantly more women than men reported mental health symptoms

at intake including depression, generalized anxiety, comorbid depression and anxiety, and at intake and follow-up, post-traumatic stress disorder. Also, women also reported their mental health was not good for significantly more days than men at intake and that poor mental and/or physical health limited their activities in the 30 days before intake. Women rated their overall health lower compared to men at intake and follow-up. Significantly more women relative to men reported they had experienced interpersonal victimization in the 12 months before entering treatment.

Women's housing situation, employment, and economic hardship were worse than men's situations. First, significantly more women reported homelessness at intake and follow-up when compared to men. Significantly more women were unemployed at intake and follow-up when compared to men. Likewise, significantly more men reported they had full-time employment at intake and follow-up when compared to women. Among individuals who were currently employed, employed men also had a significantly higher median hourly wage than employed women at both intake and follow-up. At intake, employed women made only $0.76 for every dollar employed men made, and at follow-up, employed women made $0.77 for every dollar employed men made. More women also reported difficulty meeting basic living needs at intake and follow-up compared to men, and more women reported difficulty meeting health care needs at follow-up compared to men. Thus, even though women made significant overall gains in their employment by follow-up, they were still behind men in their economic standing.

One criminal justice outcome was significantly different by gender. A higher percentage of men reported being supervised by the criminal justice system in the 12 months before entering treatment compared to women. One recovery support outcome differed significantly by gender. Significantly more women than men reported they had attended mutual help recovery meetings in the 30 days before follow-up.

Cost Savings

Estimates on the total costs of drug and alcohol use derived from national estimates applied to the follow-up sample of KTOS for this year's report suggest that for every dollar spent on publicly-funded SUD treatment programs there was an estimated $4.88 return in avoided costs (i.e., costs that would have been expected if alcohol and drug use continued at the same level as it was before treatment intake).

Conclusion

This KTOS 2024 report provides a valuable examination of client-level outcomes for adults in publicly-funded SUD treatment in Kentucky. Overall, clients of publicly-funded SUD treatment, including a variety

> *When I entered the program, I was a wreck, but they helped me to get on the right track.*
>
> - KTOS FOLLOW-UP CLIENT

of treatment modalities, made significant strides in all the targeted outcomes. Specifically, there were significant decreases in use of alcohol and all drugs, depression and anxiety symptoms, suicidality, homelessness, economic hardship, arrests, convictions, and incarceration, and a significant increase in full-time employment, subjective quality of life, and recovery supports. Moreover, an estimate of the cost to Kentucky for alcohol and drug use disorder in the year before treatment compared to the cost to the state for alcohol and drug use in the year after treatment intake, while accounting for the cost of publicly-funded treatment, showed a significant estimated cost savings.

Nonetheless, sizable minorities of clients struggled with negative outcomes at the 12-month follow-up. For example, nearly half were unemployed at follow-up, 31.1% of KTOS clients reported using illicit drugs at some point, 16.7% of clients reported using alcohol, and 12.2% met criteria for severe SUD at follow-up. Yet, these percentages are even lower than they were in the past annual reports. More than one-third of clients still reported having difficulty meeting basic living needs and almost one-quarter reported having difficulty obtaining health care needs for financial reasons at follow-up. Even though there were significantly more individuals who had all positive dimensions of recovery at follow-up than at intake (46.9% vs. 5.1%), the majority of individuals (53.1%) were still classified as having at least one negative recovery dimension. Most of the statistically significant differences between men and women on outcomes showed that more women had more comorbid mental health problems, worse physical health, recent interpersonal victimization experiences, and greater economic hardship than their male counterparts.

Overview of Report

The goal of KTOS is to provide an annual outcome evaluation for Community Mental Health Centers' (CMHCs) substance use disorder treatment (SUD) programs for the Department for Behavioral Health, Developmental, and Intellectual Disabilities (DBHDID), Division of Substance Use Disorder in partnership with the Behavioral Health Outcome Studies team at the University of Kentucky Center on Drug and Alcohol Research (UK CDAR). Specifically, the outcome evaluation examines client perceptions of care and several targeted outcomes: (1) substance use and severity of substance use, (2) mental health, physical health, and victimization, (3) economic and living circumstances, (4) criminal justice system involvement, (5) ubjective quality of life, and (6) recovery support. In addition, the estimated avoided costs to society in relation to the cost of publicly-funded substance use disorder treatment is presented in this report.

Results are reported in the main sections and are presented for the overall sample and by gender when there were significant gender differences:

Section 1. Study Overview and Client Characteristics. This section briefly describes the KTOS method including how clients are selected into the outcome evaluation. In addition, this section describes characteristics of clients who entered substance use disorder treatment in one of Kentucky's Community Mental Health Centers between July 1, 2021 and June 30, 2022 (N = 3,474). This section also describes characteristics of 554 clients who completed a 12-month follow-up interview between July 1, 2022 and June 30, 2023.

Section 2. Substance Use. This section examines changes in substance use, which include use of any illicit drugs or alcohol, and then separately for illicit drugs, alcohol, and nicotine/tobacco at intake and follow-up. Analysis is presented in detail for KTOS participants who were not in a controlled environment for the entire period of 12 months and/or 30 days before entering treatment. In addition, self-reported severity of alcohol and drug use based on DSM-5 symptoms for substance use disorder and the Addiction Severity Index (ASI) alcohol and drug use composite scores are compared at intake and follow-up.

Section 3. Bivariate and Multivariate Analysis of Return to Use. This section focuses on a multivariate analysis examining factors related to return to substance use in the 2024 KTOS follow-up sample.

Section 4. Mental Health, Physical Health, and Victimization. This section examines changes in mental health symptoms, physical health, and interpersonal victimization from intake to follow-up. Specifically, this subsection examines: (1) depression, (2) generalized anxiety, (3) comorbid depression and generalized anxiety, (4) suicide ideation and attempts, (5) posttraumatic stress disorder, (6) perceptions of poor physical and mental health, (7) overall health status, (8) chronic pain, (9) health insurance, and (10) interpersonal victimization experiences. Mental health and physical health questions in the KTOS intake and follow-up surveys were self-report measures.

Section 5. Economic and Living Circumstances. This section examines changes from intake to follow-up for: (1) living situation, (2) employment, and (3) economic hardship.

Section 6. Criminal Justice System Involvement. This section 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) arrest (2) convictions for misdemeanors and felonies, (3) incarceration, and (4) criminal justice supervision status.

Section 7. Subjective Quality of Life. This section describes change in subjective quality of life during the 12-month period before entering treatment and the 12-month period before the follow-up interview.

Section 8. Recovery Supports. This section focuses on five main aspects of recovery support: (1) clients attending mutual help recovery group meetings, (2) recovery supportive interactions with family/friends in the past 30 days, (3) the number of people the participant said they could count on for recovery support, (4) what will be most useful to the client in staying off drugs/alcohol, and (5) clients' perceptions of their chances of staying off drugs/alcohol.

Section 9. Multidimensional Recovery Status. This section examines multidimensional recovery at follow-up as well as change in multidimensional recovery before entering the program and at follow-up. Consistent with the framework that recovery is a multidimensional construct, encompassing multiple dimensions of individuals' lives and functioning, items from the intake and follow-up surveys were combined to measure change in multiple key dimensions of individuals' lives.

Section 10. Clients' Perceptions of the Substance Use Disorder Treatment Programs. This section describes three aspects of client satisfaction: (1) client involvement in the program and how they left, (2) recommend others to the program, and (3) overall client satisfaction and client ratings of program experiences.

Section 11. Association of Program Completion and Treatment Outcomes. This section examines treatment outcomes by program completion status as reported by participants at follow-up: (1) completed the program (or left in good standing), (2) did not complete the program, and (3) currently in the program.

Section 12. Cost Savings of Substance Use Disorder Treatment in Kentucky. This section examines estimated cost reductions or avoided costs to society after participation in substance use disorder treatment. Using the number of clients who self-reported illicit drug use and alcohol use at intake and follow-up in the KTOS sample, a national per/person cost was applied to the sample 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 13. Conclusion and Implications. This section summarizes the highlights from the evaluation results and suggests implications from these findings for the state.

|Section 1. Study Overview and Client Characteristics

This section briefly describes the Kentucky Treatment Outcome Study (KTOS) including how clients are selected into the outcome evaluation. In addition, this section describes characteristics of clients who entered substance use disorder treatment in one of Kentucky's Community Mental Health Centers and completed an intake interview between July 1, 2021 and June 30, 2022 (n = 3,474). This section also describes characteristics of 554 clients who completed a 12-month follow-up interview between July 1, 2022 and June 30, 2023.

Study Overview

The Kentucky Treatment Outcome Study (KTOS) Annual Report is conducted by the Behavioral Health Outcome Study team at the University of Kentucky Center on Drug and Alcohol Research (UK CDAR). State-funded SUD programs in Kentucky are required by Kentucky Revised Statute (222.465) to collect data on SUD clients for a client-level outcome study. KTOS is an important part of the Department for Behavioral Health, Developmental, and Intellectual Disabilities (DBHDID), Division of Substance Use Disorder's performance-based measurement of treatment outcomes in Kentucky's communities.

KTOS includes an evidence-based face-to-face interview with clients that is completed by program staff at treatment intake to assess targeted factors prior to entering treatment.[1] In FY 2022, 3,474 unduplicated adults completed an intake survey between July 1, 2021 and June 30, 2022.

At the completion of the intake interview, program staff talk to individuals about the KTOS follow-up and ask if they are interested in participating. The evidence-based follow-up interview is conducted about 12 months after the intake interview with a selected sample of clients who agree to participate. The follow-up interviews are completed over the telephone by a member of the UK CDAR research team and ask questions like those in the intake interview along with program satisfaction questions. Client responses to follow-up interviews are collected independently from treatment programs and kept confidential to help facilitate the honest evaluation of client outcomes and satisfaction with program services.

The UK CDAR research team secured a good follow-up rate of 76.4% and a low refusal rate (1.5%) for participation in the interviews. Less than one-fourth of clients (19.5%) were not successfully contacted to complete the follow-up telephone interviews (see Appendix A for detailed information on study methods). Having accurate locator information can help reduce the number of people we are unable to contact for a follow-up interview.

Self-report Data

The data (including drug and alcohol use) are self-reported by KTOS clients. There is reason to question the validity and reliability of self-reported data, particularly about

[1] Logan, TK, Cole, J., Miller, J., Scrivner, A., & Walker, R. (2020). *Evidence Base for the Kentucky Treatment Outcome Study (KTOS) Assessment and Methods*. Lexington, KY: University of Kentucky, Center on Drug and Alcohol Research.

sensitive topics, such as illegal activity and stigmatizing issues such as mental health and substance use. However, some research has supported findings about the reliability and accuracy of individuals' reports of their substance use.[2, 3, 4] For example, in many studies that have compared agreement between self-report and urinalysis the concordance or agreement is acceptable to high.[5, 6, 7] In fact, in some studies, when there were discrepant results between self-report and urinalysis of drugs and alcohol, the majority were self-reported substance use that was not detected with the biochemical measures.[8, 9, 10] In other studies, higher percentages of underreporting have been found.[11] Prevalence of underreporting of substance use is quite varied in studies. Nonetheless, research has found that certain conditions facilitate the accuracy of self-report data such as assurances of confidentiality and memory prompts.[12] Moreover, the "gold standard" of biochemical measures of substance use have many limitations: short windows of detection that vary by substance; detection varies on many factors such as the amount of the substance consumed, chronicity of use, and sensitivity of the analytic method used.[13]

The study method includes several key strategies to facilitate accurate reporting of sensitive behaviors at follow-up including: (a) the follow-up interviews are conducted by telephone with a University of Kentucky Center on Drug and Alcohol Research (UK CDAR) staff person who is not associated with any treatment program; (b) the follow-up responses are confidential and are reported at a group level, meaning no individual responses are linked to participants' identities; (c) the study procedures, including data protections, are consistent with federal regulations and approved by the University of Kentucky Human Subjects Institutional Review Board; (d) confidentiality is protected under Federal law through a Federal Certificate of Confidentiality; (e) participants can skip any question they do not want to answer; and (f) UK CDAR staff are trained to facilitate accurate reporting of behaviors and are regularly supervised for quality data collection and adherence to confidentiality.

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

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

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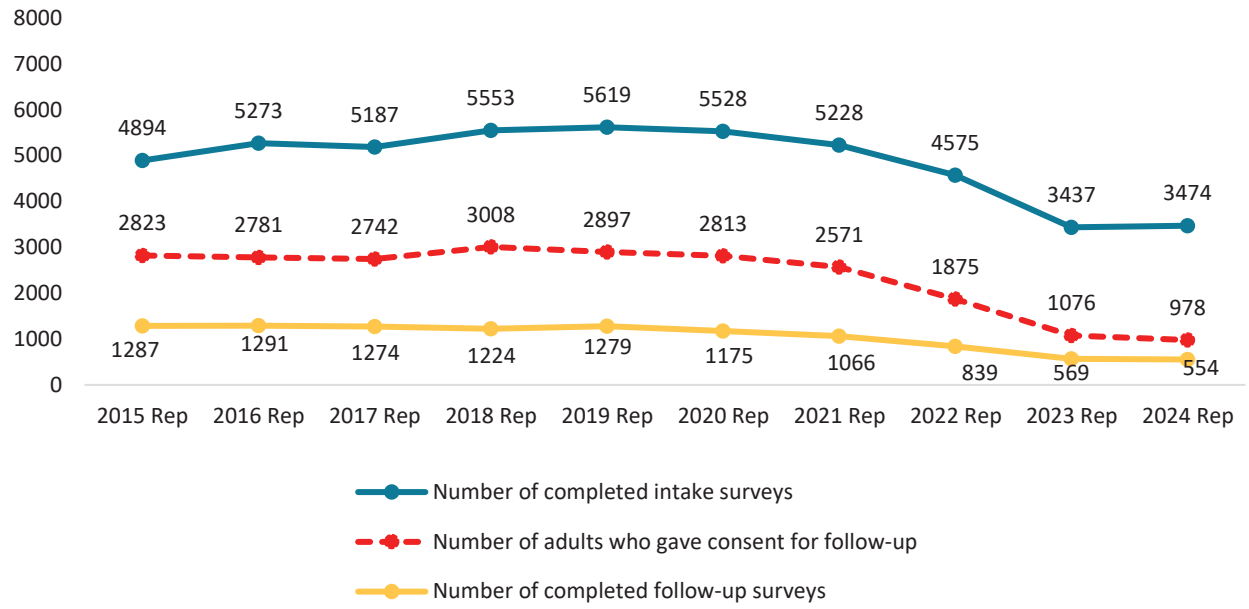
[13] Williams, R. J., & Nowatzki, N. (2005). Validity of self-report of substance use. *Substance Use & Misuse, 40*, 299-313.

This report describes the sample of treatment clients in two main ways: (1) providing a description of characteristics for 3,474 adults who completed an intake interview in FY 2022 (July 1, 2021 – June 30, 2022), and (2) presentation of client characteristics for 554 adults who completed an intake interview in FY 2022 and a 12-month follow-up telephone interview with a target date between July 1, 2022 and June 30, 2023.

Examining the past ten KTOS annual reports, the number of completed intake surveys (for unduplicated clients per report period) began a noticeable decline in the 2022 report, corresponding to intake surveys collected in FY 2020, which corresponds to the beginning of the COVID-19 pandemic (see Figure 1). The number of individuals who gave consent to be contacted for the follow-up survey also began a decrease in FY 2020, and has continued to decline. With fewer intake surveys submitted, and a smaller proportion of individuals giving consent to be contacted for the follow-up survey, the number of follow-up surveys completed has significantly decreased.

FIGURE 1.1. NUMBER OF ADULTS WHO COMPLETED INTAKE SURVEYS, GAVE CONSENT TO BE CONTACTED FOR THE FOLLOW-UP SURVEY, AND COMPLETED THE FOLLOW-UP SURVEY BY REPORT YEAR[14]



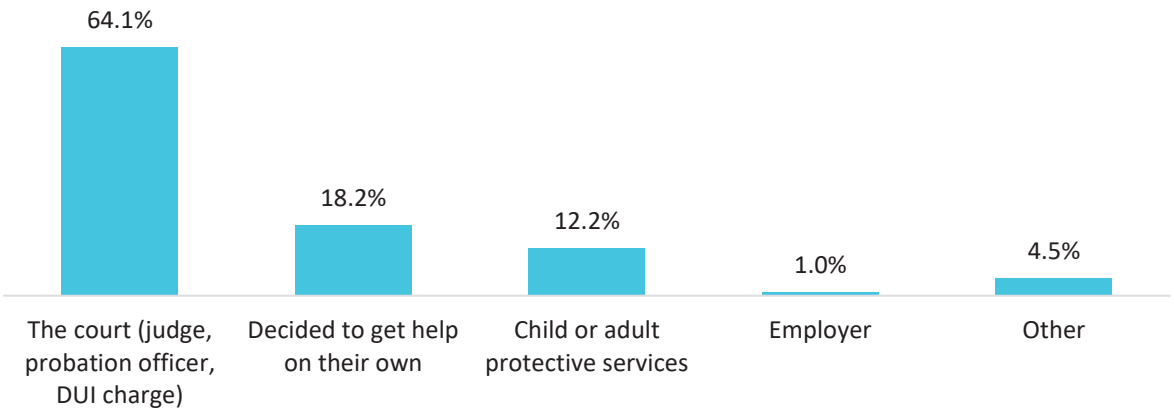
[14] Because the target dates for the follow-up surveys are 12 months after the intake surveys are completed, and data cleaning, data analysis, and report writing takes several months, report data sets include intake surveys conducted in the following fiscal years: 2015 Report (FY 2013), 2016 Report (FY 2014), 2017 Report (FY 2015), 2018 Report (FY 2016), 2019 Report (FY 2017), 2020 Report (FY 2018), 2021 Report (FY 2019), 2022 Report (FY 2020), 2023 Report (FY 2021), and 2024 Report (FY 2022).

Description of All KTOS Clients at Treatment Intake

Self-reported Referral Source

Figure 1.2 shows the self-reported treatment referral source for all KTOS clients at intake. The majority of clients (64.1%) reported they were referred to treatment by the court (e.g., judge, court designated worker, probation officer, for DUI offense). This is not necessarily a formal or mandated referral, instead it is the client's perception of referral source. A minority of clients (18.2%) self-reported they decided to get help on their own. A minority of clients reported they were referred to treatment by Child or Adult Protective Services (12.2%) or other referral sources (4.5%; e.g., AA/NA sponsor or none of the above) and an even smaller percentage of clients reported they were referred to treatment by an employer (1.0%).

FIGURE 1.2. SELF-REPORTED REFERRAL SOURCE FOR ALL KTOS CLIENTS AT INTAKE (N = 3,474)



Demographics

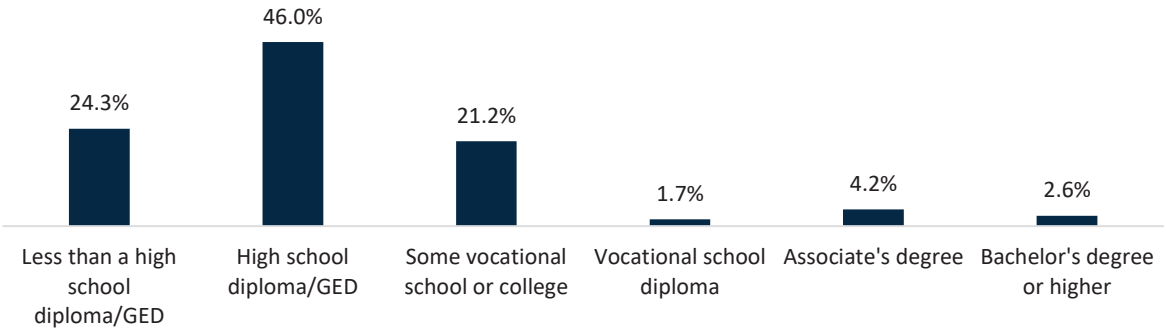
Table 1.1 shows that over half of clients with an intake survey completed in FY 2022 were male (59.2%) and the vast majority were White (91.2%). A minority of clients reported their race as African American/Black (5.5%) and 3.3% reported they were American Indian, Asian, Hispanic, or multiracial. Clients were, on average, 37.3 years old, ranging from 18 to 80 years old at intake. At intake, around two-fifths (41.9%) were married or cohabiting with a partner, 29.9% had never been married (and were not cohabiting), 25.9% were separated or divorced, and 2.3% were widowed. More than three-quarters of clients reported they had at least one child, and 56.6% had children under the age of 18. A small number of KTOS clients (3.6%) reported they were a veteran or were currently serving in the military, Reserves, or National Guard.

TABLE 1.1. DEMOGRAPHICS FOR ALL KTOS CLIENTS AT INTAKE (N = 3,474)[15]

Age	37.3 years *(range of 18 - 80)*
Gender	
Male	59.2%
Female	40.5%
Transgender	0.2%
Race	
White	91.2%
African American	5.5%
Other or multiracial	3.3%
Marital Status	
Married or cohabiting	41.9%
Never married	29.9%
Separated or divorced	25.9%
Widowed	2.3%
Have Children	75.9%
Have children under the age of 18	56.6%
Veteran or Currently Serving in Military	3.6%

Nearly one-fourth of clients (24.3%) had less than a high school diploma or GED at intake (see Figure 1.3). The highest level of education of 46.0% of the sample was a high school diploma or GED. Around one-fifth of clients (21.2%) had completed some vocational/technical school or college. Only a small minority of clients had completed vocational/technical school (1.7%), an associate's degree (4.2%), or a bachelor's degree or higher (2.6%).

FIGURE 1.3. HIGHEST LEVEL OF EDUCATION COMPLETED AT INTAKE (N = 3,474)

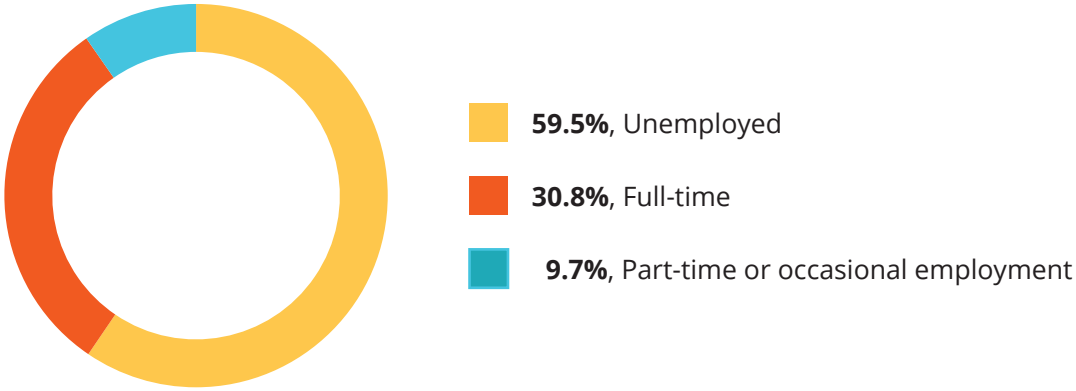


[15] Five clients had missing data for their race.

Employment

At intake, 46.2% of clients reported they had worked 0 months in the past 12 months, 7.7% had worked 1 to 5 months, and 46.1% had worked 6 or more months (not depicted in a figure).[16] Also, the majority of individuals reported they were unemployed in the 30 days before entering treatment (59.5%), with 30.8% being employed full-time, and 9.7% employed part-time or having occasional or seasonal employment (see Figure 1.4). Among those who reported being employed full or part-time at intake (n = 1,376)[17], the median hourly wage was $13.00.

FIGURE 1.4. CURRENT EMPLOYMENT STATUS AT INTAKE (N = 3,468)[18]



Of the individuals who were currently unemployed at intake (n = 2,052)[19], 35.7% stated they were looking for work, 24.5% were on disability (or had applied for disability), 13.4% were in a controlled environment that prohibited them from working, 12.5% were unemployed and not looking for work, 9.8% were keeping the house or taking care of children full-time at home, 1.3% were on furlough or temporarily laid off, 1.5% were retired, and 1.1% were students or in training. The remaining 0.2% gave other reasons for not being employed (e.g., health problems prevented them from work but they were not on disability, were doing odds jobs on the side) (see Figure 1.5).

> *If it was not for them I would still be doing drugs and dead. They encouraged me and were awesome.*
>
> - KTOS FOLLOW-UP CLIENT

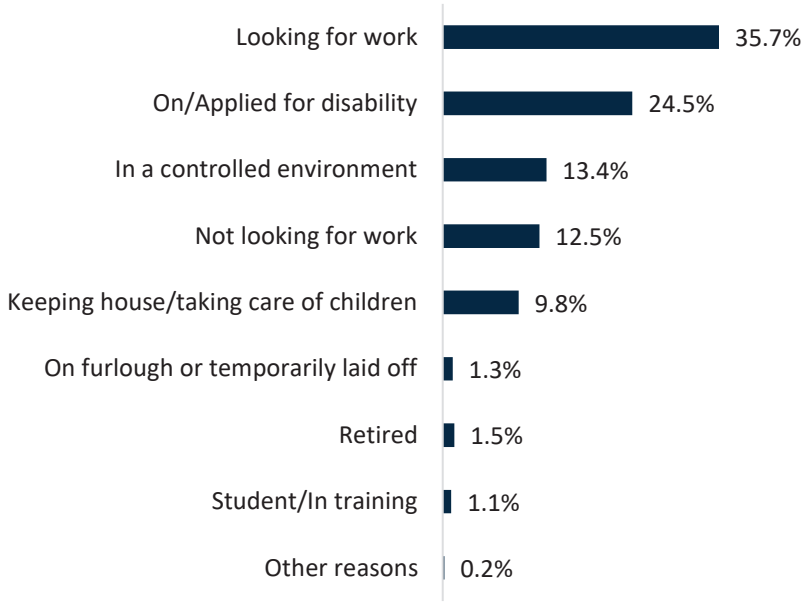
[16] The number of individuals who gave a valid response to this question was 2,925; 549 gave responses that were inconsistent to the question about their usual employment pattern in the 12 months before entering treatment.

[17] Thirty individuals had hourly wages that were assigned missing values because the value was less than $2.13 per hour. Also, the highest percent of values were recoded to the value at the 99th percentile, which was $850 per hour.

[18] Six individuals had missing values for current employment status at intake.

[19] Ten individuals had missing values for the reason they were unemployed at intake.

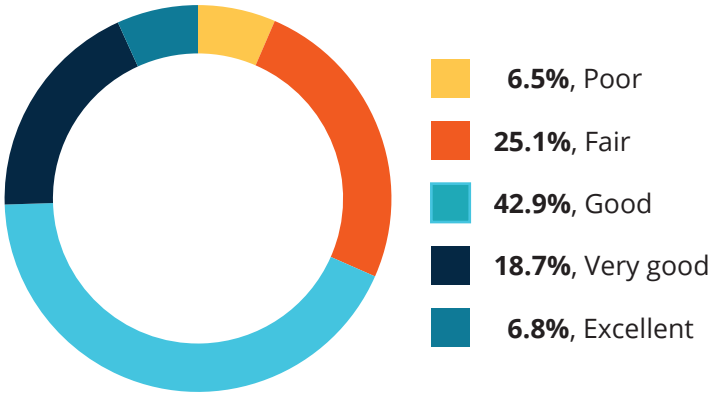
FIGURE 1.5. OF THOSE UNEMPLOYED, REASONS FOR BEING UNEMPLOYED (N = 2,052)



Physical Health

KTOS clients rated their overall health at intake (see Figure 1.6). A small percentage (6.5%) clients reported their health was poor and 25.1% said their health was fair. Over two-fifths of clients (42.9%) reported their overall health was good, 18.7% reported very good overall health, and 6.8% said their health was excellent.

FIGURE 1.6. OVERALL HEALTH RATING AT INTAKE (N = 3,474)



About one-fourth of KTOS clients (26.3%) reported they experienced chronic pain that persisted for at least 3 months in the 12 months before entering treatment (see Table 1.2). More than half of clients (55.3%) reported they had at least one chronic health problem. The most common medical problems clients in the intake sample (n = 3,474) reported were arthritis (17.8%), cardiovascular/heart disease (15.7%), hepatitis C (15.7%), severe dental problems (12.8%), asthma (12.6%), chronic obstructive pulmonary disease (COPD; 7.3%), seizures (5.8%), and diabetes (5.6%). Less than 5% of individuals reported having been diagnosed with each of the following chronic health problems: cancer, kidney

disease, cirrhosis of the liver, pancreatitis, tuberculosis, hepatitis B, HIV/AIDS, and other sexually transmitted infections (not depicted in the table).

More than three-fourths of KTOS clients (77.1%) reported they had insurance through Medicaid at intake. Less than one-tenth of clients did not have any insurance (8.2%). Small numbers of clients had insurance through an employer, including through their own employer, a spouse's, parent's, or self-employment (6.2%), through Medicare (7.4%), through the Health Exchange (0.4%), or through the VA/Champus/Tricare (0.6%). A small percent of clients (0.1%) gave the name of an insurer, but did not specify the source, such as through the Health Exchange, private insurance.

TABLE 1.2. HEALTH-RELATED CONCERNS FOR ALL KTOS CLIENTS AT INTAKE (N = 3,474)

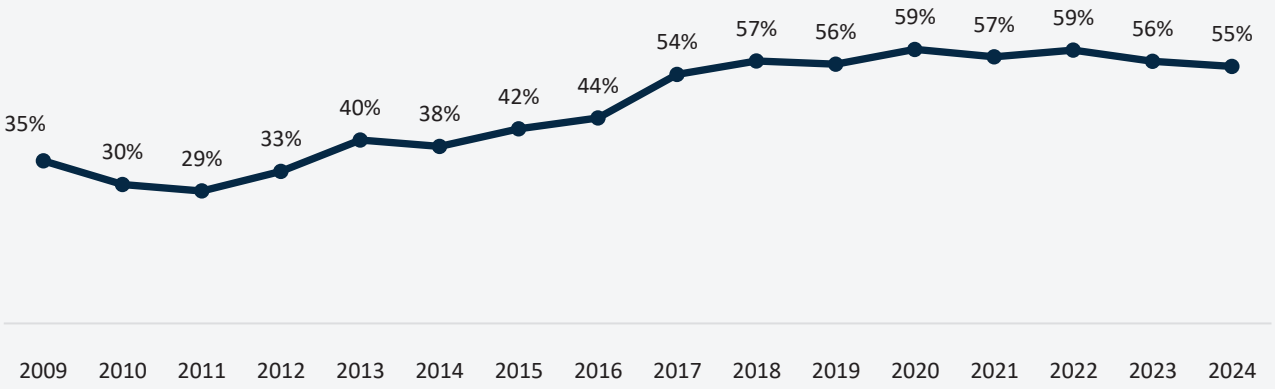
Chronic Pain	26.3%
Chronic Medical Problems	
Arthritis	17.8%
Cardiovascular/heart disease	15.7%
Hepatitis C	15.7%
Severe dental problems	12.8%
Asthma	12.6%
Chronic obstructive pulmonary disease	7.3%
Seizures	5.8%
Diabetes	5.6%
At Least One Chronic Medical Problem	55.3%
Two or More Chronic Medical Problems	27.6%
Insurance	(n = 3,467)[20]
No insurance	8.2%
Medicaid	77.1%
Through employer *(including client's employer, spouse's employer, parents' employer, and self-employed)*	6.2%
Medicare	7.4%
Through Health Exchange	0.4%
VA/Champus/Tricare	0.6%
Insured, but source is not known	0.1%

[20] Seven individuals did not know their health insurance status.

Trends in Chronic Medical Problems

Overall, the trend shows that the percent of clients reporting having at least one chronic medical problem at intake has increased over the past 14 years. In the 2011 report, over one-quarter of clients (29%) reported having a chronic medical problem compared to 55% of clients in this year's report.

FIGURE 1.7. TRENDS IN THE CLIENTS REPORTING A LIFETIME CHRONIC MEDICAL PROBLEM AT INTAKE, REPORTS 2009 - 2024



Chronic Medical Problems and Economic Hardship

Having two or more chronic medical problems was significantly associated with economic hardship (see Section 4 for details on economic hardship). Specifically, a significantly higher percent of individuals who reported they had two or more chronic medical problems reported they had difficulty meeting basic living needs and difficulty obtaining healthcare compared to individuals who had no or one chronic medical problem (respectively, 47.6% vs. 33.8% and 30.2% vs. 17.4%).

Substance Use

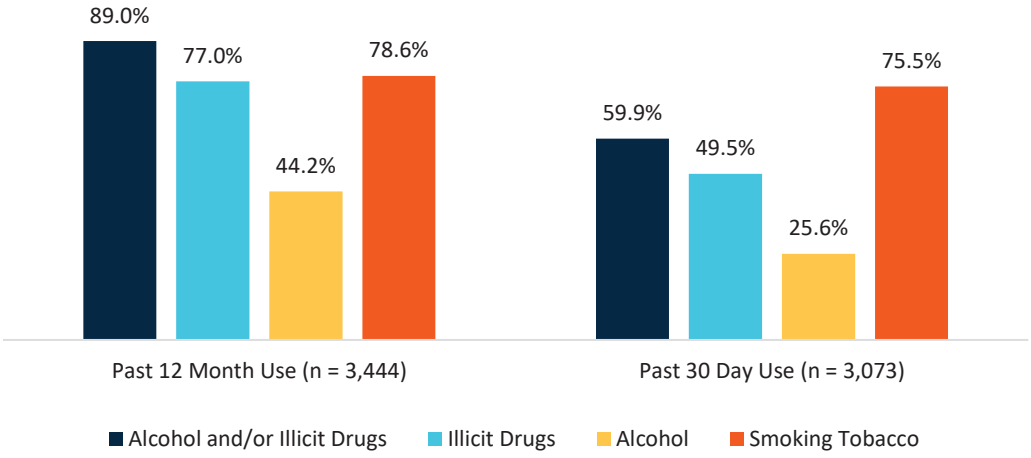
The majority of adults who completed an intake survey reported using alcohol and/or illicit drugs (89.0%) in the 12 months before entering treatment (see Figure 1.8).[21] A higher percentage of individuals reported using illicit drugs (77.0%) compared to the percentage of individuals who reported using alcohol (44.2%) in the 12 months before entering treatment. More than three-fourths of clients reported smoking tobacco (78.6%) in the 12 months before intake. The drug classes reported by the greatest number of clients were cannabis/marijuana (51.5%) and non-prescribed stimulants (49.4%), followed by prescription opioids (23.9%), heroin (14.4%), non-prescribed buprenorphine-naloxone (14.3%), non-prescribed sedatives/tranquilizers/benzodiazepines (13.5%), and cocaine/

[21] Thirty individuals reported being incarcerated all 365 days before intake. Because opportunities to use alcohol and drugs are reduced while incarcerated, these 30 individuals were not included in this analysis.

crack cocaine (11.4%; not depicted in a figure).

Of the 3,073 individuals who were not in a controlled environment all 30 days,[22] over half (59.9%) reported using illicit drugs and/or alcohol in the past 30 days at intake. Specifically, 49.5% reported using illicit drugs and 25.6% reported using alcohol. Three-fourths of KTOS clients (75.5%) reported smoking tobacco in the 30 days before entering treatment (see Figure 1.8).

FIGURE 1.8. USE OF ILLICIT DRUGS, ALCOHOL, AND SMOKING TOBACCO IN THE 12 MONTHS AND 30 DAYS BEFORE TREATMENT[23]



At intake, about one-third of clients (34.7%) reported that they had ever injected drugs in their lifetime (not depicted in a figure).

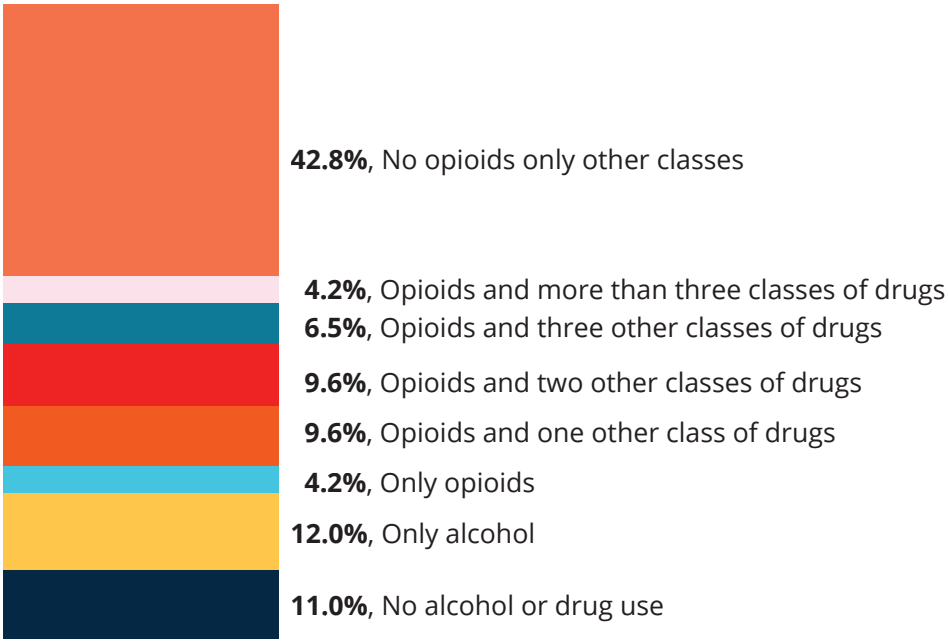
More than half of clients (59.0%) reported they had been in substance use disorder treatment in the past. Of the 2,051 clients who reported they had previously been in treatment, they reported an average of 3.0 episodes before the current one (not depicted in a figure).

Among the individuals who were not in a controlled environment all 365 days before entering treatment, Figure 1.9 shows the percent of individuals who used no alcohol and or illicit drugs (11.0%), alcohol only (12.0%), no opioids and other drug classes only (42.8%), and opioids only (4.2%). Figure 1.8 shows the percent of clients who reported using opioids with one other drug class (9.6%), opioids with two other drug classes (9.6%), opioids with three other drug classes (6.5%), and opioids with more than three other drug classes (4.2%).

[22] Because being in a controlled environment decreases opportunities for substance use, individuals who were in a controlled environment all 30 days before entering treatment (n = 401) are not included in the analysis of substance use in the 30 days before entering treatment.

[23] The broad drug classes examined were (1) Cannabis/marijuana, (2) Opioids other than heroin, (3) CNS depressants, (4) Cocaine and stimulants, and (5) Other drugs (hallucinogens, inhalants, synthetic drugs).

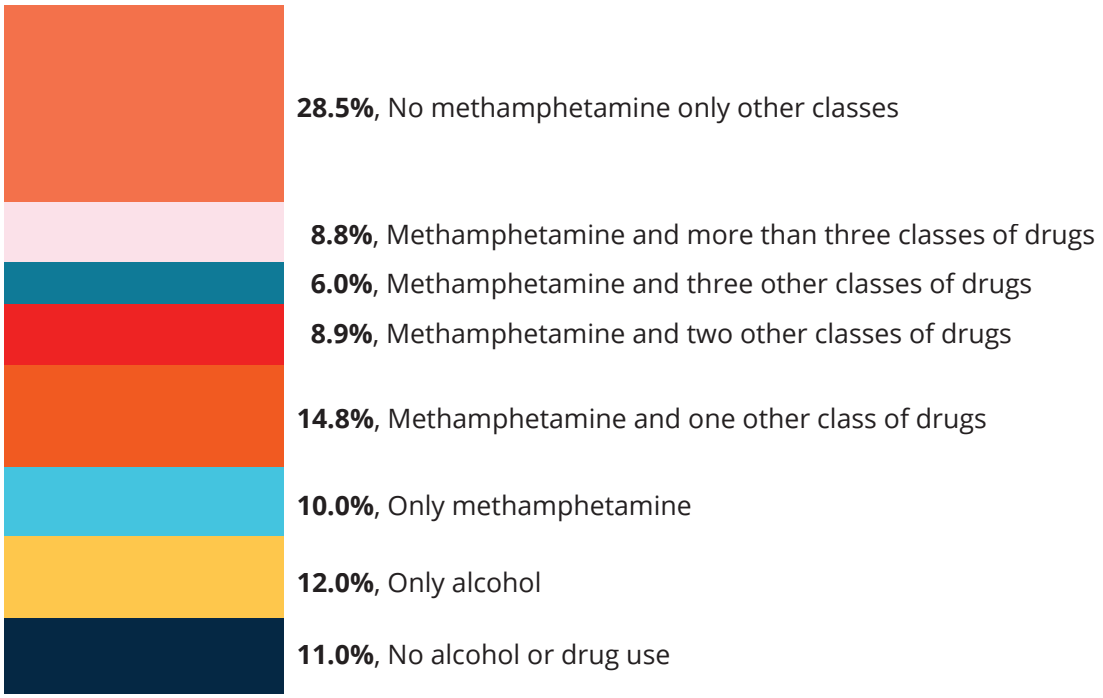
FIGURE 1.9. OPIOID AND OTHER DRUG CLASS USE IN THE 12 MONTHS BEFORE TREATMENT



Like the analysis for opioid use with other classes of substances presented in Figure 1.9, the percent of clients who reported using methamphetamine with other substances in the 12 months before entering treatment is presented in Figure 1.10. Among the individuals who were not in a controlled environment all 365 days before entering treatment, Figure 1.9 shows the percent of individuals who used no alcohol and or illicit drugs (11.0%), alcohol only (12.0%), no methamphetamine and other drug classes only (28.5%), and methamphetamine only (10.0%). The following percentages of clients reported using methamphetamine and other drug classes at intake: one other drug class (14.8%), two other drug classes (8.9%), three other classes (6.0%), and more than three classes (8.8%).

> *They are really nonjudgmental and make me feel like a person. I feel like I can go to them with anything and were there for me when I needed it.*
>
> - KTOS FOLLOW-UP CLIENT

FIGURE 1.10. METHAMPHETAMINE AND OTHER DRUG CLASS USE IN THE 12 MONTHS BEFORE TREATMENT[24]



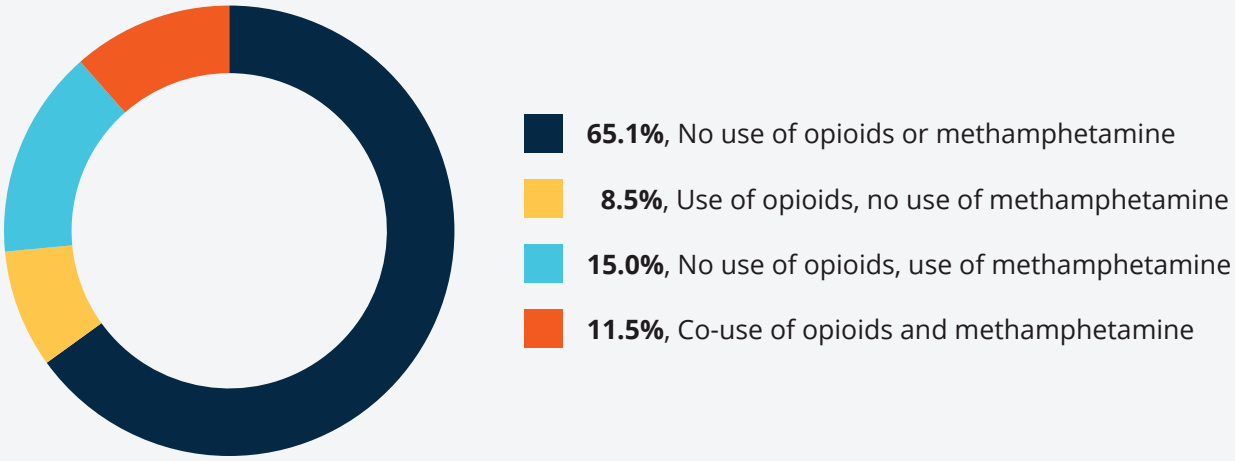
[24] The broad drug classes examined were (1) Marijuana/cannabis, (2) Opioids other than heroin, (3) Heroin, (4) CNS depressants, (5) Cocaine and stimulants, and (5) Other drugs (hallucinogens, inhalants, synthetic drugs).

Methamphetamine and Opioid Use

Methamphetamine use has increased among individuals who use opioids in the U.S. beginning around 2015,[25, 26, 27] which has implications for SUD treatment. In a peer-reviewed manuscript by the research team, opioid and methamphetamine co-use has significantly increased over time among adults at treatment intake in KTOS.[28] For example, in 2015, only 4.4% of KTOS clients reported use of opioids and methamphetamine in the 30 days before entering treatment, and in 2020, this percent had more than doubled to 10.0%. Analysis of KTOS data from 2015 to 2021 in this peer-reviewed article found that individuals who engaged in co-use of opioids and methamphetamine were more likely to be female, younger, White, residing in a metropolitan community, had greater economic hardship, reported use of a greater number of other substances, and reported interpersonal victimization in the 12 months before entering treatment.

Among the adults who completed a KTOS intake in FY 2022, Figure 1.11 presents the percent of individuals with different patterns of opioid and methamphetamine use in the 30 days before entering treatment. Higher percentages of clients reported use of methamphetamine but no opioids, or opioids and methamphetamine compared to the percent of clients who reported use of opioids without methamphetamine use in the same 30-day period.

FIGURE 1.11. CO-USE OF OPIOIDS AND METHAMPHETAMINE IN THE 30 DAYS BEFORE TREATMENT (N = 3,073)



[25] Cicero, T. J., Ellis, M. S., & Kasper, Z. A. (2020). Polysubstance use: A broader understanding of substance use during the opioid crisis. American Journal of Public Health, 110(2), 244–250. https:// doi.org/10.2105/Ajph.2019.305412

[26] Jones, C. M., Underwood, N., & Compton, W. M. (2020). Increases in methamphetamine use among heroin treatment admissions in the United States, 2008-17. Addiction, 115(2), 347–353. https://doi. org/10.1111/add.14812

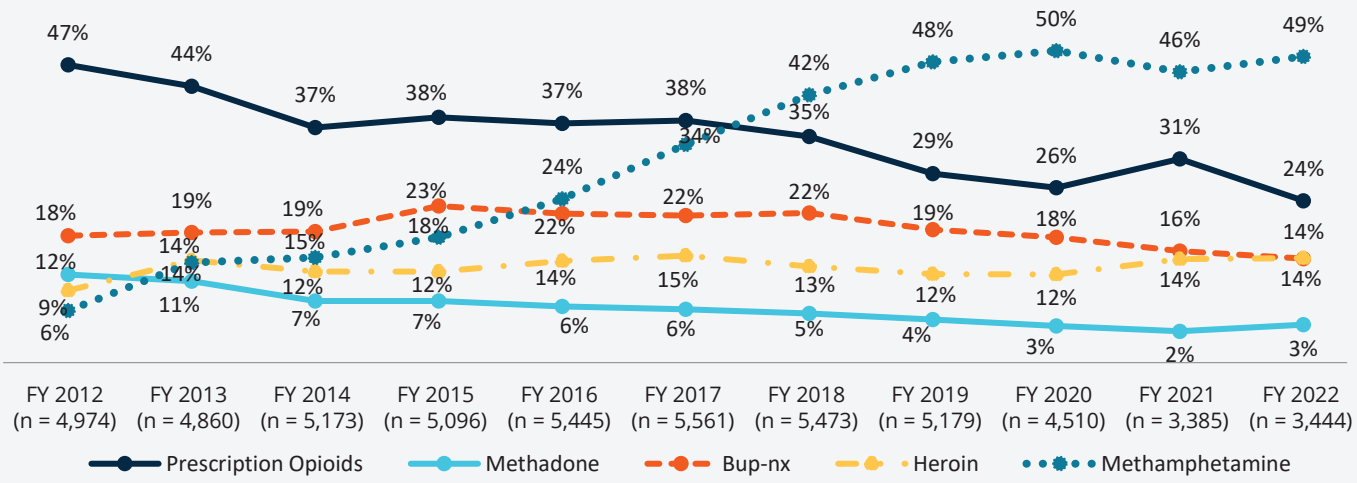
[27] Strickland, J. C., Havens, J. R., & Stoops, W. W. (2019). A nationally representative analysis of "twin epidemics": Rising rates of methamphetamine use among persons who use opioids. Drug and Alcohol Dependence, 204, 107592. https://doi.org/10.1016/j.drugalcdep.2019.107592

[28] Cole, J., Logan, T., Melvin, C., & McLouth, C.J. (2023). Opioid and methamphetamine co-use: Associations with economic vulnerabilities and interpersonal victimization among SUD program clients. Journal of Social Work Practice in the Addictions, https://doi.org/10.1080/1533256X.2023.2294287.

Trends in Specific Drug Use

Looking at trends over time for all clients with completed intake surveys, the percent of clients reporting prescription opioid misuse was highest in FY 2012 (47%) and steadily dropped in FY 2013 and FY 2014, stayed steady through FY 2018, and has been lower than it was in FY 2018. The percent of clients who reported using non-prescribed methadone in the 12 months before entering treatment has declined from FY 2012 (12%) to FY 2022 (3%). The percent of clients who reported using non-prescribed buprenorphine-naloxone (bup-nx) was stable from FY 2012 through FY 2014 before increasing to 23% in FY 2015 and remaining at 22% in FY 2016 through FY 2018. In FY 2019 and FY 2020, the percent of clients reporting non-prescription bup-nx use has been under 20%. The percent of KTOS clients who reported using heroin increased from FY 2012 to FY 2013 and has remained between 12% and 15% since FY 2013. In FY 2012, the percent of clients reporting methamphetamine use was relatively low (6%) but has steadily increased in the past seven years, with a high of 50% in FY 2020, surpassing the number of clients reporting illegal use of prescribed opioids.

FIGURE 1.12. PERCENT OF ALL CLIENTS WITH A COMPLETED INTAKE SURVEY REPORTING NON-PRESCRIBED USE OF PRESCRIPTION OPIOIDS, METHADONE, BUPRENORPHINE-NALOXONE, HEROIN, AND METHAMPHETAMINE IN THE 12 MONTHS BEFORE ENTERING TREATMENT AT THE CMHC (n = 53,100)[29]

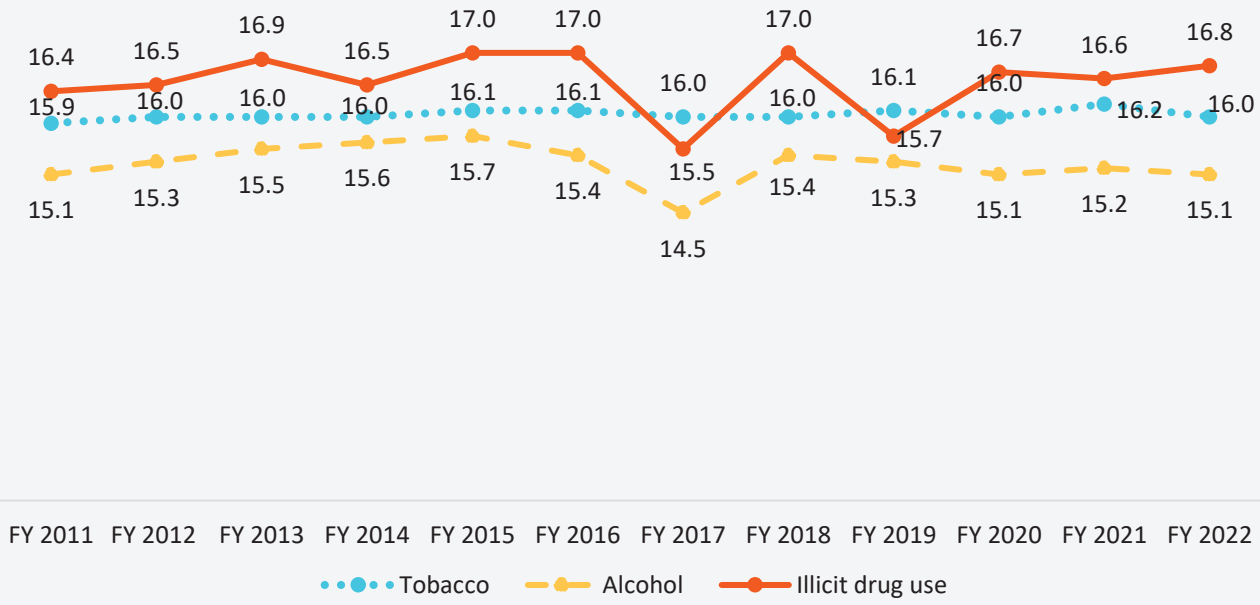


[29] Clients who reported being in a controlled environment all 365 days before entering treatment are not included in this analysis.

Trends in Age of First Use

Clients were asked, at intake, how old they were when they first began to use illicit drugs, when they had their first alcoholic drink (more than just a sip), and when they began smoking cigarettes regularly (see Figure 1.13). The age at which KTOS clients reported drug use was steady for 6 years (close to age 17), with a decrease in FY 2017 to 15.5 and in FY 2018 to 15.7. Clients generally reported having their first alcoholic drink around 15 years old, with a slight decrease in FY 2017. The age of first smoking tobacco regularly was slightly older than the age of first alcoholic drink (about 16 years old) and remained steady for 12 years.

FIGURE 1.13. TRENDS IN AGE OF FIRST USE REPORTED AT INTAKE, FY 2011-FY 2022



Adverse Childhood Experiences

Items about ten adverse childhood experiences from the Adverse Childhood Experiences Study (ACE) were included in the intake interviews.[30, 31, 32] In addition to providing the percent of men and women who reported each of the 10 types of adverse childhood experiences before the age of 18 years old captured in ACE, the number of types of experiences was computed such that items individuals answered affirmatively were

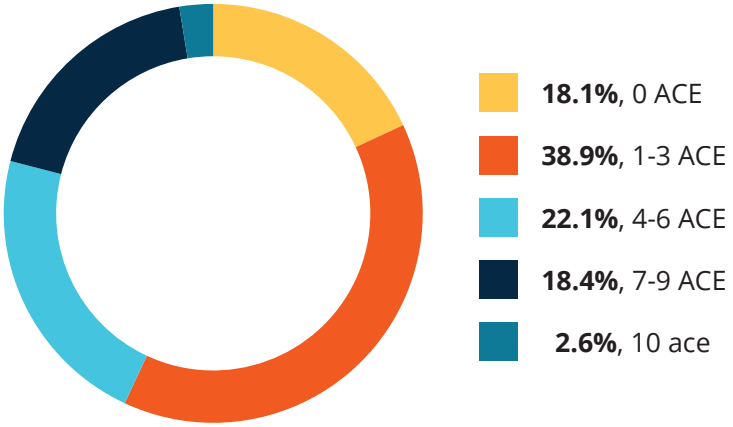
[30] Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. American Journal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

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

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

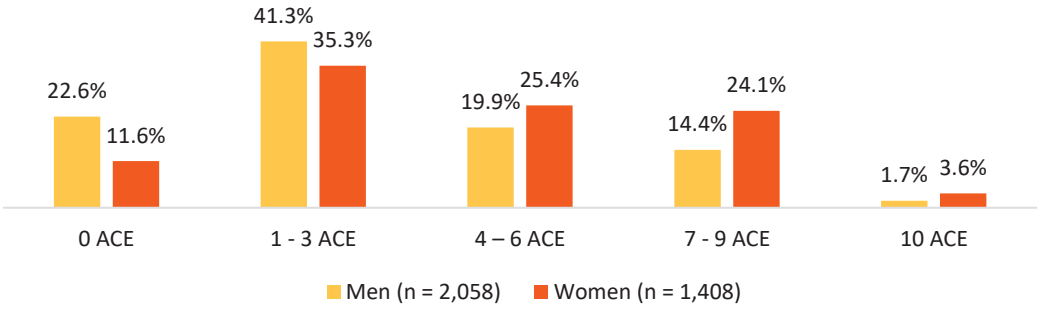
added to create a score equivalent to the ACE score. A score of 0 means the participant answered "No" to the five abuse and neglect items and the five household dysfunction items in the intake interview. A score of 10 means the participant reported all five forms of child maltreatment and neglect, and all 5 types of household dysfunction before the age of 18. The average number of ACE clients reported was 3.5 (not depicted in figure). Figure 1.14 shows that 18.1% reported experiencing none of the ACE included in the interview. Under two-fifths (38.9%) reported experiencing 1 to 3 ACE, 22.1% reported experiencing 4 – 6 ACE, and 18.4% reported experiencing 7 – 9 ACE. A very small percent (2.6%) reported experiencing all 10 types of adverse childhood experiences.

FIGURE 1.14. NUMBER OF TYPES OF ADVERSE CHILDHOOD EXPERIENCES (n = 3,474)



There was a significant difference in the proportion of men and women classified by number of types of ACE (see Figure 1.15). Significantly more men than women reported experiencing 0 ACE as well as 1 to 3 types of ACE, whereas significantly more women than men reported experiencing 4 – 6 types of ACE, 7 – 9 types of ACE, and 10 ACE. Women had a higher average number of ACE compared to men (4.2 vs. 3.0, t(3464) = -12.004, p < .001).

FIGURE 1.15. NUMBER OF TYPES OF ADVERSE CHILDHOOD EXPERIENCES BY GENDER[33]

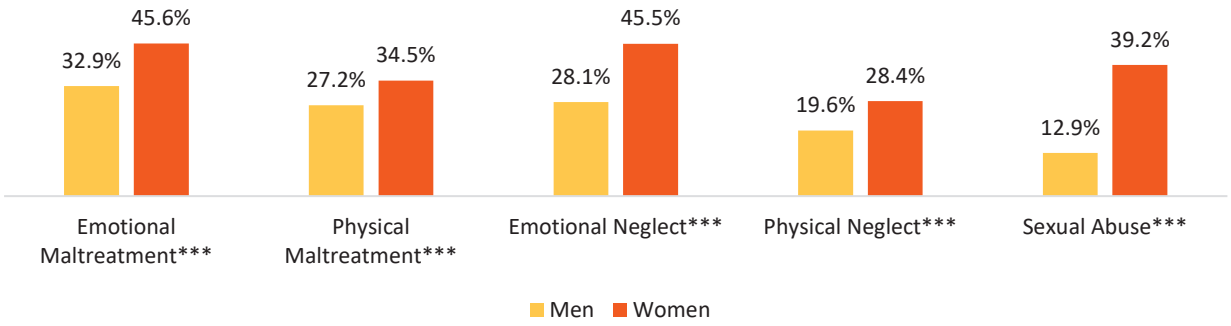


Significantly more women than men reported experiencing all five types of measured childhood maltreatment. Emotional maltreatment and emotional neglect were reported by the highest percentage of women and men (see Figure 1.16). More than one-fourth of

[33] Eight transgender individuals were not included in the analysis examining gender differences because 8 is too small of a group to examine for statistical differences by group.

men (27.2%) and more than one-third of women (34.5%) reported physical maltreatment. More than one-fourth of women (28.4%) and about one-fifth of men (19.6%) reported experiencing physical neglect in their childhood. About 3 times as many women compared to men reported sexual abuse before the age of 18 as men (39.2% vs. 12.9%. Nonetheless, 12.9% of men reported sexual abuse before the age of 18.

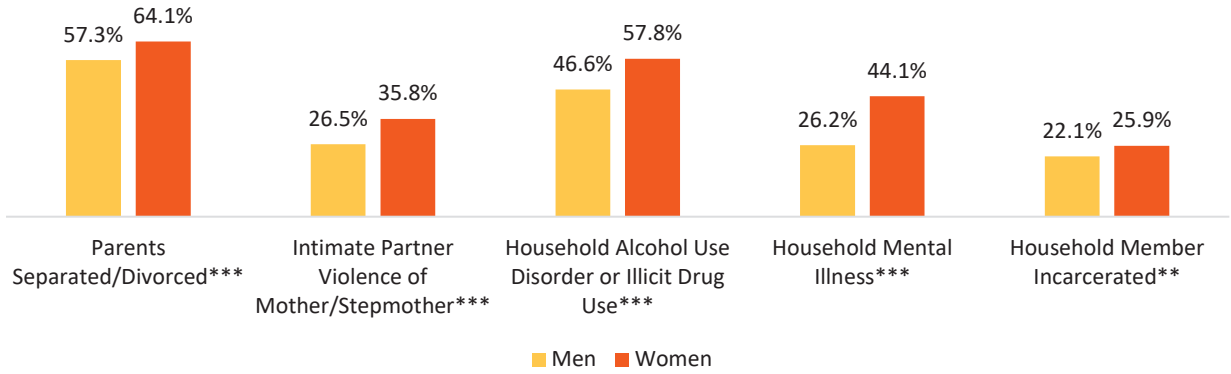
FIGURE 1.16. MALTREATMENT AND ABUSE EXPERIENCES IN CHILDHOOD BY GENDER (n = 3,466)[34]



***p < .001.

Significantly more women than men reported all five types of household risks (see Figure 1.17). The majority of individuals reported their parents were divorced or lived separately. The majority of women (57.8%) and less than one-half of men (46.6%) reported someone in their household was a problem drinker and/or used illicit drugs. More than one-fourth of men (26.5%) and more than one-third of women (35.8%) reported witnessing partner violence perpetrated against their mother/stepmother in their childhood home. About 44% of women reported that someone in their household was depressed, mentally ill, or had attempted suicide compared to 26.2% of men. About 1 in 5 men and about than 1 in 4 women reported a household member had been incarcerated.

FIGURE 1.17. HOUSEHOLD RISKS IN CHILDHOOD BY GENDER (n = 3,466)[35]



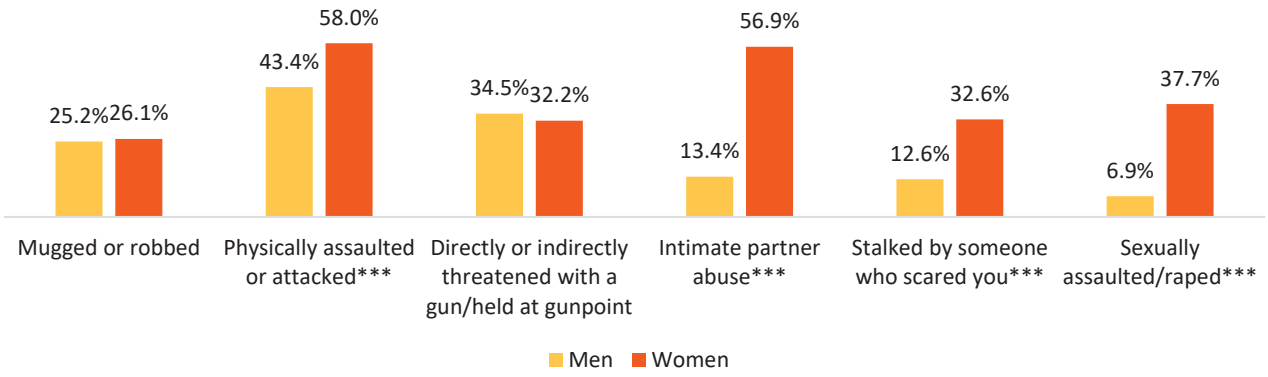
**p < .01, ***p < .001.

[34] Eight transgender individuals were not included in the analysis examining gender differences because 8 is too small of a group to examine for statistical differences by group.

[35] Eight transgender individuals were not included in the analysis examining gender differences because 8 is too small of a group to examine for statistical differences by group.

Individuals were also asked about victimization experiences (including when they may have been the victim of a crime, harmed by someone else, or felt unsafe) they had experienced in their lifetime and in the 12 months before entering treatment. Three-fourths of women (75.5%) and 58.7% of men reported experiencing at least one type of victimization not classified as an ACE that are presented in Figure 1.18. Similar percentages of men and women reported ever being mugged or robbed by someone threatening to use force or using force and being directly or indirectly threatened with a gun. Compared to men, significantly higher percentages of women reported ever being physically assaulted or attacked, abused by an intimate partner, stalked by someone who scared them, and sexually assaulted or raped in their lifetime.

FIGURE 1.18. LIFETIME CRIME AND INTERPERSONAL VICTIMIZATION BY GENDER (n = 3,466)[36]

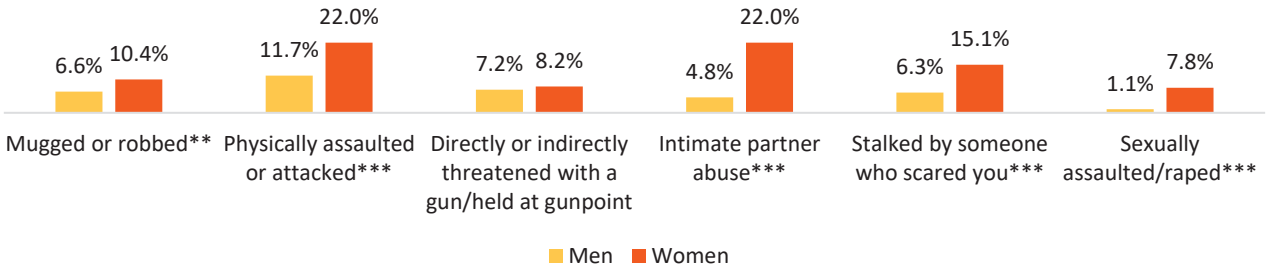


***p < .001.

Smaller percentages of clients reported experiencing crime and interpersonal victimization in the 12 months before entering programs (see Figure 1.19). Nonetheless, 21.9% of men and 36.8% of women reported experiencing at least one of the victimization experiences depicted in Figure 1.16. Significantly higher percentages of women than men reported being mugged/robbed, assaulted or attacked by someone, intimate partner violence, stalked by someone who scared them, and sexually assaulted or raped in the 12 months before entering treatment.

[36] Eight transgender individuals were not included in the analysis examining gender differences because 8 is too small of a group to examine for statistical differences by group.

FIGURE 1.19. PAST-12-MONTH CRIME AND INTERPERSONAL VICTIMIZATION BY GENDER (n = 3,466)[37]

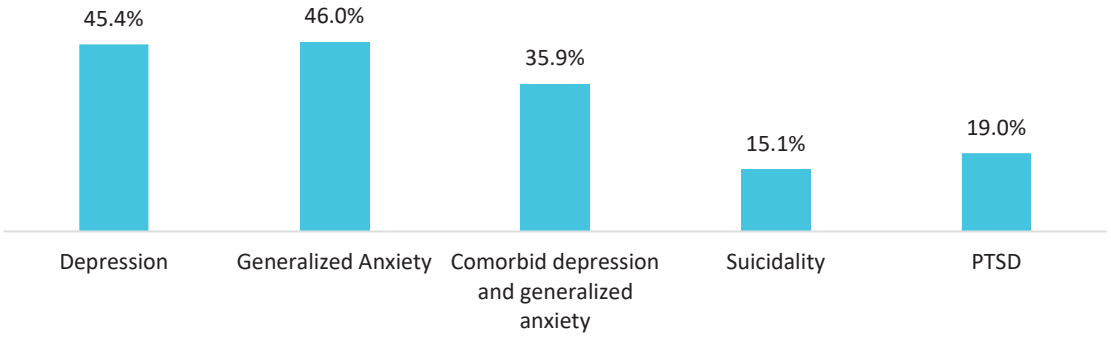


**p < .01, ***p < .001.

Mental Health

At intake, 45.4% of individuals met study criteria for depression in the 12 months before they entered treatment (see Figure 1.20). Additionally, 46.0% of clients met study criteria for generalized anxiety at intake and 35.9% of clients met study criteria for comorbid depression and generalized anxiety. About 15% of individuals reported suicidal thoughts or attempts in the 12 months before entering treatment and 19.0% of clients had PTSD scores that indicated a risk of PTSD.

FIGURE 1.20. DEPRESSION, GENERALIZED ANXIETY, SUICIDALITY, AND POST TRAUMATIC STRESS DISORDER IN THE PAST 12 MONTHS AT INTAKE (N = 3,474)



Criminal Justice Involvement

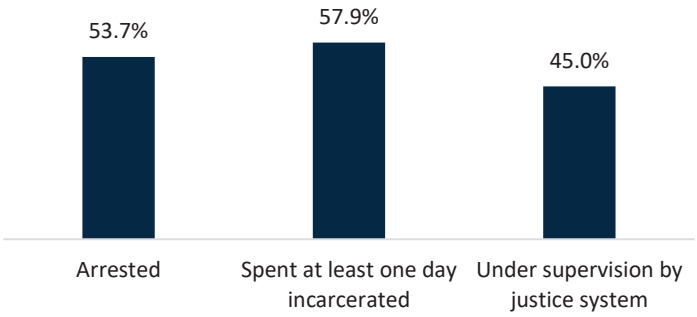
Over half of individuals reported being arrested at least once (53.7%) and 57.9% of clients reported being incarcerated at least one night in the 12 months before treatment (see Figure 1.21). Less than one half of clients (45.0%) were currently under supervision by the criminal justice system (e.g., probation, parole) at intake.

Among those who were arrested in the past 12 months (n = 1,867), they were arrested an average of 2.0 times. Among those who were incarcerated in the past 12 months (n =

[37] Eight transgender individuals were not included in the analysis examining gender differences because 8 is too small of a group to examine for statistical differences by group.

2,011), they were incarcerated an average of 65.3 nights (not depicted in a figure).

FIGURE 1.21. CRIMINAL JUSTICE INVOLVEMENT 12 MONTHS BEFORE TREATMENT AT INTAKE (N = 3,474)



Description of KTOS Follow-up Sample at Intake

This report describes outcomes for 554 adults who participated in publicly-funded substance use disorder treatment and who completed an intake interview and a follow-up telephone interview about 12 months (average of 362.0 days) after the intake survey was completed.[38] Detailed information about the methods is presented in Appendix A.

Follow-up interviews are conducted with a selected sample of KTOS clients about 12 months after the intake survey is completed. All individuals who agree to be contacted by UK CDAR for the follow-up interview and have given at least one mailing address and one phone number, or two phone numbers if they do not have a mailing address in their locator information, are eligible for the follow-up component of the study. For reports before the 2023 report, the follow-up sample was randomly selected by month in which individuals completed the intake survey—170 cases per month. However, the number of individuals eligible for follow-up has been lower the past couple years than in previous years, because of the lower number of intake surveys completed in 2021 (i.e., the first 15 months of the COVID-19 pandemic) and in 2022. Thus, all eligible cases were included in the sample of individuals to be contacted to complete a follow-up survey (n = 822). The follow-up interviews are conducted independently from the treatment program and are completed over the telephone by an interviewer at UK CDAR. Client responses to the follow-up interviews are kept confidential to help facilitate the honest evaluation of client outcomes and satisfaction with program services.

The professionalism of the outcome study is reflected in a low refusal rate for follow-up participation (1.5%) and in a good follow-up rate (76.4%). This means that 22.1% of individuals included in the sample to be followed up were not successfully contacted.[39] These elements indicate KTOS is a solid, dependable research study for publicly-funded substance use disorder treatment programs with adults in Kentucky. For a summary of the client locating efforts of UK CDAR staff, see Appendix A.

[38] The average number of days between when the baseline was submitted to UK CDAR and when the follow-up was completed was 351.4 days

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

About KTOS Locating Efforts

In 2014, 523 randomly selected cases that were included in the follow-up sample were used to examine efforts in locating and contacting participants. In 2019, 2020, and 2021, the research team repeated these efforts to compare how locating efforts and the quality of contact information provided at the end of the intake interviews have changed over time.

LOCATOR EFFORTS	2014[40] (n = 523) (n = 1,269 completed files)	2019[41] (n = 2,026) (n = 1,175 completed files)	2020[42] (n = 1588) (n = 838 completed files)	2021 (n = 880) (n = 569 completed files)
Follow Up Rate	76.3%	69.4%	60.6%	71.9%
Phone Calls				
Average number of outgoing calls to reach client	4.3 (0-39 calls)	8.7 (0-62 calls)	12.5 (0-75 calls)	14.5 (0-139 calls)
Average number of outgoing calls to reach any contact	1.8 (0-23 calls)	3.2 (0-57 calls)	3.0 (0-48 calls)	4.8 (0-70 calls)
Total number of outgoing calls to reach client or any contact[43]	12,438 calls	24,105 calls	25,150 calls	12,782 calls
Average outgoing calls for each completed follow-up	10 calls	21 calls	30 calls	23 calls
Mail				
Average number of mailings sent (to client/contact/other).	2.3 (0-7 mailings)	2.8 (0-6 mailings)	2.9 (0	2.7 (1-9 mailings)
Total number of mailings sent (to client/contact/ other)[44]	4,690 mailings	5,563 mailings	4,562 mailings	2,332 mailings
Average outgoing mail for each completed follow-up	3.7 mailings	4.7 mailings	5.4 mailings	4.1 mailings
% of mail returned	17.8%	21.8%	20.2%	24.0%

[40] 20% random sample of completed, ineligible, expired, and refused files across all 12 months.

[41] There were 8 missing files when the extraction project was completed.

[42] There were 4 total missing files including 1 expired, 1 completed, 1 refusal and 1 expired.

[43] For 2014, since the sample is only 20% of the total, the averages were applied to the total number of files in the follow-up sample, n = 2,039.

[44] For 2014, since the sample is only 20% of the total, the averages were applied to the total number of files in the follow-up sample, n = 2,039.

QUALITY OF CONTACT INFORMATION	2014 (n = 523)	2019 (n = 2,026)	2020 (n = 1,588)	2021 (n = 880)
Client Locator Number				
None listed	0.0%	1.4%	0.9%	0.8%
Number worked	40.2%	48.4%	52.2%	55.0%
Number worked but not successful	28.5%	27.6%	32.8%	32.0%
Number was disconnected	15.3%	18.6%	11.9%	11.5%
Number listed but never called	16.1%	3.9%	2.2%	0.7%
First Contact Locator Number				
None listed	25.4%	58.9%	25.8%	25.3%
Number worked	21.8%	15.2%	16.1%	20.8%
Number worked but not successful	14.3%	8.9%	13.8%	14.7%
Number was disconnected	4.6%	3.9%	3.9%	4.0%
Number listed but never called	33.8%	13.1%	19.4%	18.9%
Phone number listed but was not unique	Not in data	Not in data	21.0%	16.4%
Second Contact Locator Number				
None listed	69.6%	85.9%	56.2%	58.2%
Number worked	6.7%	4.2%	10.0%	8.6%
Number worked but not successful	5.5%	3.1%	7.7%	8.0%
Number was disconnected	1.9%	1.1%	2.1%	1.6%
Number listed but never called	16.3%	5.7%	17.8%	16.4%
Phone number listed but was not unique	Not in data	Not in data	6.2%	7.3%

Efforts to locate and contact potential follow-up clients increased from 2014 to 2020 for two main reasons. First, because of the increase in robo and other scam calls, people are more hesitant to pick up their phones and more skeptical when they do. Second, the quality of locator information is lower in recent years, making it more difficult to find correct information for clients. Comparison of the efforts interviewers put into conducting the follow-up interviews from 2014 to 2020 shows that the average number of calls increased by 46%, and the average number of mailings increased by 26%.

Demographics

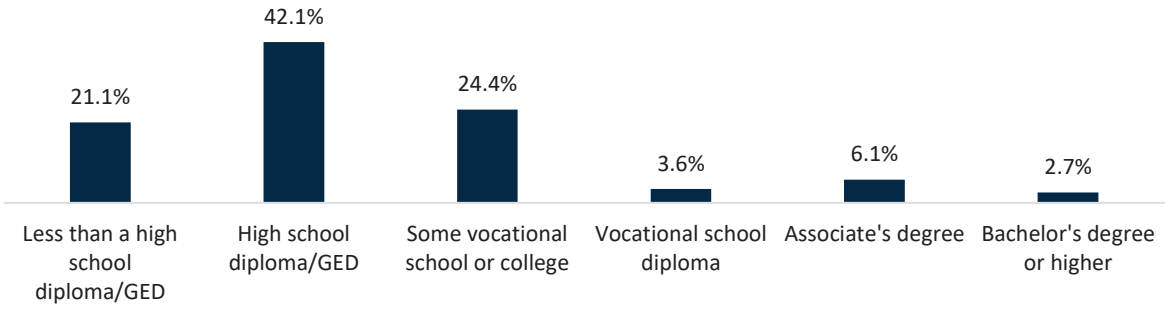
Of the 554 adults who completed a 12-month follow-up interview, 53.8% were female and 46.2% were male (see Table 1.3). The majority of follow-up clients were White (91.2%). A minority were African American/Black (3.8%) and 5.1% were Hispanic, American Indian, or multiracial. Clients in the follow-up sample were an average of 37.2 years old at the time of the intake interview. A sizeable minority of clients (45.7%) reported they were married or cohabiting at intake, 26.7% were never married (and not cohabiting), 24.7% were separated or divorced, and 2.9% were widowed. A little more than three-fourths (78.7%) of followed-up clients had at least one child, with 59.7% having at least one child under the age of 18. A small percentage of the follow-up sample (3.1%) reported they were a veteran or currently serving in the military, Reserves, or National Guard.

TABLE 1.3. DEMOGRAPHICS FOR KTOS CLIENTS WHO WERE FOLLOWED-UP (n = 554)

Age	37.2 years *(range of 18 - 73)*
Gender	
Male	46.2%
Female	53.8%
Transgender	0.0%
Race	
White	91.2%
African American	3.8%
Other or multiracial	5.1%
Marital Status	
Married or cohabiting	45.7%
Never married	26.7%
Separated or divorced	24.7%
Widowed	2.9%
Have Children	78.7%
Have children under the age of 18	59.7%
Veteran or Currently Serving in Military	3.1%

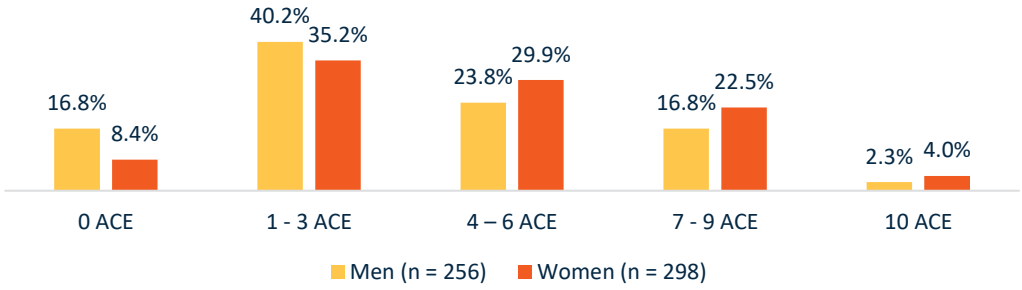
A little more than one-fifth of follow-up clients (21.1%) had less than a high school diploma or GED at intake (see Figure 1.22). The highest level of education of 42.1% of the follow-up sample was a high school diploma or GED. Nearly one-fourth of clients (24.4%) had completed some vocational/technical school or college. Only a small minority of clients had completed vocational/technical school (3.6%), an associate's degree (6.1%), and a bachelor's degree or higher (2.7%).

FIGURE 1.22. HIGHEST LEVEL OF EDUCATION COMPLETED BY FOLLOW-UP CLIENTS AT INTAKE (n = 554)



There was a significant difference in the proportion of men and women classified by number of types of ACE (see Figure 1.23). Significantly more men than women reported experiencing 0 ACE. Women in the follow-up sample had a higher average number of ACE compared to men (4.4 vs. 3.4, t(552) = -4.145, p < .001).

FIGURE 1.23. NUMBER OF TYPES OF ADVERSE CHILDHOOD EXPERIENCES FOR FOLLOW-UP SAMPLE BY GENDER**

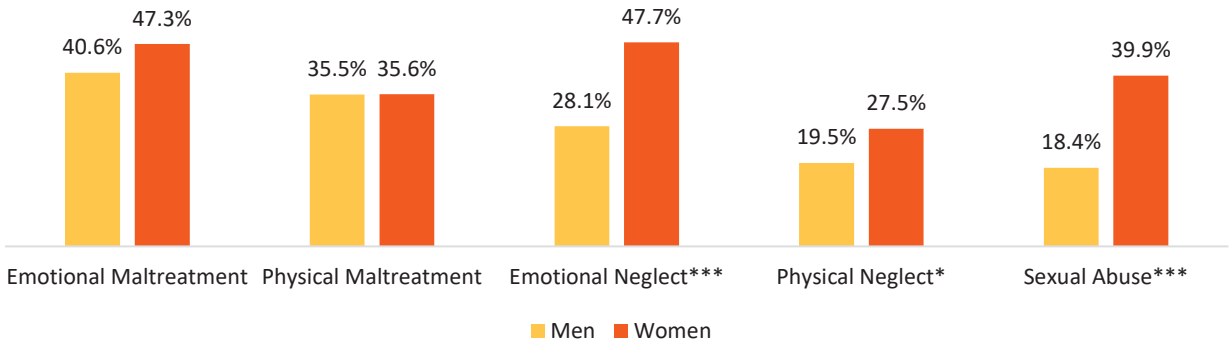


**p < .01.

A significantly higher percent of women reported experiencing emotional neglect, physical neglect, and sexual abuse in their childhood compared to men. A little less than half of women and 40.6% of men reported they had experienced emotional maltreatment (47.3%) in their childhood (see Figure 1.24). More than one-third of women and men reported physical maltreatment, with no statistically significant difference by gender. Less than half of women (47.7%) reported they had experienced emotional neglect compared to 28.1% of men. More than one-fourth of women (27.5%) reported they experienced physical neglect in their childhood homes compared to 19.5% of men About 2.2 as many women reported sexual abuse before the age of 18 compared to men.

> *It saved my life. I was an addict for 35 years and now this program has helped me. I went from being homeless to having my own house and car.*
>
> - KTOS FOLLOW-UP CLIENT

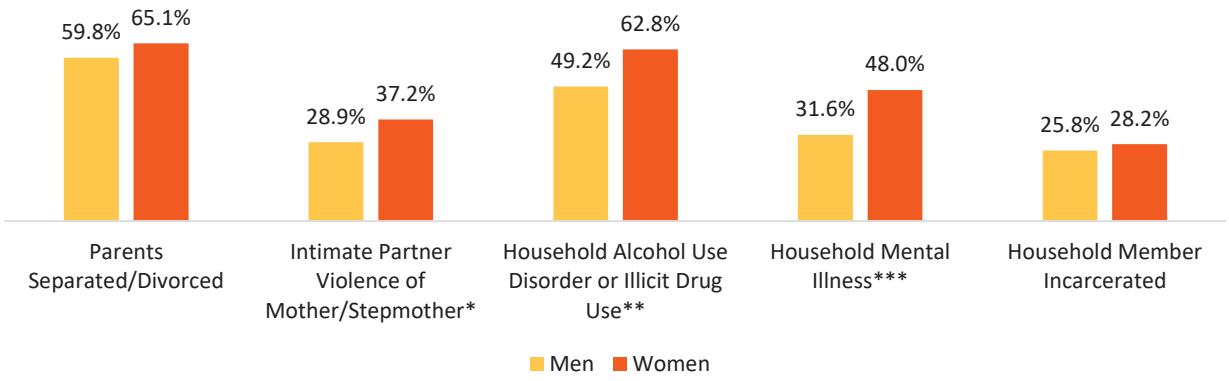
FIGURE 1.24. MALTREATMENT AND ABUSE EXPERIENCES IN CHILDHOOD FOR FOLLOW-UP SAMPLE BY GENDER (n = 554)



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

Compared to men significantly more women reported three of five types of household risks: witnessing IPV of their mother/stepmother, a household member being a problem drinker or using illicit drugs, and a household member being depressed, mentally ill or attempted suicide (see Figure 1.25). The majority of individuals reported their parents were divorced or lived separately. There was no significant difference by gender in the percent of clients who reported a household member had been incarcerated.

FIGURE 1.25. HOUSEHOLD RISKS IN CHILDHOOD FOR FOLLOW-UP SAMPLE BY GENDER (n = 554)

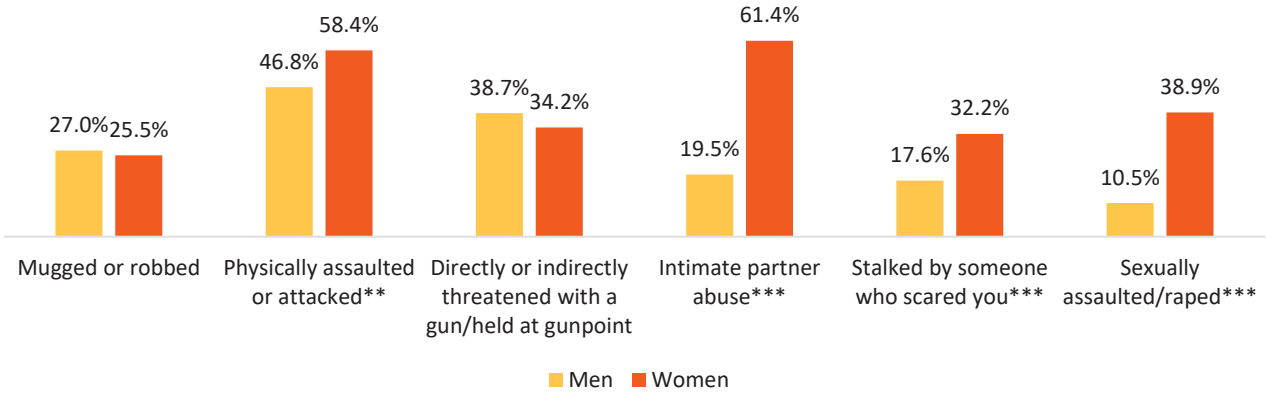


*p < .05, **p < .01, ***p < .001.

Individuals were also asked about victimization experiences (including when they may have been the victim of a crime, harmed by someone else, or felt unsafe) they had experienced in their lifetime and in the 12 months before entering treatment. About three-fourths of women (76.8%) and 64.8% of men reported experiencing at least one type of victimization not classified as an ACE that are presented in Figure 1.26. Similar percentages of men and women reported ever being mugged or robbed by someone threatening to use force or using force and being directly or indirectly threatened with a gun. Compared to men, significantly higher percentages of women reported ever being

physically assaulted or attacked, abused by an intimate partner, stalked by someone who scared them, and sexually assaulted or raped.

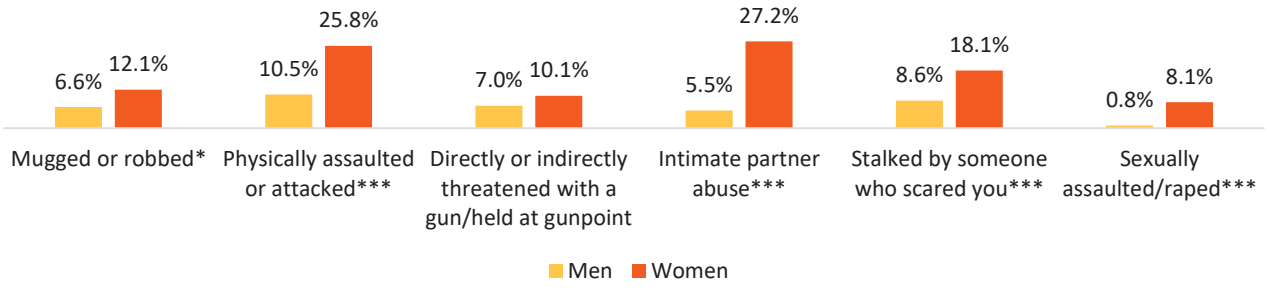
FIGURE 1.26. LIFETIME CRIME AND INTERPERSONAL VICTIMIZATION FOR FOLLOW-UP SAMPLE BY GENDER (n = 554)



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

Smaller percentages of clients reported experiencing crime and interpersonal victimization in the 12 months before entering programs than in their lifetime (see Figure 1.27). Significantly higher percentages of women than men reported being mugged or robbed, physically assaulted/attacked, abused by an intimate partner, stalked, and sexually assaulted or raped in the 12 months before entering treatment. Specifically, about one-fourth of women reported being physically assaulted/attacked and abused by a partner in the 12 months before entering treatment.

FIGURE 1.27. PAST-12-MONTH CRIME AND INTERPERSONAL VICTIMIZATION FOR FOLLOW-UP SAMPLE BY GENDER (n = 554)



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

When individuals with a follow-up interview were compared with those who did not have a follow-up interview on a variety of intake variables, there were some significant differences for demographics, economic hardship, education, employment, physical health, mental health, substance use, and severity of substance use. These differences indicate that followed-up individuals were worse off in several key domains compared to those who were not followed up (see Table 1.4). See Appendix B for detailed comparisons of clients who completed a follow-up interview (n = 554) and clients who did not complete a follow-up interview (n = 2,920).

Analysis comparing those individuals who completed a follow-up survey with those who did not complete a follow-up survey (for any reason, for example, they did not agree to be in the follow-up study, they were not selected into the follow-up sample, or they were not successfully contacted for the follow-up survey) found some significant differences between the two groups. Most importantly, significantly more women were followed up than were not followed up. Other significant differences at treatment intake between individuals who completed the follow-up survey and individuals who did not complete the follow-up survey were: gender, race, usual living situation, highest level of education, difficulty meeting basic needs, chronic medical problems, depression, generalized anxiety, PTSD, suicidality, number of days incarcerated among individuals who were incarcerated, use of illicit drugs, cannabis, opioids, and stimulants/cocaine, alcohol, alcohol to intoxication, and substance use disorder severity). For the most part, the significant differences suggest that individuals who were followed up were worse off in terms of physical health, mental health, and substance use severity when compared to individuals who were not followed up. However, a few of the demographic variables indicate that individuals who completed a follow-up survey had better higher education and fewer had lived in institutional housing compared to individuals who did not complete a follow-up surveys. Nonetheless, most of the examined factors were not significantly different between the two groups, suggesting that the findings may generalize fairly well to the entire client population.

TABLE 1.4. FOLLOWED-UP VERSUS NOT FOLLOWED-UP

	Followed up	
	No (n = 2,920)	Yes (n = 554)
Demographic	• Fewer female • Fewer individuals with other race, multiracial	• More female • More individuals with other race, multiracial
Socio-economic status indicators *(e.g., education, employment, living situation, inability to meet basic needs)*	• More had highest level of education as high school diploma/GED	• More lived in private residence • Fewer lived in jail/prison • Fewer lived in institutional setting other than jail/prison • More had difficulty meeting basic living needs and health care needs for financial reasons • More had education beyond high school diploma/GED
Substance use, severity of alcohol and drug use		• More reported illicit drug, cannabis, stimulants/cocaine, opioid use in the 12 months before entering treatment • More reported alcohol use, and alcohol to intoxication use in the 12 months before treatment • More met or surpassed the cutoff score for severe substance use disorder and severe drug use disorder
Physical health *(e.g., chronic pain, chronic medical problems)*		• More had chronic medical problems
Mental health *(e.g., depression, generalized anxiety, suicidality)*		• More met study criteria for depression, generalized anxiety, PTSD, and suicidality • Reported more days mental health was not good
Criminal justice involvement		• Lower number of days incarcerated, among individuals who were incarcerated

|Section 2. Substance Use

This section examines changes in substance use, which include use of any illicit drugs or alcohol, and then separately for illicit drugs, alcohol, and tobacco at intake and follow-up. 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. In addition, self-reported severity of alcohol and drug use based on the DSM-5 and the Addiction Severity Index (ASI) alcohol and drug use composite scores are compared at intake and follow-up. Results for each targeted factor are presented for the overall sample and by gender when there were significant gender differences.

In addition to examining the overall use of illicit drugs, several specific categories of illicit drugs were examined including: (a) cannabis; (b) opioids [i.e., prescription opioids, methadone, and buprenorphine-naloxone (bup-nx)]; (c) heroin; (d) Central Nervous System (CNS) depressants [including tranquilizers, benzodiazepines, sedatives, and barbiturates]; (e) cocaine; (f) other stimulants [i.e., methamphetamine, Ecstasy, MDMA, Adderall, and Ritalin]; and (g) other illicit drugs not mentioned above [i.e., hallucinogens, inhalants, and synthetic drugs]. In addition, polydrug use was also examined. 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 illicit drug use and specifically for marijuana, opioids, heroin, CNS depressants, cocaine, other stimulants, and other illicit drug use, alcohol use, and tobacco use 12 months before the client entered the program and any use of these substances during the 12-month follow-up period (n = 544)[45] are presented.

2. **Average Number of Months Clients Used Substances at Intake and Follow-up.** For those who used any of the substances, the average number of months used in the 12 months before treatment intake and during the 12-month follow-up period are reported.

3. **Change in 30-day Substance Use from Intake to Follow-up.** In addition to looking at past-12-month substance use, change in substance use in the 30 days before program entry and the 30 days before the follow-up interview for any illicit drug use (including marijuana, opioids, heroin, CNS depressants, cocaine, other stimulants, and other illicit drugs), alcohol use, and tobacco use (n = 469)[46] is also examined.

4. **Change in Self-reported Severity of Substance Use Disorder from Intake to Follow-up.** There are two indices of substance use severity presented in this report. One

[45] Cases were excluded from this analysis for the following reasons: they were incarcerated all 365 days before entering treatment (n = 6, they had missing values for the number of days incarcerated in the 12 months before follow-up (n = 1), and they had missing values for substance use items at follow-up (n = 3).

[46] 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 at either period. The assumption for excluding clients who were in a controlled environment all 30 days before entering treatment (n = 63) or all 30 days before the follow-up (n = 21) is that being in a controlled environment inhibits opportunities for substance use. Moreover, an additional case had a missing value for the number of days in a controlled environment before follow-up (n = 1), and additional cases were excluded from this analysis because they had missing values for substance use items at follow-up (n = 3)

way to examine overall change in degree of severity of substance use is to ask participants to self-report whether they met any of the 11 DSM-5 symptoms for substance use disorder (SUD) in the past 12 months. For this report, the severity of the substance use disorder (i.e., none, mild, moderate, or severe) is based on the number of self-reported symptoms. The percent of individuals in each of the four categories at intake and follow-up is presented.

The Addiction Severity Index (ASI) composite scores are examined for change over time for illicit drugs (n = 276), alcohol (n = 152) and those with alcohol and/or illicit drug use (n = 338) among individuals who reported use of the substance at either intake or follow-up. The ASI composite score assesses self-reported addiction severity even among those reporting no substance use in the past 30 days. The alcohol and drug composite scores are computed from items about past-30-days alcohol (or drug) use and the number of days individuals used multiple drugs in a day, as well as the impact of substance use on the individual's life, such as money spent on alcohol, number of days individuals had alcohol (or drug) problems, how troubled or bothered individuals were by their alcohol (or drug) problems, and how important treatment was to them.

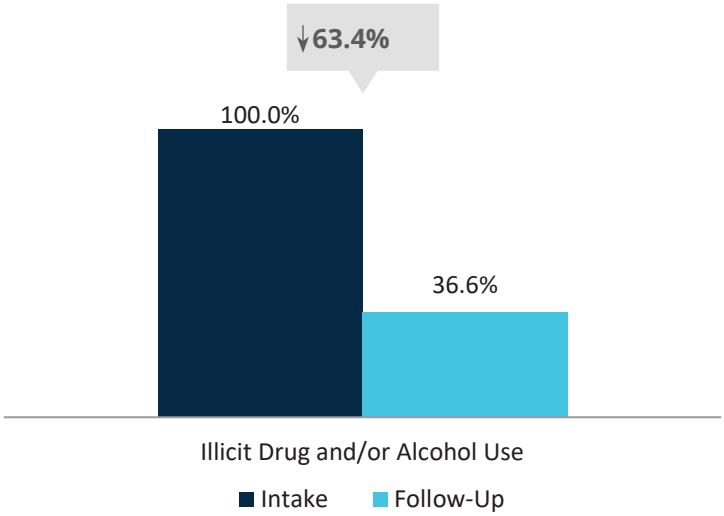
Alcohol and/or Illicit Drug Use

Past-12-month Alcohol and/or Illicit Drug Use

The number of clients reporting alcohol and/or illicit drug use decreased by 63%

Because clients were excluded from the follow-up sample if they reported no substance use in the 12 months before intake and were out on the street at least one day in that period, all clients (100%) reported using alcohol and/or illicit drugs in the 12 months before entering substance use disorder treatment, which decreased to 36.6% at follow-up (see Figure 2.1).

FIGURE 2.1. PAST-12-MONTH ALCOHOL AND/OR DRUG USE AT INTAKE AND FOLLOW-UP (N = 544)[a]

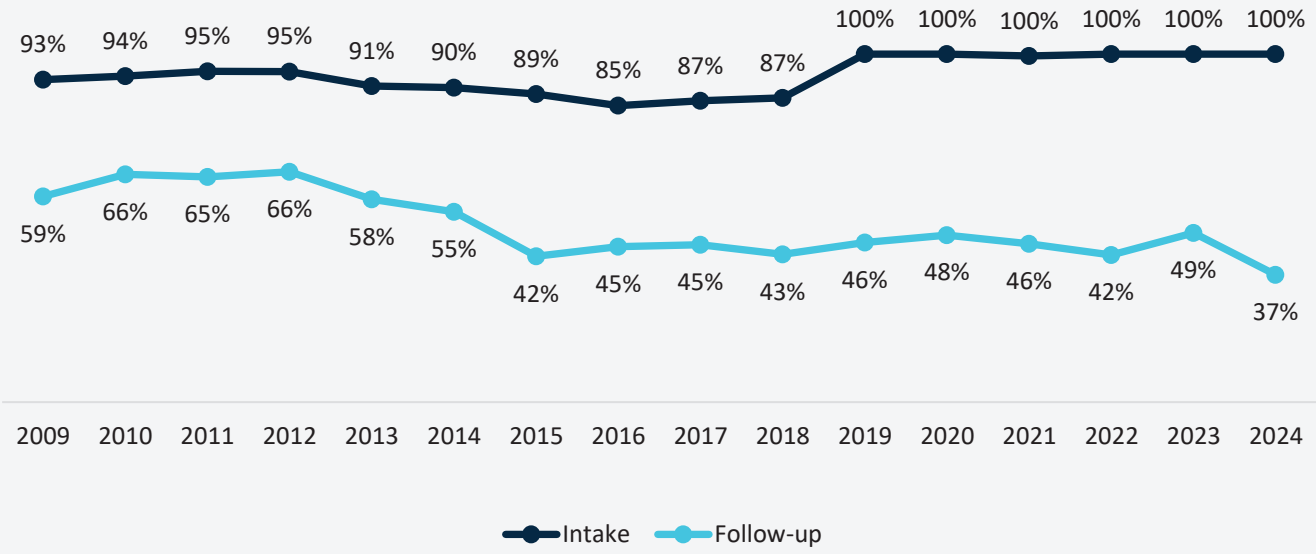


a–No test of statistical association could be computed for illicit drug/alcohol use in the 12 months before entering treatment because one of the cell values was 0.

Trends in Any Alcohol and/or Illicit Drug Use

The percent of KTOS clients reporting alcohol and/or illicit drug use in the 12 months before treatment has been consistently high.[47] At follow-up, the number of clients reporting alcohol and/or illicit drug use has decreased over the years.

FIGURE 2.2. TRENDS IN ANY ALCOHOL AND/OR ILLICIT DRUG USE AT INTAKE AND FOLLOW-UP, REP 2009-2024[48]



Gender Differences in Past-12-month Alcohol And/or Illicit Drug Use

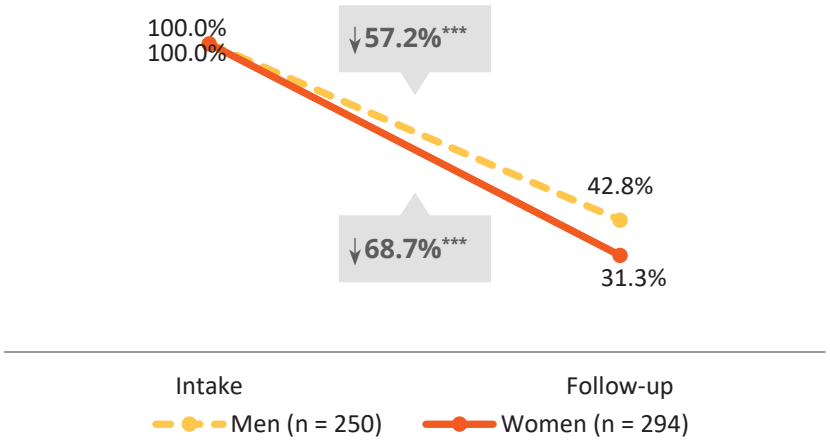
At intake, all men and women reported using alcohol and/or illicit drug in the 12 months before entering treatment (see Figure 2.3). The number of men and women who reported any past-12-month alcohol and/or illicit drug use significantly decreased from intake to follow-up by 57.2% and 68.7% respectively. At follow-up, significantly more men reported alcohol and/or illicit drug use in the past 12 months compared to women (42.8% vs. 31.3%, respectively).

> *They seem caring and a lot of times they do it over the phone which saves time and gas. They will do anything to work with me and help me.*
>
> - KTOS FOLLOW-UP CLIENT

[47] In the several years preceding Rep 2019, the research team noticed that an increasing proportion of clients with completed KTOS intake surveys reported no substance use. Because the focus of this report is on SUD treatment outcomes, to be included in the follow-up study individuals had to report past-12-month alcohol and/or drug use, if they were not incarcerated the entire 12 months before entering the program.

[48] The percent of individuals who reported alcohol and/or drug use in the 12 months before intake in Rep 2021 was 99.5%. Because the percentages presented in trend analysis are rounded to the nearest integer, 99.5% rounds up to 100%.

FIGURE 2.3. GENDER DIFFERENCES IN PAST-12-MONTH ILLICIT DRUG AND/OR ALCOHOL USE AT INTAKE AND FOLLOW-UP[a]

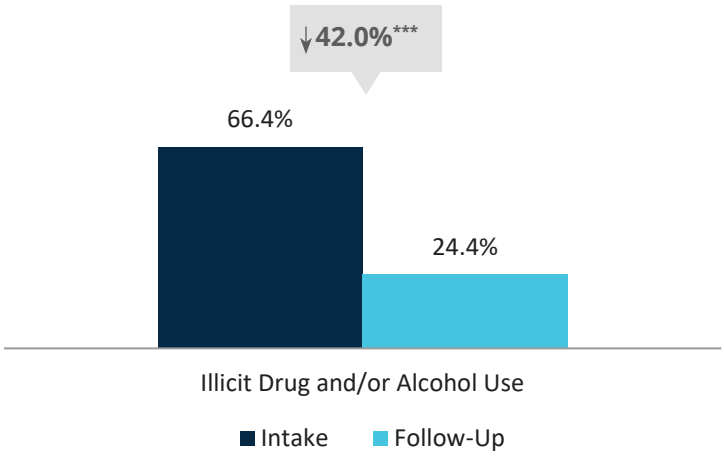


a—Significant difference by gender at follow-up ($p < .01$).
***$p < .001$.

Past-30-day Alcohol and/or Illicit Drug Use

About two-thirds of clients (66.4%) reported using alcohol and/or illicit drugs in the 30 days before entering SUD treatment, which decreased to 24.4% at follow-up. As a result, there was a 42.0% significant decrease in the number of clients reporting past-30-day use of alcohol and/or illicit drugs (see Figure 2.4).

FIGURE 2.4. PAST-30-DAY ALCOHOL AND/OR DRUG USE AT INTAKE AND FOLLOW-UP (N = 467)

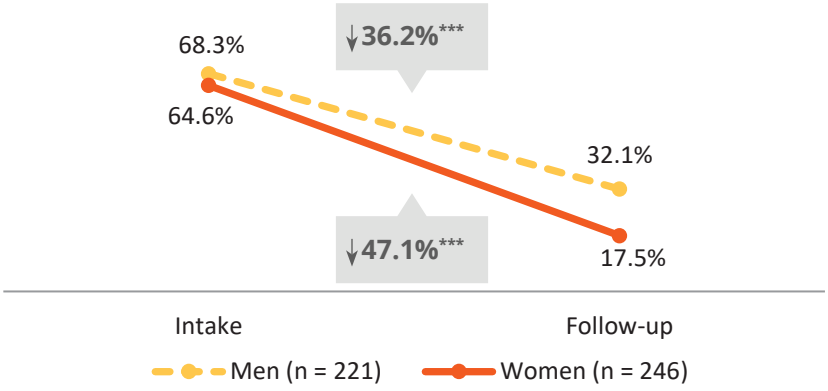


***$p < .001$.

Gender Differences in Past-30-day Alcohol And/or Illicit Drug Use

At intake, there were no significant differences in the number of men (68.3%) and women (64.6%) reporting any alcohol and/or illicit drug use in the past 30 days (see Figure 2.5). The number of men and women who reported any past-30-day alcohol and/or illicit drug use significantly decreased from intake to follow-up by 36.2% and 47.1% respectively. At follow-up, significantly more men reported alcohol and/or illicit drug use in the past 30 days compared to women (32.1% vs. 17.5%).

FIGURE 2.5. GENDER DIFFERENCES IN PAST-30-DAY ILLICIT DRUG AND/OR ALCOHOL USE AT INTAKE AND FOLLOW-UP[a]



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

Illicit Drugs

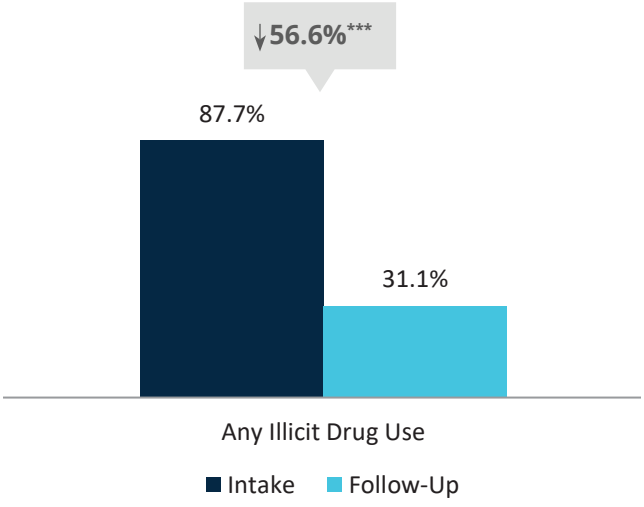
Past-12-month Illicit Drug Use

At intake, clients were asked how old they were when they first began to use illicit drugs. On average, KTOS clients reported they were 16.9 years old when they first used illicit drugs (not depicted in figure).

The majority of clients (87.7%) reported using illicit drugs in the 12 months before entering SUD treatment, which decreased to 31.1% at follow-up. Overall, for the KTOS follow-up sample, there was a 56.6% decrease in the number of clients reporting use of any illicit drug in the past 12 months (see Figure 2.6).

The number of clients reporting illicit drug use in the past 12 months decreased by 57%

FIGURE 2.6. PAST-12-MONTH ILLICIT DRUG USE AT INTAKE AND FOLLOW-UP (N = 544)

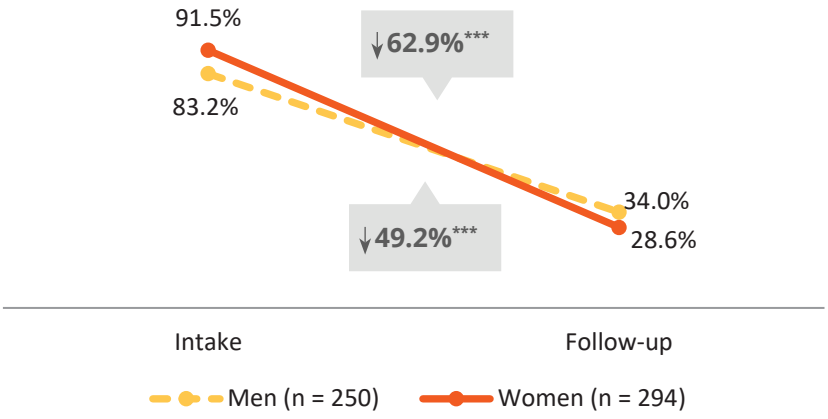


***$p < .001$

Gender Differences in Past-12-month Overall Illicit Drug Use

At intake, significantly more women than men reported any past-12-month illicit drug use, 91.5% vs. 83.2% (see Figure 2.7). The number of women and men who reported illicit drug use in the past 12 months significantly decreased from intake to follow-up by 62.9% and 49.2% respectively. At follow-up, there was no significant difference in the number of men and women who reported using any illicit drugs in the past 12 months.

FIGURE 2.7. GENDER DIFFERENCES IN PAST-12-MONTH ILLICIT DRUG USE AT INTAKE AND FOLLOW-UP[a]

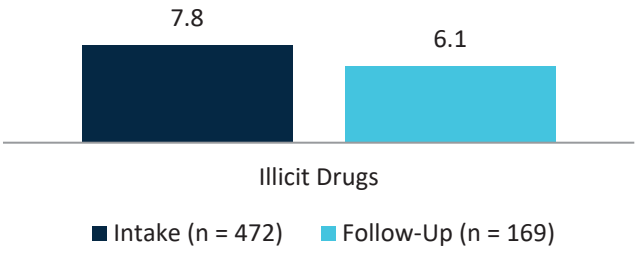


a—Significant difference by gender at intake ($p < .01$).
***$p < .001$.

Average Maximum Number of Months Used Any Illicit Drugs

Among the clients who reported using illicit drugs in the 12 months before entering treatment (n = 472)[49], they reported using illicit drugs an average maximum of 7.8 months (see Figure 2.8).[50] Clients who reported using illicit drugs at follow-up (n = 169) reported using an average maximum of 6.1 months.

FIGURE 2.8. AVERAGE MAXIMUM NUMBER OF MONTHS CLIENTS USED ILLICIT DRUGS



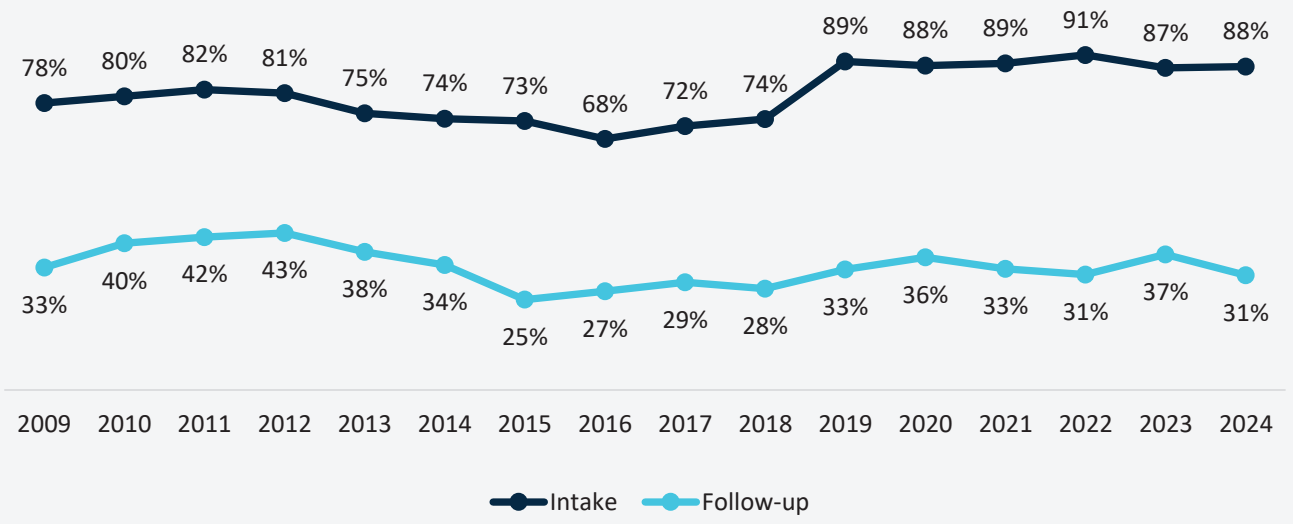
[49] Five cases had a missing value for the number of months they used any of the illicit drug classes in the 12 months before entering treatment.

[50] 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.

Trends in Past-12-Month Illicit Drug Use

Around three-quarters of KTOS clients reported any illicit drug use in the 12 months before treatment from Rep 2009 to Rep 2018. In Rep 2019, that percent increased to almost 90% and remained through Rep 2024.[51] Overall, at follow-up, the percent of clients reporting any illicit drug use decreased from Rep 2012 to Rep 2015 but slowly increased until Rep 2020.

FIGURE 2.9. TRENDS IN ANY PAST-12-MONTH ILLICIT DRUG USE AT INTAKE AND FOLLOW-UP, Rep 2009 - 2024

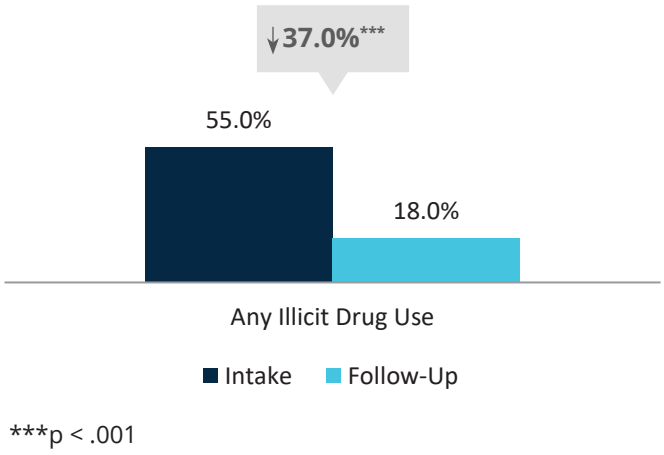


Past-30-day Illicit Drug Use

More than half of clients (55.0%) who were not in a controlled environment all 30 days reported they had used illicit drugs in the 30 days before entering treatment (see Figure 2.10). At follow-up, only 18.0% of clients reported they had used illicit drugs in the past 30 days—a significant decrease of 37.0%.

[51] In the several years preceding Rep 2019, the research team noticed that an increasing proportion of clients with completed KTOS intake surveys reported no substance use. Because the focus of this report is on SUD treatment outcomes, to be included in the follow-up study individuals had to report past-12-month alcohol and/or drug use, if they were not incarcerated the entire 12 months before entering the program.

FIGURE 2.10. PAST-30-DAY USE OF ANY ILLICIT DRUG AT INTAKE AND FOLLOW-UP (N = 467)[52]

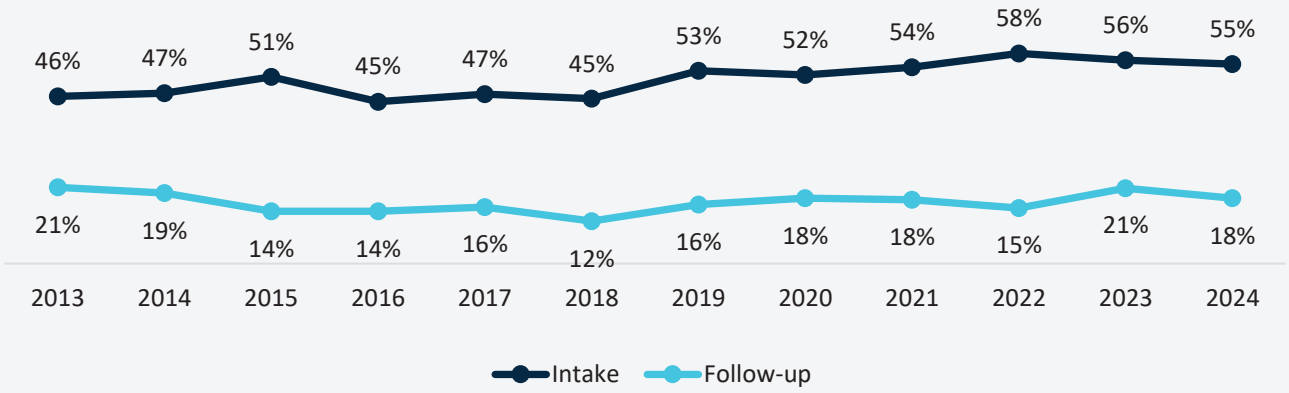


***p < .001

Trends in Past-30-Day Illicit Drug Use

From Rep 2013 through Rep 2021, among clients who were not in a controlled environment in the 30 days before program entry and the 30 days before the follow-up interview, around half (45% - 54%) reported using any illicit drugs in the past 30 days at intake. In Rep 2022, the percent had increased to 58% for the 30 days before intake, and has been between 55% - 56% since the 2023 report. At follow-up, the percent of clients reporting any illicit drug use decreased for 6 years, from 21% in FY 2011 to 12% in FY 2016 but increased in FY 2017 (16%) and was a high of 21% in FY 2021. Nonetheless, each report year, the percent of individuals reporting illicit drug use in the past 30 days has decreased significantly from intake to follow-up.

FIGURE 2.11. TRENDS IN PAST-30-DAY ILLICIT DRUG USE AT INTAKE AND FOLLOW-UP, Rep 2013-2024



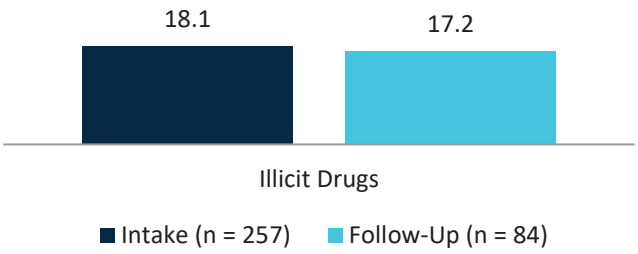
Average Maximum Number of Days Used Any Illicit Drugs

Among the clients who reported using illicit drugs in the 30 days before entering treatment (n = 257), they reported using illicit drugs an average maximum of 18.1 days (see Figure 2.12). Clients who reported using illicit drugs at follow-up (n = 84) reported

[52] Two individuals had missing data for illicit drug use in the 30 days before follow-up.

using an average maximum of 17.2 days.[53]

FIGURE 2.12. AVERAGE MAXIMUM NUMBER OF DAYS CLIENTS USED ILLICIT DRUGS IN PAST 30 DAYS



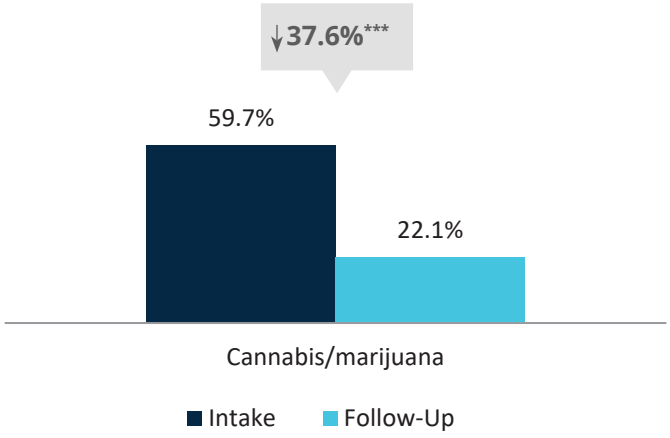
Cannabis/Marijuana

Past-12-month Cannabis/Marijuana Use

More than half (59.7%) of clients reported using cannabis in the 12 months before entering treatment, which decreased to 22.1% at follow-up. Overall, for the KTOS follow-up sample, there was a 37.6% significant decrease in the number of clients reporting cannabis use (see Figure 2.13).

The number of clients reporting past-12-month cannabis use decreased by 38%

FIGURE 2.13. PAST-12-MONTH CANNABIS USE AT INTAKE AND FOLLOW-UP (N = 544)



***p < .001.

Gender Differences in Past-12-month Cannabis Use

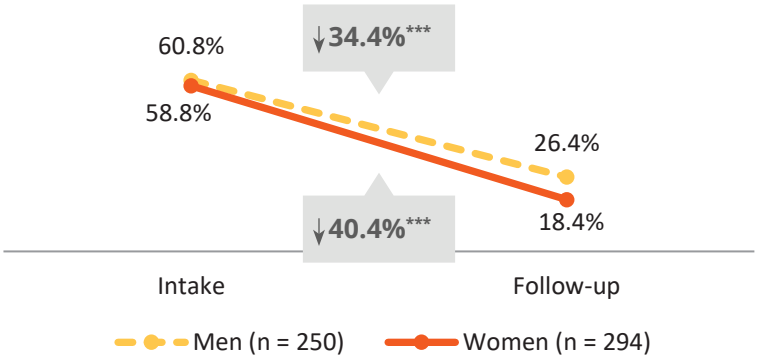
At intake, there was no significant difference in the percent of men and women who reported past-12-month use of cannabis (see Figure 2.14). The number of men and women

Significantly more men than women reported using any cannabis in the 12 months before follow-up

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

who reported cannabis use significantly decreased from intake to follow-up by 34.4% and 40.4% respectively. At follow-up, significantly more men reported cannabis use in the past 12 months compared to women.

FIGURE 2.14. GENDER DIFFERENCES IN PAST-12-MONTH CANNABIS USE AT INTAKE AND FOLLOW-UP[a]

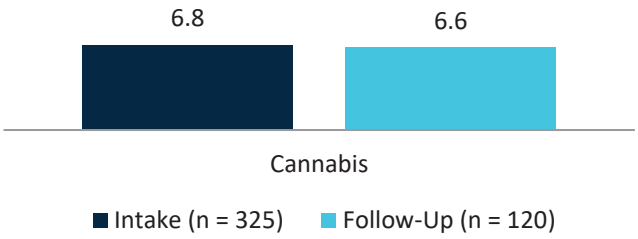


a—Significant difference by gender at follow-up ($p < .05$).
***$p < .001$.

Average Number of Months Used Cannabis

Among the clients who reported using cannabis in the 12 months before entering treatment (n = 325), they reported using illicit drugs an average maximum of 6.8 months (see Figure 2.15). Clients who reported using cannabis at follow-up (n = 120) reported using an average maximum of 6.6 days.

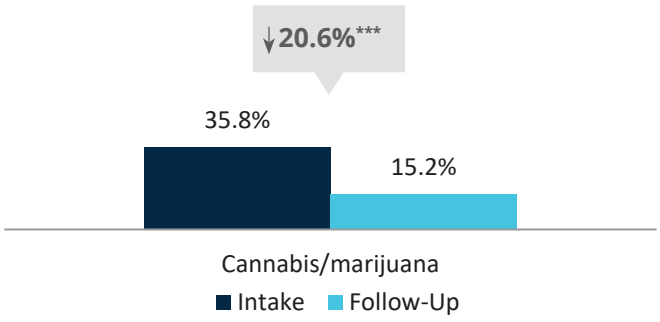
FIGURE 2.15. AVERAGE MAXIMUM NUMBER OF DAYS CLIENTS USED CANNABIS IN PAST 12 MONTHS



Past-30-day Cannabis Use

The number of clients who reported using cannabis in the past 30 days decreased significantly by 20.6%, from 35.8% at intake to 15.2% at follow-up (see Figure 2.16).

FIGURE 2.16. PAST-30-DAY CANNABIS USE AT INTAKE AND FOLLOW-UP (N = 467)



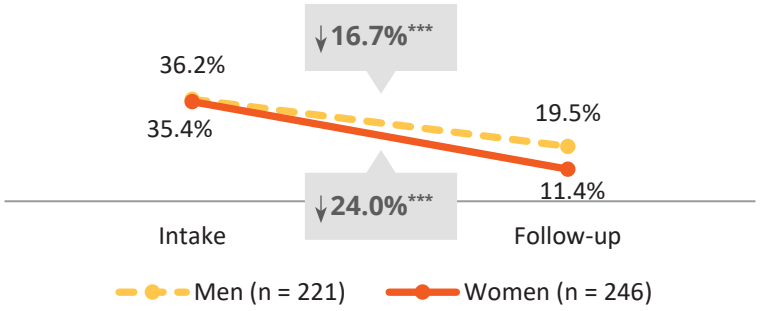
***p < .001

Gender Differences in Past-30-day Cannabis Use

At intake, there was no significant difference in the percent of men and women who reported past-30-day use of cannabis (see Figure 2.17). The number of men and women who reported cannabis use in the past 30 months significantly decreased from intake to follow-up by 16.7% and 24.0% respectively. At follow-up, significantly more men reported cannabis use in the past 30 days compared to women.

Significantly more men than women reported using any cannabis in the 30 days before follow-up

FIGURE 2.17. GENDER DIFFERENCES IN PAST-30-DAY CANNABIS USE AT INTAKE AND FOLLOW-UP[a]



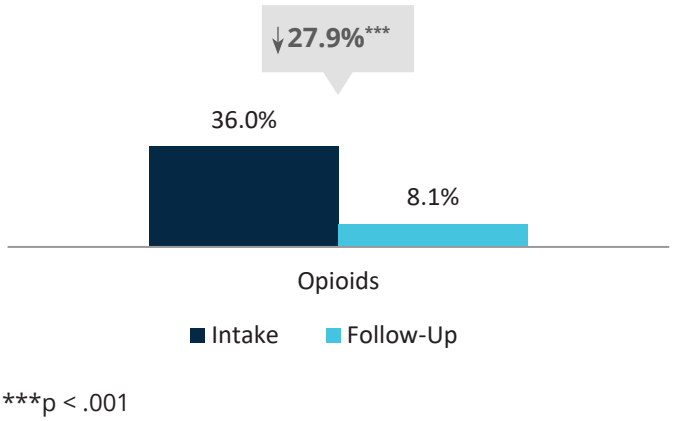
a—Significant difference by gender at follow-up (p < .05).
***p < .001.

Opioids

Past-12-month Illicit Opioid Use

A little more than one-third of clients (36.0%) reported using opioids/opioid agonists illicitly other than heroin, including prescription opioids, methadone, and buprenorphine-naloxone (bup-nx) in the 12 months before entering treatment, which decreased to 8.1% at follow-up. Overall, for the KTOS follow-up sample, there was a 27.9% decrease in the number of clients reporting past-12-month opioid use other than heroin (see Figure 2.18).

FIGURE 2.18. PAST-12-MONTH ILLICIT OPIOID USE AT INTAKE AND FOLLOW-UP (N = 544)

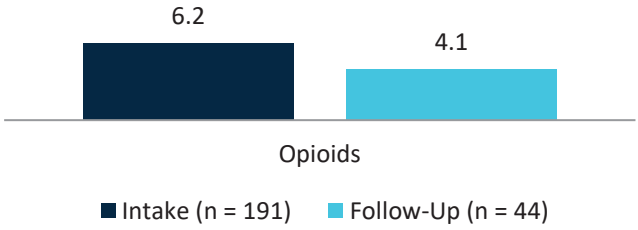


***p < .001

Average Number of Months Used Illicit Opioids

Among the clients who reported using opioids illicitly in the 12 months before entering treatment (n = 191), they reported using opioids, on average, 6.2 months (see Figure 2.19).[54, 55] Among clients who reported using opioids illicitly at follow-up (n = 44), they reported using 4.1 months, on average.

FIGURE 2.19. AVERAGE MAXIMUM NUMBER OF MONTHS CLIENTS USED ILLICIT OPIOIDS



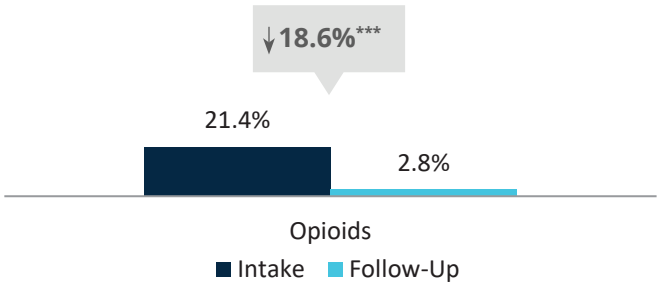
Past-30-day Illicit Opioid Use

The number of clients who reported opioids illicitly in the past 30 days decreased significantly by 18.6%, from 21.4% at intake to 2.8% at follow-up (see Figure 2.20).

[54] Because number of months of prescription opioids, methadone, and bup-nx were measured separately, the value is a calculation of the maximum number of months clients used any of these specific types of opioids.

[55] Five individuals reported opioid use in the 12 months before entering treatment but they had a missing value for the number of months they used opioids during this period.

FIGURE 2.20. PAST-30-DAY ILLICIT OPIOID USE AT INTAKE AND FOLLOW-UP (N = 467)



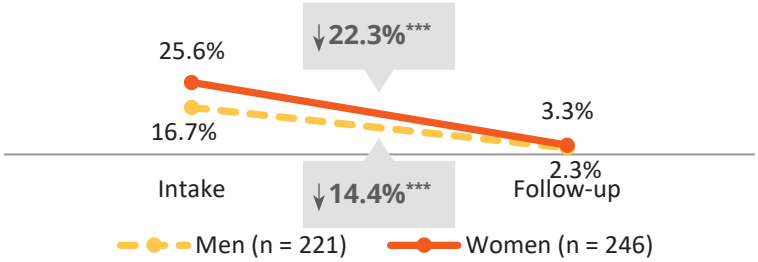
***p < .001

Gender Differences in Past-30-day Illicit Opioid Use

At intake, a significantly higher percent of women reported they had used opioids illicitly in the 30 days before entering treatment when compared to men (see Figure 2.21). The number of women and men who reported illicit use of opioids in the past 30 months significantly decreased from intake to follow-up by 22.3% and 14.4% respectively. At follow-up, similarly small percentages of women and men reported illicit use of opioids in the past 30 days.

Significantly more women than men reported using illicit opioids in the 30 days before intake

FIGURE 2.21. GENDER DIFFERENCES IN PAST-30-DAY ILLICIT OPIOID USE AT INTAKE AND FOLLOW-UP[a]



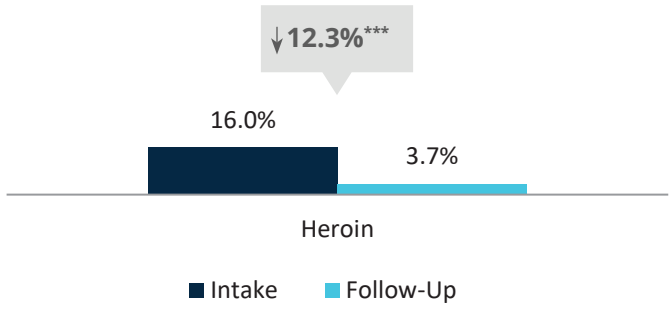
a—Significant difference by gender at intake (p < .05).
***p < .001.

Heroin

Past-12-month Heroin Use

A minority of clients (16.0%) reported using heroin in the 12 months before entering treatment, which decreased 12.3% to 3.7% at follow-up (see Figure 2.22).

FIGURE 2.22. PAST-12-MONTH HEROIN USE AT INTAKE AND FOLLOW-UP (N = 554)

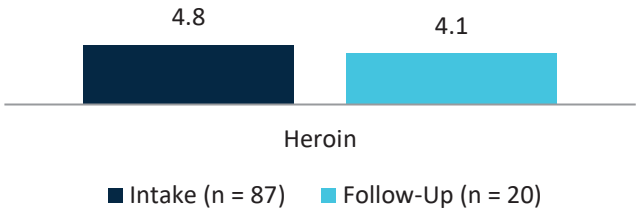


***p < .001

Average Number of Months Used Heroin

Among the clients who reported using heroin in the 12 months before entering treatment (n = 87), they reported using heroin, on average, 4.8 months (see Figure 2.23). Among clients who reported using heroin at follow-up (n = 20), they reported using, on average, 4.1 months.

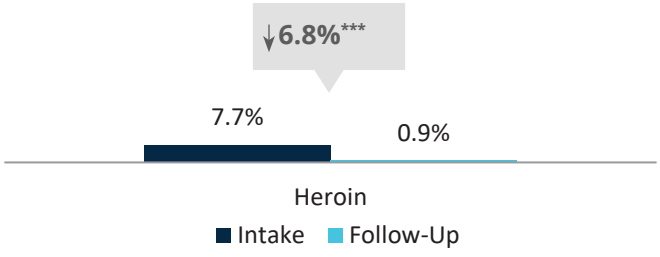
FIGURE 2.23. AVERAGE NUMBER OF MONTHS CLIENTS USED HEROIN



Past-30-day Heroin Use

A minority of clients (7.7%) reported using heroin in the 30 days before intake, with a significant decrease of 6.8% by follow-up to 0.9% (see Figure 2.24).

FIGURE 2.24. PAST-30-DAY HEROIN USE AT INTAKE AND FOLLOW-UP (N = 467)



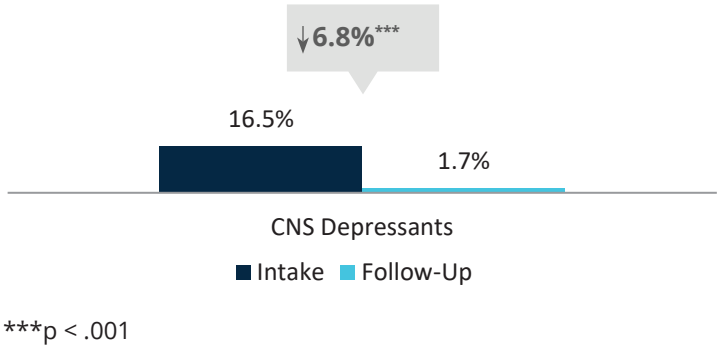
***p < .001

CNS Depressants

Past-12-month CNS Depressant Use

About 1 in 6 clients (16.5%) reported using CNS depressants, including tranquilizers, benzodiazepines, sedatives, and barbiturates in the 12 months before entering treatment, which decreased to 1.7% at follow-up. Overall, for the KTOS follow-up sample, there was a 14.8% decrease in the number of clients reporting CNS depressant use in the past 12 months (see Figure 2.25).

FIGURE 2.25. PAST-12-MONTH CNS DEPRESSANT USE AT INTAKE AND FOLLOW-UP (N = 544)

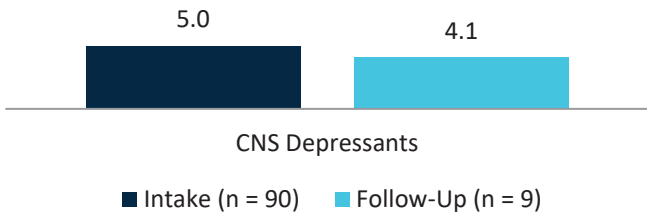


***p < .001

Average Maximum Number of Months Used CNS Depressants

Figure 2.26 shows the average maximum number of months clients who used CNS depressants reported using these illicit drugs.[56] Among the clients who reported using these substances in the 12 months before entering treatment (n = 90), they reported using CNS depressants an average 5.0 months. Among clients who reported using CNS depressants in the 12 months before follow-up (n = 9), they reported using an average of 4.1 months.

FIGURE 2.26. AVERAGE MAXIMUM NUMBER OF MONTHS OF CNS DEPRESSANT USE

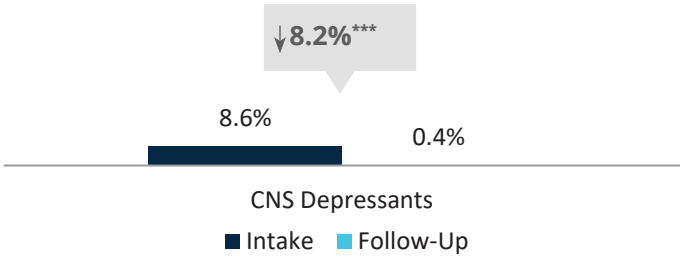


[56] Because number of months of use barbiturates and tranquilizers/sedatives/benzodiazepines were measured separately, the value is a calculation of the maximum number of months clients used any substance class.

Past-30-day CNS Depressant Use

The percent of clients who reported using CNS depressants in the 30 days before intake decreased significantly by 8.2%, from 8.6% at intake to 0.4% at follow-up (see Figure 2.27).

FIGURE 2.27. PAST-30-DAY CNS DEPRESSANT USE AT INTAKE AND FOLLOW-UP (N = 467)



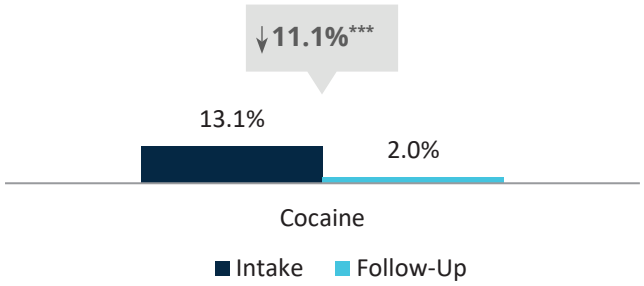
***p < .001

Cocaine

Past-12-month Cocaine Use

A minority of clients (13.1%) reported using cocaine (including crack) in the 12 months before entering treatment, which decreased to 2.0% at follow-up. Overall, there was a decrease of 11.1% in the number of clients reporting cocaine use (see Figure 2.28).

FIGURE 2.28. PAST-12-MONTH COCAINE USE AT INTAKE AND FOLLOW-UP (N = 544)

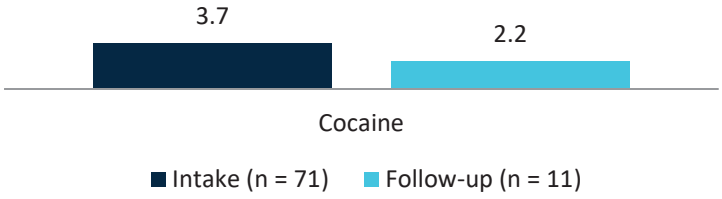


***p < .001

Average Number of Months Used Cocaine

Among the clients who reported using cocaine in the 12 months before entering treatment (n = 71), they reported using cocaine an average of 3.7 months (see Figure 2.29). Clients who reported using cocaine in the 12 months before follow-up (n = 11) reported using cocaine, on average 2.2 months.

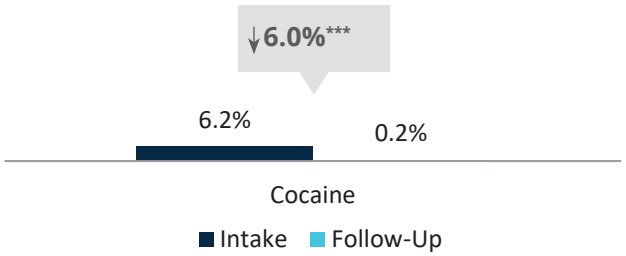
FIGURE 2.29. AVERAGE NUMBER OF MONTHS OF COCAINE USE



Past-30-day Cocaine Use

The percent of clients who reported using cocaine in the past 30 days at intake decreased significantly by 6.0%, from 6.2% at intake to 0.2% at follow-up (see Figure 2.30).

FIGURE 2.30. PAST-30-DAY COCAINE USE AT INTAKE AND FOLLOW-UP (N = 467)



***p < .001

Other Stimulants

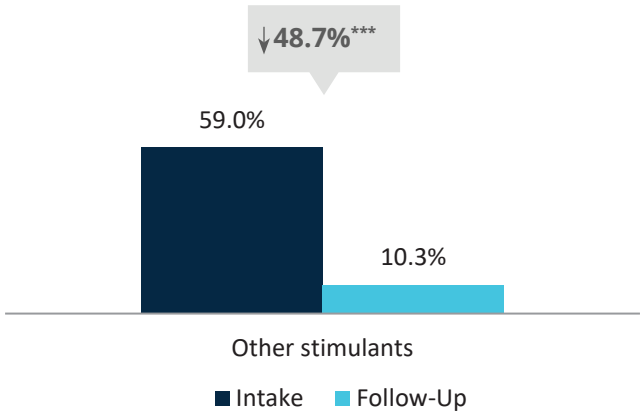
Past-12-month Other Stimulant Use

The majority of clients (59.0%) reported using stimulants other than cocaine, including methamphetamine, Ecstasy, MDMA, and non-prescription Adderall and Ritalin in the 12 months before entering treatment, which decreased to 10.3% at follow-up.[57] Overall, for the KTOS follow-up sample, there was a 48.7% decrease in the number of clients reporting other stimulant use (see Figure 2.31).

> *I like all the counselors there. It's a great program if you're serious about recovery. Nothing they won't do to help you reach your goals. All the people there are willing and ready to listen.*
>
> - KTOS FOLLOW-UP CLIENT

[57] Among the individuals who reported using stimulants in the 12 months before intake (n = 321), 98.8% reported using methamphetamine, crank, crystal meth.

FIGURE 2.31. PAST-12-MONTH STIMULANT USE OTHER THAN COCAINE AT INTAKE AND FOLLOW-UP (N = 544)

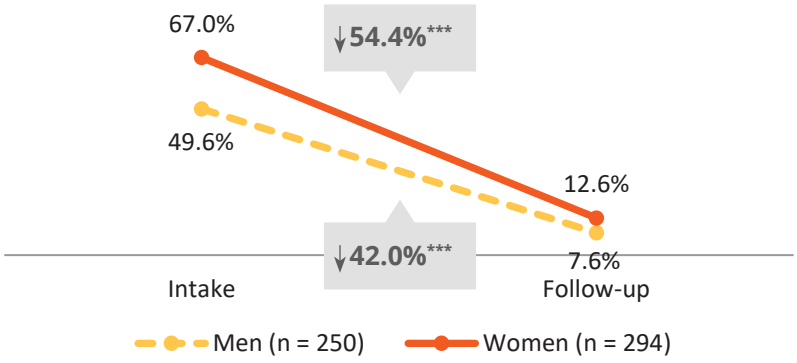


***p < .001

Gender Differences in Past-12-month Stimulant Use

At intake, significantly more women than men reported any past-12-month stimulant use, about two-thirds of women (67.0%) vs. half of men (49.6%; see Figure 2.32). The number of women and men who reported stimulant use in the past 12 months significantly decreased from intake to follow-up by 54.4% and 42.0% respectively. At follow-up, there was no significant difference in the percent of women and men who reported stimulant use.

FIGURE 2.32. GENDER DIFFERENCES IN PAST-12-MONTH STIMULANT USE AT INTAKE AND FOLLOW-UP[a]

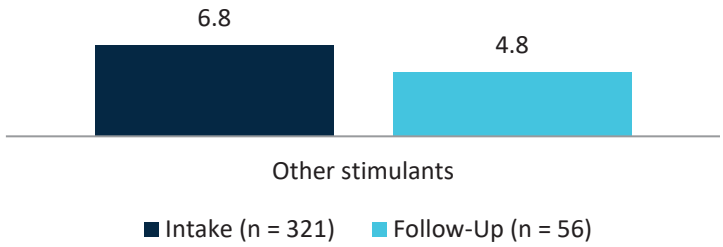


a—Significant difference by gender at intake (p < .001).
***p < .001.

Average Number of Months Used Other Stimulants

Among the clients who reported using stimulants other than cocaine in the 12 months before entering treatment (n = 321), they reported using other stimulants an average of 6.8 months (see Figure 2.33). Clients who reported using other stimulants in the 12 months before follow-up (n = 56) reported using other stimulants, on average, 4.8 months.

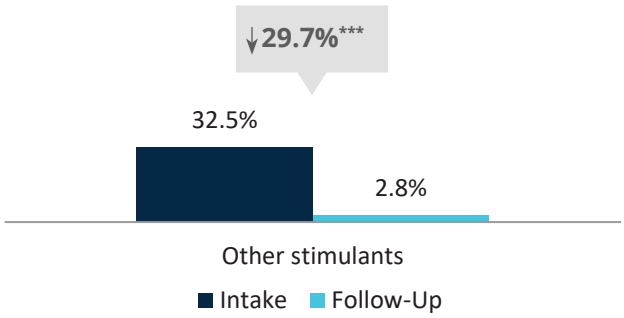
FIGURE 2.33. AVERAGE NUMBER OF MONTHS OF OTHER STIMULANT USE



Past-30-day Other Stimulant Use

Nearly one-third of clients reported using stimulants other than cocaine in the 30 days before entering treatment. At follow-up, only 2.8% of individuals reported past-30-day use of stimulants—a significant decrease of 29.7% (see Figure 2.34).

FIGURE 2.34. PAST-30-DAY STIMULANT USE OTHER THAN COCAINE AT INTAKE AND FOLLOW-UP (N = 467)

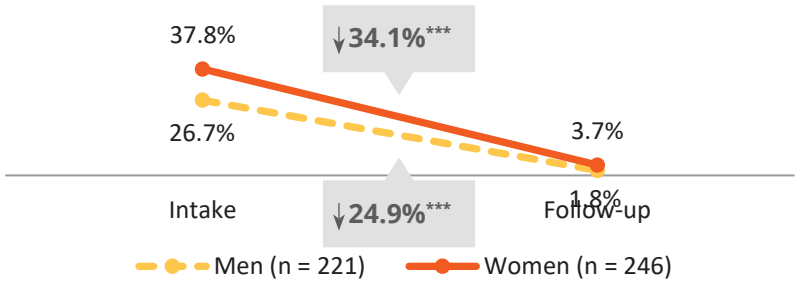


***p < .001

Gender Differences in Past-30-day Stimulant Use

At intake, significantly more women than men reported any stimulant use in the past 30 days (37.8% vs. 26.7%; see Figure 2.35). The number of women and men who reported stimulant use in the past 12 months significantly decreased from intake to follow-up by 34.1% and 24.9% respectively. At follow-up, there was no significant difference in the percent of women and men who reported stimulant use.

FIGURE 2.35. GENDER DIFFERENCES IN PAST-30-DAY STIMULANT USE AT INTAKE AND FOLLOW-UP[a]



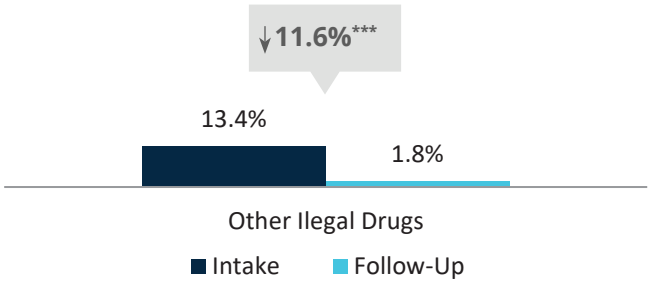
a—Significant difference by gender at intake ($p < .05$).
***$p < .001$.

Other Illicit Drugs

Past-12-month Other Illicit Drug Use

A minority of KTOS clients (13.4%) reported using any other illicit drugs (i.e., hallucinogens, inhalants, synthetic drugs) in the 12 months before entering treatment. The number of clients who reported using other illicit drugs decreased to 1.8% at follow-up – a significant decrease of 11.6% (see Figure 2.36).

FIGURE 2.36. PAST-12-MONTH USE OF OTHER ILLICIT DRUGS AT INTAKE AND FOLLOW-UP (N = 544)



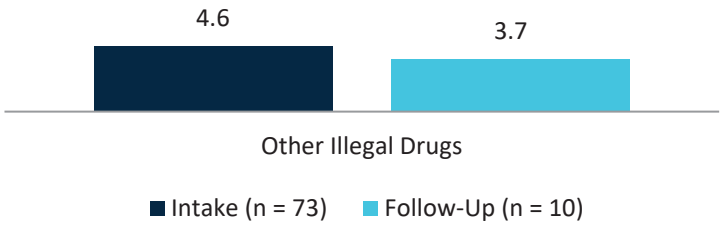
***$p < .001$

Average Maximum Number of Months Used Other Illicit Drugs

Figure 2.37 shows the average maximum number of months clients who used other illicit drugs (e.g., hallucinogens, inhalants, synthetic drugs) reported using those illicit drugs[58] in the past 12 months. Among the clients who reported using these drugs in the 12 months before entering treatment (n = 73), they reported using other illicit drugs an average of 4.6 months. Among clients who reported using other illicit drugs in the 12 months before follow-up (n = 10), they reported using an average of 3.7 months.

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

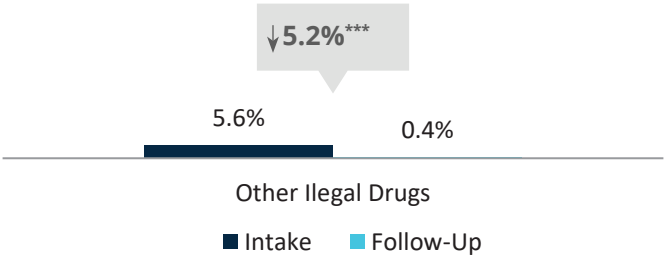
FIGURE 2.37. AVERAGE MAXIMUM NUMBER OF MONTHS OF OTHER ILLICIT DRUG USE



Past-30-day Other Illicit Drug Use

The percent of clients who reported using other illicit drugs in the 30 days before the intake and follow-up interviews decreased significantly by 5.2%, from 5.6% at intake to 0.4% at follow-up (see Figure 2.38).

FIGURE 2.38. PAST-30-DAY USE OF OTHER ILLICIT DRUGS AT INTAKE AND FOLLOW-UP (N = 467)



***p < .001.

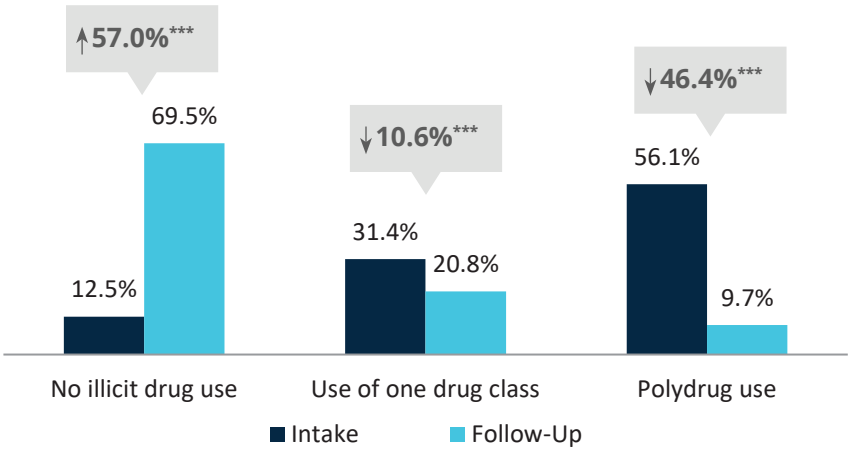
Polydrug Use

Past-12-month Polydrug Use

The use of more than one drug class was also examined at intake and follow-up.[59] Significantly fewer individuals reported using one drug class and polydrug use at follow-up than at intake (see Figure 2.39).

[59] The following eight drug classes were counted: cannabis, opioids including heroin, CNS depressants (sedatives, tranquilizers, benzodiazepines, barbiturates), cocaine, amphetamines (including methamphetamine, prescription stimulants), psychedelics, synthetic drugs, and inhalants.

FIGURE 2.39. PAST-12-MONTH USE OF POLYDRUG USE AT INTAKE AND FOLLOW-UP (N = 544)

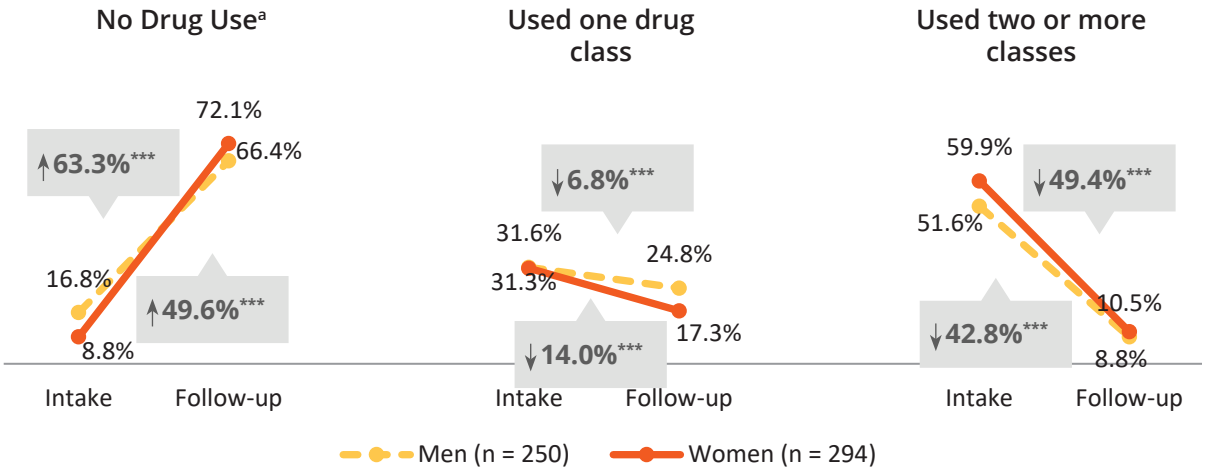


a – Significance tested with the Stuart-Maxwell Test for Marginal Homogeneity (p < .001).
***p < .001.

Gender Differences in Past-12-month Polydrug Use

At intake, significantly more men than women reported no illicit drug use; however, the percentages of men and women in the one drug class and polydrug class were not statistically different (see Figure 2.40). At follow-up, there was no significant difference in the percent of men and women who were in the polydrug groups. As with the overall sample, there were significant increases in the percent of men and women who reported no illicit drug use and significant decreases in the percent of men and women who reported use of one illicit drug class and polydrug use.

FIGURE 2.40. GENDER DIFFERENCES IN PAST-12-MONTH POLYDRUG USE AT INTAKE AND FOLLOW-UP[a]

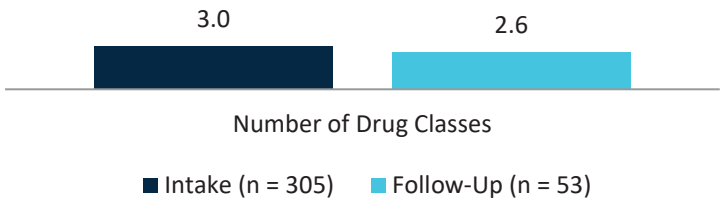


a—Significant difference by gender at intake (p < .05).
***p < .001.

Average Number of Drug Classes Used, Among Individuals Who Used More Than One Drug Class

Among individuals who reported use of more than one class of illicit drugs, Figure 2.41 shows the average number of drug classes they reported using in the corresponding period. Among the clients who reported using more than one drug class in the 12 months before entering treatment (n = 305), they reported using an average of 3.0 classes. Among clients who reported using more than one drug class in the 12 months before follow-up (n = 53), they reported using an average of 2.6 drug classes.

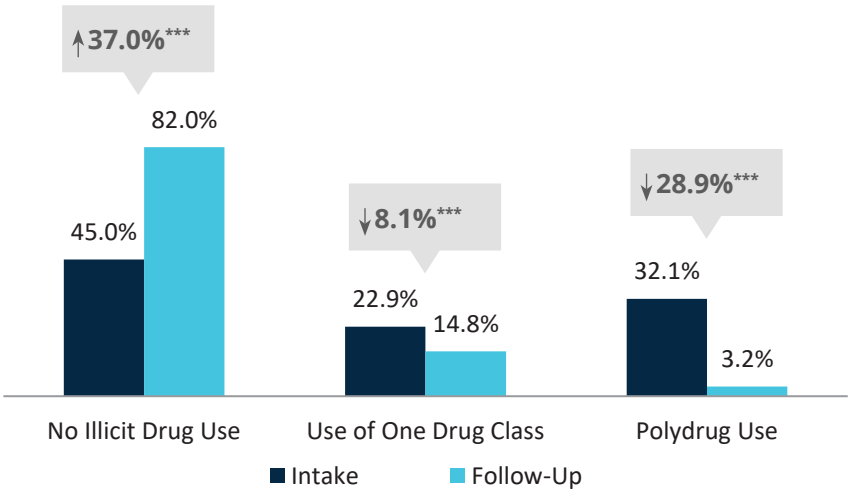
FIGURE 2.41. AVERAGE NUMBER OF DRUG CLASSES USED



Past-30-day Polydrug Use

Significantly fewer individuals reported using one drug class and polydrug use at follow-up than at intake (see Figure 2.42).[60]

FIGURE 2.42. PAST-30-DAY USE OF POLYDRUG USE AT INTAKE AND FOLLOW-UP (N = 544)



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

[60] The following eight drug classes were counted: cannabis, opioids including heroin, CNS depressants (sedatives, tranquilizers, benzodiazepines, barbiturates), cocaine, amphetamines (including methamphetamine, prescription stimulants), psychedelics, synthetic drugs, and inhalants.

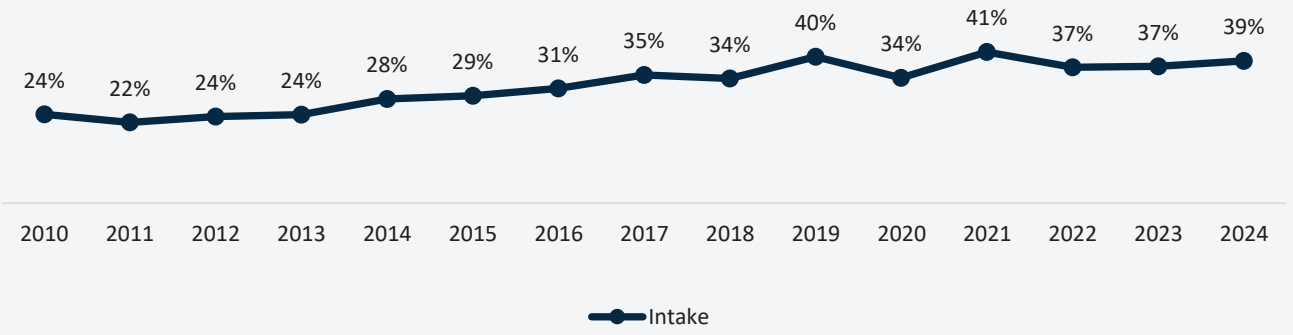
Injection Drug Use

At intake, 38.6% of clients reported having ever injected any drug. Of those clients (n =214), 27.6% reported having ever used a Needle Exchange Program in Kentucky. At follow-up, 5.2% of clients reported injecting drugs in the past 12 months.[61] Of those clients (n = 29), 41.4% reported having used a Needle Exchange program in Kentucky.

Trends in Injection Drug Use

The percent of clients reporting at intake that they had ever injected any drug has generally increased from Rep 2010 (24%) to Rep 2019 (40%). This number decreased in Rep 2020 to 34%, and then increased in Rep 2021 to 41%, and has been in the high 30s since Rep 2022.

FIGURE 2.43. TRENDS CLIENTS REPORTING HAVING EVER INJECTED ANY DRUG AT INTAKE, REPORTS 2010-2024



Alcohol Use

There were three measures of alcohol use including: (1) any alcohol use, (2) alcohol use to intoxication, and (3) binge drinking. Binge drinking was defined as having 5 or more (4 or more if client was female) alcoholic drinks in a period of about 2 hours.[62]

Past-12-month Alcohol Use

At intake, clients were asked how old they were when they had their first alcoholic drink (other than just a few sips). On average, KTOS clients reported they were 15.6 years old when they had their first alcoholic drink (not depicted in figure).[63]

Half of clients (51.1%) reported using alcohol in the 12 months before entering treatment

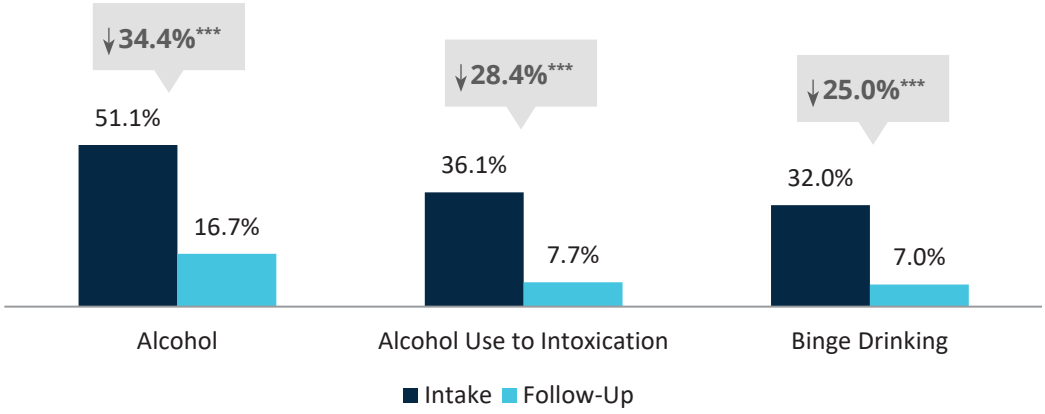
[61] One client had a missing value for injecting drugs in the 12 months before follow-up.

[62] National Institute on Alcohol Abuse and Alcoholism. (2004, Winter). NIAAA council approves definition of binge drinking. NIAAA Newsletter, Winter 2004 (3). Rockville, MD: Department of Health and Human Services, National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism.

[63] Of the individuals in the follow-up sample, 22 reported they have never had an alcoholic drink.

while 16.7% of clients reported alcohol use in the 12 months before follow-up (see Figure 2.44). Overall, for the KTOS follow-up sample, there was a 34.4% decrease in the number of clients reporting alcohol use in the past 12 months. More than one-third of clients (36.1%) reported using alcohol to intoxication at intake, with 7.7% reporting alcohol use to intoxication in the 12 months before follow-up. Similarly, there was a significant decrease of 25.0% in the number of clients who reported past-12-month binge drinking from intake to follow-up (32.0% vs. 7.0%).

FIGURE 2.44. PAST-12-MONTH ALCOHOL USE AT INTAKE AND FOLLOW-UP (N = 544)[64]



***p < .001.

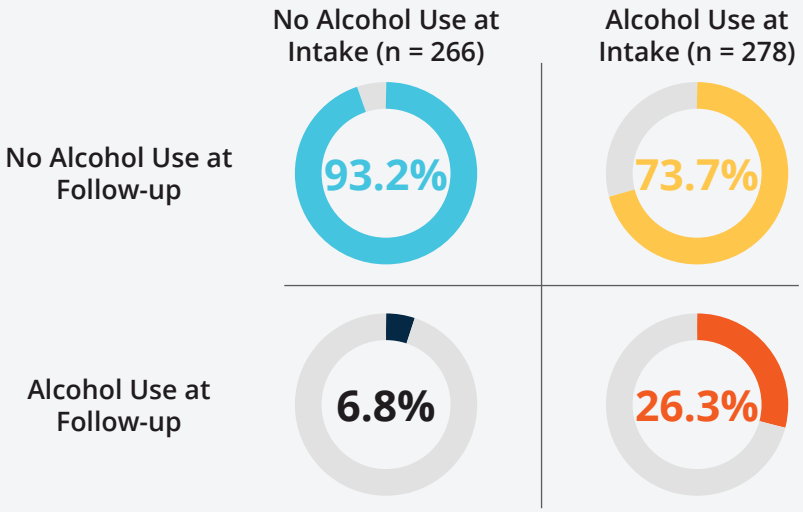
[64] One additional individual had a missing value for alcohol to intoxication and binge drinking at follow-up.

Taking a Closer Look at Alcohol Use

About half of KTOS clients reported using alcohol in the 12 months before entering treatment (51.1%; n = 278). Of these clients who reported using alcohol in the past 12 months at intake, 73.7% did not use alcohol in the past 12 months at follow-up (see Figure 2.45). About one-fourth (26.3%) of individuals who reported alcohol use at intake also reported use at follow-up.

A majority of those who did not use alcohol at intake also reported abstinence at follow-up (93.2%) while 6.8% of clients reported using alcohol at follow-up after reporting no use at intake.

FIGURE 2.45. PAST-12-MONTH ALCOHOL USE AT INTAKE AND FOLLOW-UP BASED ON ALCOHOL USE AT INTAKE

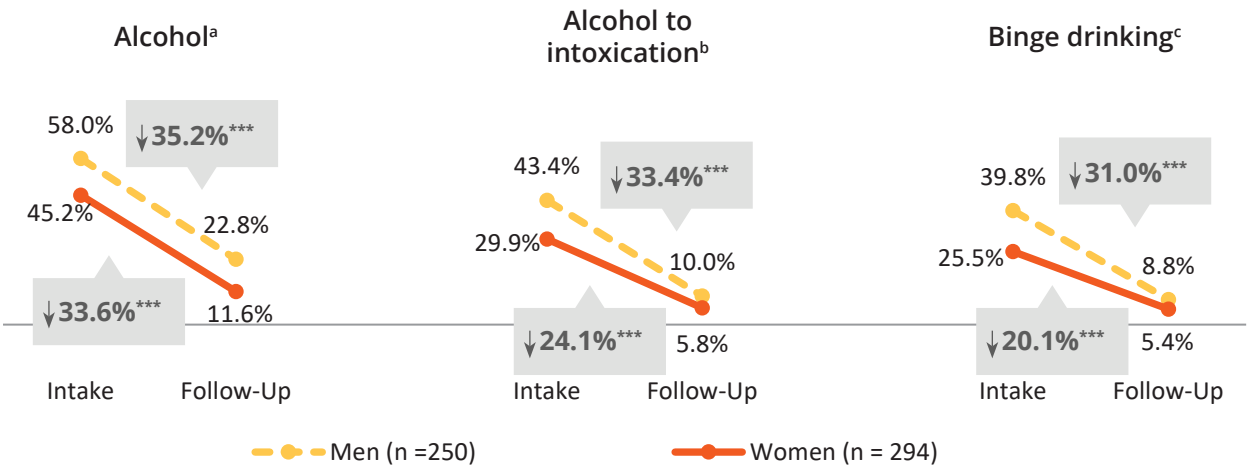


Gender Differences in Past-12-month Alcohol Use, Alcohol to Intoxication, and Binge Drinking

At intake, significantly higher percentages of men reported alcohol use, alcohol use to intoxication, and binge drinking relative to women (see Figure 2.46). The number of men and women reporting alcohol use decreased significantly from intake to follow-up. At follow-up, significantly more men reported using alcohol in the past 12 months relative to women. The number of men and women reporting alcohol use to intoxication and binge drinking decreased significantly from intake to follow-up. There was no difference by gender at follow-up for alcohol use to intoxication or binge drinking.

> *I'm still sober and it's been 14 months. I was in trouble when I got there and they helped me out a whole lot. I've kept a job and I run a sober living house now. I changed my life a lot, I can't really say enough about it. You have to put the work in but they helped a lot.*
>
> - KTOS FOLLOW-UP CLIENT

FIGURE 2.46. GENDER DIFFERENCES IN PAST-12-MONTH ALCOHOL USE, ALCOHOL TO INTOXICATION, AND BINGE DRINKING AT INTAKE AND FOLLOW-UP[65]

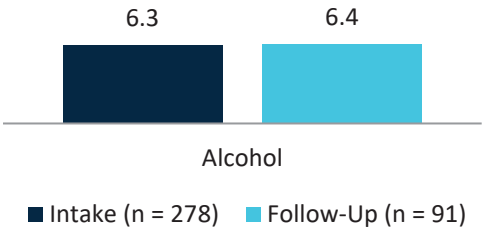


a—Significant difference by gender at intake ($p < .01$) and follow-up ($p < .001$).
b—Significant difference by gender at intake ($p < .01$).
c—Significant difference by gender at intake ($p < .001$).
***$p < .001$.

Average Number of Months Used Alcohol

Figure 2.47 shows the average number of months alcohol users reported using alcohol at intake and follow-up. Among the clients who reported using alcohol in the 12 months before entering treatment (n = 278), they reported using alcohol, on average, 6.3 months. Among clients who reported using alcohol in the 12 months before follow-up (n = 91), they reported using, on average, 6.4 months.

FIGURE 2.47. AVERAGE NUMBER OF MONTHS OF ALCOHOL USE

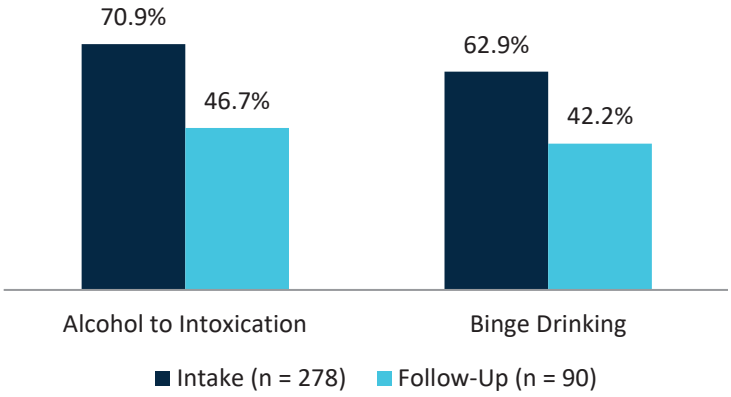


Past-12-month Alcohol Intoxication and Binge Drinking Among Those Who Used Alcohol at Each Point

Of the clients who used alcohol in the 12 months before entering treatment (n = 278), 70.9% used alcohol to intoxication in the 12 months before intake and 62.9% reported binge drinking (see Figure 2.48). Of the clients who used alcohol in the 12 months before follow-up (n = 90), 46.7% of clients reported alcohol use to intoxication and 42.2% reported binge drinking.

[65] One male participant had missing values for alcohol use to intoxication and binge drinking in the follow-up period; thus, n = 249 for men for alcohol use to intoxication and binge drinking.

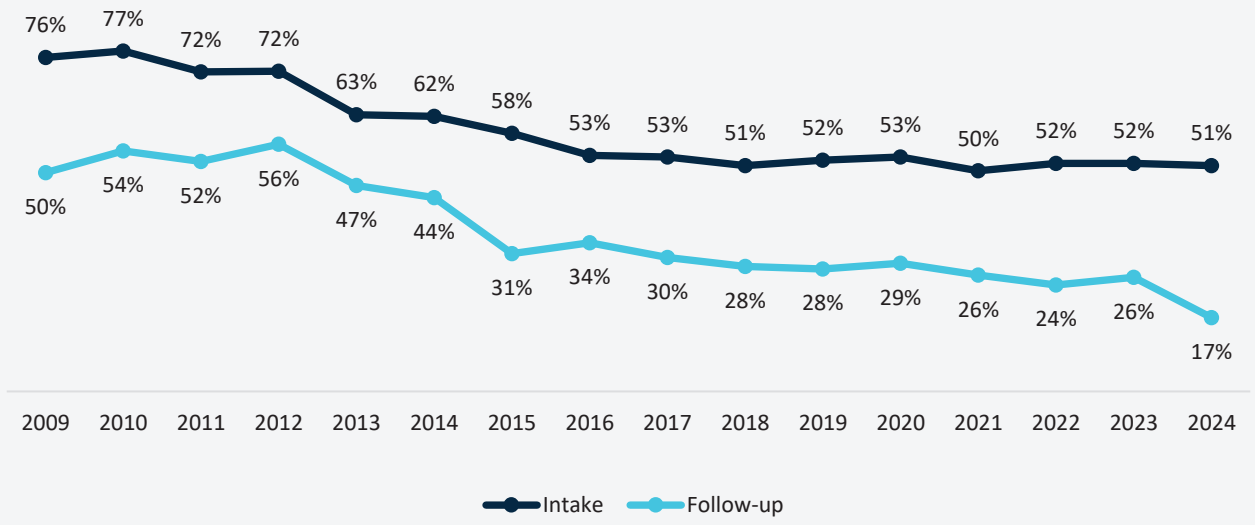
FIGURE 2.48. PAST-12-MONTH ALCOHOL USE TO INTOXICATION AND BINGE DRINKING AT INTAKE AND FOLLOW-UP, AMONG THOSE REPORTING ALCOHOL USE AT EACH POINT



Trends in Past-12-month Alcohol Use

The percent of KTOS clients reporting alcohol use in the 12 months before treatment has decreased over time (see Figure 2.43). Overall, at follow-up, the percent of clients reporting alcohol use has also decreased over the years.

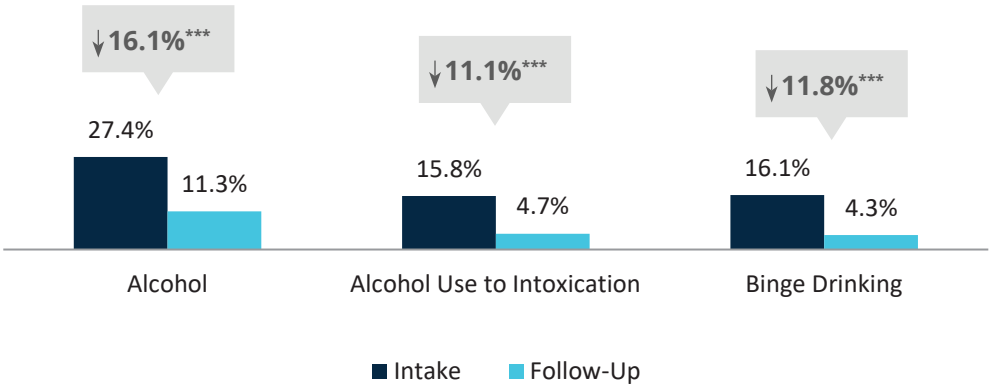
FIGURE 2.49. TRENDS IN ALCOHOL USE AT INTAKE AND FOLLOW-UP, REPORTS 2009-2024



Past-30-day Alcohol Use

There was a 16.1% decrease in the percent of clients who reported using alcohol in the past 30 days from intake (27.4%) to follow-up (11.3%; see Figure 2.50). The decrease in the number of clients who reported using alcohol to intoxication was 11.1% and 11.8% for those who reported binge drinking in the 30 days before entering treatment.

FIGURE 2.50. PAST-30-DAY ALCOHOL USE AT INTAKE AND FOLLOW-UP (N = 467)

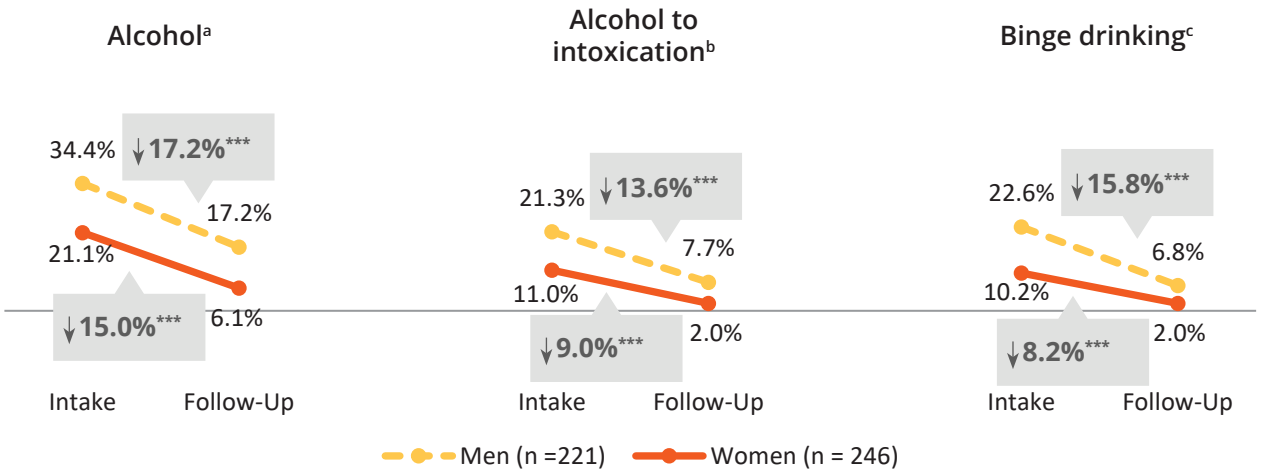


***p < .001.

Gender Differences in Past-30-day Alcohol Use

Significantly more men than women reported using alcohol, alcohol to intoxication, and binge drinking in the 30 days before entering treatment and the 30 days before follow-up (see Figure 2.51). The number of men and women who reported past-30-day alcohol use, alcohol use to intoxication, and binge drinking decreased significantly from intake to follow-up.

FIGURE 2.51. GENDER DIFFERENCES IN PAST-30-DAY ALCOHOL USE AT INTAKE AND FOLLOW-UP

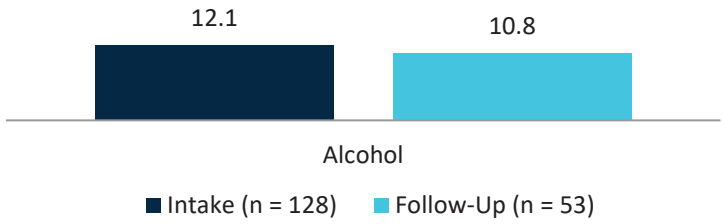


a—Significant difference by gender at intake (p < .01) and follow-up (p < .001).
b—Significant difference by gender at intake (p < .01) and follow-up (p < .01).
c—Significant difference by gender at intake (p < .001) and follow-up (p < .05).
***p < .001.

Average Number of Days Used Alcohol

Figure 2.52 shows the average number of days alcohol users reported using alcohol in the 30 days before intake and follow-up. Among the clients who reported using alcohol in the 30 days before entering treatment (n = 128), they reported using alcohol, on average, 12.1 days. Among clients who reported using alcohol in the 30 days before follow-up (n = 53), they reported using, on average, 10.8 days.

FIGURE 2.52. AVERAGE NUMBER OF DAYS OF ALCOHOL USE

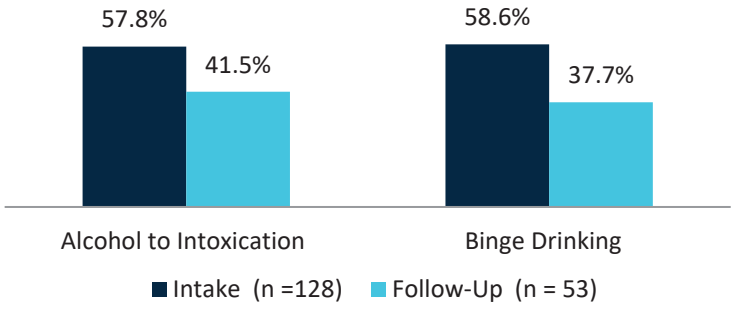


Past-30-day Alcohol Intoxication and Binge Drinking Among Those Who Used Alcohol

Of the 128 clients who used alcohol in the 30 days before intake, 57.8% used alcohol to intoxication and 58.6% binge drank in the 30 days before intake (see Figure 2.53).

Of the 53 clients who reported using alcohol in the 30 days before follow-up, 41.5% reported using alcohol to intoxication and 37.7% reported binge drinking in the 30 days before follow-up.

FIGURE 2.53. PAST-30-DAY ALCOHOL USE TO INTOXICATION AND BINGE DRINKING AT INTAKE AND FOLLOW-UP, AMONG THOSE REPORTING ALCOHOL USE AT EACH POINT



Self-reported Symptoms of Alcohol and Drug Use Severity

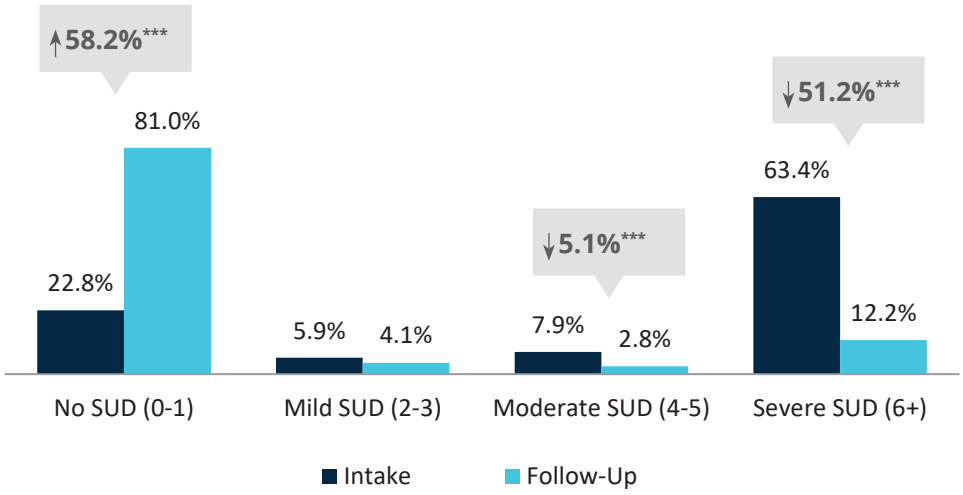
DSM-5 Criteria for Substance Use Disorder, Past 12 Months

One way to examine overall change in degree of severity of substance use is to ask participants to self-report whether they met any of the 11 symptoms included in the DSM-5 criteria for diagnosing substance use disorder (SUD) in the past 12 months.[66] The DSM-5 substance use disorder diagnosis has four levels of severity which were used to classify severity groups in this study: (1) no SUD (0 or 1 criterion met), (2) mild SUD (2 or 3 criteria met), (3) moderate SUD (4 or 5 criteria met), and (4) severe disorder (6 or more criteria

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

met). Client self-reports of DSM-5 criteria suggest, but do not diagnose, a substance use disorder. At intake, the majority of clients met criteria for severe SUD, while at follow-up, the majority of clients met criteria for no SUD (see Figure 2.54).[67] Significant changes in the proportion of individuals classified in each category for severity of SUD were found.

FIGURE 2.54. DSM-5 SUD SEVERITY AT INTAKE AND FOLLOW-UP (N = 543)[a]

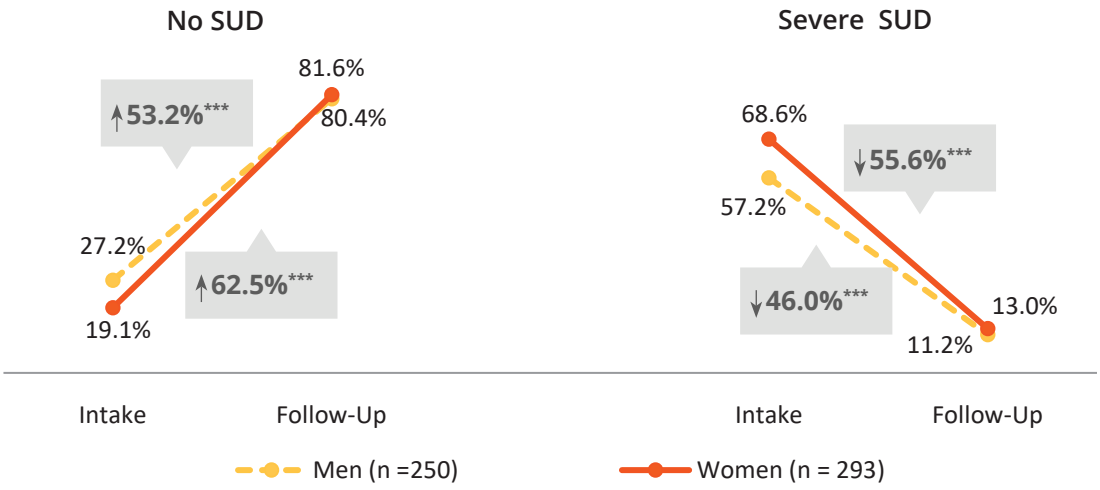


a – Significance tested with the Stuart-Maxwell Test for Marginal Homogeneity ($p < .001$).
***$p < .001$.

Gender Differences in DSM-5 Sud Severity

Significantly more women than men reported symptoms that were consistent with the DSM-5 criteria for a severe substance use disorder at intake (see Figure 2.55). Likewise, significantly more men than women reported symptoms that were consistent with a criteria of no substance use disorder at intake. At follow-up, there was no gender difference in severity of SUD.

FIGURE 2.55. GENDER DIFFERENCE IN DSM-5 SUD SEVERITY AT INTAKE AND FOLLOW-UP (N = 543)[a]



a—Significant difference by gender at intake ($p < .05$).
***$p < .001$.

[67] Four individuals had missing data for DSM-5 criteria for substance use disorder at follow-up.

Addiction Severity Index (ASI), Past 30 Days

Another way to examine overall change in degree of severity of substance use is to use the Addiction Severity Index (ASI) composite score for alcohol and drug use. These composite scores are computed based on self-reported severity of past-30-day alcohol and drug use, taking into consideration several issues including:

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

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

Figure 2.56 displays the change in average composite scores.[68, 69] The average for the alcohol

[68] The following number of cases were not included in the analysis of change in alcohol composite score: 63 individuals reported being in a controlled environment all 30 days before intake; 21 additional individuals were in a controlled environment all 30 days before follow-up; 1 client had a missing value for the number of days they were in a controlled environment before the follow-up; an additional 311 clients reported abstaining from alcohol in the 30 days before intake and follow-up; and 6 individuals had missing data from items included in the calculation of the alcohol composite at follow-up.

[69] The following number of cases were not included in the analysis of change in drug composite score: 63 individuals reported being in a controlled environment all 30 days before intake; 21 additional individuals were in a controlled environment all 30 days before follow-up; 1 client had a missing value for the number of days they were in a controlled environment before the follow-up; an additional an additional 188 clients reported abstaining from drugs in the 30 days before intake and follow-up, and 5 clients had missing data from items included in the calculation of the drug composite score at follow-up.

ASI Alcohol and Drug Composite Scores and Substance Use Disorder

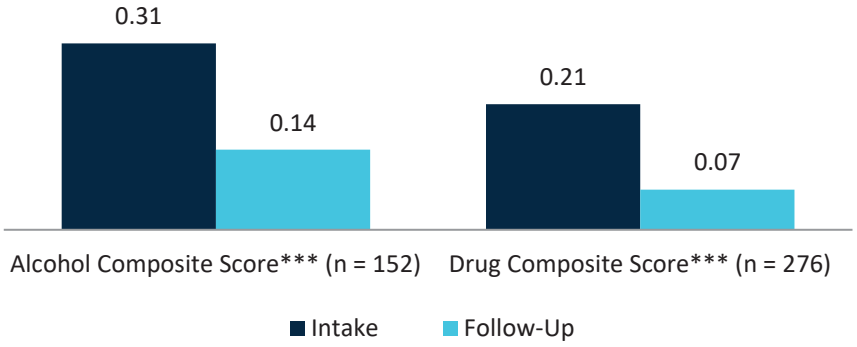
Rikoon et al. (2006) conducted two studies to determine the relationship between the ASI composite scores for alcohol and drug use and DSM-IV substance dependence diagnoses. They identified alcohol and drug use composite score cutoffs that had 85% sensitivity and 80% specificity about identifying DSM-IV substance dependence diagnoses: .17 for alcohol composite score and .16 for drug composite score. These composite score cutoffs can be used to estimate the number of individuals who are likely to meet criteria for active alcohol or drug dependence, and to show reductions in self-reported severity of substance use. In previous years we have used the ASI composite scores to estimate the number and percent of clients who met a threshold for alcohol and drug dependence. However, recent changes in the diagnostics for SUD call into question the distinction between dependence and abuse. Thus, ASI composite scores that met the threshold can be considered indicative of severe substance use disorder to be compatible with current thinking about substance use disorders in the DSM-V, where we would have previously referred to them as meeting the threshold for dependence. Change from intake to follow-up in the severity rating as the same clinical relevance as moving from dependence to abuse in the older criteria.

Rikoon, S., Cacciola, J., Carise, D., Alterman, A., McLellan, A. (2006). Predicting DSM-IV dependence diagnoses from Addiction Severity Index composite scores. Journal of Substance Abuse Treatment, 31(1), 17–24.

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Arlington, VA: American Psychiatric Publishing.

composite score decreased significantly from 0.31 at intake to 0.14 at follow-up. The average for the drug composite score decreased significantly from 0.21 at intake to 0.07 at follow-up.

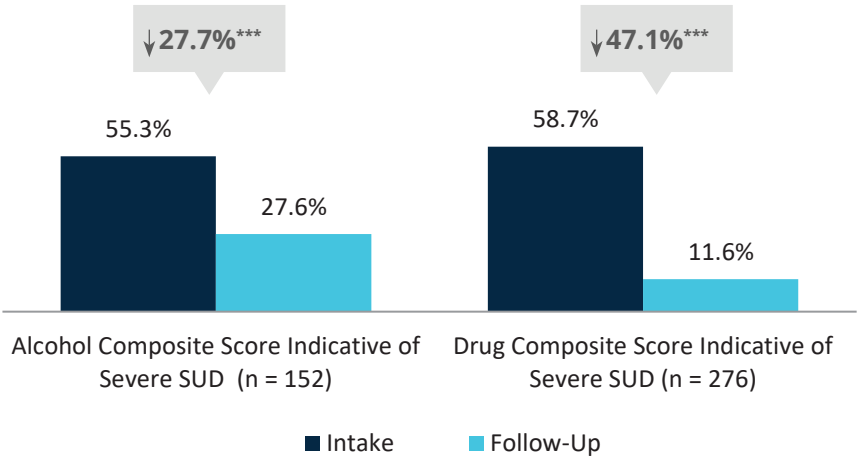
FIGURE 2.56. AVERAGE ASI ALCOHOL AND DRUG COMPOSITE SCORES AT INTAKE AND FOLLOW-UP



***p < .001.

The percent of individuals who had ASI composite scores that met the cutoff for severe substance use disorder (SUD) decreased significantly from intake to follow-up (see Figure 2.57). More than half individuals (55.3%) who reported any alcohol use in the 30 days before intake and/or follow-up had alcohol composite scores indicative of severe SUD at intake. At follow-up, this percent had decreased to 27.6%. The majority of individuals who reported any drug use in the 30 days before intake and/or follow-up had drug composite scores indicative of severe SUD at intake (58.7%). At follow-up, 11.6% had drug composite scores indicative of severe SUD.

FIGURE 2.57. INDIVIDUALS WITH ASI COMPOSITE SCORES MEETING THE CUTOFF FOR SEVERE SUBSTANCE USE DISORDER AT INTAKE AND FOLLOW-UP[70]



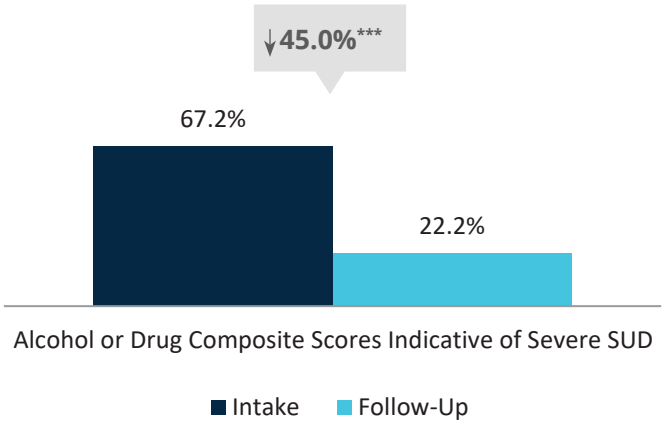
***p < .001.

Among the individuals who were not in a controlled environment all 30 days before entering treatment and who reported using alcohol and/or drugs at intake or follow-up, a majority of individuals had alcohol or drug composite scores that met the cutoff for

[70] Six clients had missing data for the alcohol score variables at follow-up and 5 clients had missing data for the drug composite score variables at follow-up.

severe SUD at intake (see Figure 2.58). The percent of clients who had composite scores that met the cutoff for severe SUD for either alcohol or drugs decreased by 45.0% at follow-up.

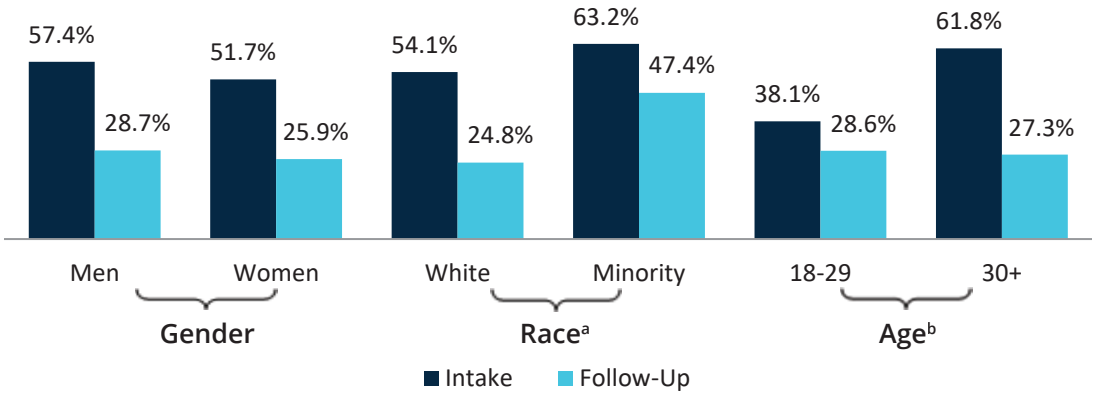
FIGURE 2.58. CLIENTS WITH ASI COMPOSITE SCORES MEETING THE CUTOFF FOR ALCOHOL OR DRUG SEVERE USE DISORDERS AT INTAKE AND FOLLOW-UP (N = 338)[71]



***p < .001.

The data was examined to determine whether clients who had alcohol composite scores indicative of severe SUD at intake and follow-up differed by gender, race/ethnicity, or age (see Figure 2.59). There was no significant difference by gender at intake or follow-up. At follow-up, significantly more individuals who self-identified as a racial/ethnic minority had an alcohol composite score indicative of severe alcohol use disorder. At intake, a significantly higher percent of individuals 30 years old and older had an alcohol composite score indicative of severe alcohol use disorder relative to individuals who were younger than 30.

FIGURE 2.59. CLIENTS WHO USED ALCOHOL AND HAD AN ALCOHOL COMPOSITE SCORE INDICATIVE OF SEVERE SUD AT INTAKE AND FOLLOW-UP BY DEMOGRAPHIC FACTORS (N = 152)

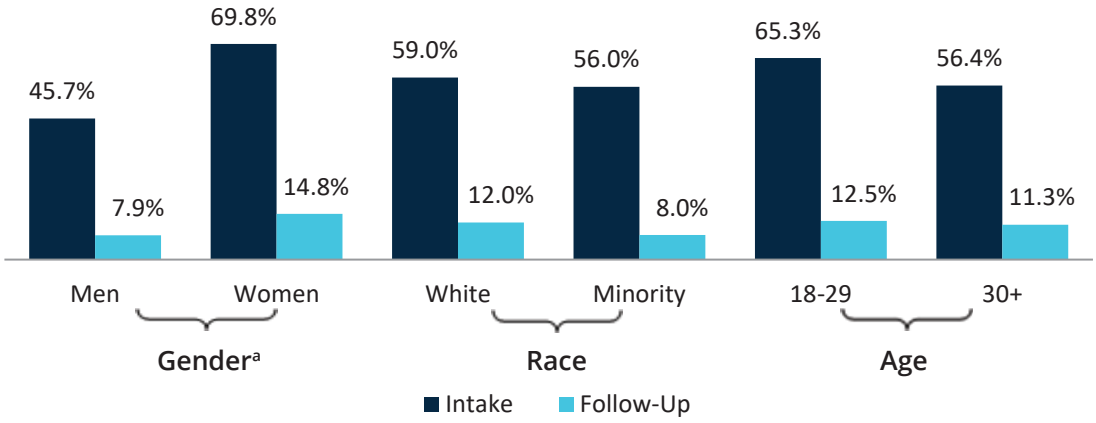


a—Significant difference by race at follow-up (p < .05).
b—Significant difference by age group at intake (p < .01).

[71] The following number of cases were not included in the analysis of change in composite scores: 63 clients were in a controlled environment all 30 days before treatment; 21 additional individuals were in a controlled environment all 30 days before follow-up; 1 had a missing value for number of days in a controlled environment in the 30 days before follow-up; and an additional 131 clients reported abstaining from alcohol and drugs in the 30 days before intake and follow-up.

Analyses were also conducted to determine if clients who had a drug composite score indicative of severe drug use disorder at intake and follow-up differed by gender, race/ethnicity, or age (see Figure 2.60). A significantly higher percent of women had drug composite scores indicative of severe SUD at intake relative to men. There were no other statistically significant differences.

FIGURE 2.60. CLIENTS WHO REPORTED ANY DRUG USE AND HAD A DRUG COMPOSITE SCORE INDICATIVE OF SEVERE SUD AT INTAKE AND FOLLOW-UP BY DEMOGRAPHIC FACTORS (N = 276)

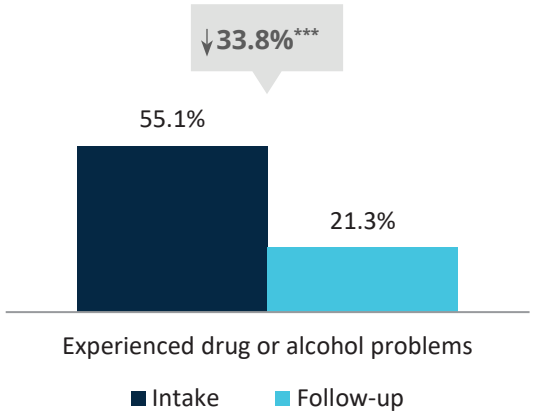


a—Significant difference by gender at intake ($p < .001$).

Problems Experienced with Substance Use in the Past 30 Days

In the past 30 days at intake, 55.1% of clients reported they experienced problems with drugs or alcohol such as craving, withdrawal, wanting to quit but being unable, or worrying about return to use (see Figure 2.61). In the past 30 days at follow-up, 21.3% of clients reported experiencing problems with drugs or alcohol (a significant decrease of 33.8%).

FIGURE 2.61. CLIENTS EXPERIENCING PROBLEMS WITH ILLICIT DRUGS OR ALCOHOL AT INTAKE AND FOLLOW-UP (N =554)

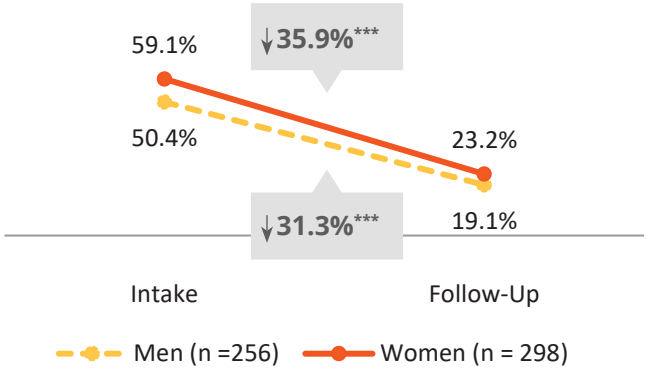


***p < .001.

Gender Differences in Problems with Illicit Drugs or Alcohol

At intake, significantly more women reported they experienced problems with illicit drugs or alcohol such as craving, withdrawal, wanting to quit but being unable, or worrying about return to use (see Figure 2.62). The percent of women and men who reported they experienced problems with substance use decreased significantly from intake to follow-up. There was no gender difference at follow-up.

FIGURE 2.62. PROBLEMS WITH ILLICIT DRUGS OR ALCOHOL AT INTAKE AND FOLLOW-UP BY GENDER (n = 554)



a—Significant difference by gender at intake ($p < .05$)

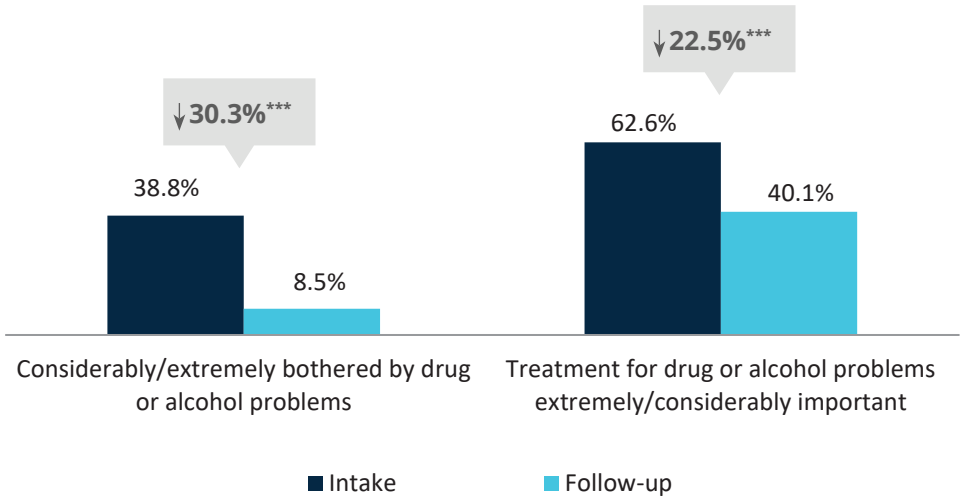
Readiness for Substance Use Disorder Treatment

Figure 2.63 shows that 38.8% of clients reported they were considerably or extremely troubled or bothered by drug or alcohol problems in the past 30 days at intake. In the past 30 days at follow-up, 8.5% of clients reported that they were considerably or extremely troubled or bothered by drug or alcohol problems (a significant decrease of 30.3%).

> *The staff was great, I still go even though I've quit the program. They are always there if I need anything even now. Been so great on listening and meeting my needs. I didn't want to leave them.*
>
> - KTOS FOLLOW-UP CLIENT

The figure below also shows that 62.6% of clients in the past 30 days at intake and 40.1% of clients in the past 30 days at follow-up reported that treatment for drug or alcohol problems was considerably or extremely important – a significant decrease of 22.5%.

FIGURE 2.63. READINESS FOR TREATMENT FOR ILLICIT DRUG OR ALCOHOL USE AT INTAKE AND FOLLOW-UP (n = 554)

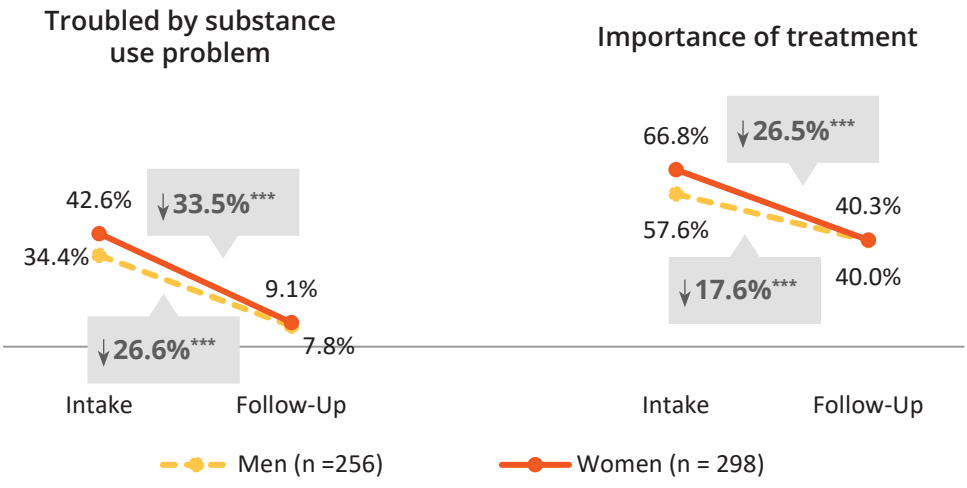


***p < .001.

Gender Differences in Readiness for Treatment

In the 30 days before entering treatment, significantly higher percentages of women reported that they were considerably or extremely bothered by problems with substance use and believed that treatment for a substance use problem was considerably or extremely important compared to men (see Figure 2.64). The percent of women and men who reported they were considerably or extremely bothered by substance use problems and the percent of women and men who reported that treatment was considerably or extremely important to them decreased significantly from intake to follow-up.[72] There were no gender differences at follow-up.

FIGURE 2.64. READINESS FOR TREATMENT FOR ILLICIT DRUG OR ALCOHOL AT INTAKE AND FOLLOW-UP BY GENDER (n = 554)[a]



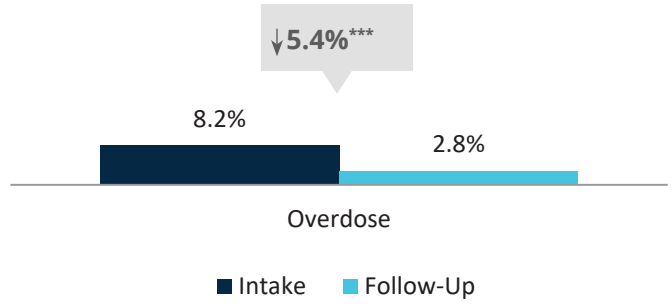
a—Significant difference by gender at intake (p < .05)
***p < .001.

[72] One client had a missing value for how important treatment was to them at follow-up.

Overdose in the Past 12 Months

The percent of individuals who reported that they had experienced an overdose in the past 12 months decreased significantly from intake to follow-up (see Figure 2.65).

FIGURE 2.65. CLIENTS REPORTED OVERDOSE IN THE PAST 12 MONTHS AT INTAKE AND FOLLOW-UP (N = 539)[73]

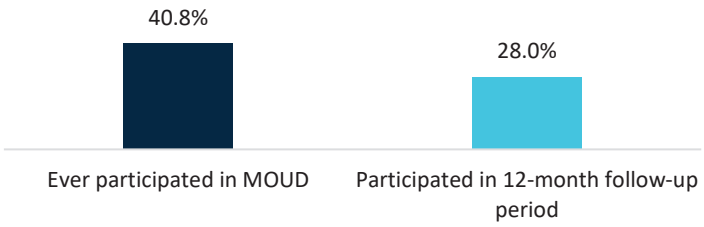


***p < .001.

Participation in Medication for Opioid Use Disorder (MOUD)

At follow-up, two-fifths of clients (40.8%, n = 226) reported they had ever participated in MOUD for their substance use in their lifetime (see Figure 2.66). More one than one-fourth of participants (28.0%, n = 155) reported they had participated in MOUD in the 12-month follow-up period (see Figure 2.66).

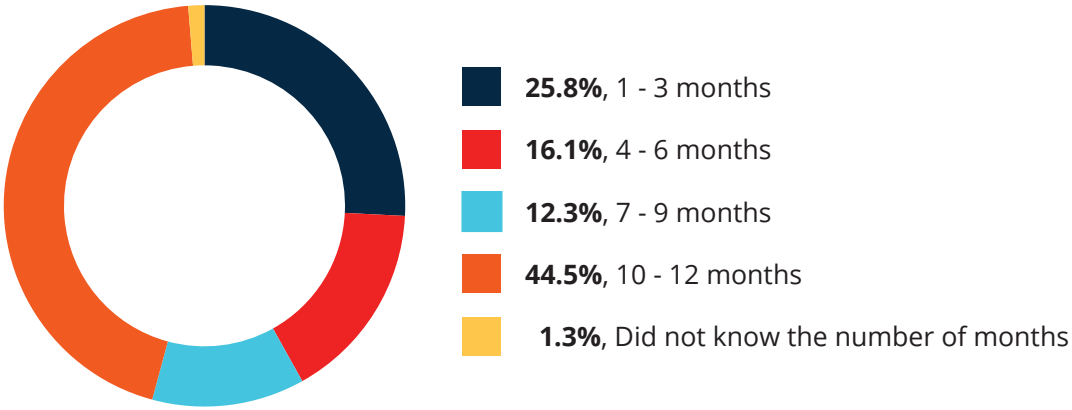
FIGURE 2.66. PARTICIPATION IN MOUD IN LIFETIME AND DURING THE FOLLOW-UP PERIOD (N = 554)



Among the 155 individuals who had participated in MOUD at some point during the follow-up period, Figure 2.67 shows the distribution of the number of months participants reported they had participated in MOUD during the follow-up period. About one-fourth participated for 1 – 3 months, smaller percentages reported participating for 4 – 6 months, and 7 – 9 months, and 44.5% participated for 10 – 12 months.

[73] The following number of cases were not included in the analysis of change in overdose: 6 clients were incarcerated all 365 days before treatment; 1 additional individual had missing data for the number of days they were incarcerated before follow-up; and an additional 8 clients had missing data for overdose in the 12 months before follow-up.

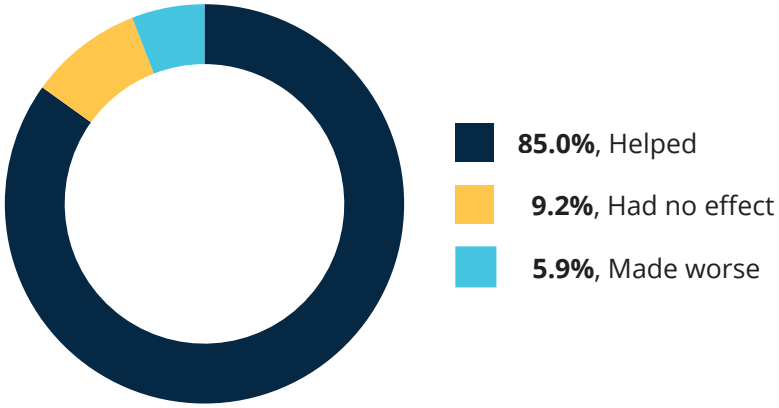
FIGURE 2.67. AMONG FOLLOWED-UP CLIENTS WHO PARTICIPATED IN MOUD, THE NUMBER OF MONTHS THEY PARTICIPATED DURING THE FOLLOW-UP PERIOD



The majority of clients who had participated in MOUD during the follow-up period reported that the most recent medication they had used was buprenorphine (63.6%), followed by Vivitrol (28.6%), and then methadone (7.8%; not depicted in a figure).

The majority of individuals who participated in MOUD during the follow-up period reported the prescribed medication helped with their drug use problems, while less than 10% reported the prescribed medication had no effect on their drug use problems (see Figure 2.68). A small minority reported the prescribed medication mad their drug use problems worse.

FIGURE 2.68. AMONG FOLLOWED-UP CLIENTS WHO PARTICIPATED IN MOUD, PERCEIVED HELPFULNESS OF THE PRESCRIBED MEDICATION (N = 153)[74]



[74] Two individuals had missing data for this question.

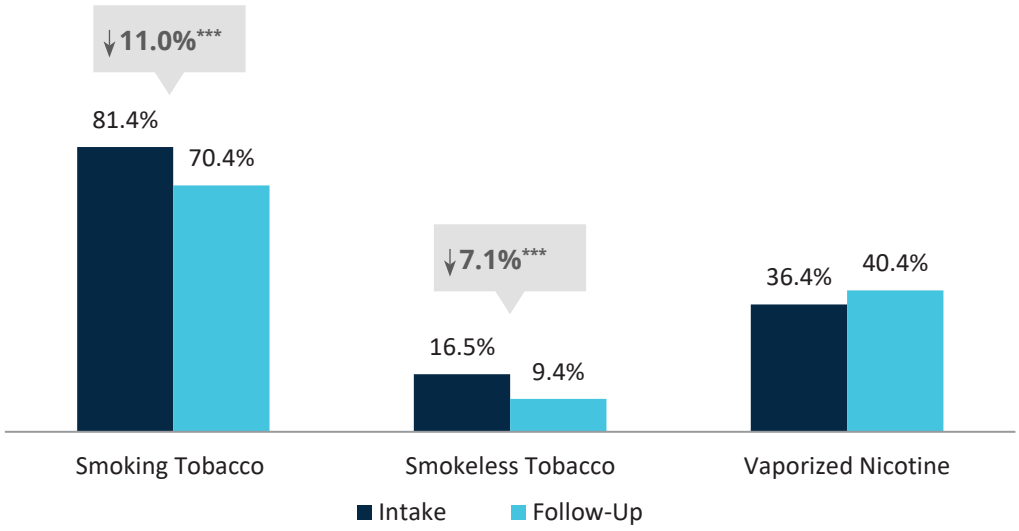
Nicotine Use

Past-12-month Smoking, Smokeless Tobacco, and Vaporized Nicotine Use

At intake, clients were asked how old they were when they first began to smoke tobacco regularly (i.e., on a daily basis). On average, KTOS clients reported they were 15.6 years old when they started smoking tobacco regularly (not depicted in figure).[75]

Past-12-month smoking tobacco and smokeless tobacco use significantly decreased from intake to follow-up while use of vaporized nicotine (e.g., e-cigarettes) remained stable (see Figure 2.69). Most clients reported smoking tobacco in the 12 months before entering treatment (81.4%) and in the 12 months before follow-up (70.4%). A minority of clients reported using smokeless tobacco in the 12 months before entering treatment and follow-up. More than one-third of clients (36.4%) reported using vaporized nicotine in the 12 months before entering treatment and 40.4% of clients reported using vaporized nicotine in the 12 months before follow-up.

FIGURE 2.69. CHANGE IN PAST-12-MONTH TOBACCO AND VAPORIZED NICOTINE USE FROM INTAKE TO FOLLOW-UP (n = 544)



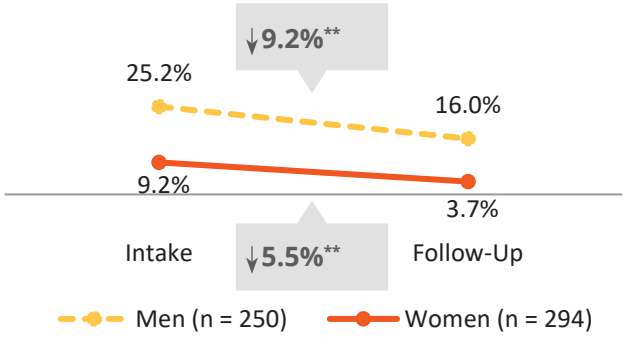
***p < .001.

Gender Differences in Past-12-month Smokeless Tobacco

A significantly higher percent of men reported using smokeless tobacco at intake and follow-up relative to women (see Figure 2.70). There was a significant decrease in the percent of men and women who reported using smokeless tobacco from intake to follow-up.

[75] Of individuals in the follow-up sample, 84 reported they had never smoked regularly, so they were not included in the analysis.

FIGURE 2.70. GENDER DIFFERENCES IN PAST-12-MONTH SMOKELESS TOBACCO FROM INTAKE TO FOLLOW-UP (n=544)[a]

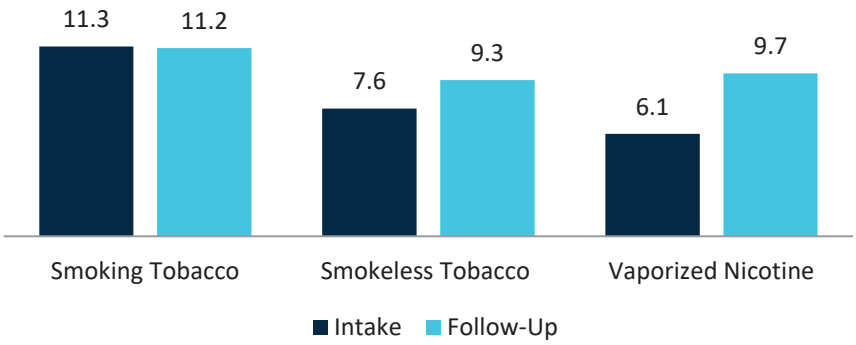


a—Significant difference by gender at intake and follow-up ($p < .001$).
**$p < .01$.

Average Number of Months of Smoking, Smokeless Tobacco, and Vaporized Nicotine Use

Figure 2.71 shows the average number of months clients who smoked tobacco or used smokeless tobacco or vaporized nicotine products reported using tobacco at intake and follow-up. Among the clients who reported using smoking tobacco in the 12 months before entering treatment (n = 443), they reported using tobacco, on average, 11.3 months. Of the clients who reported using smoking tobacco in the 12 months before follow-up (n = 383), they reported using, on average, 11.2 months. Among the clients who reported using smokeless tobacco in the 12 months before entering treatment (n = 90), they reported using it, on average, 7.6 months. Of the clients who reported using smokeless tobacco in the 12 months before follow-up (n = 51), they reported using it, on average, 9.3 months. Among the clients who reported using vaporized nicotine in the 12 months before entering treatment (n = 198), they reported using it, on average, 6.1 months. Of the clients who reported using vaporized nicotine products in the 12 months before follow-up (n = 220), they reported using them, on average, 9.7 months.

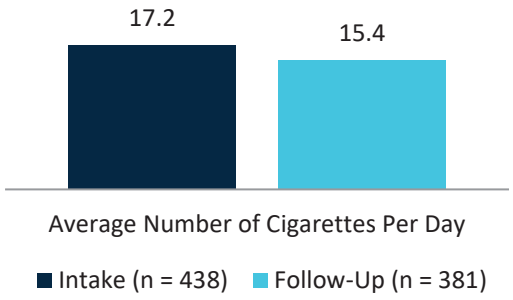
FIGURE 2.71. AVERAGE NUMBER OF MONTHS OF SMOKING TOBACCO, SMOKELESS TOBACCO, AND VAPORIZED NICOTINE USE



Average Number of Cigarettes Smoked

The average number of cigarettes clients reported smoking at intake and follow-up remained relatively stable (see Figure 2.72). Of those who smoked tobacco in the 12 months before entering treatment, clients reported smoking an average of 17.2 cigarettes per day. At follow-up, among clients who reported smoking tobacco, they reported smoking an average of 15.4 cigarettes per day.

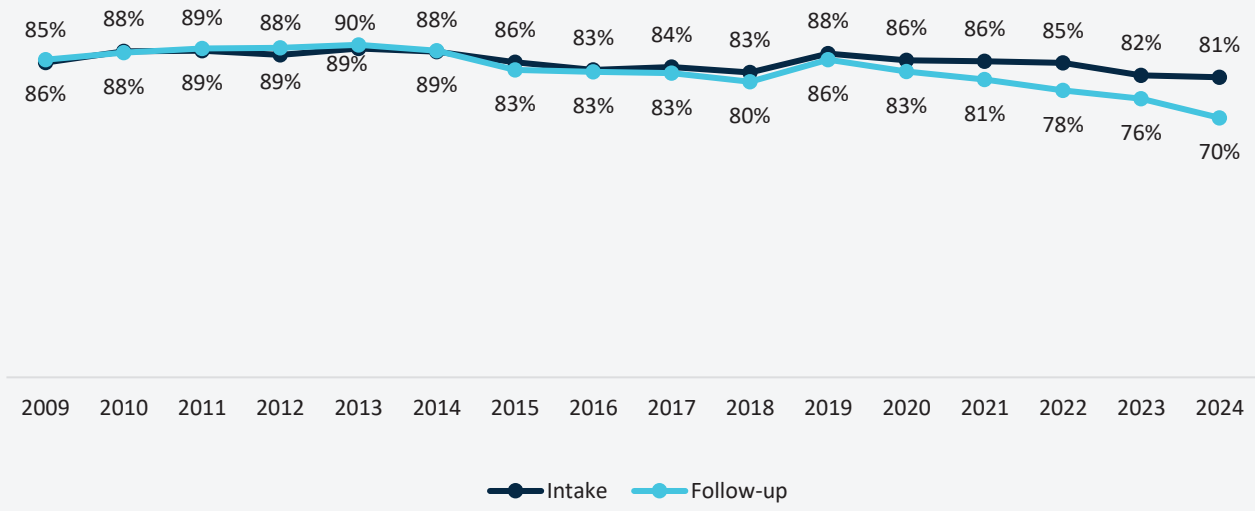
FIGURE 2.72. NUMBER OF CIGARETTES SMOKED IN AN AVERAGE DAY AMONG CLIENTS WHO SMOKED TOBACCO[76]



Trends in Past-12-month Smoking Tobacco Use

The majority of KTOS clients at intake and follow-up reported smoking tobacco. The percent of clients reporting smoking tobacco use at either intake or follow-up has remained between a low of 76% at follow-up in Rep 2023 and a high of 90% at follow-up in Rep 2023. The percent of KTOS clients who report smoking tobacco at follow-up has been significantly lower than the percent at intake since the 2022 report.

FIGURE 2.73. TRENDS IN SMOKING TOBACCO USE AT INTAKE AND FOLLOW-UP, REPORTS 2009-2024

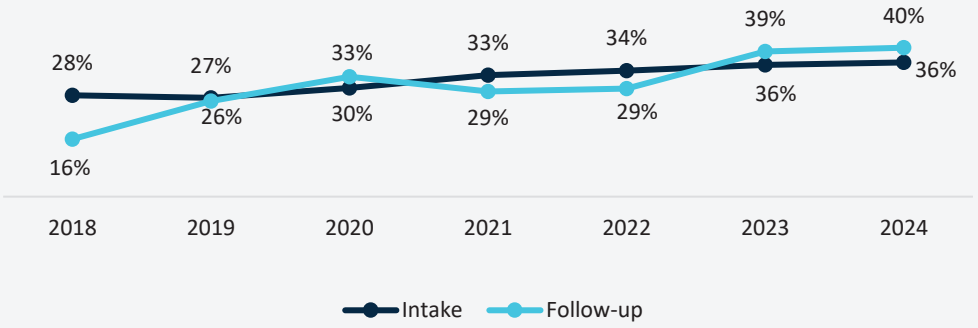


[76] Five clients had missing data for number of cigarettes smoked at intake, and 2 clients had missing data for number of cigarettes smoked at follow-up.

Trends in Past-12-month Vaporized Nicotine Use

KTOS clients have been providing data about use of vaporized nicotine since the 2018 report. The percent of KTOS clients who report past-12-month use of vaporized nicotine at intake has increased from 28% in the 2018 report to 36% in the 2024 report. The percent of clients reporting vaporized nicotine use at follow-up has also increased over time, from 16% in the 2018 report to 40% in this year's report.

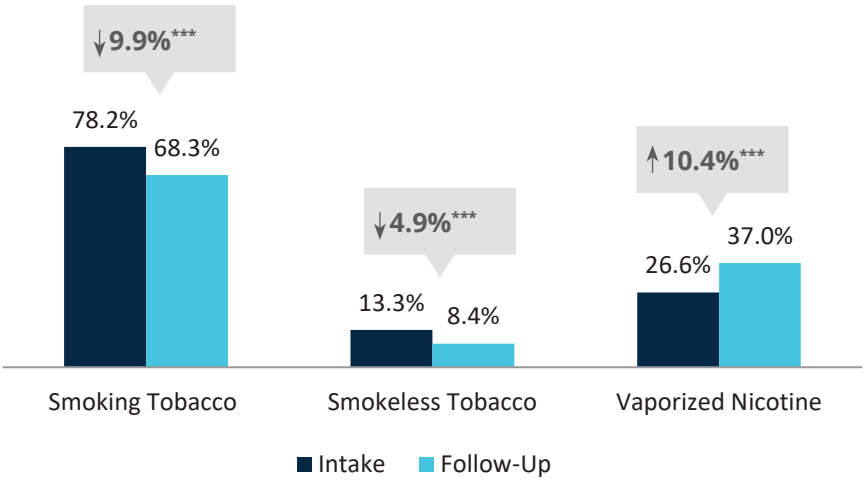
FIGURE 2.74. TRENDS IN VAPORIZED NICOTINE USE AT INTAKE AND FOLLOW-UP, REPORTS 2018 - 2024



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

The percent of clients who reported any past-30-day smoking tobacco significantly decreased from intake (78.2%) to follow-up (68.3%; see Figure 2.75). Past-30-day use of smokeless tobacco use decreased significantly intake to follow-up. The percent of clients who vaporized nicotine increased significantly by 10.4% from intake to follow-up.

FIGURE 2.75. PAST-30-DAY SMOKING, SMOKELESS TOBACCO, AND VAPORIZED NICOTINE USE AT INTAKE AND FOLLOW-UP (n = 467)

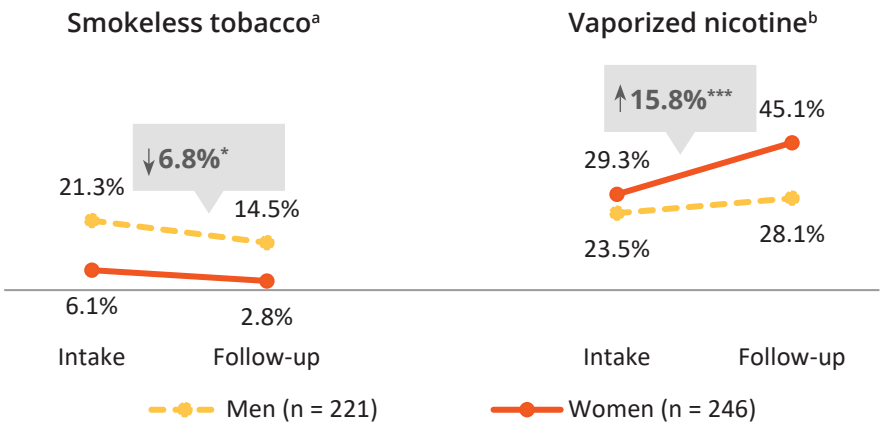


**p<.01, ***p < .001.

Gender Differences in Past-30-day Smokeless Tobacco and Vaporized Nicotine Use

Significantly more men than women reported using smokeless tobacco in the 30 days before intake and follow-up (see Figure 2.76). There was a significant decrease in the percent of men who reported past-30-day smokeless tobacco use. The percent of women who reported using vaporized nicotine in the past 30 days increased by 15.8% from intake to follow-up. The percent of men who used vaporized nicotine in the past 30 days did not change from intake to follow-up.

FIGURE 2.76. GENDER DIFFERENCES IN PAST-30-DAY SMOKELESS TOBACCO AND VAPORIZED NICOTINE AT INTAKE AND FOLLOW-UP

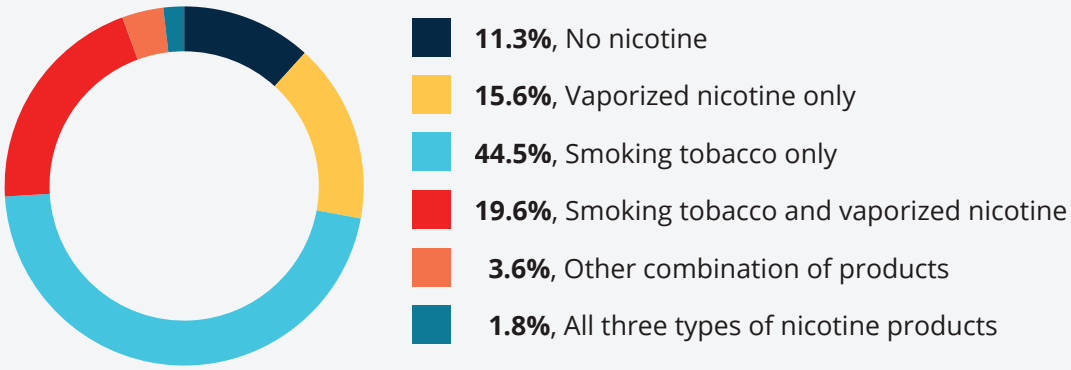


a—Significant difference by gender at intake ($p < .001$) and follow-up ($p < .001$).
b—Significant difference by gender at follow-up ($p < .001$).
***$p < .001$.

Taking a Closer Look at Nicotine Use at Follow-up

Among individuals who completed the follow-up survey, the vast majority reported using nicotine in the 30 days before follow-up. Figure 2.77 shows the percent of clients who reported using the various types of nicotine: smoking tobacco, smokeless tobacco, and vaporized nicotine.

FIGURE 2.77. TYPES OF NICOTINE USE REPORTED IN THE 30 DAYS BEFORE FOLLOW-UP



|Section 3. Bivariate and Multivariate Analysis of Factors Associated with Return to Use

This section focuses on a multivariate analysis examining factors related to return to use in the 2023 KTOS follow-up sample.

KTOS clients who reported using any illicit drugs and/or engaged in problem alcohol use (i.e., alcohol to intoxication or binge drinking) in the 12 months before follow-up (n = 184, 33.4%) were compared to clients who did not report use of any drugs or alcohol in the 12 months before follow-up (n = 367, 66.6%) in bivariate statistical tests. Several factors measured at intake were significantly associated with return to use in the follow-up period (see Table 3.1): gender, number of nights incarcerated, number of mental health symptoms, and quality of life rating.

TABLE 3.1. BIVARIATE COMPARISON OF TARGETED FACTORS FOR RETURN TO USE AND NON-RETURN TO USE GROUPS

Intake Factors	Used illicit drugs or engaged in problem alcohol in the 12 months before follow-up (n = 184)	Did not use illicit drugs or engage in problem alcohol use in the 12 months before follow-up (n = 367)
Average age at intake	36.7	37.4
Male*	52.7%	43.1%
Met criteria for moderate or severe SUD per DSM-5	73.9%	69.2%
Number of nights incarcerated in the 12 months before intake*	21.0	35.0
Number of months employed in the 12 months before intake[a]	5.1	4.7
Average number of mental health symptoms (depression and anxiety) reported at intake***	9.4	7.4
Number of people client could count on for recovery support at intake	7.4	5.8
Average quality of life rating at intake**	6.9	7.4
Average number of adverse childhood experiences	4.1	3.8

a—The following number of cases had missing values for number of months employed: 28 among individuals who used illicit drugs/engaged in problem alcohol use before follow-up and 68 among individuals who did not use illicit drugs/engaged in problem alcohol use before follow-up.
*p < .05, **p < .01, ***p < .001.

These same factors in Table 3.1 were included in a logistic regression to examine which factors were significantly associated with return to use, after controlling for other factors. Any illicit drug or problem alcohol use in the 12-month follow-up period was the dependent variable. Results of the logistic regression show that when controlling for other variables in the model, gender and total number of depression and anxiety symptoms

were significantly associated with illicit drug and/or problem alcohol use in the follow-up period (see Table 3.2). Specifically, males had greater odds of using illicit drugs and/or problem alcohol use at follow-up. Individuals with greater depression and anxiety symptoms in the 12 months before intake had greater odds of illicit drug use and/or problem alcohol use at follow-up.

TABLE 3.2. ASSOCIATION OF TARGETED FACTORS AND RETURN TO USE (N = 455)[77]

				95% CI	
Factors at intake	**B**	**Wald**	**Odds ratio**	**Lower**	**Upper**
Age	-.009	.713	.991	.972	1.011
Gender [1 = Male, 2 = Female]	-.520	5.653	.594*	.387	.913
Number of nights incarcerated	-.003	2.822	.997	.993	1.001
Number of months employed	.008	.151	1.008	.967	1.051
Number of depression and anxiety symptoms	.056	7.933	1.057**	1.017	1.099
Number of people client could count on for recovery support	.016	1.768	1.016	.992	1.040
Quality of life rating	-.073	1.801	.930	.835	1.034
Number of adverse childhood experiences	.004	.010	1.004	.929	1.085

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

[77] Of the 551 individuals who had non-missing values for illicit drug use /problem alcohol use at follow-up, 96 had missing values on at least one of the predictor variables included in the logistic regression. Specifically, 96 cases had missing data for the number of months employed because of data inconsistencies with the variable, usual employment in the 12 months before entering treatment.

|Section 4. Mental Health, Physical Health, and Interpersonal Victimization

This section examines changes in mental health symptoms, physical health, and interpersonal victimization from intake to follow-up. Specifically, this subsection examines: (1) depression, (2) generalized anxiety, (3) comorbid depression and generalized anxiety, (4) suicide ideation and attempts, (5) posttraumatic stress disorder, (6) perceptions of poor physical and mental health, (7) overall health status, (8) chronic pain, (9) health insurance, and (10) interpersonal victimization experiences. Mental health and physical health questions in the KTOS intake and follow-up surveys were self-report measures.

Depression Symptoms

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

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

Study Criteria for Depression

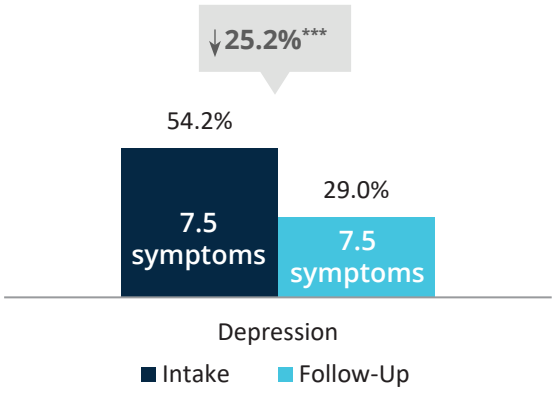
To meet study criteria for depression, clients had to say "yes" to at least one of the two screening questions and at least 4 of the 7 symptoms. Thus, the minimum score to meet study criteria: 5 out of 9.

If participants answered "yes" to at least one of these two screening questions, they were then asked seven additional questions about symptoms of depression (e.g., sleep problems, weight loss or gain, feelings of hopelessness or worthlessness).

More than half of clients (54.2%) met criteria for depression in the 12 months before they entered treatment (see Figure 4.1). At follow-up, 29.0% met criteria for depression—a significant decrease of 25.2%. Of those who met study criteria at intake (n = 299), they had an average of 7.5 symptoms out of 9. At follow-up, among those who met study criteria for depression (n = 159),[78] clients reported an average of 7.5 symptoms out of 9.

[78] One individual had a missing value for at least one of the questions was used to compute the total number of symptoms of depression at follow-up.

FIGURE 4.1. MEETING STUDY CRITERIA FOR DEPRESSION AT INTAKE AND FOLLOW-UP (N = 552)[79]

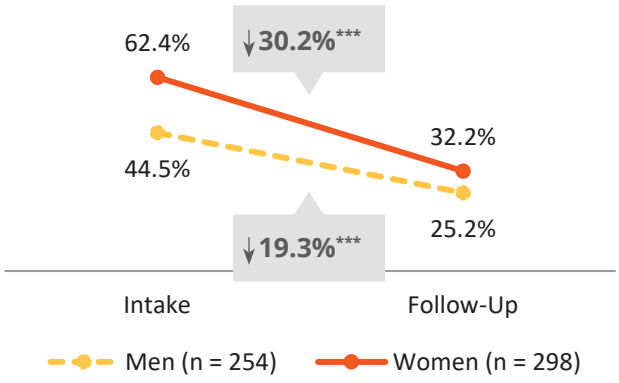


***p < .001.

Gender Differences in Depression

Significantly more women met study criteria for depression at intake and follow-up compared to men. At intake, 62.4% of women met study criteria compared to 44.5% of men. The number of women and men who met criteria for depression decreased significantly. At follow-up, there was no significant difference in the percent of men and women meeting criteria for depression (see Figure 4.2).

FIGURE 4.2. GENDER DIFFERENCES IN PERCENT OF CLIENTS MEETING STUDY CRITERIA FOR DEPRESSION[a]

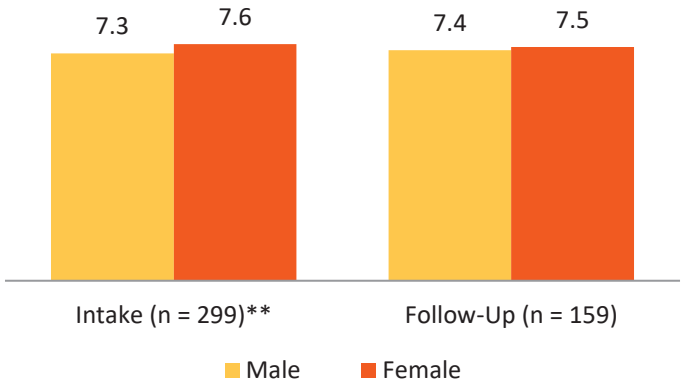


a—Statistical difference by gender at intake (p < .001).
***p < .001.

Among individuals who met study criteria for depression at intake, women reported significantly more depression symptoms than men (7.6 vs. 7.3) (see Figure 4.3). There was no significant difference in depression symptoms by gender at follow-up.

[79] Two clients had missing values for at least one of the questions that was used to compute the depression variable at follow-up.

FIGURE 4.3. GENDER DIFFERENCES IN NUMBER OF DEPRESSION SYMPTOMS REPORTED BY THOSE WHO MET STUDY CRITERIA FOR DEPRESSION AT INTAKE AND FOLLOW-UP[a]

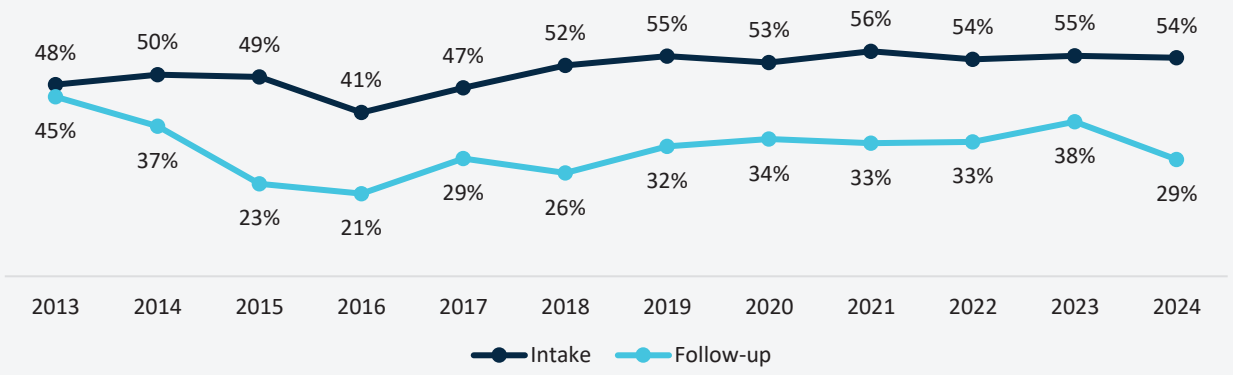


a – To meet study criteria, a client had to endorse at least 5 of 9 depression symptoms.
**p < .01.

Trends in Past-12-month Depression

The percent of clients who met criteria for depression at intake has been between a low of 41% in the 2016 report and a high of 56% in the 2021 report over the past 12 years. The percent of clients who met criteria for depression at follow-up decreased from 45% in the 2013 report to 21% in the 2016 report. In the 2021 and 2022 reports, the percent of individuals who met criteria for depression at follow-up was 33%, and even higher in the 2023 report (38%) before decreasing to 29% this year.

FIGURE 4.4. TRENDS IN THE NUMBER OF CLIENTS MEETING STUDY CRITERIA FOR DEPRESSION AT INTAKE AND FOLLOW-UP, REPORTS 2013 - 2024



Anxiety Symptoms

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

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

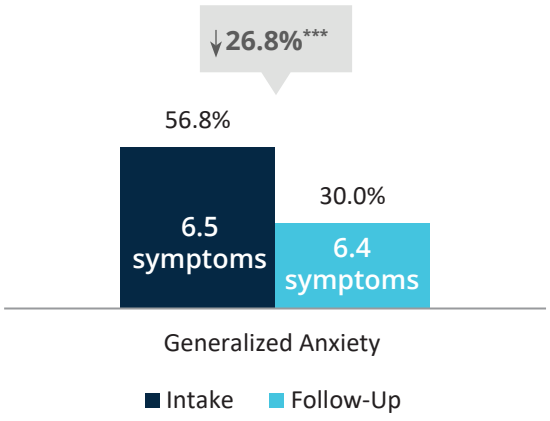
Participants who answered "yes" were then asked 6 additional questions about anxiety symptoms (e.g., felt restless, keyed up or on edge, have difficulty concentrating, feel irritable).

Study Criteria for General Anxiety Disorder

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

In the 12 months before entering treatment, about half of clients reported symptoms that met study criteria for generalized anxiety (56.8%; see Figure 4.5). By follow-up, the percent of clients meeting study criteria for generalized anxiety had decreased by 26.8% to 30.0%. At intake, among those who met study criteria for generalized anxiety (n = 314), clients reported an average of 6.5 symptoms out of 7. Among those who met study criteria for generalized anxiety at follow-up (n = 166), clients reported an average of 6.4 symptoms out of 7.

FIGURE 4.5. CLIENTS MEETING STUDY CRITERIA FOR GENERALIZED ANXIETY AT INTAKE AND FOLLOW-UP (N = 553)

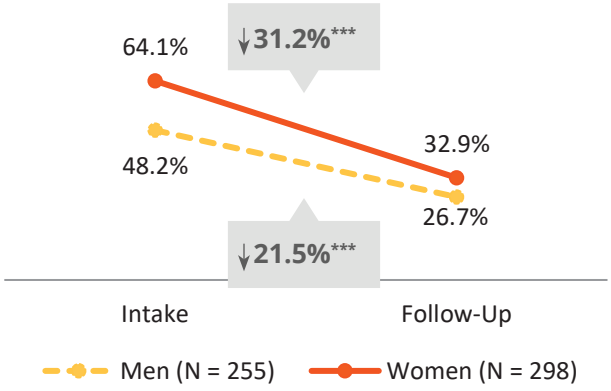


***p < .001.

Gender Differences in Generalized Anxiety Symptoms

Significantly more women met criteria for generalized anxiety at intake compared to men (see Figure 4.6). The percent of women and men who met criteria for generalized anxiety decreased significantly from intake. At follow-up, there was no gender difference in meeting criteria for generalized anxiety.

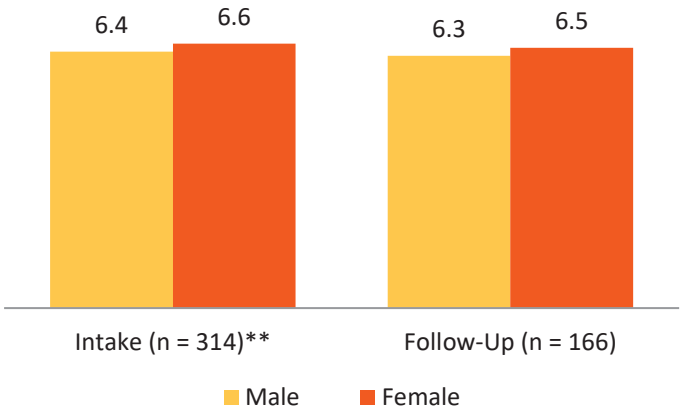
FIGURE 4.6. GENDER DIFFERENCES IN PERCENT OF CLIENTS MEETING STUDY CRITERIA FOR GENERALIZED ANXIETY[a]



a—Statistical difference by gender at intake ($p < .001$).
***$p < .001$.

Among individuals who met study criteria for generalized anxiety at intake, women reported significantly more anxiety symptoms than men (6.6 vs. 6.4) (see Figure 4.7). There was no significant difference in anxiety symptoms by gender at follow-up.

FIGURE 4.7. GENDER DIFFERENCES IN NUMBER OF GENERALIZED ANXIETY SYMPTOMS REPORTED BY THOSE WHO MET STUDY CRITERIA FOR GENERALIZED ANXIETY DISORDER AT INTAKE AND FOLLOW-UP[a]

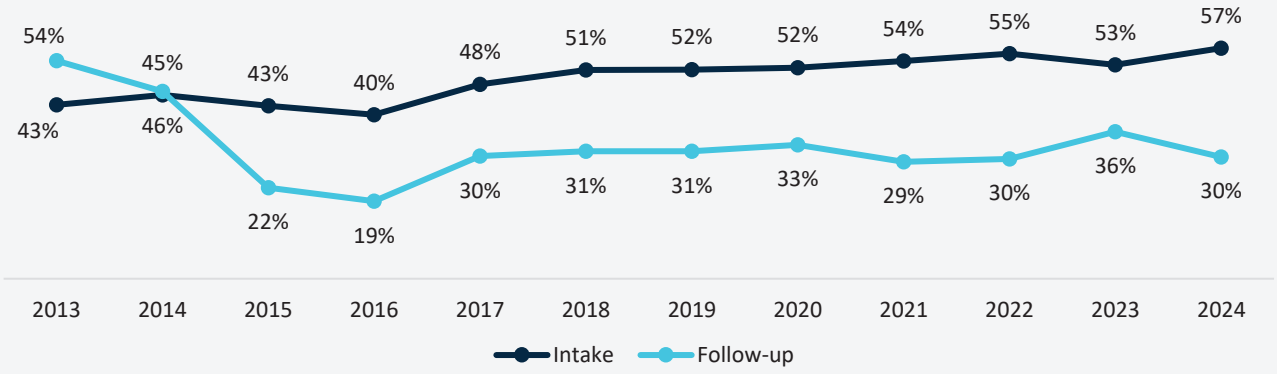


a – To meet study criteria, a client had to endorse at least 4 of 7 anxiety symptoms.
**$p < .01$.

Trends in Past-12-month Generalized Anxiety

The percent of clients who met criteria for generalized anxiety at intake has steadily and gradually increased over the past 12 years. The percent of clients who met study criteria for generalized anxiety at follow-up decreased from the 2013 report through the 2016 report, but was in the low 30s from the 2017 report through the 2022 report, and again in this year's report. In the 2023 report, 36% of clients met study criteria for generalized anxiety.

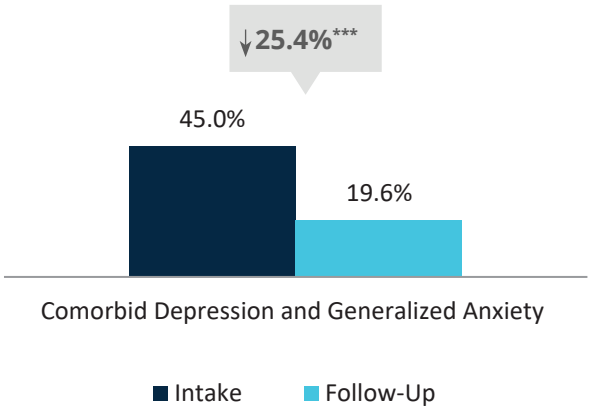
FIGURE 4.8. TRENDS IN THE NUMBER OF CLIENTS MEETING STUDY CRITERIA FOR GENERALIZED ANXIETY AT INTAKE AND FOLLOW-UP, REPORTS 2013 - 2024



Comorbid Depression and Anxiety Symptoms

Figure 4.9 shows that at intake, 45.0% of clients met study criteria for both depression and generalized anxiety and there was a significant 25.4% decrease in the percent of individuals who met study criteria for depression and generalized anxiety at follow-up (19.6%).

FIGURE 4.9. CLIENTS MEETING STUDY CRITERIA FOR COMORBID DEPRESSION AND GENERALIZED ANXIETY AT INTAKE AND FOLLOW-UP (N = 551)[80]



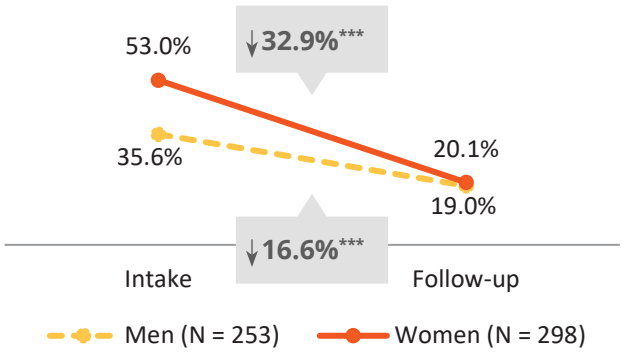
***p < .001.

[80] Three individuals had missing values for at least one of the questions used to compute the depression or generalized anxiety at follow-up.

Gender Differences in Comorbid Depression and Generalized Anxiety Symptoms

A significantly higher percentage of women met criteria for comorbid depression and generalized anxiety at intake compared to men (see Figure 4.10). The percent of women and men who met criteria for depression and generalized anxiety decreased significantly by 32.9% and 16.6% respectively. At follow-up, there was no gender difference.

FIGURE 4.10. GENDER DIFFERENCES IN PERCENT OF CLIENTS MEETING STUDY CRITERIA FOR COMORBID DEPRESSION AND GENERALIZED ANXIETY AT INTAKE AND FOLLOW-UP[a]

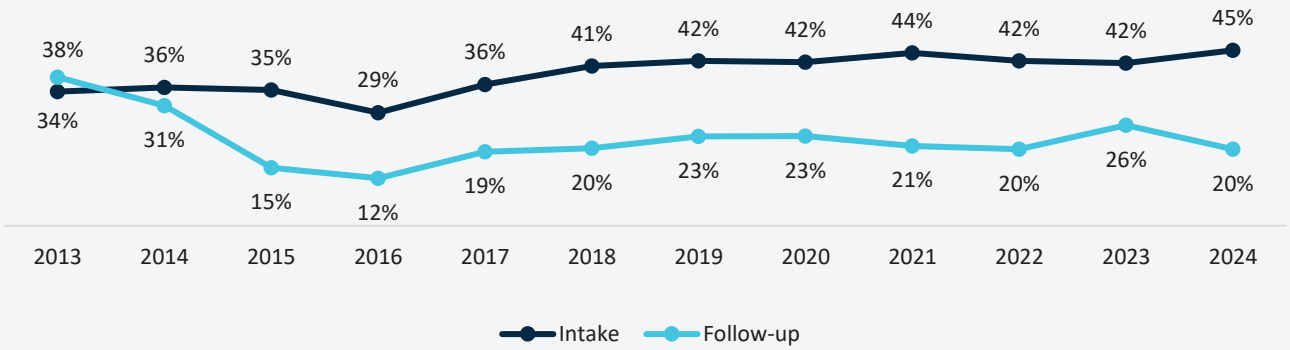


a—Statistical difference by gender at intake (p<.001).
***p < .001.

Trends in Comorbid Depression and Anxiety

Past-12-year trends for comorbid depression and anxiety show that beginning in the 2015 report the percent of clients who reported meeting criteria for comorbid depression and anxiety was significantly higher at intake than at follow-up. At follow-up, however, the percent of clients meeting criteria for comorbid depression and anxiety was relatively stable from the 2017 report through the 2022 report. In the 2023 report, there was an increase in the percent of clients with comorbid depression and anxiety at follow-up (26%).

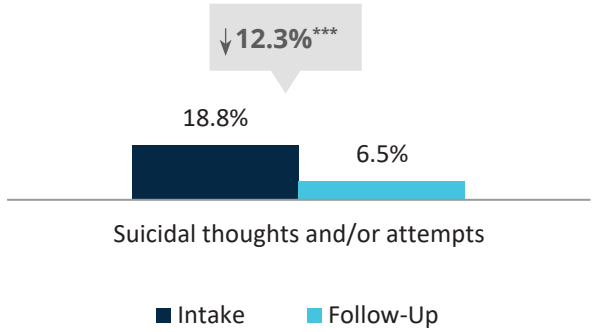
FIGURE 4.11. TRENDS IN THE PERCENT OF CLIENTS MEETING STUDY CRITERIA FOR COMORBID DEPRESSION AND ANXIETY AT INTAKE AND FOLLOW-UP, REPORTS 2013 - 2024



Suicidal Thoughts and/or Attempts

Suicide ideation and attempts were measured with self-reported questions about thoughts of suicide and actual attempts of suicide. In the 12 months before entering treatment, 18.8% of clients reported thoughts of suicide or attempted suicide and 6.5% of clients reported thoughts of suicide or attempted suicide in the 12 months before follow-up. There was 12.3% decrease from intake to follow-up in the number of clients reporting suicidal thoughts and attempts (see Figure 4.12).

FIGURE 4.12. CLIENTS REPORTING SUICIDAL THOUGHTS AND/OR ATTEMPTS AT INTAKE AND FOLLOW-UP (N = 554)

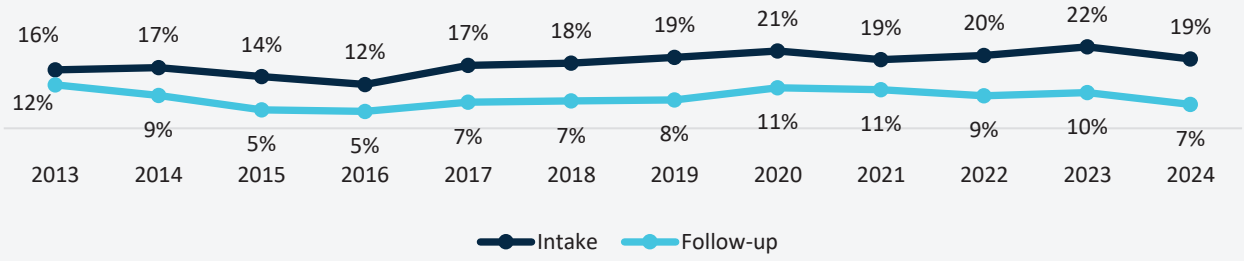


***p < .001.

Trends in Past-12-month Suicidal Thoughts and/or Attempts

The percent of clients who reported suicidal ideation and attempts at intake was a low of 12% in the 2016 report and a high of 22% in the 2023 report. The percent of clients reporting suicidal ideation and attempts at follow-up was a high of 12% in the 2013 report and a low of 5% in the 2015 and 2016 reports.

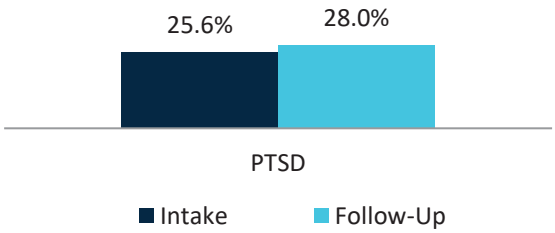
FIGURE 4.13. TRENDS IN THE NUMBER OF CLIENTS REPORTING SUICIDAL THOUGHTS AND/OR ATTEMPTS AT INTAKE AND FOLLOW-UP, REPORTS 2013 - 2024



Posttraumatic Stress Disorder Symptoms

Included in the intake and follow-up surveys were four items from the PTSD checklist about how bothered they had been about the symptoms in the prior 12 months.[81] At intake, 25.6% had a score of at least 10 on the PTSD checklist, indicating PTSD, and at follow-up, 28.0% of clients (see Figure 4.14).[82] There was no significant change in the percent of individuals who met study criteria for PTSD.

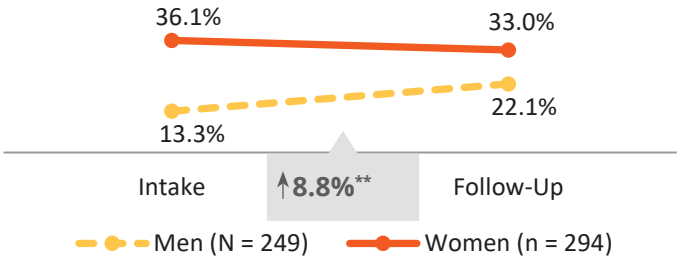
FIGURE 4.14. CLIENTS WHO MET STUDY CRITERIA FOR PTSD AT INTAKE AND PAST-12-MONTHS AT FOLLOW-UP (n = 543)[83]



Gender Differences in Posttraumatic Stress Disorder Symptoms

A significantly higher percentage of women met criteria for for PTSD at intake and follow-up compared to men (see Figure 4.15). The percent of men who met criteria for PTSD increased significantly from intake to follow-up. The percent of women who met criteria for PTSD did not change significantly.

FIGURE 4.15. GENDER DIFFERENCES IN PERCENT OF CLIENTS WHO MET STUDY CRITERIA FOR PTSD AT INTAKE AND FOLLOW-UP[a]



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

[81] Price, M., Szafranski, D., van Stolk-Cooke, K., & Gros, D. (2016). Investigation of an abbreviated 4 and 8-item version of the PTSD Checklist 5. Psychiatry Research, 239, 124-130.

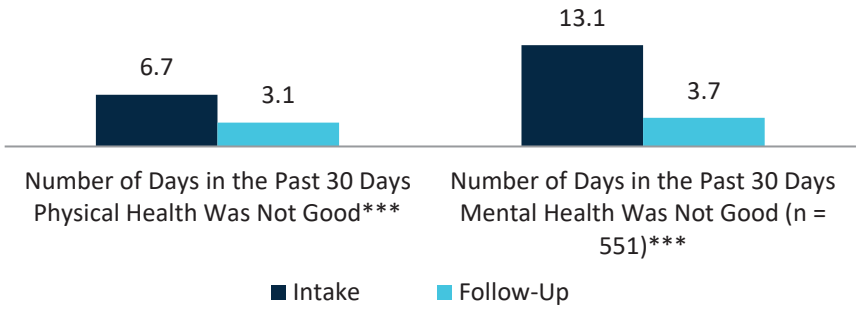
[82] In previous years' reports PTSD symptom questions were asked only of individuals who reported any lifetime victimization. For the data included in this report, the PTSD symptom questions were asked of all clients.

[83] Eleven individuals had a missing value on at least one of the items about PTSD symptoms in the 12 months before follow-up.

Perceptions of Poor Physical and Mental Health

Clients were asked how many days in the past 30 days their physical health was not good and their mental health was not good at intake and follow-up (see Figure 4.16). There was a significant decrease from intake to follow-up in the number of days clients reported their physical health was not good (6.7 vs. 3.1). The number of days clients' mental health was not good also decreased significantly from 13.1 at intake to 3.7 at follow-up.

FIGURE 4.16. PERCEPTIONS OF POOR PHYSICAL HEALTH AND MENTAL HEALTH IN THE PAST 30 DAYS AT INTAKE AND FOLLOW-UP (N =554)[84]

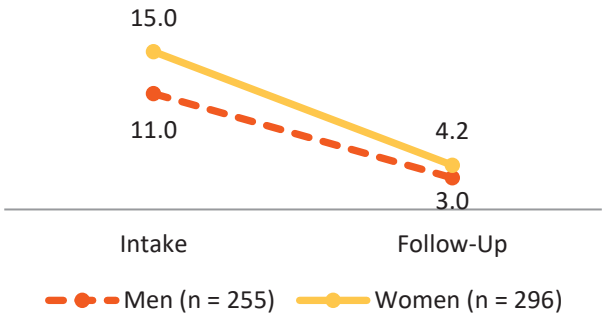


***p < .001.

Gender Differences in Perceptions of Mental Health

Women's reported average number of days their mental health was not good was significantly higher at intake compared to men (see Figure 4.17). For both men and women, there was a significant decrease from intake to follow-up in the reported number of days their mental health were was not good.

FIGURE 4.17. GENDER DIFFERENCES IN NUMBER OF DAYS IN THE PAST 30 DAYS MENTAL HEALTH WAS NOT GOOD[a,b]



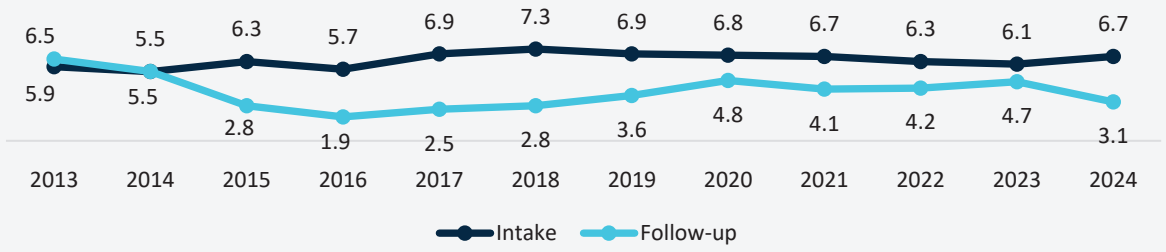
a—Statistical difference by gender at intake (p < .001).
b—Statistically significant decrease from intake to follow-up for men and women; tested with paired t-test.

[84] Three clients had missing data for the mental health question at follow-up.

Trends in Perceptions of Poor Physical Health

The average number of days clients reported their physical health was not good in the past 30 days at intake has increased from 5.9 days in the 2013 report to 7.3 days in the 2018 report. The average number of days clients reported their physical health was not good in the past 30 days at follow-up has decreased from 6.5 days in the 2013 report to a low of 1.9 in the 2016 report. In the 2020 – 2023 reports, the difference between the average number of days clients' physical health was not good at intake and follow-up was smaller than it had been since the 2014 report.

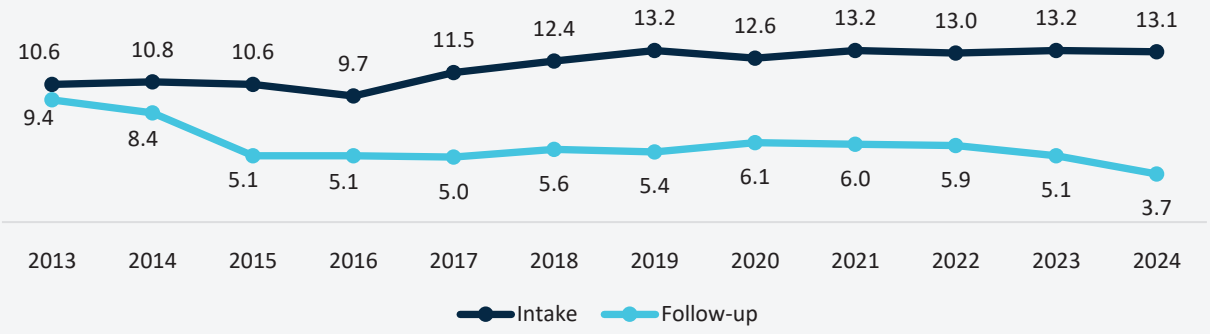
FIGURE 4.18. TRENDS IN SELF-REPORTED AVERAGE NUMBER OF DAYS OF POOR PHYSICAL HEALTH AT INTAKE AND FOLLOW-UP, REPORTS 2013 - 2024



Trends in Perceptions of Poor Mental Health

The average number of days clients reported their mental health was not good in the past 30 days has increased at intake in the past several years to a high of 13.2 in the 2019, 2021, and 2023 reports. At follow-up, the average number of days clients reported their mental health was not good in the past 30 days has decreased from a high of 9.4 days in the 2013 report to a low of 3.7 in this year's report. The average number of days clients' mental health was not good was 3.5 times higher at intake than at follow-up in the 2024 report.

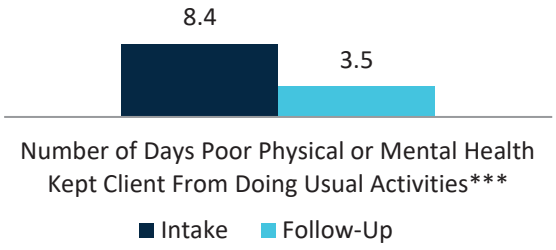
FIGURE 4.19. TRENDS IN SELF-REPORTED AVERAGE NUMBER OF DAYS OF POOR MENTAL HEALTH AT INTAKE AND FOLLOW-UP, REPORTS 2013 - 2024



Perceptions of Poor Physical or Mental Health Limiting Activities

Clients were also asked to report the number of days in the past 30 days poor physical or mental health had kept them from doing their usual activities. The number of days clients reported their physical or mental health kept them from doing their usual activities decreased significantly from 8.4 days at intake to 3.5 days at follow-up (see Figure 4.20).

FIGURE 4.20. PERCEPTIONS OF POOR PHYSICAL HEALTH AND MENTAL HEALTH LIMITING ACTIVITIES IN THE PAST 30 DAYS AT INTAKE AND FOLLOW-UP (N = 551)[85]

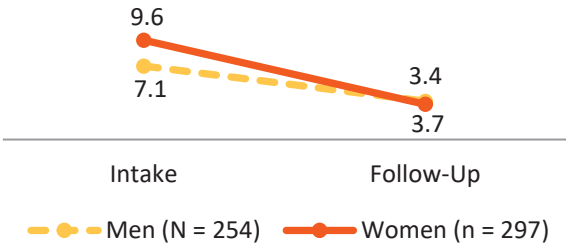


***p < .001.

Gender Differences in Perceptions of Physical or Mental Health Limiting Activities

The average number of days clients indicated their physical or mental health had kept them from doing their usual activities was higher for women than for men at intake (see Figure 4.21). The average number of days physical or mental health kept clients from doing their usual activities decreased from intake to follow-up for men and women.

FIGURE 4.21. GENDER DIFFERENCES IN THE NUMBER OF DAYS POOR PHYSICAL OR MENTAL HEALTH KEPT CLIENT FROM DOING USUAL ACTIVITIES[a,b]



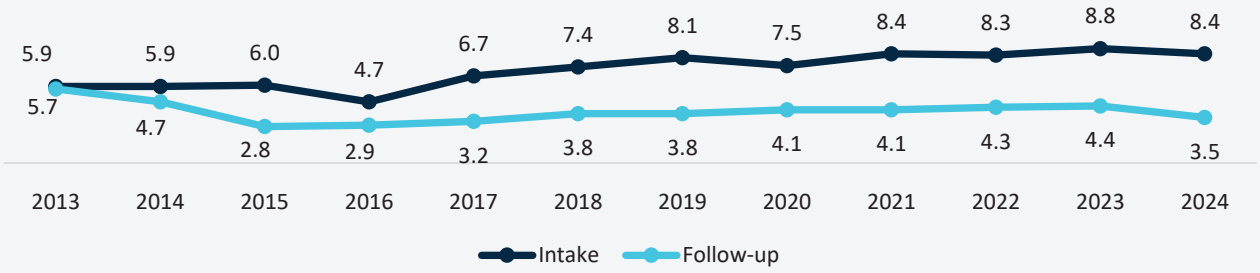
a—Statistical difference by gender at intake (p < .01).
b – Significant decrease from intake to follow-up for men and women (p < .001).

[85] Three clients had missing data for the question about perceptions of their physical or mental health limiting their activities at follow-up.

Trends in Number of Days Poor Physical or Mental Health Kept Client from Doing Usual Activities

The average number of days in the past 30 days clients reported their physical or mental health kept them from doing their usual activities at intake has gradually increased from 5.9 in the 2013 report to 8.8 in the 2023 report, except in the 2016 report when it decreased to 4.7 days. Since the 2017 report, the average number of days clients reported their physical or mental health kept them from doing their usual activities in the past 30 days at follow-up has been between 3.2 to 4.4 days.

FIGURE 4.22. TRENDS IN THE NUMBER OF DAYS THEIR PHYSICAL OR MENTAL HEALTH KEEP CLIENT FROM DOING USUAL ACTIVITIES AT INTAKE AND FOLLOW-UP, REPORTS 2013 - 2024



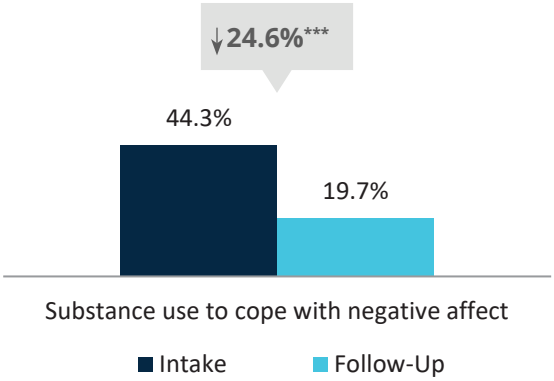
Substance Use to Cope with Negative Affect

Included in the intake and follow-up surveys was a questions about how often in the past 30 days the client used alcohol, prescription drugs, or illicit drugs to reduce stress, anxiety, worry, sadness, or fear. Individuals who responded the following were recoded as having used substances to cope with negative affect: sometimes, about half the time, most of the time, almost always/always. At intake, 44.3% had used alcohol, prescription drugs, or illicit drugs to cope with negative affect, and at follow-up, significantly fewer clients had (19.7%; see Figure 4.23).

FIGURE 4.23. CLIENTS WHO USED SUBSTANCES TO COPE WITH NEGATIVE AFFECT IN THE PAST 30 DAYS AT INTAKE AND FOLLOW-UP (n = 553)[86]

> *It was a small facility, only held 8 girls at a time. A lot of one-on-one time, my counselor was amazing. There was always someone there to help you.*
>
> - KTOS FOLLOW-UP CLIENT

[86] One individual had a missing value for the item at follow-up.



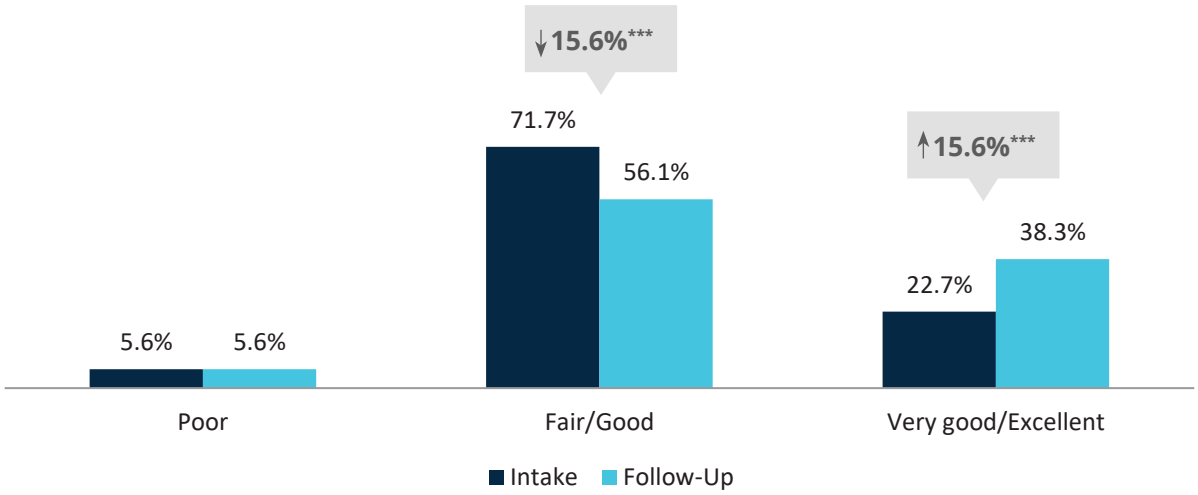
***p < .001.

Physical Health Status

Overall Health

At both intake and follow-up, clients were asked to rate their overall health in the past 12 months from 1 = poor to 5 = excellent. Clients rated their health, on average, as 2.9 at intake and this significantly increased to 3.2 at follow-up (not depicted in figure). Figure 4.24 shows that significantly more clients rated their overall physical health as very good or excellent (38.3%) at follow-up compared to intake (22.7%). Additionally, significantly fewer clients reported their health was fair/good at follow-up than at intake.

FIGURE 4.24. CLIENTS' SELF-REPORT OF OVERALL HEALTH STATUS AT INTAKE AND FOLLOW-UP (N = 554)[a]



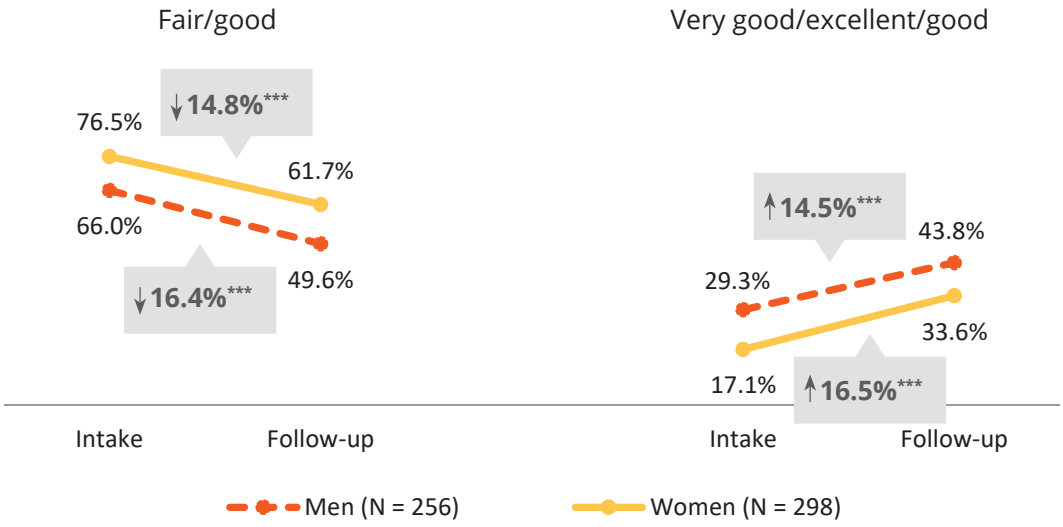
a – Significance tested with the Stuart-Maxwell Test for Marginal Homogeneity (p < .001).
***p < .001.

Gender Differences in Overall Health Rating

Compared to men, significantly more women reported their overall health was fair/good and significantly fewer rated their overall health as very good/excellent (see Figure 4.25). There was a significant increase in the percent of men and women who rated their overall

health as very good or excellent at follow-up compared to their rating at intake. Moreover, there was a significant decrease in the percent of men and women who rated their overall health as fair/good.

FIGURE 4.25. GENDER DIFFERENCES IN CLIENTS' OVERALL HEALTH RATING AT INTAKE AND FOLLOW-UP[a]

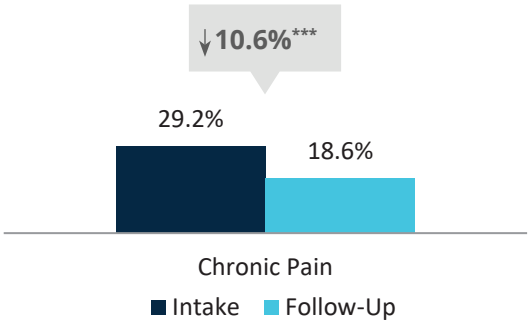


a—Statistical difference by gender at intake ($p < .01$) and follow-up ($p < .05$).
***$p < .001$.

Chronic Pain

At intake, almost 3 in 10 clients (29.2%) reported they had chronic pain (lasting at least 3 months) (see Figure 4.26). There was a significant decrease from intake to follow-up.

FIGURE 4.26. CLIENTS REPORTING CHRONIC PAIN AT INTAKE AND FOLLOW-UP (N = 554)

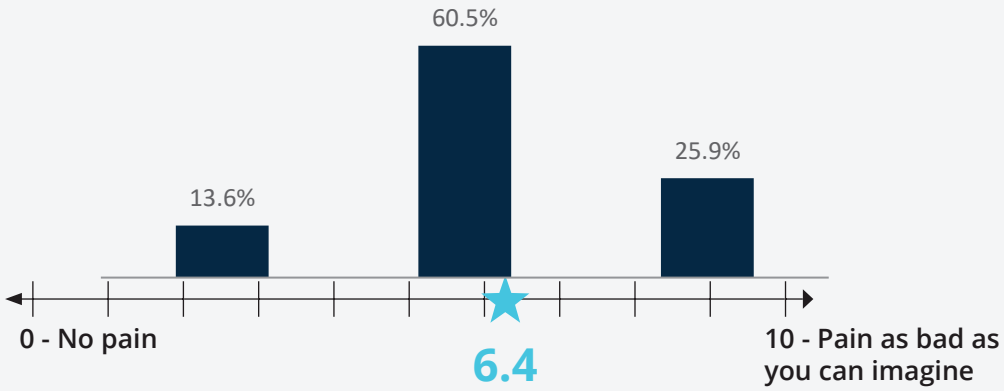


***$p < .001$.

Taking a Closer Look at Chronic Pain

At intake, 29.2% (n = 162) of KTOS clients reported experiencing chronic pain for at least 3 months before entering treatment. On average, clients reported their chronic pain began at age 25.7 (ranging from ages 3 to 63). In the 30 days before entering treatment, clients experienced chronic pain, on average, 24.9 days. Clients were also asked to rate their chronic pain on a scale from 0 (no pain) to 10 (pain as bad as you can imagine). At intake, clients rated their pain as an average intensity of 6.4 with 25.9% of clients giving their pain the highest ratings of 8, 9, and 10.

FIGURE 4.27. INTENSITY RATING OF CHRONIC PAIN AT INTAKE (n = 162)



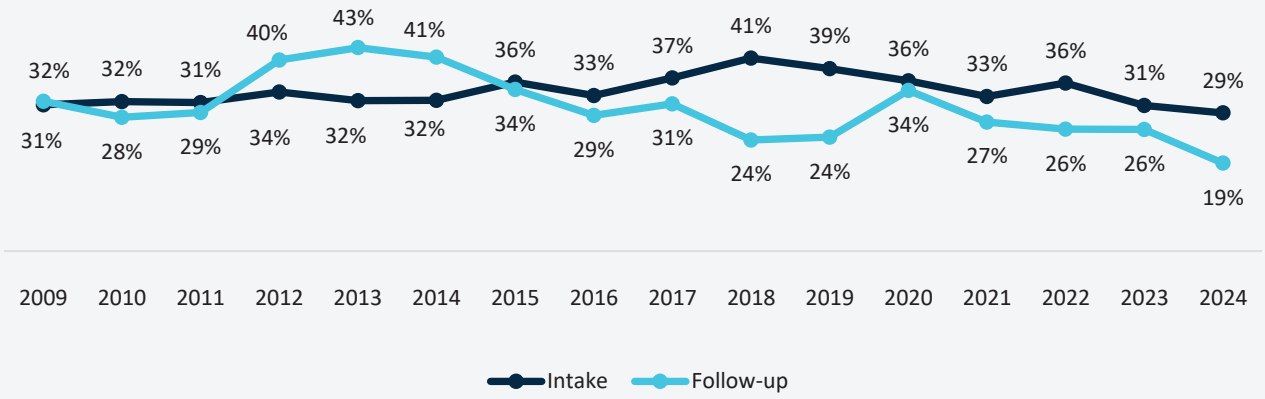
Prescription Opioid Misuse and Chronic Pain

Of those who misused prescription opioids at intake (n = 159), 34.0% reported chronic pain in the 12 months before entering SUD treatment and 18.2% experienced chronic pain at follow-up, which was a significant decrease of 15.8%.

Trends Chronic Pain

The percent of clients who reported chronic pain has fluctuated over time at intake and follow-up. Between the 2012 and 2014 reports, more clients reported chronic pain at follow-up than at intake. In the 2018 and 2019 reports, the decrease in chronic pain from intake to follow-up was greater than in other years. In this year's report, the percent of individuals reporting chronic pain decreased 10%.

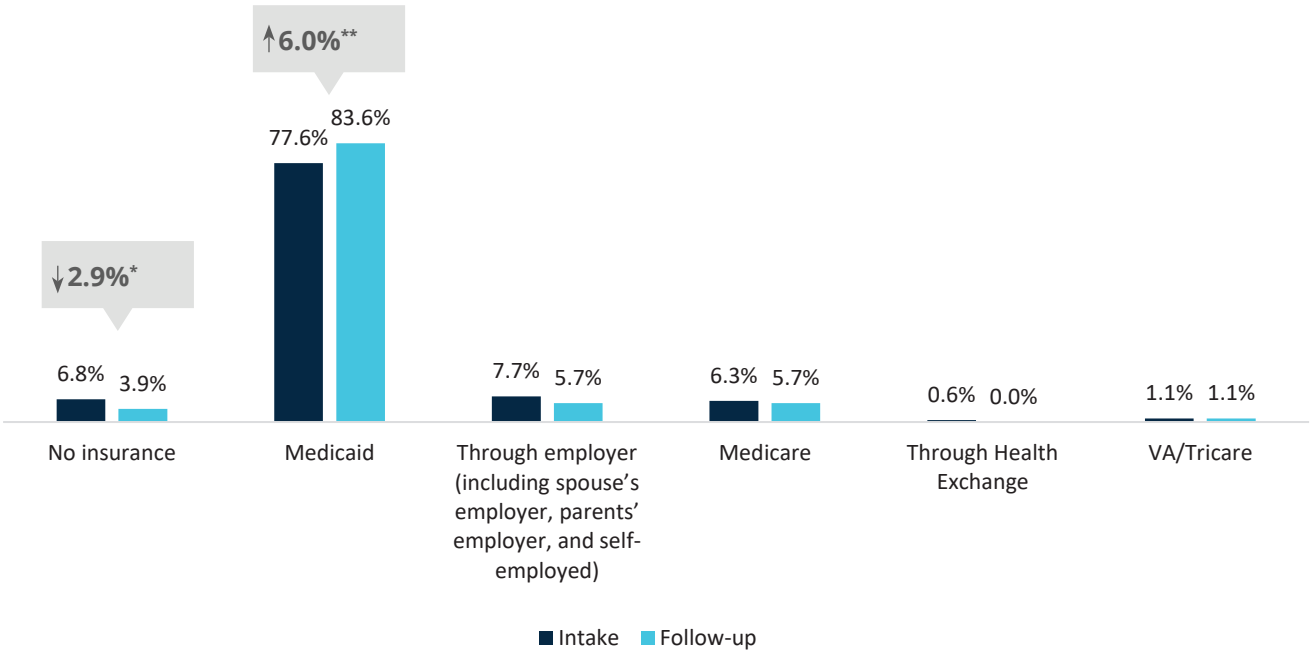
FIGURE 4.28. TRENDS IN THE NUMBER OF CLIENTS REPORTING CHRONIC PAIN AT INTAKE AND FOLLOW-UP, REPORTS 2009 - 2024



Health Insurance

At intake, the majority of KTOS clients reported they had health insurance through Medicaid (77.6%; see Figure 4.29). A small percentage did not have any insurance (6.8%). Small numbers of clients had insurance through an employer, including through a spouse, parent, or self-employment (7.7%), through Medicare (6.3%), through Health Exchange (0.6%), and VA/Tricare (1.1%). At follow-up, the number of clients reporting they had no insurance decreased significantly and the number reporting they had Medicaid increased significantly.

FIGURE 4.29. HEALTH INSURANCE FOR KTOS CLIENTS AT INTAKE AND FOLLOW-UP (N = 544)[87]



a – Significance tested with the Stuart-Maxwell Test for Marginal Homogeneity ($p < .01$).
*$p < .05$, **$p < .01$.

A Closer Look at Insurance

Of those clients who were employed full-time at intake (n = 155), only 14.8% had insurance through their employer. At follow-up, of those clients employed full-time (n = 234),[88] only 8.5% had insurance through their employer.

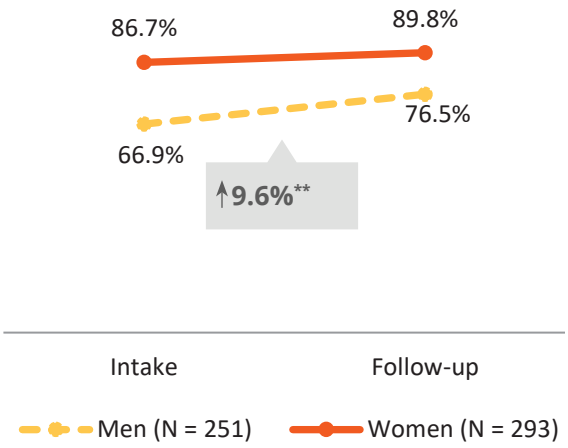
Gender Differences in Medical Insurance

Significantly more women reported being insured by Medicaid at both intake and follow-up compared to men (see Figure 4.30). There was a significant increase in the percent of men who had Medicaid at follow-up relative to intake.

[87] At follow-up, 9 clients had missing data for insurance at follow-up, and 1 individual had a response that fit under "other" and could not be classified. The missing responses are not included in this analysis.

[88] Of the 240 clients employed full-time at follow-up, 5 had missing information for insurance at follow-up and 1 mentioned an insurance carrier that could not be classified into one of the categories.

FIGURE 4.30. GENDER DIFFERENCES IN CLIENTS REPORTING HAVING MEDICAID INSURANCE AT INTAKE AND FOLLOW-UP[a]



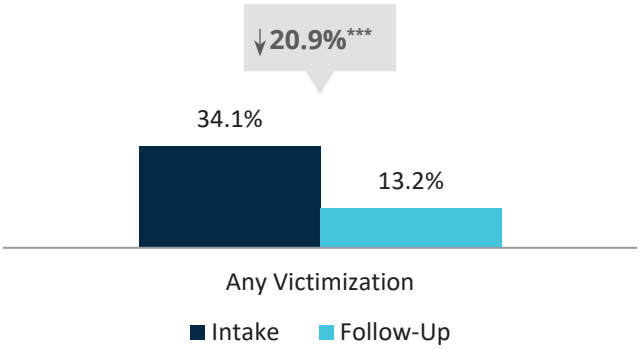
a—Statistical difference by gender at intake and follow-up ($p < .001$).
**$p < .01$.

Interpersonal Victimization

In addition to items about adverse childhood experiences, clients were asked about several types of interpersonal victimization they may have experienced in two periods: (1) lifetime, and (2) past 12 months. These items were included in the intake and follow-up surveys. Because relatively small percentages of clients reported each type of victimization experience in the 12-month periods, several related items were collapsed into one category: (1) any victimization (e.g., robbed or mugged by force, assaulted with or without a weapon, threatened with a gun, intimate partner violence, stalking).

About one-third of clients (34.1%) reported interpersonal victimization in the 12 months before entering treatment. The percent of clients who reported experiencing any victimization in the past 12 months decreased significantly from intake to follow-up (see Figure 4.31).

FIGURE 4.31. INTERPERSONAL VICTIMIZATION IN THE PAST 12 MONTHS AT INTAKE AND FOLLOW-UP (N = 554)

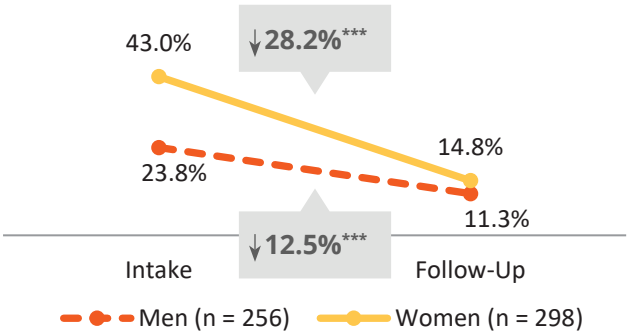


***$p < .001$.

Gender Differences in Interpersonal Victimization

Significantly more women reported experiencing any victimization in the 12 months intake when compared to men (see Figure 4.32). The percent of women and men who reported experiencing any victimization decreased significantly from intake to follow-up by 28.2% and 12.5% respectively. There was no gender difference at follow-up.

FIGURE 4.32. GENDER DIFFERENCES IN INTERPERSONAL VICTIMIZATION IN THE PAST 12 MONTHS

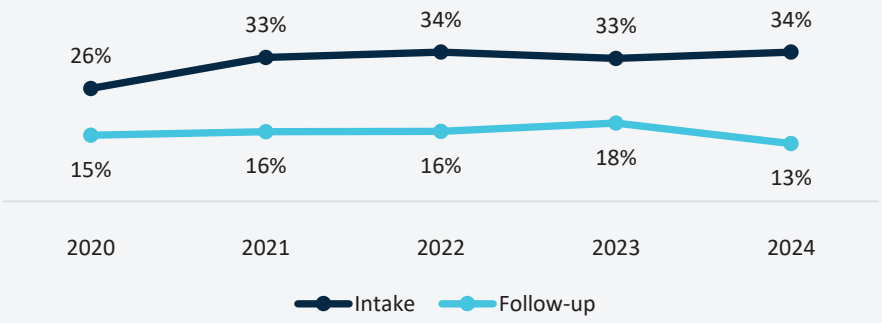


a—Statistical difference by gender at intake ($p < .001$.
***$p < .001$.

Trends In Interpersonal Victimization

The percent of clients who reported experiencing interpersonal victimization (e.g. assault, threats with a firearm, mugging/robbery, intimate partner violence, stalking, sexual assault, harassment) in the 12 months before entering the program has ranged from about one-fourth to one-third. There have been significant decreases from intake to follow-up in the percent of individuals who have reported interpersonal victimization in the past 12 months, with a steady percent each year (13% - 18%).

FIGURE 4.33. TRENDS IN THE PERCENT OF CLIENTS REPORTING INTERPERSONAL VICTIMIZATION AT INTAKE AND FOLLOW-UP, REPORTS 2020 - 2024[89]



[89] The survey items for assessing interpersonal victimization were not comparable in FY 2017 when victimization items were first added in September 2016.

|Section 5. Economic and Living Circumstances

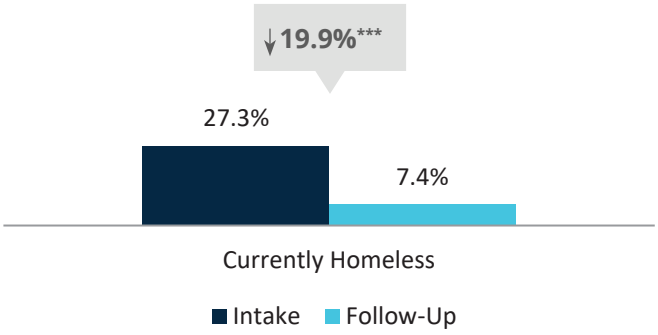
This section examines changes from intake to follow-up on: (1) living situation, (2) employment, and (3) economic hardship. Results for each targeted factor are presented for the overall sample and separately by gender when there were significant differences.

Living Situation

Homelessness

More than one-fourth of clients (27.3%) reported at treatment intake they were currently homeless and at follow-up 7.4% of clients reported they were currently homeless – a significant decrease of 19.9% (see Figure 5.1).

FIGURE 5.1. CURRENT HOMELESSNESS AT INTAKE AND FOLLOW-UP (N = 553)[90]

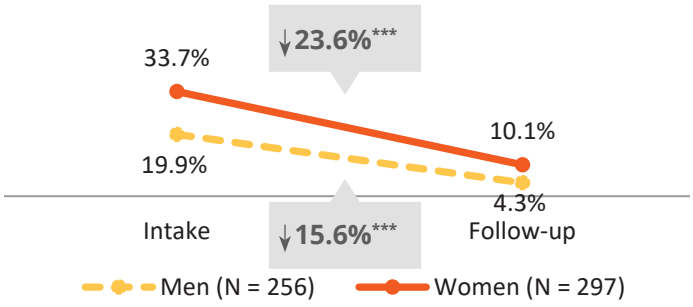


***p < .001.

Gender Differences in Homelessness

Significantly more women reported being homeless at intake and follow-up when compared to men (see Figure 5.2). At intake, 1 in 3 women reported homelessness compared to 1 in 5 men. The percent of women and men reporting homelessness at follow-up decreased significantly 23.6% and 15.6%, respectively).

FIGURE 5.2. GENDER DIFFERENCES IN CLIENTS REPORTING HOMELESSNESS AT INTAKE AND FOLLOW-UP[a]



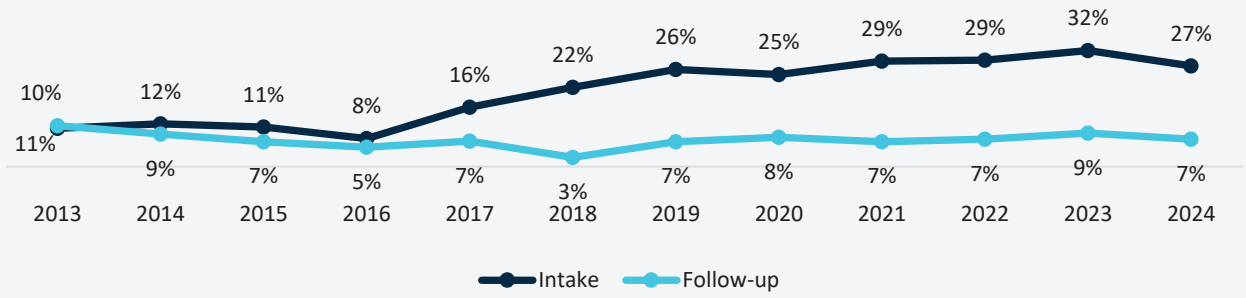
a—Statistical difference by gender at intake (p < .001) and at follow-up (p < .01).
***p < .001.

[90] One client had missing data for homelessness at follow-up.

Trends in Homelessness

In the 2013 through 2016 reports, the percent of clients reporting being currently homeless did not change significantly from intake and follow-up. In the 2017 report, however, the percent of clients reporting homelessness increased to 16% at intake, increased again to 29% in the 2021 report, and was its highest in the 2023 report (32%). The percent of individuals who reported homelessness at follow-up has remained consistent (between 5% and 9%) over the years, with the exception of the 2013 and 2018 reports.

FIGURE 5.3. TRENDS IN THE PERCENT OF CLIENTS REPORTING HOMELESSNESS AT INTAKE AND FOLLOW-UP, FY 2011-FY 2021



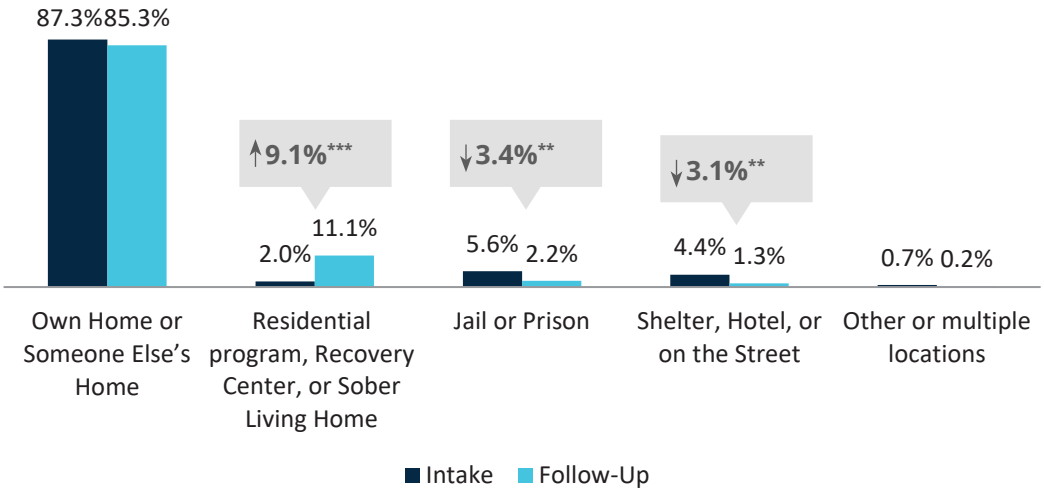
Usual Living Situation

Change in usual living situation from intake to follow-up was examined for the KTOS follow-up sample (see Figure 5.4). At intake, clients were asked about where they lived most of the time in the 12 months before entering treatment and at follow-up clients were asked where they lived most of the time in the 12 months before the follow-up interview.

The majority of clients reported living in their own home or someone else's home for most of the past 12 months at intake (87.3%) and follow-up (85.3%). A small percentage of clients reported their usual living situation was in a residential program, Recovery Center, or Sober Living Home at intake and that number increased significantly to 11.1% at follow-up. There was a significant decrease in the percent of clients who reported their usual living situation in the past 12 months was in a jail or prison: 5.6% vs. 2.2%. A very small percentage of clients reported living in a shelter or on the street at intake, with a significant decrease at follow-up.

> *I completely changed because of the program and became a much better person due to it.*
>
> - KTOS FOLLOW-UP CLIENT

FIGURE 5.4. USUAL LIVING SITUATION AT INTAKE AND FOLLOW-UP (N = 550)[91]



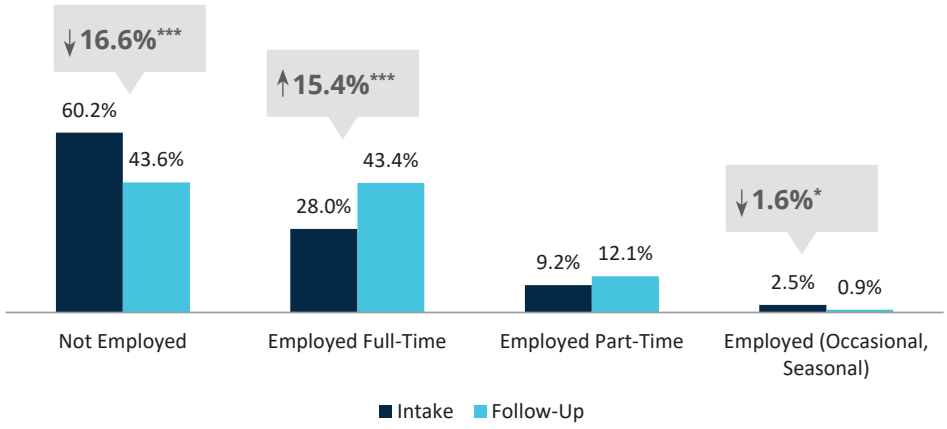
a – Significance tested with the Stuart-Maxwell Test for Marginal Homogeneity ($p < .001$). **$p < .01$, ***$p < .001$.

Employment

Current Employment Status

There were significant changes in current employment status from intake to follow-up (see Figure 5.5).[92] The majority of clients (60.2%) reported they were not employed when they entered treatment, while less than half of clients (43.6%) reported they were unemployed at follow-up. This represents a 16.6% significant decrease in the number of clients who were currently unemployed. The percent of clients who were employed full-time increased significantly by 15.4% from intake to follow-up (28.0% vs. 43.4%), and the percent with occasional/seasonal work decreased significantly at follow-up.

FIGURE 5.5. CURRENT EMPLOYMENT STATUS (N = 553)[a]



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

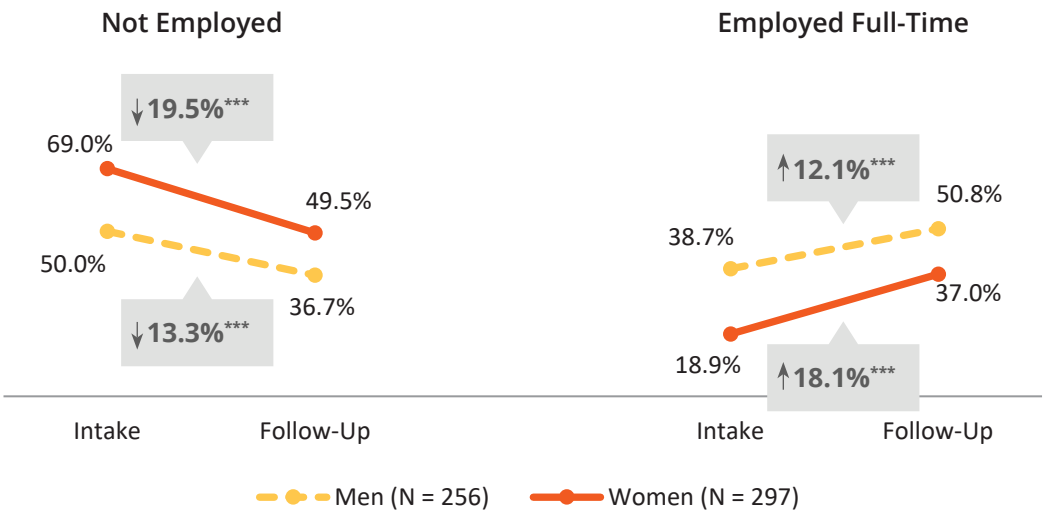
[91] Three individuals had missing data for usual living situation in the 12 months before entering treatment and one client had missing data for usual living situation in the 12 months before follow-up.

[92] One individual had missing data for current employment status at intake.

Gender Differences in Current Employment Status

Significantly more women reported at intake and follow-up that they were currently unemployed compared to men: 69.0% vs. 50.0% at intake and 49.5% vs. 36.7% at follow-up. The percent of clients who were currently unemployed decreased significantly for both women and men (see Figure 5.6). The percent of men who reported they were employed full-time was significantly greater than the percent of women who were employed full-time at intake (38.7% vs. 18.9%) and at follow-up (50.8% vs. 37.0%). Both genders, however, had significant increases in full-time employment from intake to follow-up (18.1% for women and 12.1% for men).

FIGURE 5.6. GENDER DIFFERENCES IN EMPLOYMENT STATUS AT INTAKE AND FOLLOW-UP[a]

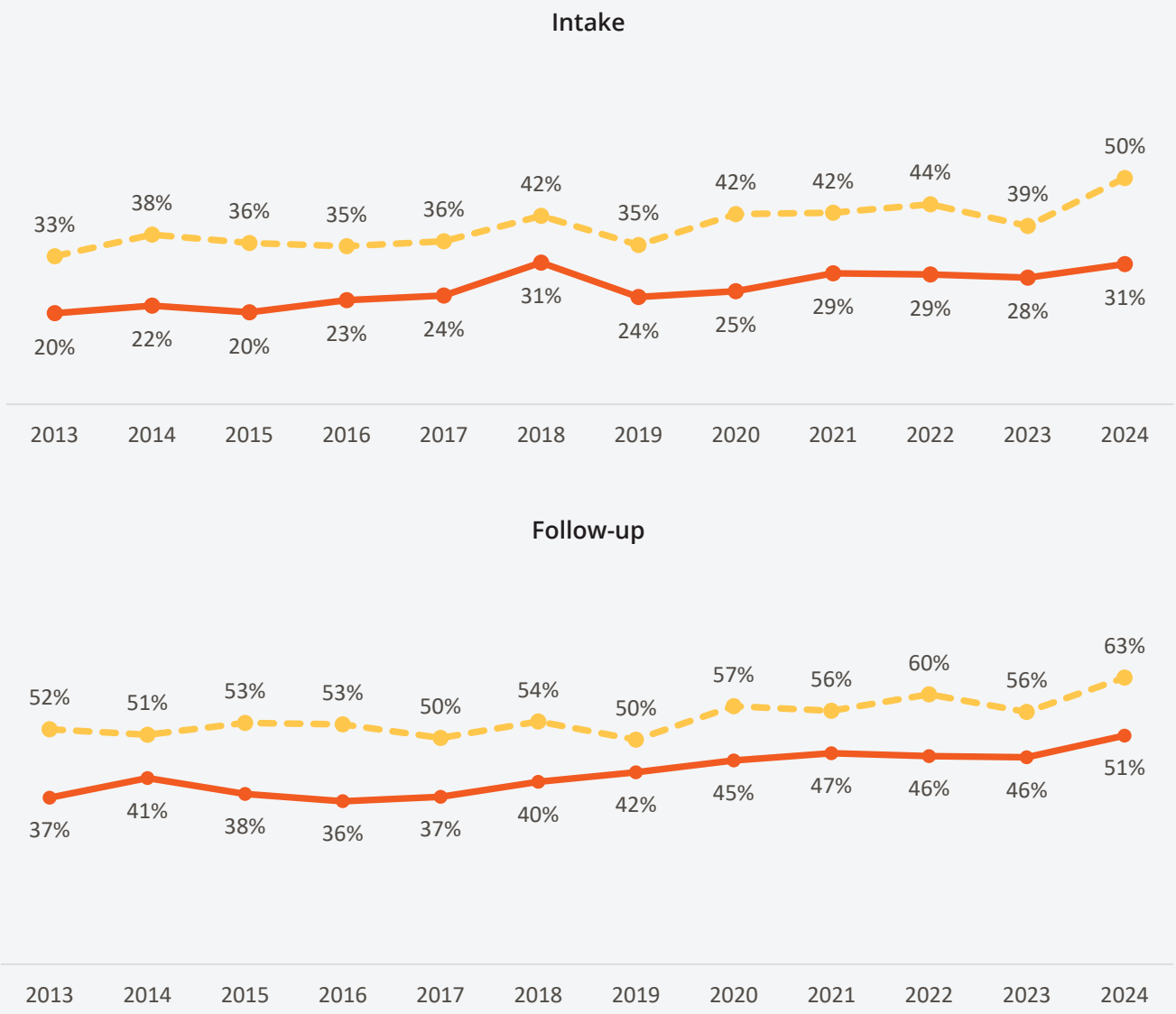


a – Significant difference by gender at intake ($p < .001$) and follow-up ($p < .01$).
***$p < .001$

Trends in Employment

Over the 12 years from the 2013 report to this year's report, one-fifth to less than one-third of women reported being employed (part- or full-time) compared to as much as 50% of men in the 2024 report. At follow-up, about half or over half of men reported being employed across the 12 years compared to less than half of women until this year's report, when half of women reported being employed at follow-up.

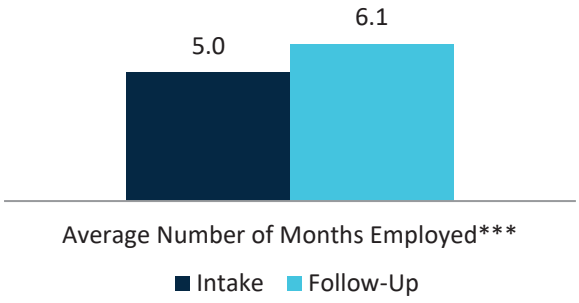
FIGURE 5.7. TRENDS IN GENDER DIFFERENCES IN CLIENTS EMPLOYED AT INTAKE AND FOLLOW-UP, REPORTS 2013 - 2024



Average Number of Months Employed

Clients were asked in the intake survey and follow-up survey to report the number of months they were employed full-time or part-time in the 12 months before they entered treatment (past 12 months at follow-up). As seen in Figure 5.8, clients reported working significantly more months at follow-up (6.1) than at intake (5.0).

FIGURE 5.8. AVERAGE NUMBER OF MONTHS EMPLOYED AT INTAKE AND FOLLOW-UP (N = 409)[93]

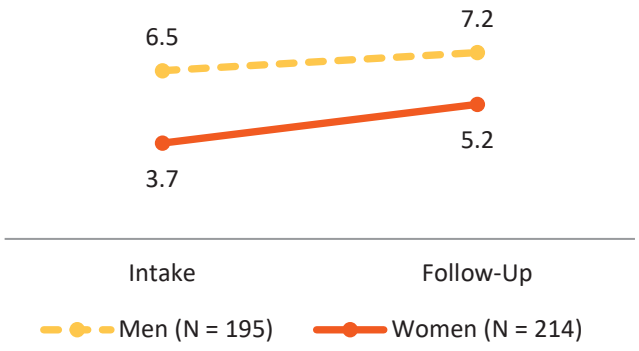


***p < .001.

Gender Differences in the Number of Months Employed

Men reported working significantly more months at both periods compared to women (intake, 6.5 vs. 3.7 and follow-up, 7.2 vs. 5.2). The average number of months women worked increased significantly from intake to follow-up; however, the increase was not significant for men (see Figure 5.9).

FIGURE 5.9. GENDER DIFFERENCES IN NUMBER OF MONTHS EMPLOYED AT INTAKE AND FOLLOW-UP[a,b]

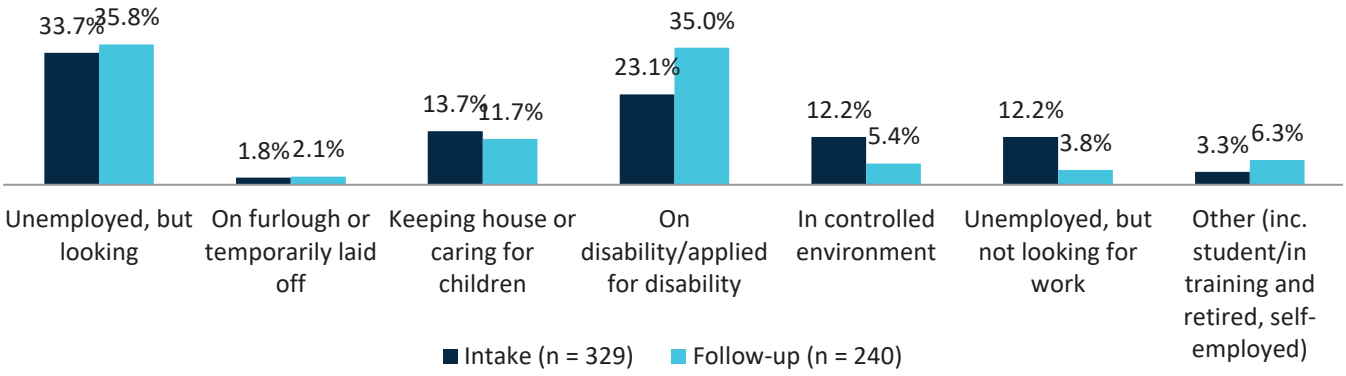


a—Significant difference by gender in number of months worked at intake and follow-up (p < .001).
b – Significant increase from intake to follow-up for women (p < .001).

[93] A total of 145 individuals had data with missing values for this analysis because they had inconsistent data with their usual employment status at intake (n = 97), inconsistent data with their usual employment status at follow-up (n = 46), and missing values for number of months employed at follow-up (n = 2).

Among individuals who were not employed at each point, clients were asked why they were not currently employed. At intake (n = 329),[94] 34.7% of clients reported they were unemployed, but looking for work, and 23.1% were on disability or had applied for disability, 13.7% were keeping house or caring for children/other relatives, 12.2% were in a controlled environment, prohibited from working, and 12.2% were not looking for work (see Figure 5.10). Among clients who were not employed at follow-up (n = 240),[95] 35.8% were unemployed, but looking for work, 35.0% reported they were on disability or had applied for disability, 11.7% were keeping house or caring for children/other relatives, 6.3% were in school/training or retired, and 3.8% were not looking for work.

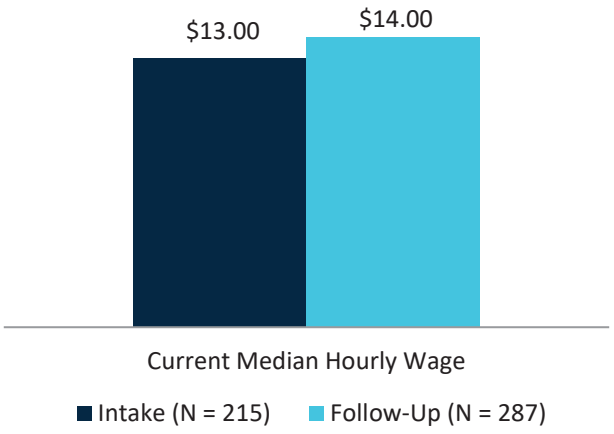
FIGURE 5.10. REASONS FOR UNEMPLOYMENT STATUS AT EACH POINT



Hourly Wage

Among clients who were currently employed at intake (n = 215),[96] the median hourly wage was $13.00. Among clients who were employed at follow-up (n = 312),[97] the median hourly wage was $14.00 (see Figure 5.11).

FIGURE 5.11. CURRENT MEDIAN HOURLY WAGE AT INTAKE AND FOLLOW-UP, AMONG THOSE WHO WORKED



[94] Of the 333 unemployed persons at intake, 4 clients had missing values for reasons for not being currently employed.

[95] Of the 242 unemployed persons at follow-up, two clients had missing values for reasons for not being currently employed.

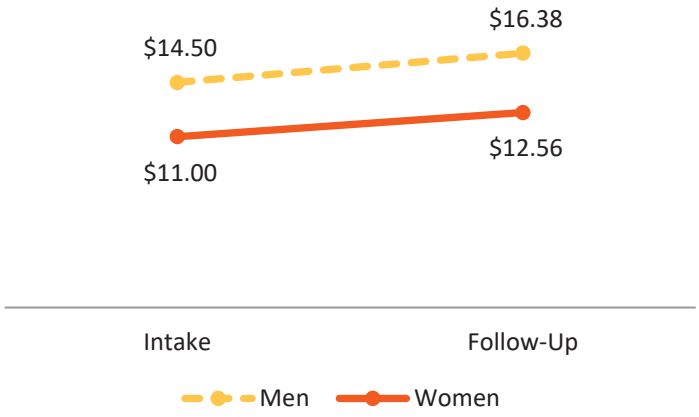
[96] Among the 220 individuals who reported any employment in the 30 days before intake, 5 clients had missing values for hourly wage.

[97] Of the 312 individuals who reported being currently employed full-time, part-time, or seasonally at follow-up, 25 individuals had missing data on hourly wage because they did not know the answer, or they declined to answer.

Gender Differences in Hourly Wage

Among clients who were employed at each period, men had significantly higher median hourly wages than women (see Figure 5.12). At intake, employed women made $0.76 for every dollar employed men made in this sample. At follow-up, employed women made $0.77 for every dollar employed men made.

FIGURE 5.12. GENDER DIFFERENCES IN CURRENT MEDIAN HOURLY WAGE AT INTAKE AND FOLLOW-UP



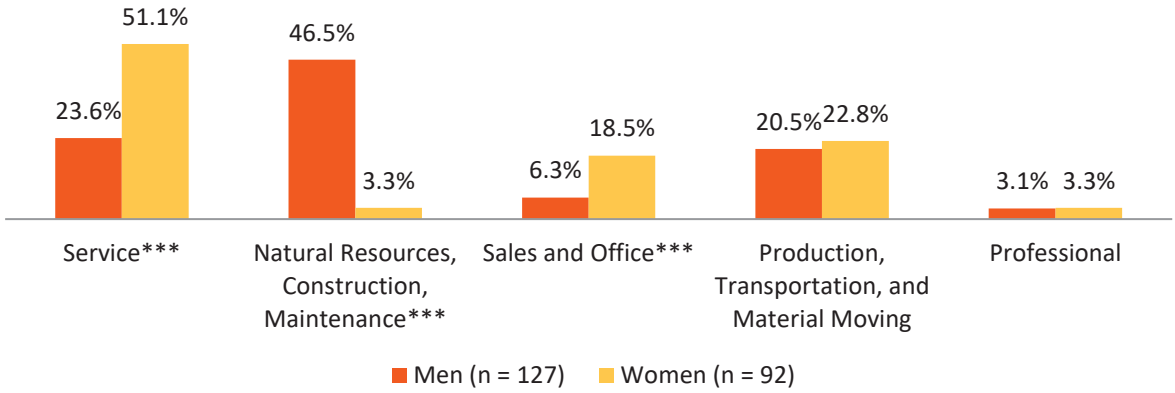
a—Significant difference in median hourly wage at intake and follow-up by gender, tested with Mann-Whitney U test ($p < .001$).

Gender Differences in Occupation Type

There were significant differences in occupation type for employed individuals by gender at intake and follow-up. At intake, the occupation type the highest percentage of women had was the service sector (51.1%), whereas only 23.6% of employed men had a service sector job (see Figure 5.13a). In addition, compared to women (3.3%), 46.5% of employed men reported having a job in the natural resources, construction, and maintenance sector, which typically has higher average wages than service sector jobs. Significantly more women had sales/office jobs compared to men (18.5% vs. 6.3%). These patterns were also found at follow-up; 53.0% of women had a service sector job, whereas only 16.1% of employed men had a service sector job, while 48.4% of men and only 8.7% of women had natural resources, construction, and maintenance jobs (see Figure 5.13b). However, at follow-up, there was no longer a significant difference in the percent of women and men with sales and office jobs.

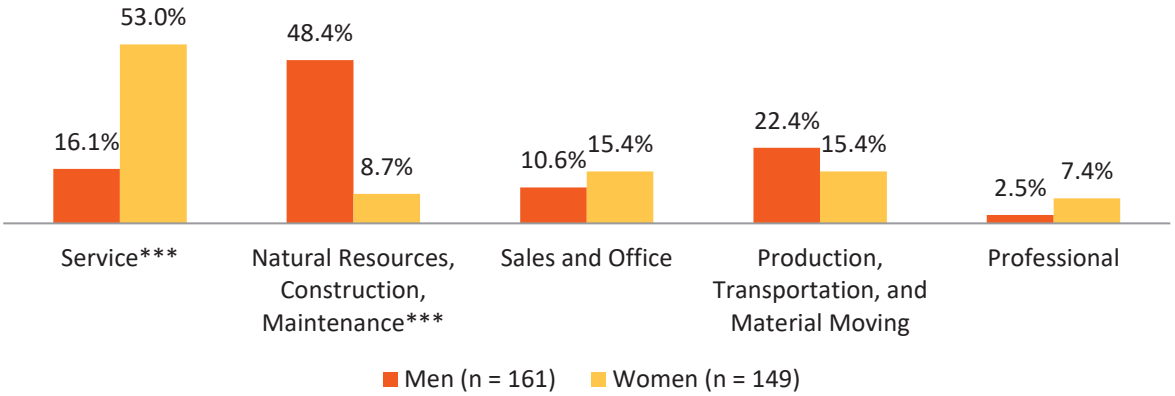
> *Whenever I felt like I achieved all I needed, they let me go. I was able to move on with my life, and they didn't hold me back. They went along with clients wishes. Staff was very happy.*
>
> - KTOS FOLLOW-UP CLIENT

FIGURE 5.13a. AMONG EMPLOYED INDIVIDUALS, TYPE OF OCCUPATION BY GENDER AT INTAKE (N = 219)***



***p < .001

FIGURE 5.13b. AMONG EMPLOYED INDIVIDUALS, TYPE OF OCCUPATION BY GENDER AT FOLLOW-UP (N = 310)***

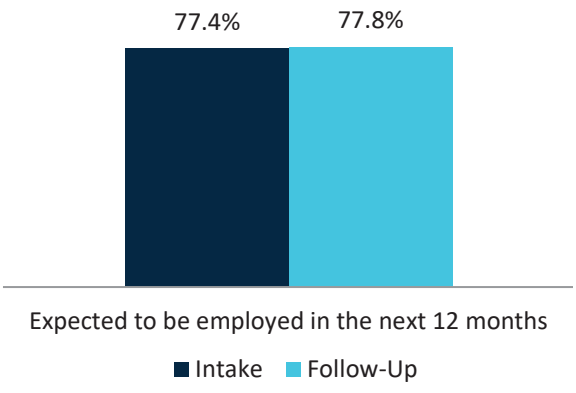


***p < .001

Expect to Be Employed

The majority of individuals said they expected to be employed in the next 12 months at intake and follow-up, with no change over time (see Figure 5.14).

FIGURE 5.14. EXPECTED TO BE EMPLOYED IN THE NEXT 12 MONTHS AT INTAKE AND FOLLOW-UP (N = 554)

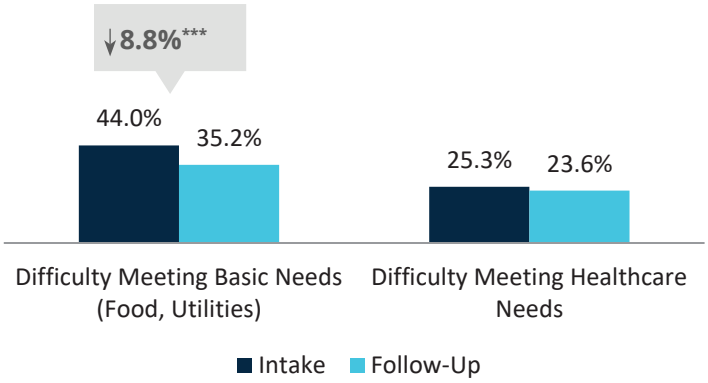


Economic Hardship

Economic hardship, rather than a measure of income, may be a better indicator of the actual day-to-day stressors clients face. Therefore, the intake and follow-up surveys included several questions about clients' ability to meet expenses for basic needs and food insecurity.[98] Clients were asked eight items, five of which asked about difficulty meeting basic living needs such as food, shelter, utilities, and telephone, and three items asked about difficulty obtaining healthcare for financial reasons. The total number of basic needs individuals reported they had difficulty meeting were summed at intake and follow-up. Individuals reported significantly fewer needs they had difficulty meeting at follow-up (1.1) compared to intake (1.6; not depicted in figure).

A sizeable minority of clients (44.0%) reported at intake that they had difficulty meeting basic living needs such as food, shelter, or utilities (see Figure 5.15). The percent of individuals who reported having difficulty meeting basic living needs decreased significantly from intake to follow-up. About one-fourth of clients (25.3%) reported their household had difficulty meeting healthcare needs in the 12 months before clients entered treatment. The percent of individuals reporting they had difficulty with healthcare did not change significantly from intake to follow-up.

FIGURE 5.15. DIFFICULTY IN MEETING BASIC AND HEALTHCARE NEEDS FOR FINANCIAL REASONS (N = 554)



***p < .001

Gender Differences in Economic Hardship

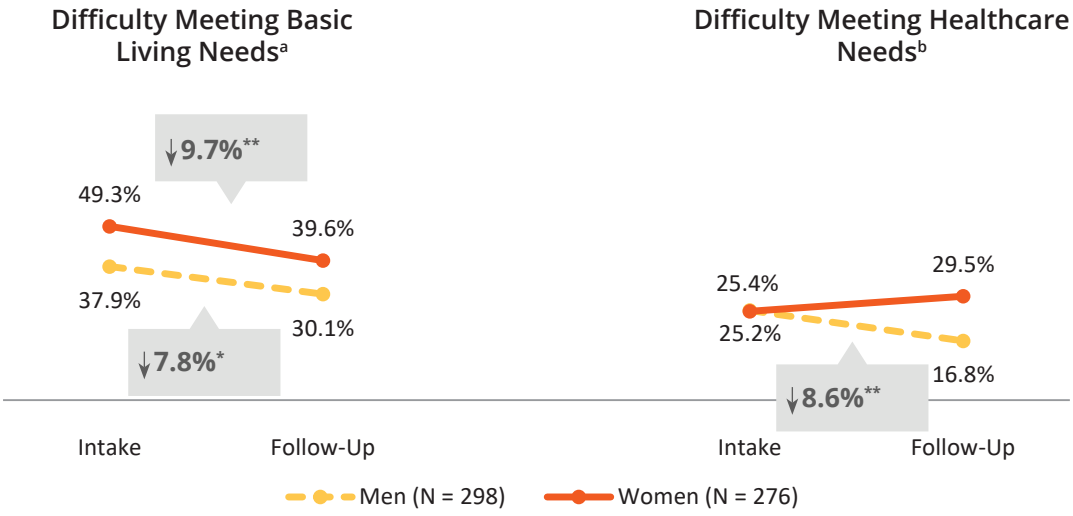
At intake, women reported significantly more basic needs they had difficulty meeting (1.8) compared to men (1.3; not depicted in figure). At follow-up, women reported significantly more basic needs they had difficulty meeting (1.3) compared to men (0.9; not depicted in a figure).

There was a significant gender difference in clients' difficulty meeting basic living needs at intake (see Figure 5.16). Compared to men, significantly more women reported having difficulty meeting their basic living needs (e.g., housing, utilities, telephone, and food) at

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

intake and at follow-up. Nearly half of women (49.3%) reported difficulty meeting basic living needs at intake compared to 37.9% of men. There was a significant decrease in the percent of women and men who reported having difficulty meeting basic living needs at follow-up. There was no significant difference by gender in the percent of men and women who had difficulty meeting healthcare needs for financial reasons at intake. However, at follow-up, significantly more women had difficulty meeting healthcare needs for financial reasons relative to men (29.5% vs. 16.8%). The percent of men who had difficulty meeting healthcare needs decreased significantly from intake to follow-up.

FIGURE 5.16. GENDER DIFFERENCES IN DIFFICULTY MEETING BASIC LIVING NEEDS FOR FINANCIAL REASONS

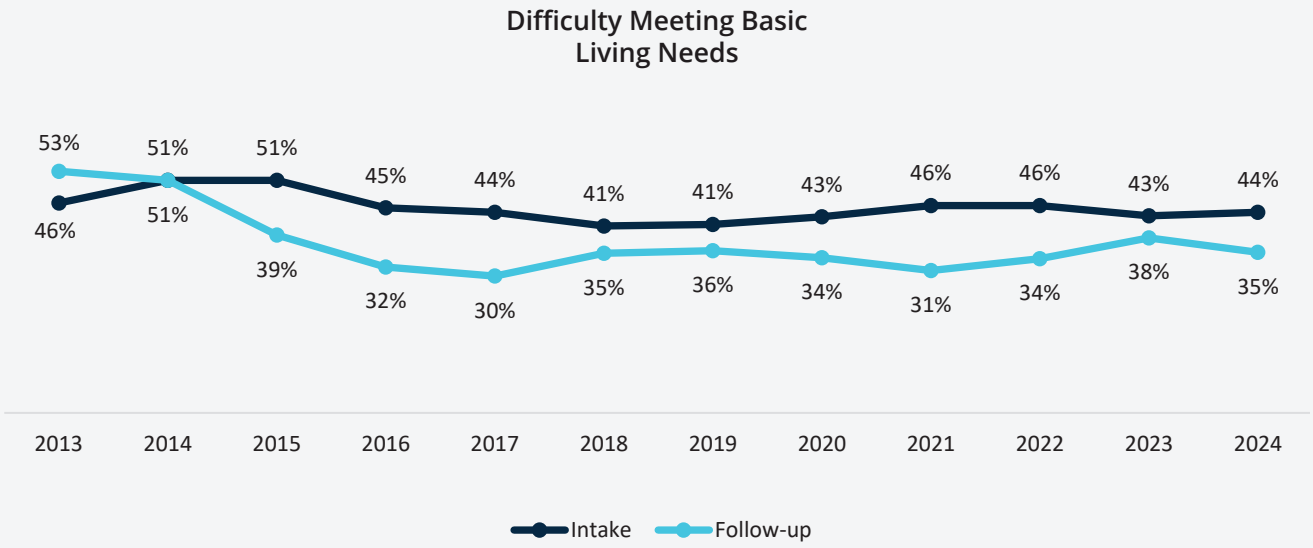


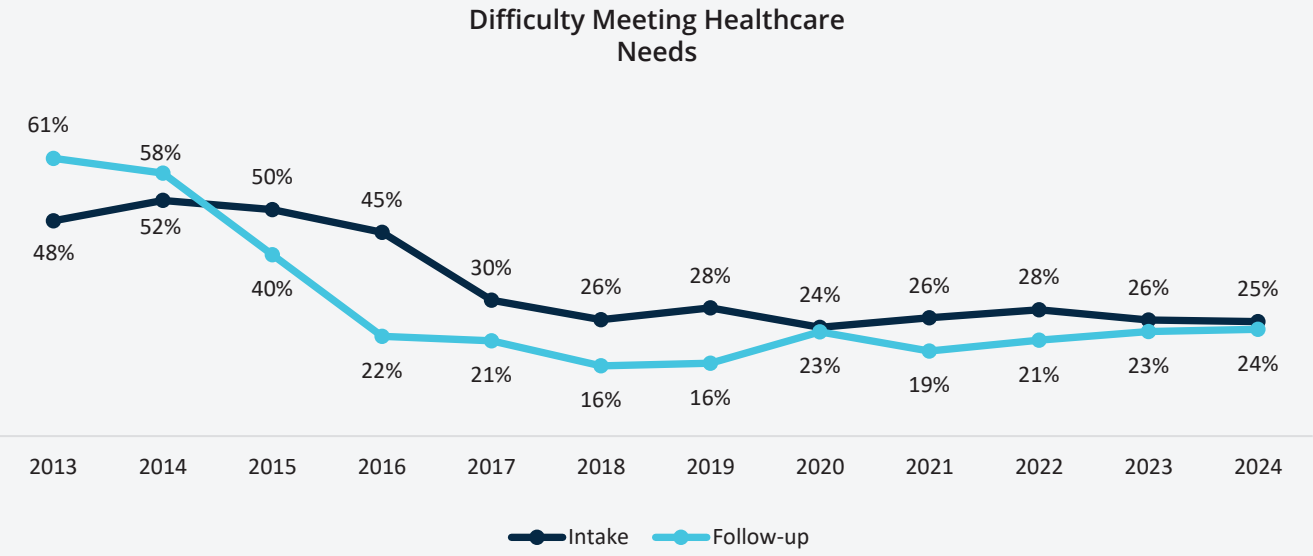
a—Significant difference by gender at intake ($p < .01$) and at follow-up ($p < .05$).
a—Significant difference by gender at follow-up ($p < .001$).
*$p < .05$, **$p < .01$.

Trends in Difficulty Meeting Basic Living and Healthcare Needs

The percent of KTOS clients who have reported difficulty meeting basic living needs at intake has fluctuated between 41% and 51%. The percent of KTOS clients who have reported difficulty meeting basic living needs at follow-up decreased from the 2013 report until the 2017 report, when it began increasing again. Nonetheless, the percent has not been to the level it was in the 2014 report (51%). The decrease in the percent of clients reporting difficulty meeting healthcare needs at follow-up was even more dramatic: 61% in the 2013 report to 16% in the 2018 and 2019 reports. In the 2020 report, this percent increased to 23%, and has fluctuated from 19% to 24% since.

FIGURE 5.17. TRENDS IN THE NUMBER OF CLIENTS REPORTING ECONOMIC DIFFICULTY IN THE PAST-12-MONTHS AT INTAKE AND FOLLOW-UP, REPORTS 2013 - 2024





|Section 6. Criminal Justice System Involvement

This section 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) convictions for misdemeanours and felonies, (3) any incarceration, and (4) criminal justice supervision status. Results for each targeted factor are presented for the overall sample and by gender when there were significant gender differences.

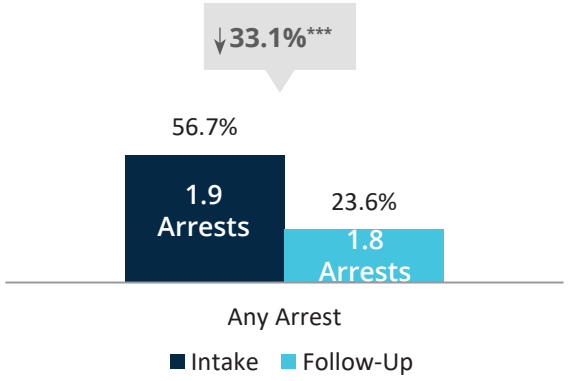
Arrests

Arrested in the Past 12 Months

Clients were asked about their arrests in the 12 months before they entered treatment (at intake) and the past 12 months (at follow-up). About half of clients (56.7%) reported at least one arrest in the 12 months before entering treatment (see Figure 6.1). At follow-up, nearly one-fourth (23.6%) reported at least one arrest in the past 12 months, which was a significant 33.1% decrease from intake.

Among those clients who reported at least one arrest in the 12 months before intake (n = 312), clients were arrested an average of 1.9 times. Among those clients who reported at least one arrest in the 12 months before follow-up (n = 130)[99], the average number of arrests was 1.8.

FIGURE 6.1. CLIENTS REPORTING ARRESTS AT INTAKE AND FOLLOW-UP (N = 552)[100]



***p < .001.

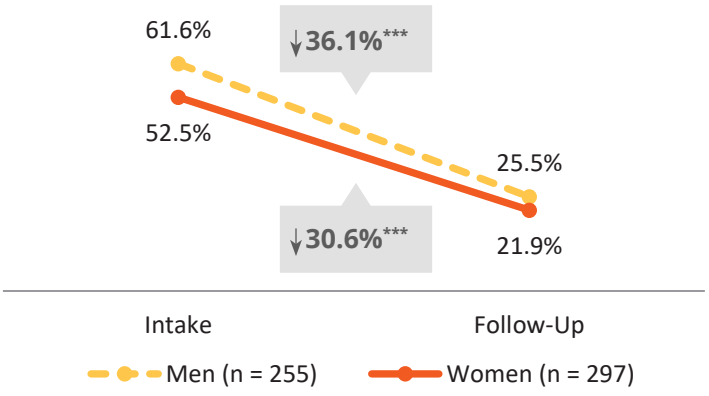
Gender Differences in Arrests

There were significant decreases from intake to follow-up in the percent of men and women who reported being arrested in the previous 12 months. At intake, significantly more men reported they had been arrested when compared to women (see Figure 6.2). At follow-up, there was no difference by gender.

[99] Two clients had missing data for number of arrests at follow-up.

[100] Two clients had missing data for number of arrests at follow-up.

FIGURE 6.2. GENDER DIFFERENCES IN ARRESTS IN THE PAST 12 MONTHS

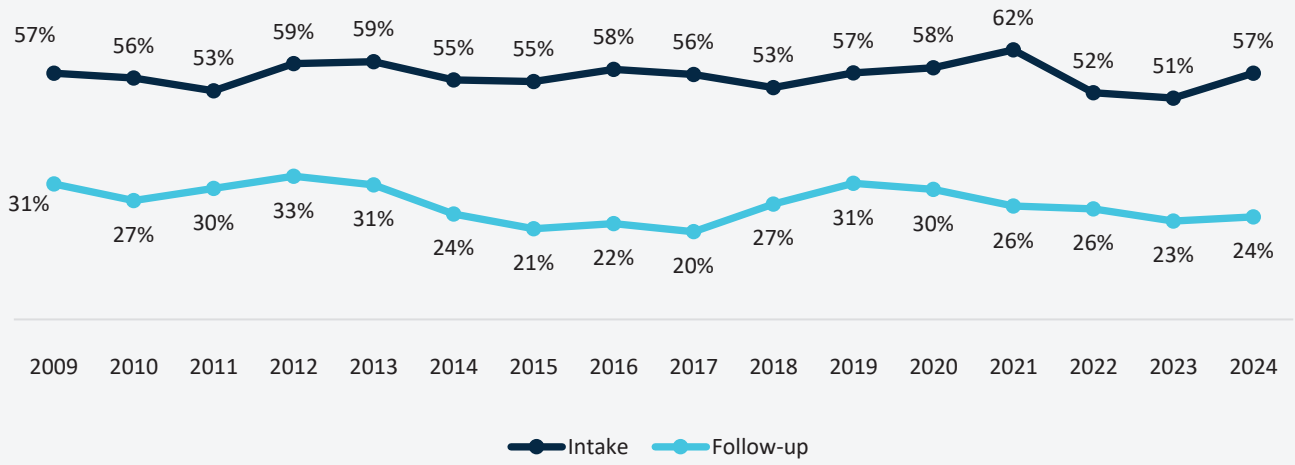


a—Statistical difference by gender at intake ($p < .05$)
***$p < .001$.

Trends in Past-12-month Arrests

Over the past 16 years the percent of clients reporting an arrest in the past 12 months at intake has ranged from a low of 51% in the 2023 report to a high of 62% in the 2021 report. At follow-up, since the 2009 report, between one-fifth to nearly one-third of clients reported an arrest, which were significant decreases from intake each year.

FIGURE 6.3. TRENDS IN THE PERCENT OF CLIENTS REPORTING AN ARREST IN THE PAST-12-MONTHS AT INTAKE AND FOLLOW-UP, REPORTS 2009 - 2024

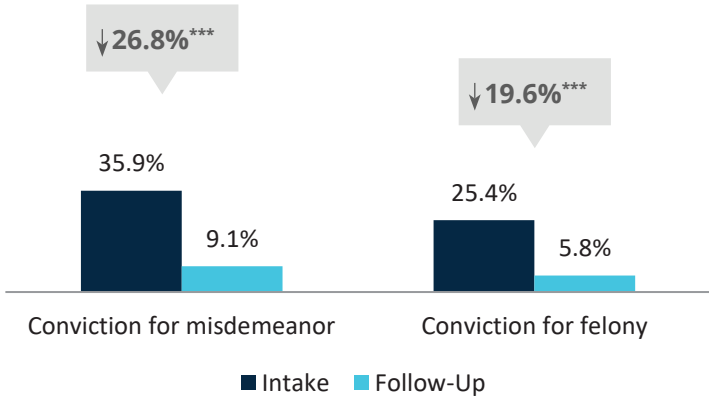


Convictions

More than one-third of individuals (35.9%) reported they had at least one conviction for a misdemeanor in the 12 months before entering treatment (see Figure 6.4). The percent of individuals with a conviction for a misdemeanor in the 12 months before follow-up

was significantly lower at 9.1%. One-quarter of clients (25.4%) reported at least one felony conviction in the 12 months before intake. That percent decreased significantly to 5.8% in the 12 months before follow-up.

FIGURE 6.4. CONVICTIONS FOR MISDEMEANOR AND FELONY OFFENSES (N = 554)[101]



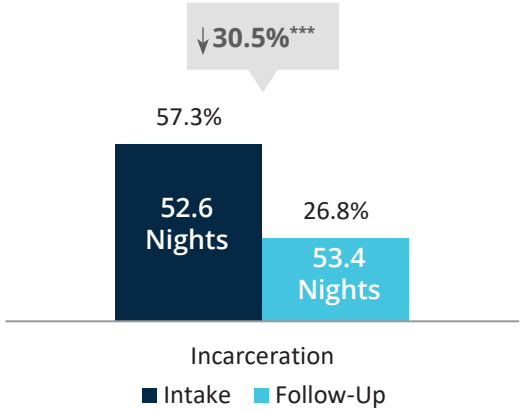
***p < .001.

Incarceration

Incarcerated in the Past 12 Months

The majority of clients (57.3%) reported spending at least one night in jail or prison in the 12 months prior to entering treatment (see Figure 6.5). At follow-up, 26.8% of clients reported spending at least one day incarcerated in the past 12 months--a significant decrease of 30.5%. Among those who were incarcerated at least one night, they reported spending, on average, similar time in jail or prison in the 12 months before entering treatment (n = 317, 52.6 nights) and follow-up (n = 148, 53.4 nights).

FIGURE 6.5. CLIENTS REPORTING BEING INCARCERATED AT INTAKE AND FOLLOW-UP (N = 553)[102]



***p < .001.

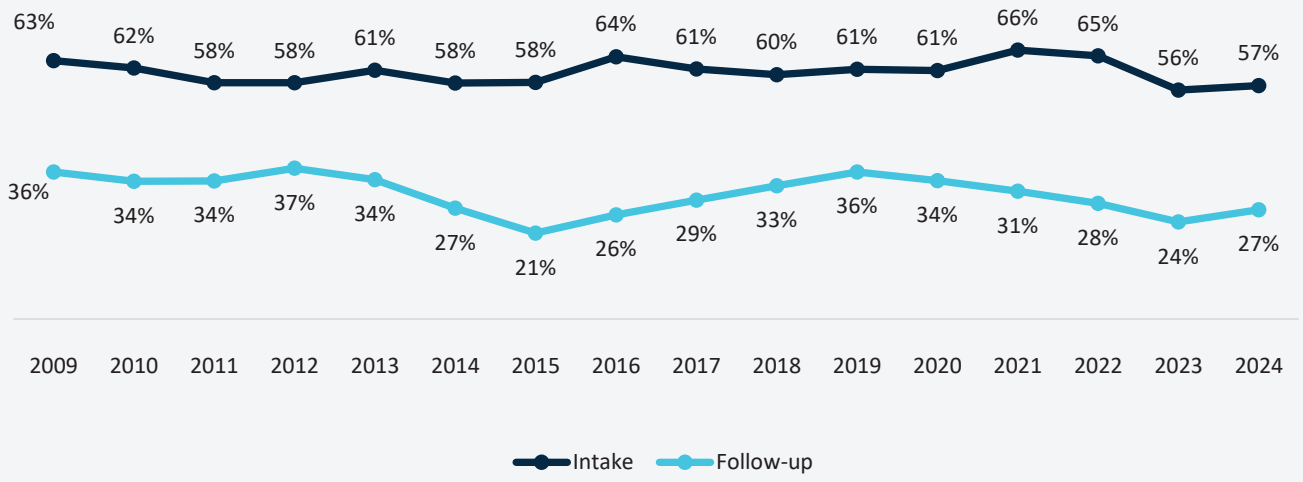
[101] Two cases had missing data on convictions for misdemeanor and felony offenses at follow-up.

[102] One individual had missing data for incarceration at follow-up.

Trends in Past-12-month Incarceration

The percent of clients reporting spending at least one night in jail or prison has been relatively steady over the past 16 years with between 56% and 66% of clients reporting incarceration at intake. At follow-up, the percent of clients reporting spending at least one night in jail or prison in the past 12 months has fluctuated more than at intake: from a low of 21% in the 2015 report to a high of 37% in the 2012 reports. The decreases from intake to follow-up were significant each year.

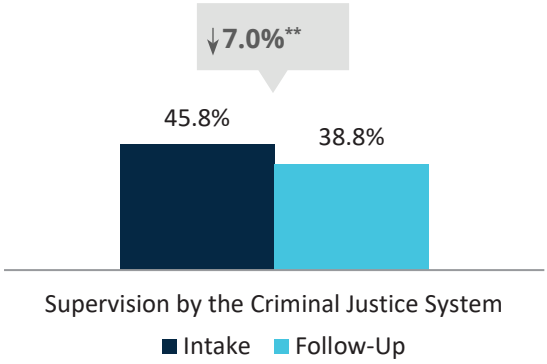
FIGURE 6.6. TRENDS IN THE PERCENT OF CLIENTS REPORTING BEING INCARCERATED IN THE PAST-12-MONTHS AT INTAKE AND FOLLOW-UP, REPORTS 2009 - 2024



Criminal Justice System Supervision

The percent of clients that self-reported they were under criminal justice system supervision (e.g., probation or parole) decreased significantly from intake (45.8%) to follow-up (38.8%; see Figure 6.7).

FIGURE 6.7. CLIENTS REPORTING SUPERVISION BY THE CRIMINAL JUSTICE SYSTEM AT INTAKE AND FOLLOW-UP (N = 552)[103]



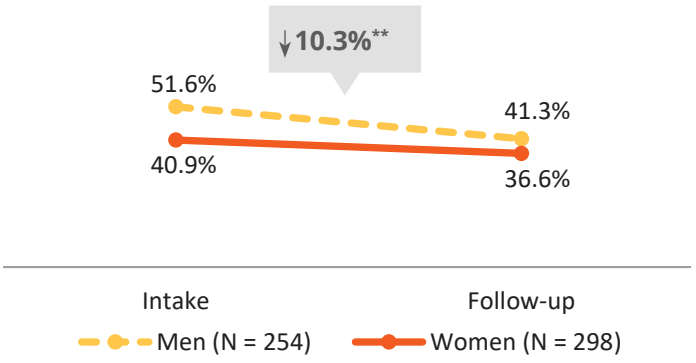
**p < .01.

[103] Two individuals had missing data for criminal justice supervision at follow-up.

Gender Differences in Criminal Justice Supervision

Significantly more men (51.6%) than women (40.9%) reported being under supervision by the criminal justice system in the 12 months before entering treatment (see Figure 6.8). The percent of men who reported being under supervision by the criminal justice system decreased significantly from intake to follow-up. There was no significant change for women. At follow-up, there was no significant difference by gender in the percent of individuals under supervision.

FIGURE 6.8. GENDER DIFFERENCES IN CLIENTS REPORTING CRIMINAL JUSTICE SUPERVISION[a]



a— Significant difference by gender at intake ($p < .05$).
**$p < .01$.

> *It woke me up and made me look at myself. The people working with me had some real life experiences that opened my eyes. Life is too short to do this kind of stuff. It made a difference in my life.*
>
> - KTOS FOLLOW-UP CLIENT

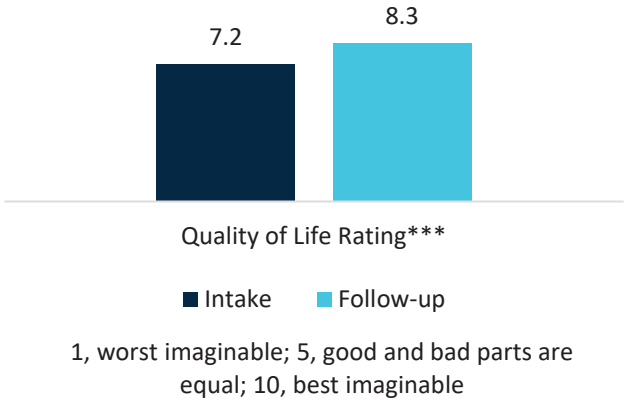
|Section 7. Subjective Quality of Life

This section describes change in subjective quality of life during the 12-month period before entering treatment and the 12-month period before the follow-up interview. Results for each targeted factor are presented for the overall sample and by gender when there were significant gender differences.

Subjective Quality of Life

At intake and follow-up, clients were asked to rate their quality of life at the time of the interview. Ratings were from 1 = 'Worst imaginable' to 5 = 'Good and bad parts were about equal' to 10 = 'Best imaginable'. KTOS clients rated their quality of life as a 7.2, on average, at intake (see Figure 7.1). The average quality of life rating significantly increased to 8.3 at follow-up.

FIGURE 7.1. RATING OF SUBJECTIVE QUALITY OF LIFE AT INTAKE AND FOLLOW-UP (N = 553)[104]



***p < .001.

[104] One client had missing data for the rating of quality of life at follow-up.

|Section 8. Recovery Support

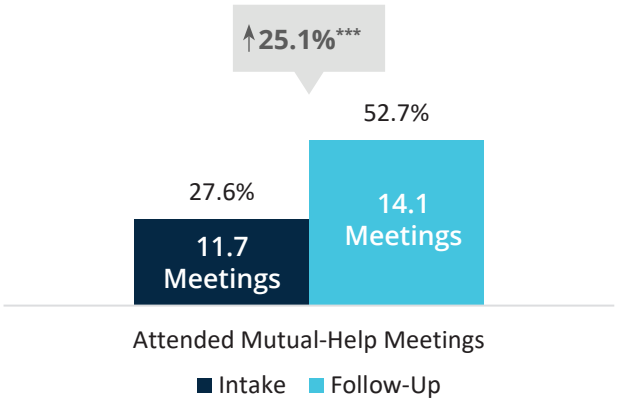
This section focuses on five main areas of recovery support: (1) clients attending mutual help recovery group meetings, (2) recovery supportive interactions with family/friends and a sponsor in the past 30 days, (3) the number of people the participant said they could count on for recovery support, (4) what will be most useful to the client in staying off drugs/alcohol, and (5) clients' perceptions of their chances of staying off drugs/alcohol. Results for each targeted factor are presented for the overall sample and by gender when there were significant gender differences.

Attendance of Mutual Help Recovery Group Meetings

At intake, more than one-fourth of clients (27.6%) reported going to mutual help recovery group meetings (e.g., AA, NA, or faith-based) in the past 30 days (see Figure 8.1). At follow-up, there was a significant increase of 25.1%, with more than half of clients (52.7%) reporting they had gone to mutual help recovery group meetings in the past 30 days.

Among individuals who attended recovery group meetings at intake (n = 153), they reported attending an average of 11.7 meetings in the past 30 days. Those who attended self-help meetings at follow-up (n = 292) reported an average of 14.1 meetings attended in the past 30 days.

FIGURE 8.1. ATTENDANCE OF MUTUAL HELP RECOVERY GROUPS AT INTAKE AND FOLLOW-UP (N = 554)

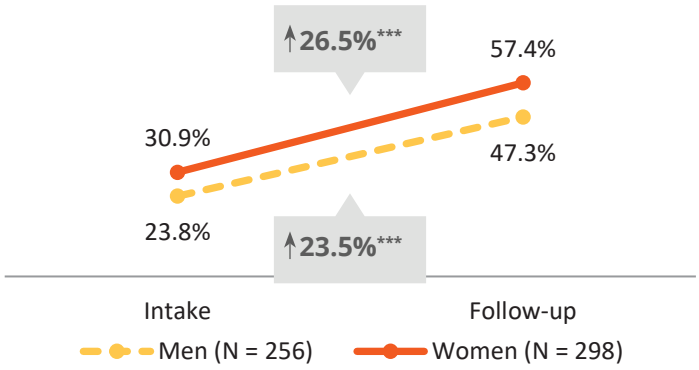


***p < .001.

Gender Differences in Attendance of Mutual Help Recovery Group Meetings

At intake, there was no significant difference in the percent of men and women who reported they had attended recovery group meetings in the 30 days before entering treatment (see Figure 8.2). The percent of women and men who reported attending mutual help recovery meetings increased significantly from intake to follow-up. At follow-up, a significantly higher percent of women reported attending mutual help recovery meetings compared to men.

FIGURE 8.2. GENDER DIFFERENCES IN ATTENDANCE OF MUTUAL HELP RECOVERY MEETINGS[a]



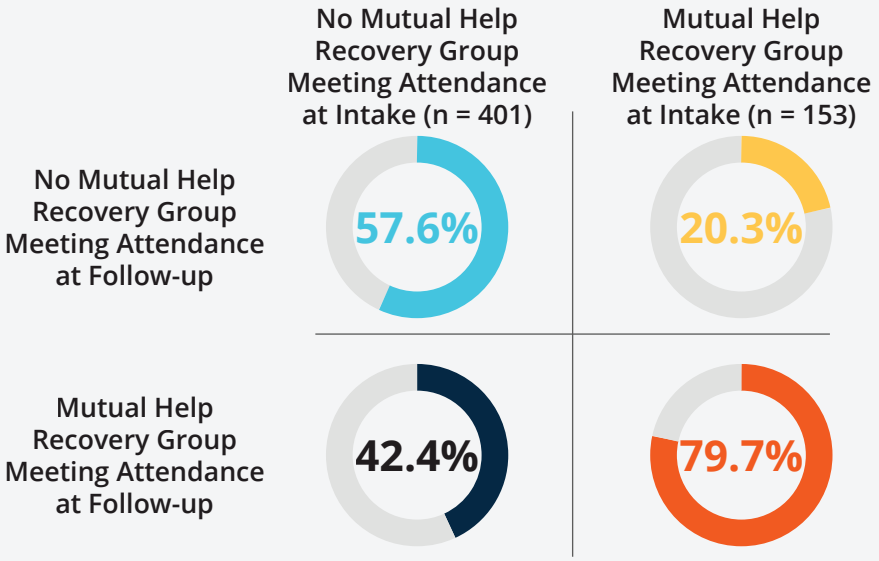
a— Significant difference by gender at follow-up ($p < .05$).
***$p < .001$.

Taking a Closer Look at Recovery Support

More than one-fourth of clients (27.6%, n = 153) reported going to mutual help recovery group meetings in the 30 days before entering treatment. Among clients who reported attending mutual help recovery group meetings at intake, the majority (79.7%) also attended mutual help recovery group meetings at follow-up (see Figure 8.3).

Alternatively, 42.4% of those who did not report attending mutual help recovery group meetings in the 30 days before entering treatment attended meetings at follow-up.

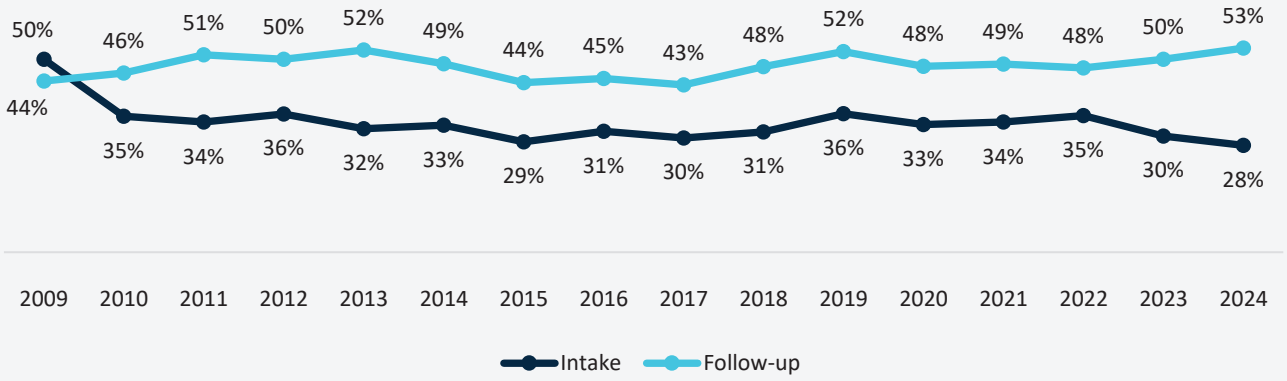
FIGURE 8.3. ATTENDANCE OF MUTUAL HELP RECOVERY GROUP MEETINGS AT INTAKE AND FOLLOW-UP BASED ON MEETING ATTENDANCE AT INTAKE



Trends in Clients Attending Mutual Help Recovery Meetings

More clients reported attending meetings like AA/NA at follow-up compared to intake every year, except in in the 2009 report when the number of clients reporting attending mutual help recovery group meetings was higher at intake than follow-up. Overall, around one-third of clients reported attending meetings at intake and less than one half to about one half reported attending meetings at follow-up from the 2010 report to this year's report.

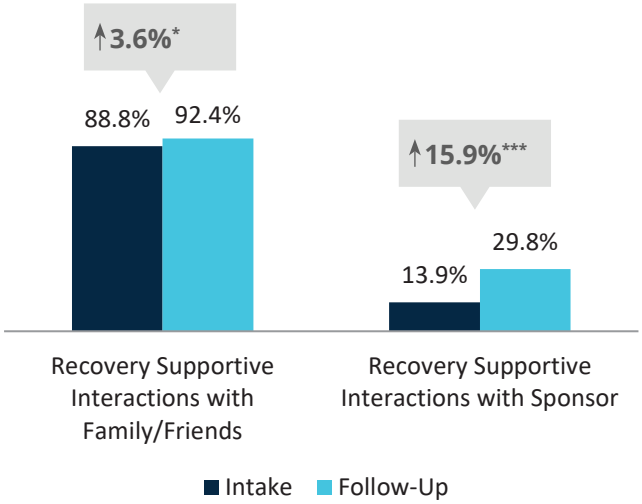
FIGURE 8.4. TRENDS IN THE PERCENT OF CLIENTS REPORTING PAST-30-DAY ATTENDANCE OF MUTUAL HELP RECOVERY GROUP MEETINGS AT INTAKE AND FOLLOW-UP, REPORTS 2009 - 2024



Recovery Supportive Interactions

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, with a small but significant increase over time (see Figure 8.5). The percent of individuals who reported having contact with an AA/NA sponsor in the past 30 days was significantly higher at follow-up (29.8%) compared to intake (13.9%).

FIGURE 8.5. RECOVERY SUPPORTIVE INTERACTIONS IN THE PAST 30 DAYS (n = 554)

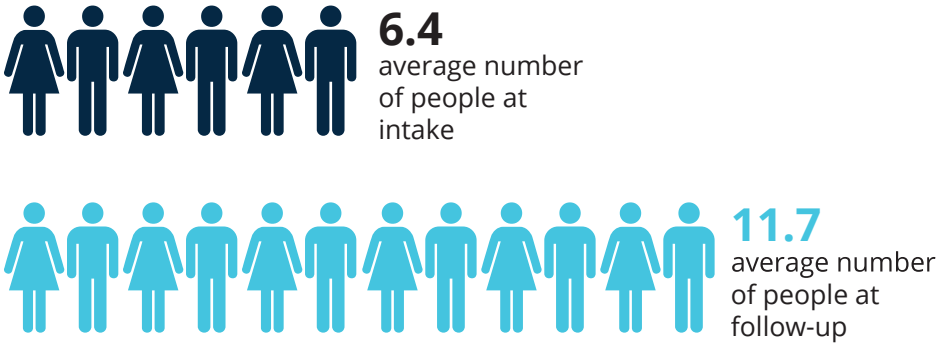


*p < .05, ***p < .001.

Average Number of People Client Could Count on for Recovery Support

The average number of people clients reported that they could count on for recovery support increased significantly, from 6.4 people at intake to 11.7 people at follow-up (see Figure 8.6).

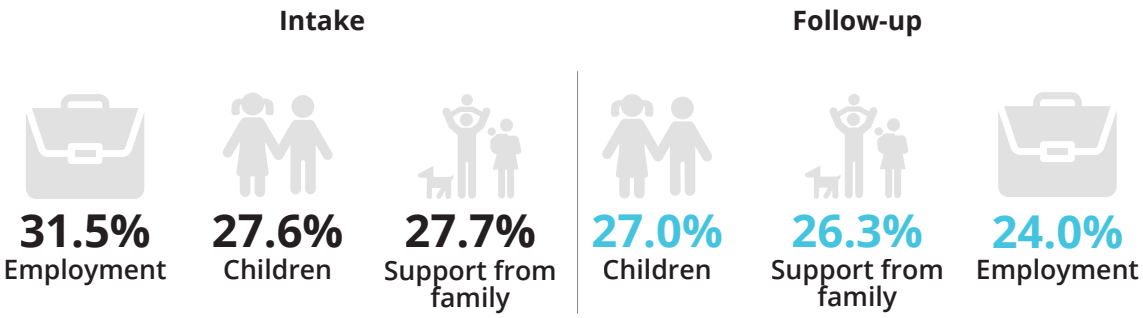
FIGURE 8.6. AVERAGE NUMBER OF PEOPLE CLIENTS COULD COUNT ON FOR RECOVERY SUPPORT AT INTAKE AND FOLLOW-UP (N = 552)[105]



What Will Be Most Useful in Staying Off Drugs/Alcohol

At intake and follow-up, clients were asked what they believed would be most useful in helping them quit or stay off drugs/alcohol. Rather than conduct analysis on change in responses from intake to follow-up, the top responses that were reported by clients are presented for descriptive purposes in Figure 8.7. The most common responses at intake were employment, taking care of their children or dependents, and support from family. At follow-up, the most common responses were caring for children or dependents, support from family, employment, and self-talk/motivation.

FIGURE 8.7. TOP CATEGORIES CLIENTS REPORTED THAT WILL BE MOST USEFUL IN STAYING OFF DRUGS AND/OR ALCOHOL AT INTAKE AND FOLLOW-UP (N = 537)[106]



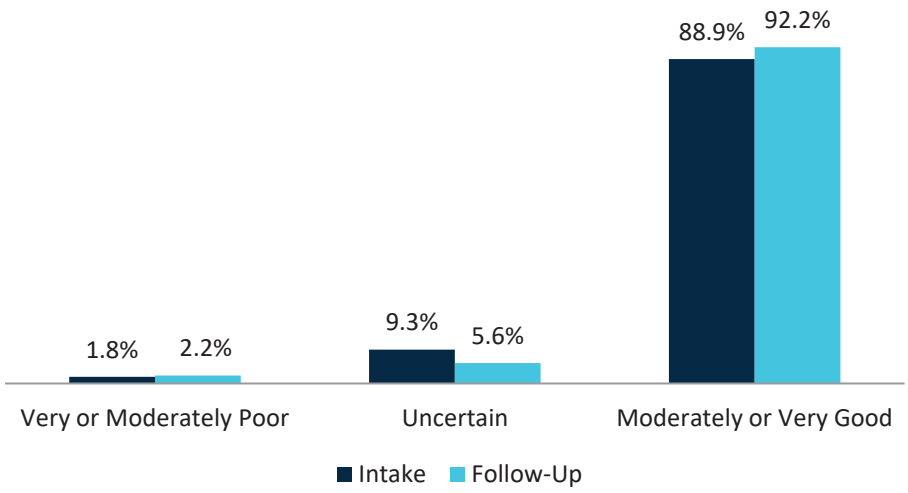
[105] Two individuals had missing values for the number of people they could count on for recovery support at follow-up.

[106] Seventeen individuals had missing data on what will be most useful in staying off drugs and/or alcohol at follow-up.

Chances of Staying Off Drugs/Alcohol

Clients were asked, based upon their situation, how good they believed their chances were of getting off and staying off drugs/alcohol using a scale from 1 (very poor) to 5 (very good). Overall, 88.9% of clients believed they had a moderately or very good chance of staying off drugs/alcohol at intake with no significant change at follow-up (92.2%; see Figure 8.8).[107]

FIGURE 8.8. CLIENTS REPORTING THEIR CHANCES OF GETTING OFF AND STAYING OFF DRUGS/ALCOHOL AT INTAKE AND FOLLOW-UP (N = 551)[a]



> *The place was amazing, helped me out a lot. Helped with getting sober and mental health counseling. I've been clean for a year and 6 months.*
>
> - KTOS FOLLOW-UP CLIENT

[107] Three individuals had missing data for chances of staying off drugs/alcohol at follow-up.

|Section 9. Multidimensional Recovery Status

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

Recovery goes beyond return to use or return to occasional drug or alcohol use. Recovery from substance use disorders can be defined as "a process of change through which an individual achieves abstinence and improved health, wellness and quality of life" (p. 5).[108] The SAMHSA definition of recovery is similarly worded and encompasses health (including but not limited to abstinence from alcohol and drugs), having a stable and safe home, a sense of purpose through meaningful daily activities, and a sense of community.[109] In other words, recovery encompasses multiple dimensions of individuals' lives and functioning. The multidimensional recovery measure uses items from the intake and follow-up surveys to classify individuals who have all positive dimensions of recovery.

TABLE 9.1. COMPONENTS OF MULTIDIMENSIONAL RECOVERY STATUS

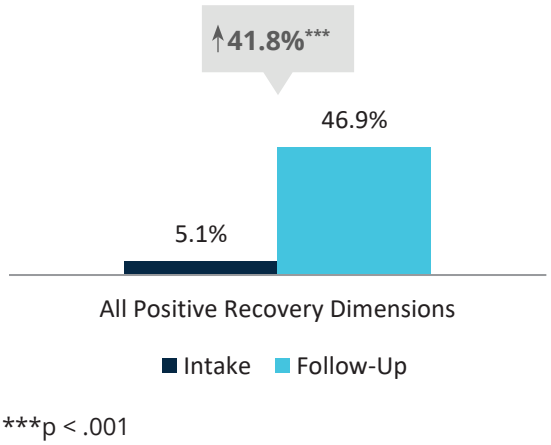
INDICATOR	POSITIVE RECOVERY DIMENSIONS	NEGATIVE RECOVERY DIMENSIONS
Substance use disorder (SUD) symptoms	No substance use disorder (SUD)	Mild, moderate or severe substance use disorder (SUD)
Employment	Employed at least part-time or in school	Unemployed (not on disability, not going to school, not a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

At intake, as expected, a small percent of the followed-up sample (5.1%) was classified as having all eight dimensions of recovery (see Figure 9.1). At follow-up, there was a significant increase of 41.8% so that 46.7% of clients had all positive dimensions of recovery.

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

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

FIGURE 9.1. MULTIDIMENSIONAL RECOVERY AT INTAKE AND FOLLOW-UP (N = 550)[110]



***p < .001

Table 9.2 presents the frequency of clients who reported each of the specific components of the multidimensional recovery index at intake and follow-up. At intake, the positive dimensions of recovery with the lowest percent of individuals reporting them were meeting criteria for no substance use disorder and not being arrested or incarcerated. At follow-up, the positive dimensions of recovery with the lowest percent of individuals reporting them were not being arrested or incarcerated and meeting criteria for no substance use disorder.

TABLE 9.2. PERCENT OF CLIENTS WITH SPECIFIC POSITIVE DIMENSIONS OF RECOVERY AT INTAKE AND AT FOLLOW-UP (n = 550)

Factor	Intake Yes	Follow-Up Yes
Met DSM-5 criteria for no SUD in the past 12 months	23.5%	81.3%
Usual employment was employed full-time or part-time in the past 12 months *(or retired, on disability, a student, or caregiver)*	79.1%	81.8%
Reported no homelessness	72.5%	92.5%
Reported not being arrested and/or incarcerated in the past 12 months	34.9%	71.5%
Reported no thoughts of suicide or attempted suicide in the 12 months	81.1%	93.5%
Self-rating of overall health was fair, good, very good, or excellent	94.4%	94.5%
Reported having someone they could count on for recovery support	92.2%	99.5%
Reported a quality of life rating in the mid or higher range *(rating of 5 or higher)*	91.5%	97.8%

To better understand which factors at entry to the program were associated with having all positive dimensions of recovery at follow-up, each element that defined the multidimensional status at intake was entered as predictor variables in a logistic regression model (see Table 9.3). Having all positive dimensions of recovery at follow-up

[110] Four individuals had missing data for at least one of the variables that was used to compute the multidimensional recovery status at follow-up and could not be assigned to a group. Additional numbers of cases had missing values for some of the variables used to compute the multidimensional recovery at follow-up, but because they had at least one negative dimension, they could be classified as not having all eight positive dimensions of recovery at follow-up.

is the criterion (i.e., dependent) variable. Only one of the intake predictor variables was significantly associated with having all the positive dimensions of recovery at follow-up: not being homeless in the 12 months before entering the program.

TABLE 9.3. MULTIVARIATE ASSOCIATIONS HAVING ALL POSITIVE DIMENSIONS OF RECOVERY AT FOLLOW-UP

Factor	B	Wald	Odds Ratio	95% CI Lower	95% CI Upper
Met DSM-5 criteria for no SUD in the 12 months before entering the program	.342	2.555	1.407	.926	2.140
Usual employment was employed (or retired, on disability, a student, or caregiver) in the 12 months before entering the program	-.071	.104	.932	.605	1.435
No homelessness in the 12 months before entering the program	.956	18.177	2.601***	1.676	4.036
Not arrested or incarcerated in the 12 months before entering the program	.115	.374	1.122	.776	1.624
Reported no thoughts of suicide or attempted suicide in the 12 months before entering the program	-.097	.164	.907	.567	1.452
Self-rating of overall health at intake was fair, good, very good, or excellent	.829	3.593	2.291	.972	5.399
Reported have at least one person he/she could count on for recovery support before entering the program	-.013	.001	.987	.497	1.962
Reported a mid to higher quality of life before entering the program	.562	2.422	1.753	.864	3.557

Note: Categorical variables were coded in the following ways: Met DSM-5 criteria for SUD (0= mild, moderate, or severe SUD, 1 = no SUD), Usual employment was employed (0=not employed or in a controlled environment, 1= employed full-time, part-time, or retired, on disability, a student, or caregiver), homeless (0 = yes, 1 = no), arrested or incarcerated (0 = yes, 1 = no), had thoughts of suicide or attempts (0 = yes, 1 = no), self-rating of overall health was fair, good, very good, or excellent (0 = no, 1 = yes), had at least one person the client could count on for recovery support (0=no, 1=yes), mid to high quality of life (0 = no, 1 = yes).

***p < .001

|Section 10. Clients' Perceptions of the Substance Use Disorder Treatment Programs

One of the important outcomes assessed during the follow-up interview is the client perception of the treatment program experience. This section describes three aspects of client satisfaction: (1) client involvement in the program and how they left, (2) recommendation to the program, and (3) overall client satisfaction and client ratings of program experiences.

Client Involvement in the Program

The majority of clients (59.3%) reported at follow-up that they had completed the program they attended or that the program agreed they were ready to leave, 19.9% self-reported they did not complete the program, and 20.8% self-reported they were currently in the program at follow-up (see Figure 10.1). The average number of months individuals reported at follow-up they were involved in the program was 5.9.[111] Individuals who reported they were currently in the treatment program reported they had been involved in the program an average of 11.5 months. In contrast, individuals who had completed the program reported being in the program an average of 4.6 months and those who did not complete the program reported an average of 4.0 months. A significantly higher percent of men reported that they completed the program relative to women (65.2% vs. 54.1%, $\chi^2(2, n = 543) = 6.946$, $p < .05$).

FIGURE 10.1. CLIENTS REPORTED HOW THE SUD TREATMENT PROGRAM ENDED FOR THEM (N = 543)[112]

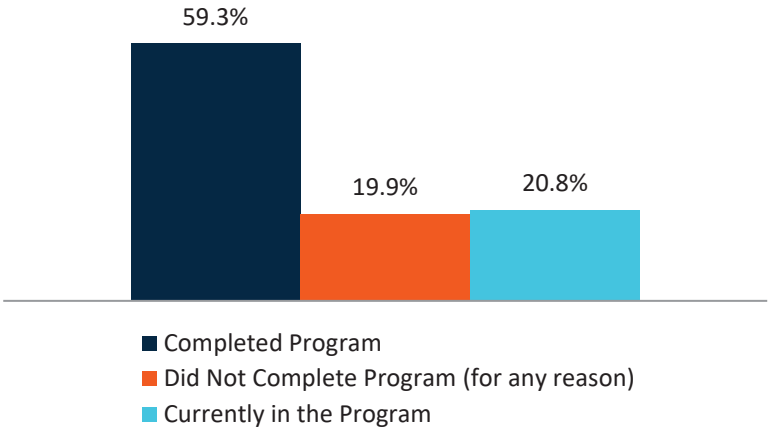
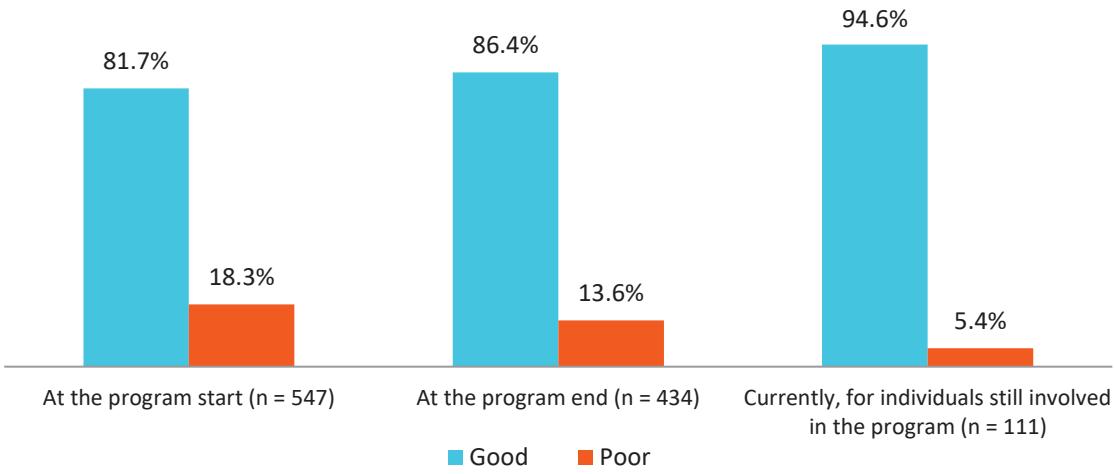


Figure 10.2 shows the percent of clients who reported the program started poor or good and ended poor or good. The majority of clients reported that the program started good (81.7%) and among individuals who were no longer involved in the program, they reported it ended good (86.4%). The vast majority of clients (94.6%) who were still involved in the program at follow-up reported the program was currently good for them.

[111] Ten individuals had missing data for the length of time they were involved in the SUD program.

[112] Eleven individuals had missing data for how treatment ended.

FIGURE 10.2. PERCENT OF CLIENTS WHO REPORTED AT FOLLOW-UP THE TREATMENT STARTED AND ENDED POOR OR GOOD[113]



Overall, the majority of clients (83.6%) reported that the treatment episode was working/worked pretty well or extremely well for them, 10.7% said the program worked somewhat well for them, and 5.6% said the program did not work for them at all.

More than one-fourth of clients (27.8%) reported they had been in other treatment programs since they left this treatment episode. Of those clients (n = 153), they reported they had been involved in an average of 1.3 (Min. = 1, Max. = 5) other treatment programs or episodes.

Recommend Others to the Program

The majority of clients (90.9%) indicated they would refer a close friend or family member to their treatment provider. Of the clients who reported they would refer a close friend or family member to the program (n = 502), 43.4% reported they would warn their friend or family member about certain things or tell them who to work with or who to avoid.

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 (75.4%) gave a high positive rating between 8 and 10 of their satisfaction with the treatment program (not in a table).[114] The average rating was 8.4.

Figure 10.3 shows that KTOS clients were satisfied with the overall program services.

[113] Seven individuals had missing data for program rating at the start of treatment and 7 had missing data for program rating at the end of treatment.

[114] Two individuals had missing data for treatment satisfaction questions due to the interviewer skipping the questions, the client refusing to answer, or the client not remembering the program we were asking about.

Around 4 in 5 individuals reported the program staff believed in them and believed that treatment would work for them, they felt listened to and heard by staff when they told them personal things, the program staff cared about them and their treatment progress, they worked on the things that were most important to them in treatment, their expectations and hopes for treatment and recovery were met, and they had a connection with their counselor or staff person. More than three-fourths reported that the treatment approach and method was a good fit for them and they had input into their treatment goals, plans, and how they were progressing over time. The majority reported the length of the program was just right (68.0%) and that they fully discussed or talked about everything they wanted to with their counselor or program staff (61.2%).

FIGURE 10.3. RATINGS OF 8, 9, or 10 OF SPECIFIC TREATMENT PROGRAM EXPERIENCES (N = 551)[115]

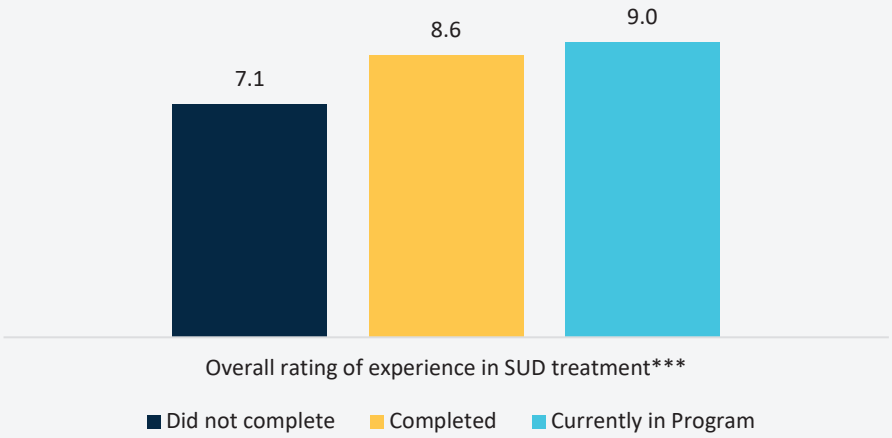
[115] Between 2 and 16 individuals had missing data for some satisfaction questions because the interviewer skipped the question, the client refused to answer, or the client did not remember the program we were asking about.

Association of Perceptions of Care and Program Completion

Participants' perceptions of care in SUD treatment were examined by program completion status to better understand if there are aspects of treatment that individuals who did not complete perceived of differently from individuals who had completed treatment or were currently in the program at follow-up.

As expected, individuals who had not completed treatment gave lower overall ratings for their experiences in the program relative to individuals who had completed treatment and individuals who were currently in treatment (see Figure 10.4).

FIGURE 10.4. AVERAGE RATING OF OVERALL EXPERIENCE IN SUD TREATMENT AT FOLLOW-UP BY PROGRAM COMPLETION STATUS

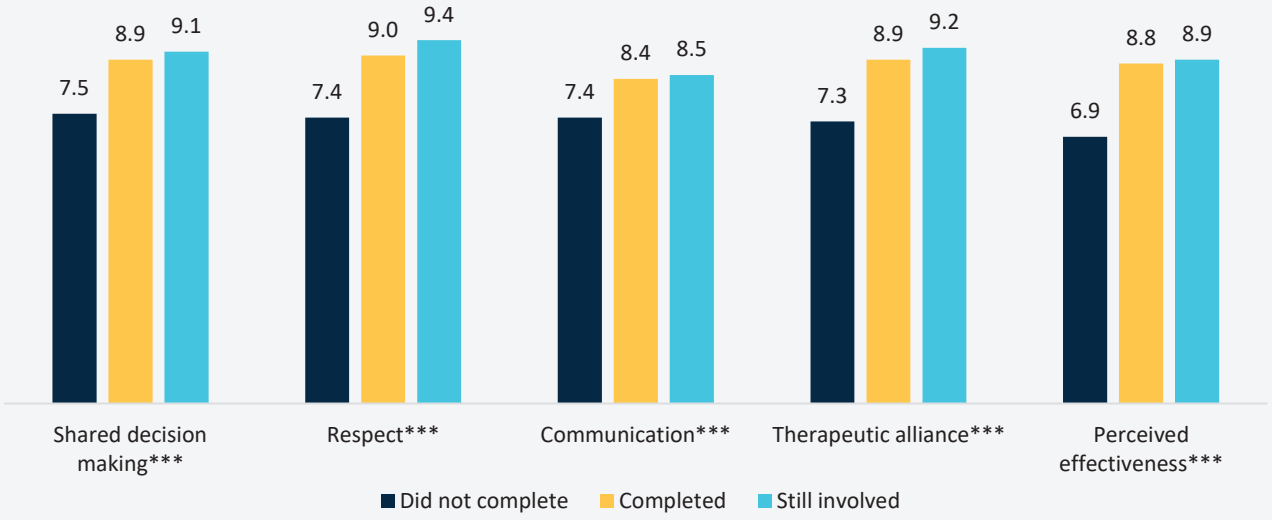


***p < .001.

There was a significant association of program completion status and self-reported number of months spent in SUD treatment. Individuals who reported they had not completed SUD treatment reported being in treatment an average of 3.7 months compared to the average of 4.4 months reported by individuals who had completed treatment and the average of 11.1 months by individuals who were currently in treatment at follow-up (not depicted in figure).

Client perceptions of care includes clients' assessment of the overall quality of the program as well as specific aspects of care they received, such as access to care, shared decision making, communication, respect, willingness to recommend the program to others and overall satisfaction with services (IOM, 2015). Various items were included in the follow-up surveys asking clients about their perceptions of the programs they participated in. Using the dimensions of client perceptions of care identified by the IOM (2015), specific items included in the follow-up surveys were mapped onto the domains with face validity, but no other psychometrics were assessed (see Figure 10.5). For each of the domains, the group of individuals who had not completed treatment gave significantly lower ratings than individuals in the other two groups: completed treatment and currently in treatment.

FIGURE 10.5. AVERAGE RATINGS OF CARE IN SUD TREATMENT AT FOLLOW-UP BY PROGRAM COMPLETION STATUS



***p < .001.

|Section 11. Association of Program Completion and Treatment Outcomes

We examined treatment outcomes by program completion status as reported by participants at follow-up: (1) completed the program (or left in good standing), (2) did not complete the program, and (3) currently in the program.

The majority of individuals who completed the follow-up survey reported at follow-up that they had completed treatment/program (59.3%, n = 322), while similarly smaller percentages reported they had not completed the program (19.9%, n = 108), and were currently in the program (20.4%, n = 113).[116]

Individuals in the three different program completion groups did not differ significantly on average age or race/ethnicity (see Table 11.1). Among the individuals who had not completed the SUD program and among individuals who were currently in the program, a higher percentage were female than male.

TABLE 11.1. DEMOGRAPHICS FOR KTOS CLIENTS AT INTAKE BY PROGRAM COMPLETION

	Did not complete the program (n = 108)	Completed the program (n = 322)	Currently in the program (n = 113)
Age	35.7	37.2	38.5
Gender*			
Male	38.9%	51.2%	40.7%
Female	61.1%	48.8%	59.3%
Race			
White	90.7%	91.0%	92.0%
African American	3.7%	4.0%	2.7%
Other or multiracial	5.6%	5.0%	5.3%

* $p < .05$.

Examination of reported substance use in the 12 months before entering treatment by program completion status showed no statistically significant associations (see Table 11.2).

[116] Eleven individuals had missing data for the item about completing treatment/SUD program. Thus, this analysis is for the 543 individuals who gave a valid response to the item about how their participation in the program ended.

TABLE 11.2. SUBSTANCE USE REPORTED IN THE 12 MONTHS BEFORE ENTERING TREATMENT BY PROGRAM COMPLETION STATUS

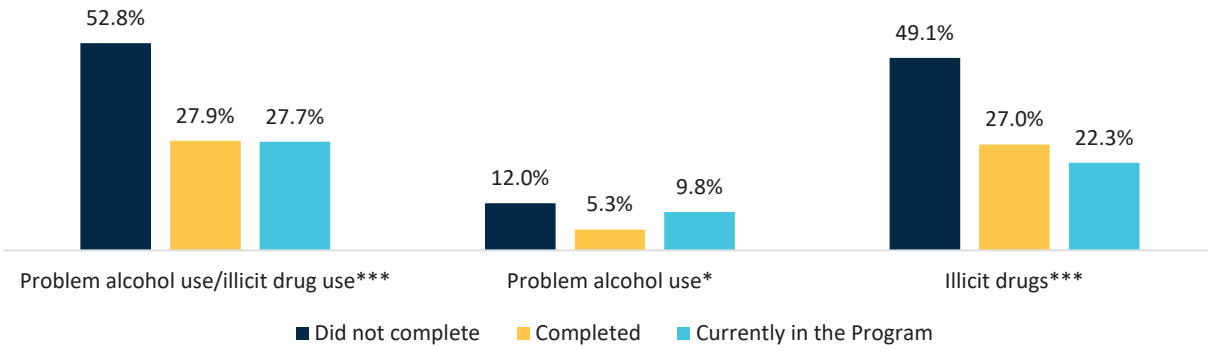
	Did not complete the program (n = 108)	Completed the program (n = 322)	Currently in the program (n = 113)
Problem alcohol use (i.e., used alcohol to intoxication, binge drank)..	31.8%	41.8%	36.6%
Illicit drugs.....	92.5%	86.2%	87.5%
Cannabis	57.0%	61.0%	57.1%
Stimulants and/or cocaine.....	67.3%	58.5%	65.2%
Opioids (inc. heroin)	43.0%	38.4%	35.7%
CNS depressants (sedatives/ benzodiazepines/tranquilizers).....	16.8%	16.7%	16.1%
Used more than one drug class.....	58.9%	56.0%	53.6%
Severity of SUD (per DSM-5 criteria)...			
No SUD.....	20.6%	23.9%	20.5%
Mild SUD	5.6%	6.0%	7.1%
Moderate SUD.....	6.5%	6.9%	11.6%
Severe SUD.....	67.3%	63.2%	60.7%

Treatment Outcomes

Substance Use

As for overall substance use at follow-up, a significantly higher percentage of individuals who had not completed the program (52.8%) reported problem alcohol use and/or illicit drug use in the 12 months before follow-up than individuals who had completed the program (27.9%) and individuals who were currently in the program (27.4%; see Figure 11.1). There was a significant association of program completion and problem use of alcohol (i.e., alcohol use to intoxication and/or binge drinking). A significantly higher percentage of individuals who had not completed the program (49.1%) reported they had used any illicit drug relative to individuals who had completed the program (27.0%) and individuals who were currently in the program (22.3%).

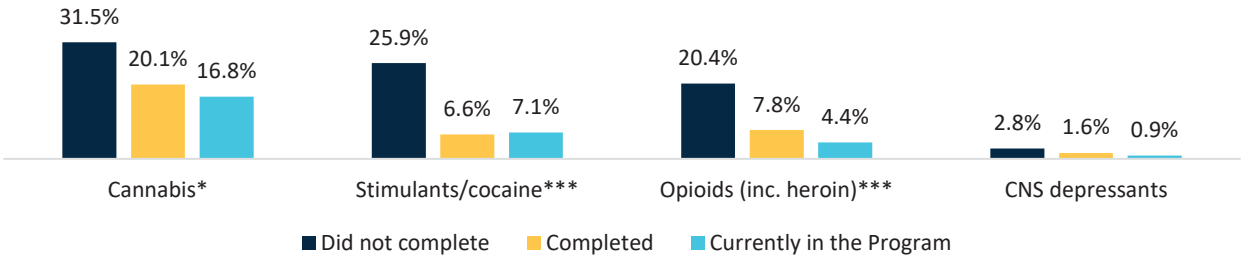
FIGURE 11.1. SUBSTANCE USE IN THE 12-MONTH FOLLOW-UP PERIOD BY PROGRAM COMPLETION STATUS



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

Significantly higher percentages of individuals who had not completed treatment reported they had used cannabis, opioids (including heroin), and stimulants/cocaine (including methamphetamine) in the 12 months before follow-up compared to individuals who had completed treatment and individuals who were currently in treatment (see Figure 11.2).

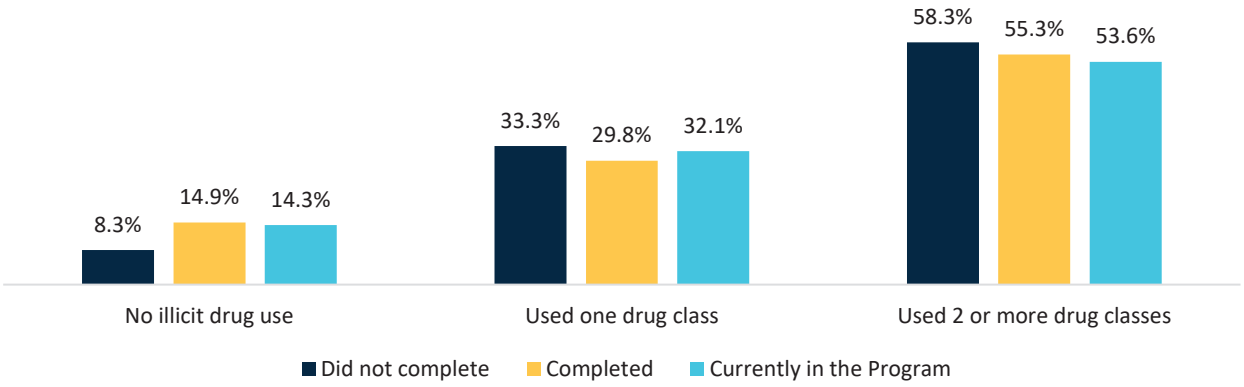
FIGURE 11.2. USE OF SPECIFIC CLASSES OF ILLICIT DRUGS IN THE 12-MONTH FOLLOW-UP PERIOD BY PROGRAM COMPLETION STATUS



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

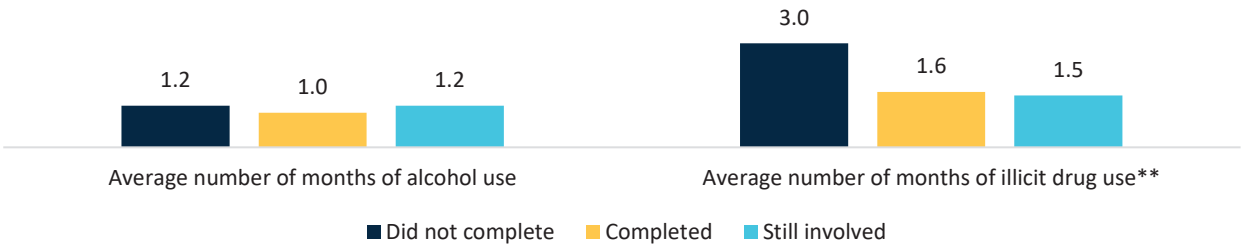
Looking at polydrug use, similar percentages of individuals reported use of more than one drug class; there was no significant difference by program completion status (see Figure 11.3).

FIGURE 11.3. POLYDRUG USE IN THE 12-MONTH FOLLOW-UP PERIOD BY PROGRAM COMPLETION STATUS



However, examining number of months of drug use in the 12-month follow-up period among the entire follow-up sample, individuals who had not completed the SUD program reported a significantly higher number of months they used illicit drugs (based on the maximum number of months they used each drug class) compared to individuals who had completed the program and individuals who were currently in the program (see Figure 11.4).

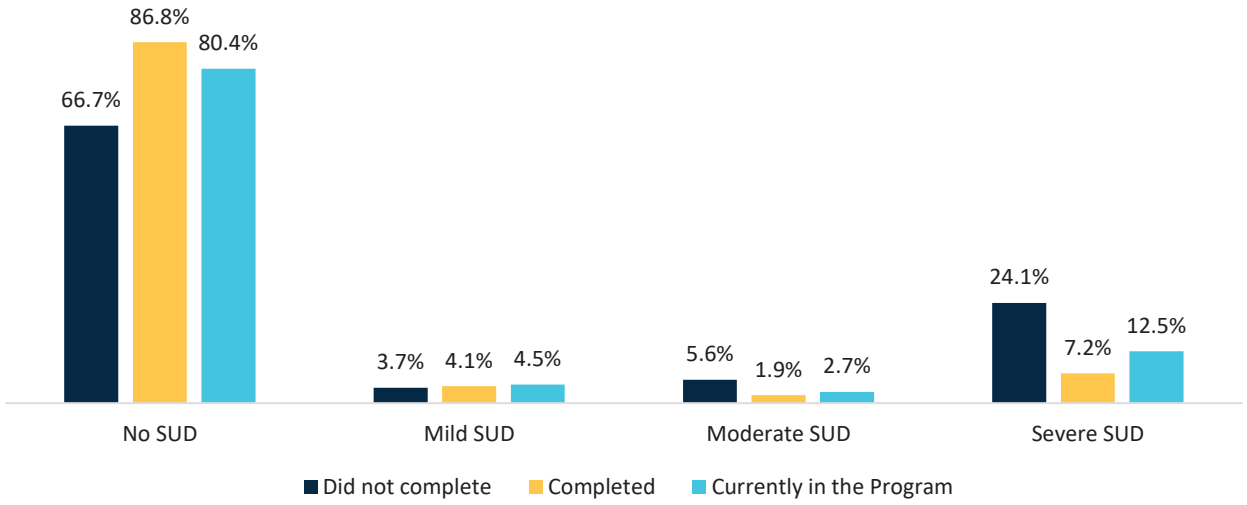
FIGURE 11.4. NUMBER OF MONTHS OF ALCOHOL USE AND ILLICIT DRUG USE IN THE 12-MONTH FOLLOW-UP PERIOD BY PROGRAM COMPLETION STATUS (n = 543)



**p < .01.

There was a significant association of program completion status and severity of substance use disorder according to DSM-5 criteria (see Figure 11.5). A significantly higher percent of individuals who had not completed the program reported criteria that were consistent with severe SUD at follow-up (24.1%) compared to individuals who had completed the program (7.2%). Likewise, significantly higher percentages of individuals who had completed the program (86.8%) and who were currently in the program (80.4%) reported criteria that were consistent with no substance use disorder at follow-up compared to individuals who had not completed the program (66.7%).

FIGURE 11.5. SEVERITY OF SUBSTANCE USE DISORDER IN THE 12-MONTH FOLLOW-UP PERIOD BY PROGRAM COMPLETION STATUS***

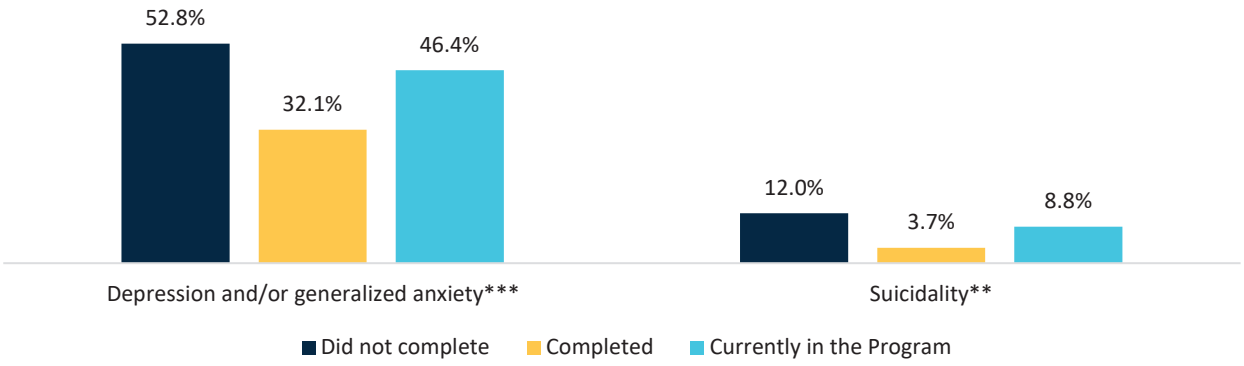


*p < .05, ***p < .001.

Mental Health and Physical Health

A significantly smaller percentage of individuals who had completed the SUD program (32.1%) met criteria for depression and/or generalized anxiety during the follow-up period than individuals who had not completed the program (52.8%) and individuals who were currently in the program (46.4%). A significantly higher percentage of individuals who had not completed the program (12.0%) reported suicidal ideation and/or suicide attempts in the follow-up period compared to individuals who had completed the program (3.7%).

FIGURE 11.6. MENTAL HEALTH IN THE 12-MONTH FOLLOW-UP PERIOD BY PROGRAM COMPLETION STATUS

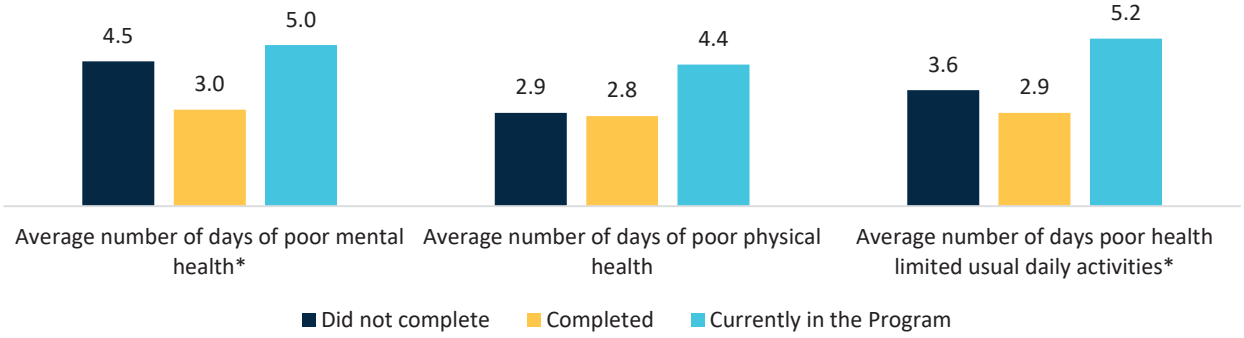


**p < .01, ***p < .001.

There was a significant association of program completion status with number of days of poor mental health and number of days poor health limited usual daily activities in the 30 days before follow-up (see Figure 11.7). Individuals who were currently in the program reported significantly greater number of days of poor mental health and greater number of days poor health limited their usual activities compared to individuals who had

completed the program. There were no other differences between the groups.

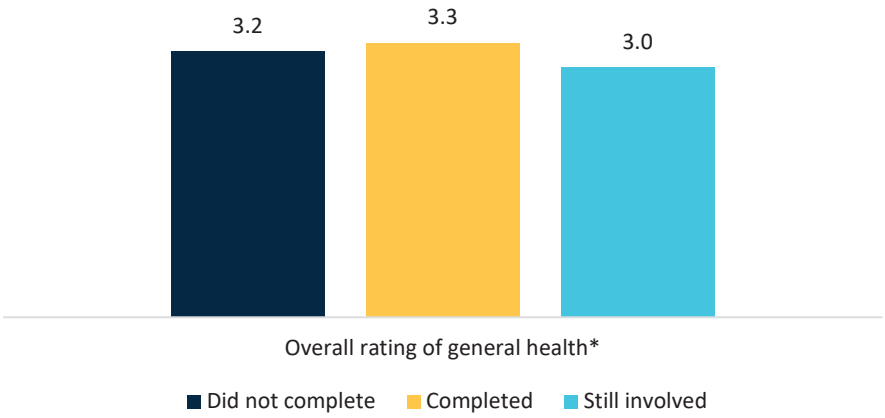
FIGURE 11.7. AVERAGE NUMBER OF DAYS OF POOR MENTAL HEALTH, PHYSICAL HEALTH IN THE 30 DAYS BEFORE FOLLOW-UP BY PROGRAM COMPLETION STATUS



*p < .05.

On a scale from 1 to 5, with 1 representing poor health and 5 representing excellent health, individuals who had completed the program rated their overall health as a significantly higher (3.3) relative to individuals who were currently in the program (3.0; see Figure 11.8).

FIGURE 11.8. AVERAGE RATING OF OVERALL HEALTH AT FOLLOW-UP BY PROGRAM COMPLETION STATUS

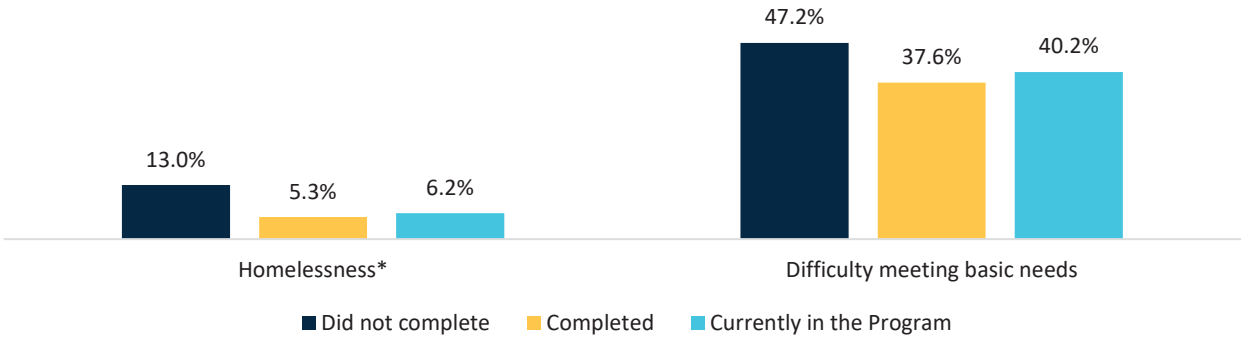


*p < .05.

Economic and Living Situation

A significantly higher percentage of individuals who had not completed the program reported they were homeless at follow-up compared to individuals who had completed the program (see Figure 11.9). There was no statistically significant association between program completion status and difficulty meeting basic needs (including basic living needs and healthcare) in the follow-up period.

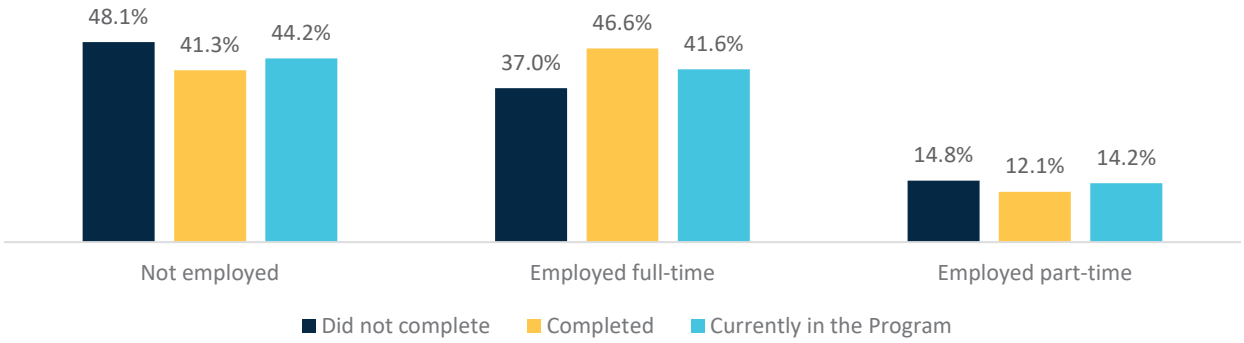
FIGURE 11.9. HOMELESSNESS AND DIFFICULTY MEETING BASIC NEEDS AT FOLLOW-UP BY PROGRAM COMPLETION STATUS



*p < .05.

There was no association between program completion status and current employment at follow-up. Similar percentages in all three groups reported they were not employed, employed full-time, and employed part-time (see Figure 11.10).

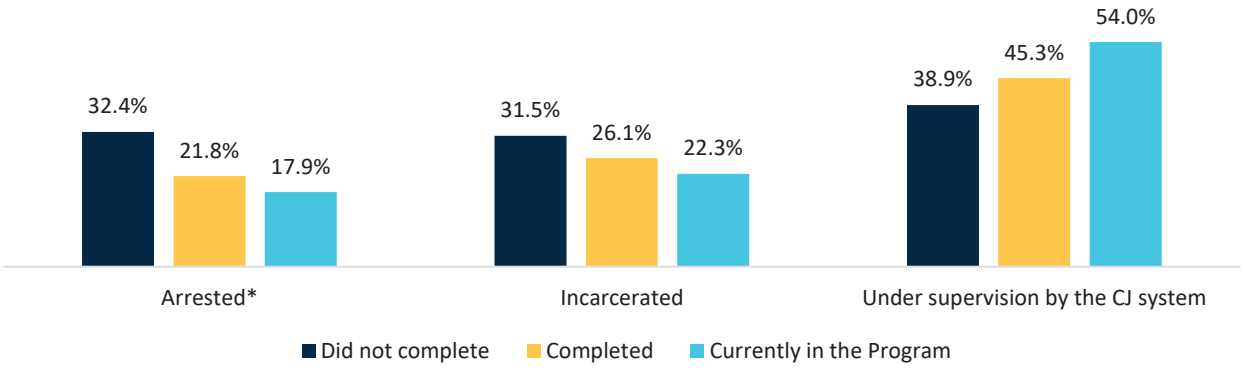
FIGURE 11.10. CURRENT EMPLOYMENT STATUS AT FOLLOW-UP BY PROGRAM COMPLETION STATUS



Criminal Justice System Involvement

A significantly higher percentage of individuals who did not complete the program reported they had been arrested in the 12-month follow-up period compared to individuals who were currently in the program (see Figure 11.11). There was no significant association between program completion status and incarceration during the follow-up period. Also, even though a higher percentage of individuals who were currently in the program were under supervision by the criminal justice system (54.0%), there was no significant association between program completion status and supervision by the criminal justice system during the follow-up period.

FIGURE 11.11. ARRESTS, INCARCERATION, AND SUPERVISION BY THE CRIMINAL JUSTICE SYSTEM DURING THE 12-MONTH FOLLOW-UP PERIOD BY PROGRAM COMPLETION STATUS

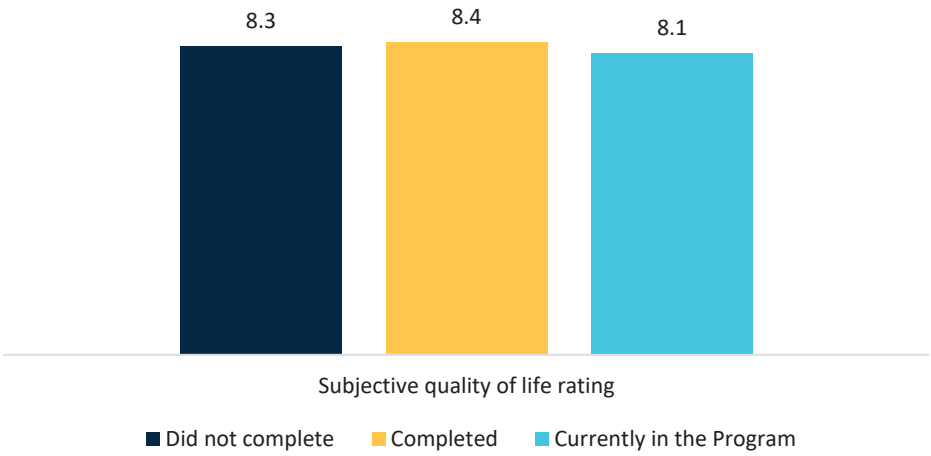


*p < .05.

Subjective Quality of Life

The average subjective quality of life ratings for each program completion status group were similar; there was no significant difference by group (see Figure 11.12).

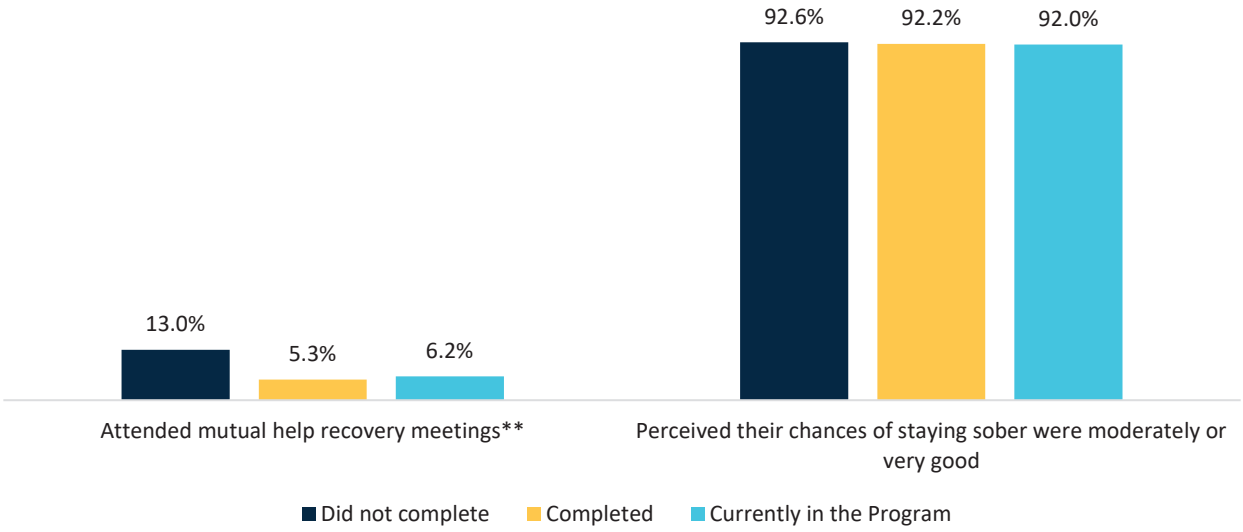
FIGURE 11.12. AVERAGE RATING OF QUALITY OF LIFE AT FOLLOW-UP BY PROGRAM COMPLETION STATUS



Recovery Support

A significantly higher percentage of individuals who were currently in the program at follow-up (68.1%) reported they had participated in mutual help recovery meetings in the past 30 days compared to individuals who had not completed the program (49.1%) and individuals who had completed the program (48.8%; see Figure 11.13). The vast majority of individuals in each group perceived their chances of staying/getting off alcohol and drugs was moderately to very good, with no difference by group.

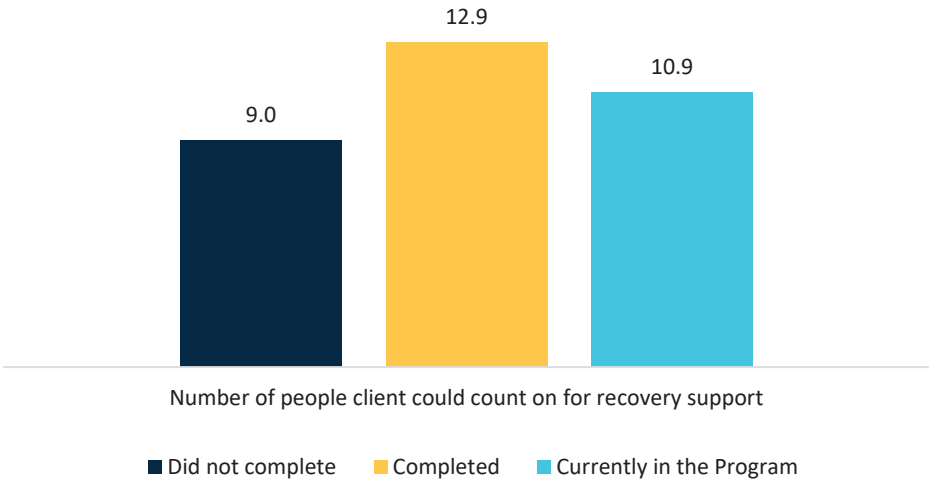
FIGURE 11.13. PARTICIPATION IN MUTUAL HELP RECOVERY MEETINGS AT FOLLOW-UP BY PROGRAM COMPLETION STATUS



**p < .01.

The average number of people participants could count on for recovery support at follow-up was high and not significantly different by program completion status (see Figure 11.14).

FIGURE 11.14. AVERAGE NUMBER OF PEOPLE PARTICIPANT COULD COUNT ON FOR RECOVERY SUPPORT AT FOLLOW-UP BY PROGRAM COMPLETION STATUS



|Section 12. Cost Savings of Substance Use Disorder Treatment in Kentucky

This section examines cost reductions or avoided costs to society after clients begin participation in publicly-funded substance use disorder treatment. Using the number of clients who self-reported illicit drug and alcohol use 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 was 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 continuing policy interest in examining cost reductions or avoided costs to society after individuals participate in publicly-funded substance use disorder treatment. This policy interest is fueled by concerns over the cost of SUD to overall personal health and to incarceration. 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. To accommodate these complexities at an aggregate level, data were extrapolated from a large federal study that estimated annual costs drug abuse in the United States[117] and a separate study of the societal costs of excessive alcohol consumption in the U.S. in 2006.[118] In 2010 the estimated costs of excessive alcohol consumption in the United States was updated and in 2011 the National Drug Intelligence Center updated the estimates of drug abuse in the United States for 2007.[119, 120] These updated costs were used in the calculations for the cost savings analysis in this KTOS follow-up report.

Cost of Alcohol and Drug Use Disorders

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 SUD. To calculate the estimate of the cost per alcohol user or drug user, the national cost estimates were divided by the estimate of the number of individuals with alcohol or drug use disorder in the corresponding

[117] 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.

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

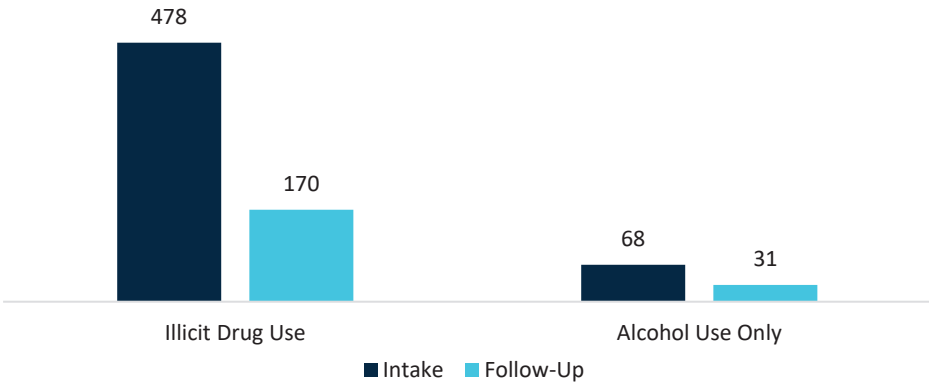
[119] Sacks, J.J., Gonzales, K.R., Bouchery, E.E., Tomedi, L.E., & Brewer, R.D. (2015). 2010 national and state costs of excessive alcohol consumption. American Journal of Preventive Medicine, 49(5), e73-e79.

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

years (2010 for alcohol use and 2011 for drug use).[121] The estimate of the cost to society of excessive alcohol consumption was $249,026,400,000 in 2010. This amount was then divided by the 17,900,000 individuals estimated in the NSDUH in 2010 to have an alcohol use disorder, yielding a cost per person of alcohol abuse of $13,912 (after rounding to a whole dollar) in 2010 dollars. The estimate of the cost to society of drug use was $193,096,930,000 in 2007. This amount was then divided by the 6,900,000 individuals estimated in the NSDUH in 2007 to have an illicit drug abuse or dependence disorder, yielding a cost per person of drug abuse of $27,985 (after rounding to a whole dollar) in 2007 dollars. The costs per person were then converted to 2022 dollars using a CPI indexing from a federal reserve bank (http://www.minneapolisfed.org). Thus, the estimate of cost per person of alcohol abuse is $18,672 in 2022 dollars and the estimate of the cost per person of drug abuse is $39,500 in 2022 dollars. Analysis 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 reported using illicit drugs and alcohol in the period before treatment to after treatment was examined.

Figure 12.1 shows the change in the number of clients who reported any use of drugs and/or alcohol in the 12 months before intake and follow-up. Clients who reported using illicit drugs only or illicit drugs as well as alcohol were counted in the drug use category because the cost per person of drug use was higher per drug user than the cost per person of alcohol use. Clients who reported using alcohol only were counted in the alcohol use category. The change from intake to follow-up was significant. At intake, 478 clients reported using illicit drugs and an additional 68 clients reported using alcohol only. At follow-up, 170 clients reported using illicit drugs and 31 additional clients reported using any alcohol.

FIGURE 12.1. THE NUMBER OF CLIENTS WHO REPORTED USING ILLICIT DRUGS AND/OR ALCOHOL IN THE 12 MONTHS BEFORE INTAKE AND FOLLOW-UP (N = 551)[122]



[121] Substance Abuse and Mental Health Services Administration. (2019). Key substance use and mental health indicators in the United States: Results from the 2018 National Survey on Drug Use and Health (HHS Publication No. PEP19-5068, NSDUH Series H-54). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from http://www.samhsa.gov/data

[122] Three individuals had missing data for illicit drug use in the follow-up period; thus, these cases are excluded from this analysis.

When the estimated cost per individual drug user was applied to the 478 individuals who engaged in illicit drug use in the year before intake, the annual estimated cost to society for the KTOS sample who used illicit drugs before entry into treatment was $18,881,000. When the average annual cost per individual alcohol abuser was applied to the 68 clients who reported using alcohol only at intake, the estimated annual cost to Kentucky in 2022 was $1,269,696. The estimated total annual cost of drug and alcohol use in the 12 months before intake applied to the follow-up sample of KTOS clients was $20,150,696. By follow-up, the estimated cost of the 170 individuals who reported illicit drug use was $6,715,00 and the estimated cost of the 31 individuals who reported using alcohol was $578,832, for a total of $7,293,832. Thus, as shown in Figure 12.2, after participation in publicly-funded substance use disorder treatment, the estimated gross cost to Kentucky taxpayers for these 551 clients was reduced by $12,856,864.

FIGURE 12.2. ESTIMATED COST TO SOCIETY AT INTAKE AND FOLLOW-UP (AMOUNTS IN MILLIONS OF DOLLARS) (N=551)

Cost of Treatment

In KTOS reports from 2002 until the 2017 report, clinical service event data collected by the community mental health centers (CMHCs) that were submitted to DBHDID and managed by the University of Kentucky Institute for Pharmaceutical Outcomes and Policy (IPOP) was included in sections presenting clinical service data for KTOS participants. In these reports, the clinical service event data was matched to the KTOS survey data for the KTOS follow-up sample to calculate an estimate of the cost of substance use disorder treatment 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 the Department for Medicaid Services Behavioral Health and Substance Abuse Services Inpatient and Outpatient Fee Schedules,[123, 124] and then applied to the total number of services KTOS clients received wherein the payer was Medicaid or the DBHDID from the date of the intake survey submission to the follow-up survey completion date. However, the number of cases included the follow-up sample with no service data in the IPOP data has increased over the past few years. For example, in the KTOS 2018 report, when the clinical service data was matched to clients in the KTOS follow-up sample (n = 1,224), 1,047 cases had no services listed or no services that could be assigned a unit cost (e.g., other than miscellaneous services). There are concerns that CMHC providers may not enter all the services, particularly Medicaid-funded services with the expansion of Medicaid funding of SUD services in recent years, into the data set.

[123] Department of Medicaid Services. Behavioral Health and Substance Abuse Services Inpatient (facility) Fee Schedule (Rev 06/2016). Retrieved from http://chfs.ky.gov/NR/rdonlyres/5F888306-0400-4FC1-91D1-530BC7A554CD/0/BHandSUFeeSchduleIPFrev612016r1.pdf.

[124] Department of Medicaid Services. Behavioral Health and Substance Abuse Services Outpatient (facility) Fee Schedule (Rev 06/2016). Retrieved from http://chfs.ky.gov/NR/rdonlyres/63561642-4335-45FB-9F06-FE3E75A9E101/0/BHandSUFeeScheduleOPNFrev612016.pdf.

Because the services included in the current IPOP data may not capture all the services clients included in the follow-up sample may have received, we decided to compute the average cost of treatment per client over several years (2012 – 2015), and use this average in the calculation of avoided costs. The average total costs of providing publicly-funded behavioral health treatment services in 2012, 2013, 2014, and 2015 as calculated from the service event data submitted to IPOP by the CMHCs were updated to 2015 dollar amounts, divided by the total number of clients included in the follow-up samples for those years, yielding an average cost of treatment of $4,777 (in 2022 dollars). The average cost of $4,423 was multiplied by 551, which was the number of individuals in the follow-up sample for whom we had alcohol and illicit drug use data for the 12-month follow-up period. The estimate of the cost of treatment was $2,632,127.

Cost Savings

The estimated net cost savings of providing treatment to the KTOS follow-up sample was estimated using the net difference in costs of alcohol and drug use divided by the cost of providing treatment: $12,856,864/$2,632,127, which equals $4.88 (see Table 12.1). In other words, for every dollar spent on publicly-funded substance use disorder treatment in FY 2022, there was an estimated savings of $4.88 in costs to Kentucky taxpayers associated with alcohol and drug use disorder.

TABLE 12.1. ESTIMATED COST SAVINGS OF PROVIDING TREATMENT TO INDIVIDUALS WHO USED ILLICIT DRUGS AND/OR ALCOHOL

	USED ALCOHOL AND/OR ILLICIT DRUGS IN THE 12-MONTH PERIOD	
	INTAKE	FOLLOW-UP
Drug use		
Number of clients	478	170
Alcohol use		
Number of clients	68	31
Estimate of total cost to society of drug and alcohol use	$20,150,696	$7,293,832
Gross cost difference from intake to follow-up	$12,856,864	
Estimate of cost of treatment (based on average cost per client in 2012 – 2015)	$2,632,127	
Off-set as net cost/benefit ratio	$12,856,864/$2,632,127	
Return on $1.00 Investment	$4.88	

|Section 13. Conclusions and Implications

Many states' efforts to evaluate the quality of SUD treatment focus on access and process measures for SUD treatment, with less attention to client outcomes, because of the cost, need for human resources, and difficulty of carrying out systematic evaluations. Kentucky's multi-year client-level outcome evaluation, KTOS, is a valuable resource for understanding and informing publicly-funded SUD treatment.[125] Kentucky is in the fortunate position of having a data infrastructure to collect client-level outcome data for adults entering SUD treatment in the state's community mental health centers. However, the value of client-level outcome data is only as good as SUD programs' level of participation in data collection efforts. Data presented for the past 10 KTOS annual reports shows that the decreasing number of adults in the follow-up sample, beginning in the 2022 report is driven by the decreasing number of intake surveys and decreasing percentage of adults who give consent to be contacted for the follow-up survey. With decreasing participation in KTOS over the past several fiscal years, beginning in 2020, the utility of the data collected decreases. High staff turnover and the burdens on staff and programs that the COVID-19 pandemic put on programs may have led to the dramatic decrease in participation in AKTOS. However, as business has returned to normal, participation in KTOS has not increased. Efforts to reengage SUD programs in KTOS would be beneficial.

The KTOS 2024 Annual Follow-Up Report describes characteristics of clients who participated in state-funded substance use disorder treatment programs in Kentucky and completed intake interviews in FY 2022 (N = 3,474). In addition, outcomes are presented for 554 clients who completed a follow-up telephone interview about 12 months later which was a 76.4% follow up rate for those selected into the statewide sample. Of the clients with intake interviews, over half were male (59.2%) and 40.5% were female, with ages 18 to 80 (average age 37.3 years old). Most were White (91.2%), had children under the age of 18 (56.6%), and 81.9% had experienced at least one type of adverse childhood experience. The majority of clients (59.5%) were unemployed at intake. About 54% had been arrested and 57.9% spent at least one night in jail 12 months before treatment. When looking at referral to treatment for all those with completed intake surveys, most clients self-reported they were court-referred (64.1%) and self-referred (18.2%) to treatment. The majority of adults who completed an intake interview reported using illicit drugs (77.0%), alcohol (44.2%), and smoking tobacco (78.6%) in the 12 months before intake. On average, clients reported being about 16.8years old when they first began using drugs, 15.1 years old when they had their first alcoholic drink (other than a sip) and 16.0 years old when they began smoking tobacco.

Past-11-year trends in specific drug use at intake indicate that the percent of clients reporting non-prescribed opioid and methadone use have both decreased while the percent of clients reporting heroin use has remained relatively stable after an increase to the low teens in FY 2013. The use of bup-nx increased in FY 2015 and has been less than one-quarter since FY 2016. The percent of clients reporting methamphetamine use has increased from 6% in FY 2012 to a high of 50% in FY 2020 and 49% in FY 2022.

[125] Cole, J., Logan, T., Tillson, M., Staton, M., & Scrivner, A. (2023). State of performance indicators in SUD treatment: How does Kentucky measure up? Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Of the 554 adults who completed a 12-month follow-up interview for this report, 53.8% of the sample was female, and 46.2% was male. The majority of follow-up clients (91.2%) were White. Clients in the follow-up sample were an average of 37.2 years old at the time of the intake interview and less than half (45.7%) reported they were married or cohabiting at intake. When individuals with a follow-up interview were compared with those who did not have a follow-up interview on a variety of intake variables, there were some significant differences for demographics, economic hardship, physical health, mental health, substance use, and severity of substance use. These differences indicate that followed-up individuals were worse off in several key domains (economic hardship, substance use, mental health) but also had higher education and more stable housing compared to those who were not followed up.

The Institute of Medicine (IOM) committee (2015), which examined psychosocial interventions for mental health disorders and SUD, stated that recovery (from a mental or substance use disorder) is a more meaningful objective and domain than solely abstaining/reducing substance use or a reduction in target symptoms. The IOM committee conceptualized outcomes as fitting into three categories: target symptoms (e.g., depression, anxiety), functional status (performance on daily living tasks, participation in work/school, maintaining relationships, and community involvement) and wellbeing (life satisfaction, quality of life, recovery, self-determination, and client perceptions of care). Thus, the outcomes examined in KTOS focus on target symptoms, functional status, wellbeing, and perceptions of care in addition to substance use. Many clients showed significant improvements in substance use, mental health, physical health, criminal justice system involvement, employment and economic hardship, quality of life, and recovery supports. Clients also report high levels of satisfaction with their substance use disorder treatment experiences. These improvements will be summarized in more detail below.

Areas of Success

Substance Use

Severity of substance use decreased significantly at follow-up. The percent of individuals with self-reported symptoms of DSM-5 severe substance use disorder decreased from intake (63.4%) to follow-up (12.2%). Further, the percent of clients with ASI alcohol or drug composite scores that met or surpassed the cutoff for SUD decreased from intake to follow-up. There were significant decreases from intake to follow-up in the percent of clients reporting that they experienced problems with drugs and alcohol and that they were considerably or extremely bothered by drug or alcohol problems in the prior 30 days.

Trends in any illicit drug use show that the percent of clients reporting illicit drug use has been significantly lower at follow-up than at intake each year for the last 16 years. Percentages of clients reporting any illicit drug use in the 12 months before follow-up has been a high of 43% in the 2012 report and a low of 25% in the 2015 report. The percent for the follow-up sample in the current year's report was 31%.

Analysis of specific past-12-month drug use indicates more than half of clients (59.7%) reported using cannabis at intake, whereas 22.1% reported cannabis use at follow-up. For the third year since the trend analyses have been included in the KTOS reports, more than half of clients reported using stimulants (other than cocaine) at intake in the 2024 report. Among the individuals who reported using stimulants at intake, 98.8% of them reported using methamphetamine. Significantly fewer individuals reported stimulant use at follow-up (10.3%) than at intake (59.0%). A little more than one-third of clients (36.0%) reported using opioids (other than heroin) at intake, whereas 8.1% of clients reported opioid misuse at follow-up. A minority of followed-up clients (16.5%) reported using CNS depressants in the 12 months before intake, with a significant decrease to 1.7% at follow-up.

Not only are there significant decreases in the percent of individuals who engaged in illicit drug use at follow-up, but also, significantly fewer individuals reported polydrug use in the 12-month and 30-day periods at follow-up compared to intake. Polydrug use has been associated with poorer treatment outcomes; thus, it is worthwhile to consider polydrug use in a treatment evaluation studies.[126]

About half of clients reported using alcohol in the 12 months before intake, with a 34.4% decrease at follow-up. There were significant decreases in the percent of individuals who reported use of alcohol to intoxication (28.4%) and binge drinking (25.0%). Since the 2010 report, the percent of the KTOS follow-up sample that has reported past-12-month alcohol use has decreased steadily from 77% to a low of 50% in the 2021 report and 51% in the 2024 report.

Mental Health, Physical Health, and Interpersonal Victimization

Clients' mental health showed significant improvements over the study follow-up period. The percent of individuals who met study criteria for depression, generalized anxiety, comorbid depression and anxiety, suicidal thoughts or suicide attempts, and post-traumatic stress disorder decreased significantly from intake to follow-up. Trends in depression and trends in anxiety show that the percent of clients reporting these mental health problems have increased at intake since the 2016 report when 41% reported symptoms that met study criteria for depression and 40% of clients reported symptoms that met study criteria for generalized anxiety. In this year's report, 54% of clients met criteria for depression and 57% met criteria for generalized anxiety at intake. The percent of clients with depression at follow-up has fluctuated from a high of 45% in the 2013 report to a low of 21% in the 2016 report, whereas the percent of clients with anxiety at follow-up decreased from a high in the 2013 report (54%) to a low in the 2016 report (19%). In this year's report, 30% of clients met study criteria for generalized anxiety at follow-up.

More than one-third of clients (34.1%) reported they had experienced any interpersonal victimization in the 12 months before intake. By follow-up, significantly fewer clients

[126] Wang, L., Min, J.E., Krebs, E., Evans, E., Huang, D., Liu, L., Hser, Y., & Nosyk,B. (2017). Polydrug use and its association with drug treatment outcomes among primary heroin, methamphetamine, and cocaine users. International Journal of Drug Policy, 49, 32-40. https://doi.org/10.1016/j.drugpo.2017.07.009.

(13.2%) reported they had experienced any interpersonal victimization in the past 12 months.

KTOS clients' perceptions of poor physical and mental health decreased significantly from intake to follow-up. For example, at intake, KTOS clients reported that for nearly half of the past 30 days their mental health was not good (average of 13.1 days), whereas at follow-up, the average number of days was 3.7. Also, individuals' ratings of overall health significantly improved from intake to follow-up.

Economic Status and Living Conditions

Overall, individuals' economic and living circumstances improved from intake to follow-up. Significantly fewer clients considered themselves homeless in the past 12 months before follow-up (7.4%) than in the 12 months before entering treatment (27.3%). About 43% of clients reported being employed full-time at follow-up compared to 28.0% at intake. Furthermore, the average number of months clients reported working in the past 12 months increased from 5.0 months at intake to 6.1 months at follow-up. There was also a significant decrease in the percent of individuals who reported they had difficulty meeting basic living needs from intake to follow-up.

Criminal Justice System Involvement

Individuals' involvement with the criminal justice system decreased from the 12 months before treatment intake to the 12 months before follow-up. Over half of individuals (56.7%) reported an arrest at intake, which decreased significantly to 23.6% at follow-up. A trend report shows that the percent of clients reporting an arrest in the past 12 months has remained between 51% and 62% at intake. Percentages at follow-up have fluctuated between a low of 20% in the 2017 report and a high of 33% in the 2012 report.

In this year's sample, 35.9% of individuals reported they had a conviction for a misdemeanor in the 12 months before intake, and at follow-up, only 9.1% reported a conviction for a misdemeanor. One-fourth of individuals (25.4%) reported a conviction for a felony in the 12 months before entering treatment, whereas at follow-up, only 5.8% of individuals had a conviction for a felony. More than half of clients (57.3%) reported being incarcerated at least one night in the past 12 months at intake compared to 26.8% of clients at follow-up. Like arrests, the trend report for incarceration shows that, overall, the number of clients reporting spending at least one night in jail has been relatively stable at intake (with a high of 66% in the 2021 report and a low of 56% in the 2023 report). The percentages of individuals who were incarcerated in the past 12 months at follow-up have fluctuated from a low of 21% in the 2015 report to a high of 37% in the 2012 report.

Subjective Quality of Life

Clients rated their quality of life as significantly higher, on average, after participating in substance use disorder treatment.

Recovery Supports

Compared to intake (27.6%), significantly more individuals reported they had attended mutual help recovery group meetings in the past 30 days at follow-up (52.7%). Also, at follow-up, clients reported having significantly more people they could count on for recovery support: 11.7 vs. 6.4. Significantly more individuals reported they had recovery supportive interactions with a sponsor at follow-up than at intake. Clients reported that employment, parenting children, and support from their families would be most useful in staying off drugs/alcohol at follow-up.

Multidimensional Recovery Status

Consistent with the framework that recovery is a multidimensional construct, encompassing multiple dimensions of individuals' lives and functioning, items from the intake and follow-up surveys were combined to measure change in multiple key dimensions of individuals' lives. At intake, as expected, a small percent of the followed-up sample (5.1%) was classified as having all eight dimensions of recovery. At follow-up, there was a significant increase of 41.8% so that 46.9% of participants had all eight dimensions of recovery.

Program Satisfaction and Engagement

Client ratings of the treatment services they received were high (an average of 8.4 out of 10, with 10 representing the best possible experience). Three-fourths of individuals (75.2%) gave a high positive rating of 8 to 10. Around 4 in 5 individuals reported the program staff believed in them and believed that treatment would work for them, they felt listened to and heard by staff when they told them personal things, the program staff cared about them and their treatment progress, they worked on the things that were most important to them in treatment, their expectations and hopes for treatment and recovery were met, and they had a connection with their counselor or staff person. More than three-fourths reported that the treatment approach and method was a good fit for them and they had input into their treatment goals, plans, and how they were progressing over time. The majority reported the length of the program was just right (68.0%) and that they fully discussed or talked about everything they wanted to with their counselor or program staff (61.2%).

Areas of Concern

While there were many positive outcomes for participants in the KTOS follow-up study, there are also potential opportunities to make even more significant improvements in some clients' functioning after they begin treatment.

Alcohol and Illicit Drug Use

Even though there were significant decreases in substance use and severity of substance use, it is worth noting that 31.1% of KTOS clients reported using illicit drugs, 16.7% of

clients reported using alcohol, and 12.2% met criteria for severe SUD in the 12 months before follow-up.

Looking at trends over time in past-12-month use at intake, results show that while prescription opioid and methadone use has decreased gradually over the past 10 years, the percent of clients reporting methamphetamine use has increased from 6% in FY 2012 to 50% in FY 2020 and remained high in FY 2022 (49%). Higher percentages of clients reported use of methamphetamine but no opioids, or opioids and methamphetamine compared to the percent of clients who reported use of opioids without methamphetamine use in the same 30-day period.

Nicotine Use

Even though there was a significant decrease in the percent of individuals who reported smoking tobacco, smoking tobacco remained very high for KTOS clients at follow-up (70.4%). Moreover, the smoking rates at intake and follow-up were stable from the 2009 report to the 2020 report, when the percent of individuals reporting smoking at follow-up began decreasing. Further, the percent of individuals reporting vaporized nicotine use has been increasing in recent years. A common belief among individuals who smoke tobacco is that they can use vaporized nicotine products to transition to quitting smoking tobacco.[127] Research has shown that using e-cigarettes may result in some individuals to quit smoking cigarettes.[128] About 1 in 5 adults in the KTOS follow-up sample (19.6%) reported using smoking tobacco and vaporized nicotine in the 30 days before follow-up.

There is a commonly held belief that individuals should not attempt to quit smoking while in substance use disorder treatment, because smoking cessation can endanger their sobriety. This belief, however, has been refuted by recent empirical research studies.[129] Voluntary smoking cessation during substance use disorder treatment has been associated with lower return to use. Tobacco use is associated with increased mental health symptoms as well as well-known physical health problems, including increased mortality, and smoking cessation has been associated with lower alcohol and drug return to use.[130]

[127] Gravely, S., Yong, H.H., Reid, J.L., East, K.A., Gartner, C.E., Levy, D.T., Cummings, K.M., Borland, R., Quah, A.C.K., Bansal-Travers, M., Ouimet, J., & Fong, G.T. (2022, Oct 29). Do current smokers and ex-smokers who use nicotine vaping products daily versus weekly differ on their reasons for vaping? Findings from the 2020 ITC Four Country Smoking and Vaping Survey. International Journal of Environmental Research & Public Health, 19(21), 14130. doi: 10.3390/ijerph192114130. PMID: 36361015; PMCID: PMC9653847.

[128] Kasza, K. A., Edwards, K. C., Anesetti-Rothermel, A., Creamer, M. R., Cummings, K. M., Niaura, R. S., Sharma, A., Pitts, S. R., Head, S. K., Everard, C. D., Hatsukami, D. K., & Hyland, A. (2022). E-cigarette use and change in plans to quit cigarette smoking among adult smokers in the United States: Longitudinal findings from the PATH Study 2014-2019. Addictive behaviors, 124, 107124. https://doi.org/10.1016/j.addbeh.2021.107124

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

[130] 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.

Mental Health

Compared to the general population, individuals who have a substance use disorder are more likely to also have mental health disorders.[131] Individuals with co-occurring substance use and mental health disorders often have medication noncompliance, return to use, homelessness, and suicidal behavior.[132] Overall, there was a significant decrease in mental health problems from intake to follow-up. However, 29.0% individuals were still reporting symptoms of depression and 30.0% were still reporting symptoms of anxiety at follow-up. Also, 28.0% reported symptoms of PTSD at follow-up. Also, even though there were significant reductions in the average number of days individuals reported their mental health was not good at follow-up, the average number of days was 3.7 at follow-up, which is about 1 in 10 days, on average, individuals' mental health was poor in the past 30 days.

Chronic Pain

At follow-up, less than one-fifth of KTOS clients reported persistent chronic pain that lasted at least 3 months. Research has shown that individuals with persistent or chronic pain are more likely to report anxiety, depression, lower overall health ratings[133] and substance use disorders.[134] Self-medication can be problematic in substance use disorder treatment program participants who report chronic pain.[135]

Basic Needs for Recovery Success

Meeting basic needs including health, stable living arrangements, having a purpose with daily meaningful activities, and recovery community are the four key dimensions to recovery.[136] In this year's report, there was no significant change in the percent of individuals who reported having difficulty meeting health care needs from intake to follow-up, and 23.6% reporting difficulty meeting health care needs for financial reasons at follow-up. Even though there was a significant decrease in difficult meeting basic living needs, 35.2% of clients still reported having difficulty meeting basic living needs at follow-up. While the number of clients reporting current full-time employment increased significantly, 43.6% of clients remained unemployed at follow-up. The resulting financial strain from these economic factors could lead to increased substance use to alleviate the

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

[132] Center for Substance Abuse Treatment. Substance Abuse Treatment: Addressing the Specific Needs of Women. Treatment Improvement Protocol (TIP) Series, No. 51. HHS Publication No. (SMA) 15-4426. Rockville, MD: Center for Substance Abuse Treatment, 2009. Retrieved from: https://store.samhsa.gov/shin/content//SMA15-4426/SMA15-4426.pdf.

[133] Gureje, O., Von Korff, M., Simon, G., & Gater, R. (1998). Persistent pain and well-being: A World Health Organization study in primary care. JAMA, 280(2), 147-151.

[134] Ballantyne, J. & LaForge, S. (2007). Opioid dependence and addiction during opioid treatment of chronic pain. Pain, 129(3), 235-255.

[135] Rosenblum, A., Joseph, H., Fong, C., Kipnis, S., Cleland, C., Portenoy, R. (2003). Prevalence and characteristics of chronic pain among chemically dependent patients in methadone maintenance and residential treatment facilities. JAMA, 289(18), 2370-2378.

[136] https://www.samhsa.gov/find-help/recovery

stress.[137] Providing referrals and support for these factors may help improve basic living situations for many clients and support continued recovery living for long-term positive results after treatment.

Multidimensional Recovery Status

Even though there were significantly more individuals who had all positive dimensions of recovery at follow-up than at intake (46.9% vs. 5.1%), the majority of individuals (53.1%) were still classified as not having all eight positive dimensions of recovery.

Gender Differences on Targeted Factors

At follow-up, among the individuals who self-reported they had not completed the SUD program and among individuals who were currently in the program, a higher percentage were female than male. Similar to previous years' reports, many gender differences in targeted factors were found in this report. Most, but not all of these, indicate that more women had overall drug use, more stimulant use, mental health problems, interpersonal victimization experiences, and greater economic hardship relative their male counterparts. More men reported alcohol use, cannabis use, and smokeless tobacco use compared to women.

Compared to men, significantly more women met criteria for severe SUD at intake and reported using illicit drugs in the 12 months before intake. Significantly more women than men reported using stimulants in the 12 months and 30 days before entering treatment. Significantly more men than women reported using alcohol, alcohol to intoxication, and binge drinking in the 12 months before entering treatment. In the 30 days before intake and follow-up, significantly more men reported alcohol use, binge drinking, and alcohol to intoxication compared to women. In the 12 months and 30 days before follow-up, significantly more men reported using cannabis compared to women. More women than men reported that treatment for a substance use problem was considerably or extremely important in the 30 days before treatment. Significantly more men reported using smokeless tobacco in the 12 months and 30 days before intake and follow-up.

Mental health disorders assessed at intake were more frequently reported by women than men. They reported their mental health was not good for significantly more days than men at intake and that poor mental and/or physical health limited their activities in the 30 days before intake. Significantly more women reported they had experienced any interpersonal victimization than men at intake. Research shows that women with co-occurring mental health and substance use disorders have poorer treatment outcomes and high rates of program dropout. Men and women have been shown to use different coping styles and thus may benefit from separate groups to plan recovery support. Women's housing situation, employment, and economic hardship were worse than men's situations at intake and follow-up. First, significantly more women reported homelessness at intake and follow-up when compared to men. Second, more women also reported difficulty meeting basic living needs at intake and follow-up and difficulty meeting health

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

care needs at follow-up compared to men. Significantly more women were unemployed at intake and follow-up when compared to men. Likewise, significantly more men reported they had full-time employment at intake and follow-up when compared to women. Even though women made significant gains in their employment by follow-up, they still lagged behind men in their economic standing. Employed men also had a significantly higher median hourly wage than employed women at both intake and follow-up. At intake, employed women made only $0.76 for every dollar employed men made at intake and $0.77 at follow-up. One possible explanation for men's higher median hourly wage when compared to women's is likely due to gender differences in occupation type. At follow-up, 53.0% of employed women had a service sector job, whereas 48.4% of employed men had a job in the natural resources, construction, and maintenance sector--which has higher average wages than service sector jobs.

Overall, a higher percentage of men reported being supervised by the criminal justice system in the 12 months before entering treatment compared to women. Unlike other reports, no other gender differences were found in the criminal justice outcomes: arrests, incarceration, convictions for misdemeanor offenses, and convictions for felony offenses.

Perceptions of Care and Treatment Outcomes by Program Completion

Participants' perceptions of care in SUD treatment were examined by program completion status to better understand if there were aspects of treatment that individuals who did not complete perceived of differently from individuals who had completed treatment or were currently in treatment at follow-up. For each of the domains (shared decision-making, respect, communication, therapeutic alliance, and perceived effectiveness) the group of individuals who had not completed treatment gave significantly lower ratings than individuals in the other two groups: completed treatment and currently in treatment.

As for overall substance use at follow-up, a significantly higher percentage of individuals who had not completed the program (52.8%) reported problem alcohol use and/or illicit drug use in the 12 months before follow-up than individuals who had completed the program (27.9%) and individuals who were currently in the program (27.4%). Significantly higher percentages of individuals who had not completed treatment reported they had used cannabis, opioids (including heroin), and stimulants/cocaine (including methamphetamine) in the 12 months before follow-up compared to individuals who had completed treatment and individuals who were currently in treatment. Further, a significantly higher percent of individuals who had not completed the program reported criteria that were consistent with severe SUD at follow-up (24.1%) compared to individuals who had completed the program (7.2%).

Mental health issues were associated with program completion status. Smaller percentages of individuals who had completed the program had mental health issues relative to individuals who had not completed the program and also in some cases relative to individuals who were currently in the program (i.e., depression and/or anxiety, number of days of poor mental health). A significantly higher percentage of individuals who had not completed the program reported they were homeless at follow-up compared to individuals who had completed the program. The only criminal justice outcome that

was significantly differently by program completion was arrests in the follow-up period. Specifically, a significantly higher percentage of individuals who did not complete the program reported they had been arrested in the 12-month follow-up period compared to individuals who were currently in the program. Individuals who were currently in treatment had the highest rate of participation in mutual help recovery meetings in the 30 days before follow-up compared to the other two groups.

Study Limitations

The study findings must be considered within the context of the study's limitations. First, because there is no appropriate group of substance-using individuals who would like to receive substance use disorder treatment but do not receive it to compare with the KTOS individuals who participate in treatment, one cannot attribute all changes from intake to follow-up to substance use disorder treatment. Second, because not all clients agree to participate in the 12-month follow-up survey, it is unclear how generalizable the findings are to the entire client population that completes an intake survey. Beginning with the COVID-19 pandemic, the number of KTOS participants and the percent of individuals who have agreed to be contacted for the follow-up study has declined; thus, the generalizability of the current KTOS follow-up participants to all adults receiving SUD treatment in Kentucky's CMHCs is very likely even lower than it was in the report years before 2022. Analysis comparing those individuals who completed a follow-up survey with those who did not complete a follow-up survey (for any reason, for example, they did not agree to be in the follow-up study, they were not selected into the follow-up sample, or they were not successfully contacted for the follow-up survey) found some significant differences between the two groups (gender, race, usual living situation, highest level of education, difficulty meeting basic needs, chronic medical problems, depression, generalized anxiety, suicidality, use of illicit drugs, cannabis, opioids, and stimulants/cocaine, alcohol, alcohol to intoxication, and substance use disorder severity). Most importantly, significantly more women were followed up than were not followed up. For the most part, the significant differences suggest that individuals who were followed up were worse off in terms of physical health, mental health, and substance use severity when compared to individuals who were not followed up. However, a few of the demographic variables indicate that individuals who completed a follow-up survey had better higher education and less unstable housing situations compared to individuals who did not complete a follow-up surveys. Nonetheless, most of the examined factors were not significantly different between the two groups, suggesting that the findings may generalize fairly well to the entire client population.

Third, data included in this report were self-reported by clients. There is reason to question the validity and reliability of self-reported data, particularly about sensitive topics, such as illegal behavior and stigmatizing issues such as mental health and substance use. However, recent research has supported findings about the reliability and

accuracy of individuals' reports of their substance use.[138, 139, 140, 141] Earlier studies found that the context of the interview influences reliability.[142] During the informed consent process for the KTOS follow-up study, interviewers tell participants that the research team operates independently from the community mental health centers, responses will be reported in group format and will not be identifiable at the individual level, and that the research team has a federal Certificate of Confidentiality. These assurances of confidentiality and lack of affiliation with the data collectors may minimize individuals' concern about reporting stigmatizing or illegal behavior or conditions.

Collecting all the secondary data that would be required to estimate the costs and cost savings for the individuals who participated in the KTOS follow-up study is labor intensive, expensive, and beyond the scope of the treatment outcome study; thus, funding constraints prevented estimating actual costs of alcohol and drug abuse for the clients. The cost-offset analysis included in this report is based on using national estimates of the annual cost of alcohol and drug abuse and the annual NSDUH estimate of the number of individuals with alcohol use disorder and drug use disorder in the U.S. to estimate a cost per person with a SUD. This cost per person was then applied to the KTOS clients based on their self-reported alcohol and drug use at intake and follow-up. As with any cost-offset analysis, there are several assumptions underlying the logic of this approach—any of which could prove to be faulty. Therefore, we have clearly laid out the assumptions in Section 11 to help interpret the findings.

Conclusion

This KTOS 2024 report provides a valuable examination of client-level outcomes for adults in publicly-funded substance use disorder treatment in Kentucky. Overall, clients of publicly-funded SUD treatment, including a variety of treatment modalities, made significant strides in all the targeted outcomes. Specifically, there were significant decreases in use of alcohol and all drugs, severity of SUD, depression and anxiety symptoms, suicidality, homelessness, economic hardship, arrests, convictions, and incarceration, and a significant increase in full-time employment, subjective quality of life, and recovery supports. Moreover, an estimate of the cost to Kentucky for alcohol and drug use disorder in the year before treatment compared to the cost to the state for alcohol and drug use in the year after treatment intake, while accounting for the cost of publicly-funded treatment, showed a significant estimated cost savings.

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

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[141] Shannon, E. E., Mathias, C. W., Marsh, D. M., Dougherty, D. M., & Liguori, A. (2007). Teenagers do not always lie: Characteristics and correspondence of telephone and in-person reports of adolescent drug use. Drug and Alcohol Dependence, 90(2), 288-291.

[142] Babor, T. F., Stephens, R. S., & Marlatt, G. A. (1987). Verbal report methods in clinical research on alcoholism: Response bias and its minimization. Journal of Studies on Alcohol and Drugs, 48(05), 410.

|Appendix A. Methods

The KTOS evaluation uses a pre- and post-intervention research design, meaning that client data is collected at treatment intake and compared to data collected 12 months later at follow-up. All publicly-funded substance use disorder treatment programs in Kentucky are required to collect intake data on individuals entering treatment. Intake data are collected by clinicians on-site via an evidence-based 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. During the informed consent process clients are told 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. 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). 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.

Of the 3,474 clients who completed an intake survey in FY 2022, 978 (28.2%) agreed to be contacted for the follow-up study. The percent of clients who agree to be contacted for the follow-up survey has decreased over the past few years, and is varied by region. This suggests that changing ways the information about the follow-up study is being presented to some clients is having a negative impact on their willingness to agree to be contacted. 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 individuals who reported either alcohol or drug use in the 12 months before treatment (or if they did not they were incarcerated all 365 days before entering treatment), and then selecting clients by intake month (n = 822).

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 822 clients included in the follow-up sample, 97 were ineligible for participating in the follow-up survey for a variety of reasons (e.g., incarcerated, in residential treatment, deceased), which left 725 clients eligible for follow-up. Of these clients, 554 completed a follow-up survey (see Table AA.1). Thus, the follow-up rate was 76.4%. The remaining clients either (1) refused (1.5%) to complete the follow-up survey, or (2) were never successfully contacted, or if contacted they never completed the follow-up survey (22.1%).

TABLE AA.1. FINAL CASE OUTCOMES FOR FOLLOW-UP EFFORTS (N = 822)

	Number of Records	Percent
Ineligible for follow-up survey	97	11.8%
	Number of cases eligible for follow-up (N = 725)	
Completed follow-up surveys	554	
Follow-up rate ((the number of completed surveys/ the number of eligible cases)*100)		76.4%
Expired cases (i.e., never contacted, did not complete the survey during the follow-up period)	160	
Expired rate ((the number of expired cases/eligible cases)*100)		22.1%
Refusal	11	
Refusal rate (the number of refusal cases/eligible cases)*100)		1.5%
Cases accounted for (i.e., records ineligible for follow-up + completed surveys + refusals)	662	
Percent of cases accounted for ((the number of cases accounted for/total number of records in the follow-up sample)*100		80.5%

Clients were considered ineligible for follow-up if they were living in a controlled environment during the follow-up period or were deceased (see Table AA.2). Of the 97 cases that were ineligible for follow-up, the majority (80.4%) were ineligible because they were incarcerated during the follow-up period. Among the 97 individuals who were ineligible at the time of follow-up, 12.4% were in residential treatment at the time of follow-up, 6.2% were deceased, at the time of follow-up, and one person (1.0%) had a health condition that prevented participating in the survey.

TABLE AA.2. REASONS CLIENTS WERE INELIGIBLE FOR FOLLOW-UP (N = 97)

	Number	Percent
Incarcerated	78	80.4%
In residential treatment	12	12.4%
Deceased	6	6.2%
Health condition	1	1.0%

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

|Appendix B. Client Characteristics at Intake for Those Who Completed Follow-Up Interviews and Those Who Did Not Complete a Follow-Up Interview

Clients who completed a follow-up interview are compared in this section with clients who did not complete a follow-up interview for any reason[143] *(e.g., did not agree to be contacted for the follow-up survey, not selected into the follow-up sample, ineligible for follow-up, unable to be located for the follow-up).*

Demographics

The majority of the clients represented in this annual report were White (see Table AB.1). Significantly more female clients completed a follow-up survey than did not complete a follow-up survey. A significantly higher percent of individuals who completed a follow-up survey reported a race other than White or Black or multiracial compared to individuals who did not complete a follow-up survey. Age and marital status were not significantly different by follow-up status.

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

	FOLLOWED UP	
	NO n = 2,920	YES n = 554
Age	37.3 years[a]	37.2 years
Gender**		
Male	61.7%	46.2%
Female	38.0%	53.8%
Transgender	0.3%	0.0%
Race*[a]		
White	91.3%	91.2%
African American	5.8%	3.8%
Other or Multiracial	3.0%	5.1%
Marital status		
Never married	30.5%	26.7%
Married or cohabiting	41.1%	45.7%
Separated or divorced	26.2%	24.7%
Widowed	2.2%	2.9%

a—Five individuals had missing values for race.
*p < .01, **p < .001.

Socioeconomic Indicators

[143] Significance is reported for p < .01 because of the large sample size.

More than four-fifths of clients reported that their usual living arrangement in the 12 months before entering substance use disorder treatment was living in their own or someone else's home or apartment (i.e., private residence; see Table AB.2). The second most frequently reported usual living situation was in jail or prison. Small percentages of clients reported their usual living situation was in a residential treatment, sober living home, or in a shelter or on the streets. A significantly higher percent of clients who completed the follow-up survey reported at intake that they lived in a private residence compared to clients who did not complete a follow-up survey.

At the time of entering treatment, around one-fourth of clients reported they were homeless, with no significant difference by follow-up status. Most clients who were currently homeless at intake, considered themselves to be homeless because they were staying temporarily with friends or family, or they were living on the street or in a car, with no significant difference by follow-up status (see Table AB.2).

TABLE AB.2 LIVING SITUATION OF CLIENTS BEFORE ENTERING TREATMENTS[144]

	FOLLOWED UP	
	NO n = 2,920	YES n = 554
Usual living arrangement in the 12 months before entering the program**		
Own or someone else's home or apartment	80.6%[a]	87.1%[b]
Residential treatment, Recovery Center, sober living home, personal care home, hospital, school or work dormitory	4.4%a	2.0%b
Jail or prison	8.9%a	5.6%b
Shelter, hotel/motel, or on the street	6.0%	4.5%
Other or multiple situations above	0.1%	0.7%
Considers self to be currently homeless	24.5%	27.4%
Why the individual considers himself/herself to be homeless[145]	(n = 705)	(n = 151)
Staying temporarily with friends or family	45.8%	51.0%
Staying on the street or living in car	40.6%	41.7%
Staying in a shelter	7.5%	2.0%
Staying in a hotel or motel	3.1%	2.0%
Incarcerated and does not have a place to stay after release	1.4%	1.3%
Staying in residential treatment, recovery center, or hospital	0.7%	0.0%
Multiple options selected (such as all of the above)	0.7%	2.0%
Other reason	0.1%	0.0%

a,b—subscripts not sharing the same value are significantly different at $p < .01$.
**$p < .001$.

Measures of economic hardship may be better indicators of the actual day-to-day stressors clients face than a measure of income. Therefore, the intake survey included several questions about clients' ability to meet expenses for basic needs and food insecurity. Clients were asked eight items, five of which asked about inability to meet basic

[144] Six individuals had missing data for usual living situation.
[145] Ten individuals had missing for the reasons they considered themselves to be unhoused.

living 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 percent of clients who reported inability to meet basic living needs (e.g., food, shelter, utilities, telephone), and any of their health care needs for financial reasons. A significantly higher percent of individuals who completed a follow-up reported that in the 12 months before they entered treatment their household had difficulty meeting the basic living needs of food, shelter, utilities, or telephone and difficulty meeting health care needs because of financial reasons compared to those who did not complete a follow-up.

TABLE AB.3. DIFFICULTY MEETING BASIC AND HEALTHCARE NEEDS IN THE 12 MONTHS BEFORE ENTERING TREATMENT

	FOLLOWED UP	
	NO n = 2,920	YES n = 554
Had difficulty meeting basic living needs (e.g. shelter, utilities, phone, food)**	36.4%	44.0%
Had difficulty obtaining needed health care for financial reasons (e.g., doctor visit, dental care, or fill prescription)*	20.1%	25.3%

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

Table AB.4 describes clients' level of education when entering treatment. A significantly higher percent of individuals who completed a follow-up survey reported they had an education level beyond a high school diploma/GED relative to individuals who did not complete a follow-up survey. Almost half of individuals who did not complete a follow-up survey reported at intake that their highest level of education was a high school diploma/GED.

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

	FOLLOWED UP	
	NO n = 2,920	YES n = 554
Highest level of education completed**		
Less than GED or high school diploma	24.9%	21.1%
GED or high school diploma	46.7%a	42.1%b
Some vocational school to graduate school	28.4%a	36.8%b

a,b—subscripts not sharing the same value are significantly different at p < .01.
**p < .001.

There was no difference in the number of months clients worked in the 12 months before treatment intake by follow-up status (see Table AB.5).

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

	FOLLOWED UP	
	NO n = 2,468	YES n = 457
Employment		
Percent of clients who reported working for:[146]		
0 months	46.5%	44.6%
1 to 5 months	7.5%	8.5%
6 months or more	45.9%	46.8%
Among those who were employed:	n = 1,320	n = 253
Average # of months employed in the past 12 months	9.1 months	8.7 months

Among the clients who reported they were currently unemployed at treatment intake, there was no significant difference in their unemployment situation (see Table AB.6).

TABLE AB.6. DESCRIPTION OF SITUATION AMONG THOSE NOT EMPLOYED

	FOLLOWED UP	
	NO n = 1,723	YES n = 329
Describe type of unemployment		
Unemployed but looking for work	36.1%	33.7%
Unemployed but on furlough or laid-off	1.2%	1.8%
Unemployed but keeping house or caring for children	9.1%	13.7%
On disability/applied for disability	24.8%	23.1%
In a controlled environment (jail or treatment center)	13.6%	12.2%
Unemployed, not looking for work	12.6%	12.2%
Other (Retired, student, health issues, other)	2.7%	3.3%

Criminal Justice System Involvement

Less than one half of clients reported being under supervision by the criminal justice system, with no difference by follow-up status (see Table AB.7).

Over half of clients reported they had been arrested in the 12 months before entering treatment, with no difference by follow-up status. Of the clients who reported they were arrested, clients who did not complete a follow-up and clients who completed a follow-up reported an average of 1.9 arrests. The majority of both groups reported being incarcerated at least one night in the 12 months before entering treatment (see Table AB.7). Among the clients who were incarcerated at least one night, the average incarceration time in the 12 months before entering treatment was 67.7 days for clients who were not followed up and 52.5 days for clients who were followed up, which was

[146] Because of data inconsistencies, 97 individuals had missing values for number of months employed in the 12 months before entering treatment.

significantly lower.

TABLE AB.7. CRIMINAL JUSTICE SYSTEM INVOLVEMENT WHEN ENTERING TREATMENT

	FOLLOWED UP	
	NO n = 2,920	YES n = 554
Currently under supervision by the criminal justice system	44.8%	46.0%
Arrested for any charge in the 12 months before entering treatment	53.2%	56.9%
Of those with an arrest,	n = 1,549	n = 314
Average number of arrests	1.9	1.9
Incarcerated at least one day	58.0%	57.4%
Of those incarcerated	(n = 1,693)	(n = 318)
Average number of days incarcerated in the past 12 months*	67.7	52.5

*p < .01.

Physical Health

Physical health measures were included in the intake survey (see Table AB.8). Clients rated their overall health as 3.0 (for clients who did not complete a follow-up) and as 2.9 (for clients who completed a follow-up), with no statistically significant difference. Clients' self-reported average number of days their physical health was not good did not differ by follow-up status.

There were no group differences for average number of days physical health was not good and the percent with chronic pain. Clients were asked at intake if a doctor had ever told them they had any of the 12 chronic medical problems listed (e.g., asthma, arthritis, cardiovascular disease, diabetes, chronic obstructive pulmonary disease [COPD], tuberculosis, severe dental disease, cancer, Hepatitis B, Hepatitis C, HIV, and other sexually transmitted diseases). A significantly higher percent of followed-up individuals reported at intake that they had been diagnosed with a chronic medical problem relative to individuals who were not followed-up (62.6% vs. 53.9%).

TABLE AB.8. PHYSICAL HEALTH STATUS AT INTAKE

	FOLLOWED UP	
	NO n = 2,920	YES n = 554
Average rating of overall health [1 = Poor, 5 = Excellent]	3.0	2.9
Average number of days physical health was not good in the past 30 days	6.1	6.8
Chronic pain (lasting at least 3 months)	25.7%	29.2%
Ever told by a doctor that client had one of the chronic medical problems listed**	53.9%	62.6%

**p < .001.

Mental Health

The mental health questions included in the KTOS intake and follow-up surveys are not clinical measures, but instead are research measures (see Table AB.9). A total of 9 questions were asked to determine if they met study 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: 54.2% vs. 43.8%.

A total of 7 questions were asked to determine if clients met study criteria for generalized anxiety, including the leading question: "In the 12 months before you entered this program, did you have a period lasting 6 months or longer where you worried excessively or were anxious about multiple things on more days than not (like family, health, finances, school, or work difficulties)?" Significantly more clients who completed a follow-up interview than clients who did not complete a follow-up interview reported symptoms that met study criteria for generalized anxiety: 56.7% vs. 44.0%.

Significantly higher percentages of individuals who completed a follow-up survey reported symptoms that met criteria for PTSD and suicidal ideation/attempts at intake compared to individuals who did not complete a follow-up survey. Also, individuals who completed a follow-up survey had a significantly higher average number of days they reported their mental health was not good in the 30 days before intake compared to individuals who did not complete a follow-up survey (13.1 vs. 10.8%).

TABLE AB.9. PERCENT OF CLIENTS REPORTING MENTAL HEALTH PROBLEMS IN THE 12 MONTHS BEFORE ENTERING TREATMENT

	FOLLOWED UP	
	NO n = 2,920	YES n = 554
Depression**	43.8%	54.2%
Generalized Anxiety Disorder**	44.0%	56.7%
Met criteria for PTSD**	17.7%	25.8%
Suicidality (e.g., thoughts of suicide or suicide attempts)*	14.4%	18.8%
Number of days mental health was not good**	10.8	13.1

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

Substance Use

Use of illicit drugs in the 12 months before entering treatment is presented by follow-up status in Table AB.10. Significantly more clients who completed a follow-up survey reported using any illicit drugs, cannabis, stimulants/cocaine, and opioids compared to those who did not complete a follow-up.

TABLE AB.10. PERCENT OF CLIENTS REPORTING ILLICIT DRUG USE IN THE 12 MONTHS BEFORE ENTERING TREATMENT[147]

	FOLLOWED UP	
	NO n = 2,896	YES n = 548
Any illicit drug**	74.9%	87.8%
Cannabis**	50.0%	59.7%
Stimulants and cocaine**	50.4%	61.9%
Opioids (prescription, methadone, suboxone)*	30.0%	36.1%
Heroin	14.0%	16.2%
CNS depressants (tranquilizers, sedatives, benzodiazepines, barbiturates)	13.7%	16.6%
Synthetic Drugs (synthetic marijuana, bath salts)	6.3%	9.3%
Hallucinogens	5.4%	6.6%
Inhalants	1.2%	2.0%

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

Among individuals who were no in a controlled environment all 365 days before entering treatment, a significantly higher percent of individuals who completed a follow-up survey reported they had used alcohol and alcohol to intoxication in the 12 months before entering treatment compared to individuals who did not complete a follow-up survey (see Table AB.11). There was no difference in binge drinking by follow-up status.

[147] Thirty individuals were not included in the substance use comparison because they were incarcerated all 365 days before entering treatment.

TABLE AB.11. PERCENT OF CLIENTS REPORTING ALCOHOL USE IN THE 12 MONTHS BEFORE ENTERING TREATMENT

	FOLLOWED UP	
	NO n = 2,896	YES n = 548
Alcohol**	42.9%	51.1%
Alcohol to intoxication*	29.7%	36.1%
Binge drank alcohol *(i.e., drank 5 or more (4 for women)* drinks in 2 hours	26.9%	32.1%

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

A majority of followed-up and non-followed-up clients reported they had smoked tobacco products in the 12 months before entering treatment, with no difference by follow-up status (see Table AB.12). A minority of both groups reported using vaporized nicotine and smokeless tobacco use, with no difference by follow-up status.

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

	FOLLOWED UP	
	NO n = 2,896	YES n = 548
Smoked tobacco	78.0%	81.6%
Vaporized nicotine	34.9%	36.6%
Used smokeless tobacco	17.5%	16.4%

Self-reported severity of alcohol and drug use was measured with Addiction Severity Index (ASI) alcohol and drug composite scores. Alcohol and drug composite scores are presented in Table AB.12 The lowest composite score is 0 and the highest composite score is 1.0.

Of clients who were not in a controlled environment all 30 days, 39.1% of those not followed-up and 52.7% of those followed-up met or surpassed the Addiction Severity Index (ASI) composite score cutoff for alcohol and/or drug severe SUD, which was a significant difference (see Table AB.13). Significantly more clients who completed a follow-up surpassed the cutoff score for severe drug use disorder when compared to those who did not complete a follow-up (37.1% vs. 27.9%).

Among clients who were not in a controlled environment all 30 days before entering the program, the average score for the drug severity composite score was 0.12 for clients who did not complete a follow-up interview and 0.15 for followed up clients, which was statistically significant (see Table AB.13).

TABLE AB.13. SUD AND DEPENDENCE PROBLEMS AT INTAKE

	Not in a controlled environment all 30 days before entering treatment	
	FOLLOWED UP	
	NO n = 2,582	YES n = 491
Percent of clients with ASI composite score equal to or greater than cutoff score for ...		
Severe alcohol or drug use disorder**	39.1%	52.7%
Severe alcohol use disorder	18.0%	22.2%
Severe drug use disorder**	27.9%	37.1%
Average composite score for alcohol use[a]	.11	.13
Average composite score for drug use[b]**	.12	.15

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

A similar percent of clients in the follow-up and non-follow-up groups reported they had a history of prior substance use disorder treatment in their lifetime (see Table AB.14). Among clients who reported a history of substance use disorder treatment, there was no significant difference in the average number of treatment episodes by follow-up status.

TABLE AB.14. HISTORY OF SUBSTANCE USE DISORDER TREATMENT IN LIFETIME

	FOLLOWED UP	
	NO n = 2,920	YES n = 554
Ever been in substance use disorder treatment in lifetime	58.9%	59.9%
Among those who had ever been in substance use disorder treatment in lifetime,	(n = 1,719)	(n = 332)
Average number of times in treatment	2.9	3.3