



KENTUCKY TREATMENT OUTCOME STUDY

2024 OUTCOMES AND TRENDS FINDINGS AT A GLANCE

Suggested citation: Cole, J., Logan, T., & Scrivner, A. (2024). *Kentucky Treatment Outcome Study 2024 Outcomes and Trends Findings at a Glance*. Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

Introduction

This document summarizes major outcomes from the Kentucky Treatment Outcome Study (KTOS) 2024 Annual Report. KTOS is an important part of the Department for Behavioral Health, Developmental and Intellectual Disabilities performance-based measurement of client-level SUD treatment outcomes over time in Kentucky's community mental health clinics (CMHCs).

The purpose of this document is to present client perceptions of care and outcomes for targeted factors including: (1) substance use and severity of substance use (2) subjective quality of life, and (3) multidimensional recovery.

Many states' performance indicator efforts focus on access and process of SUD treatment, with less attention to client outcomes, because of the cost, lack of human resources, and difficulty of carrying out systematic evaluations (Harris et al., 2009). Thus, Kentucky's multi-year client-level outcome evaluation of publicly-funded SUD treatment, Kentucky Treatment Outcome Study (KTOS), is a valuable resource for understanding and informing publicly-funded SUD treatment in Kentucky.

KTOS Method

KTOS collects data that can be used statewide or on a regional level to inform practice, programs, legislators, and other stakeholders to better understand the specific context in which SUD programs operate. The KTOS evaluation uses a pre- and post-intervention research design; client-level data is collected at treatment intake and compared to data collected 12 months later at follow-up. Intake data are collected by clinicians using an evidence-based web-based survey. Clients who agree to be contacted provide contact information in a web-based form. Identifying data are encrypted as the data are submitted on the web-based survey and locator form.

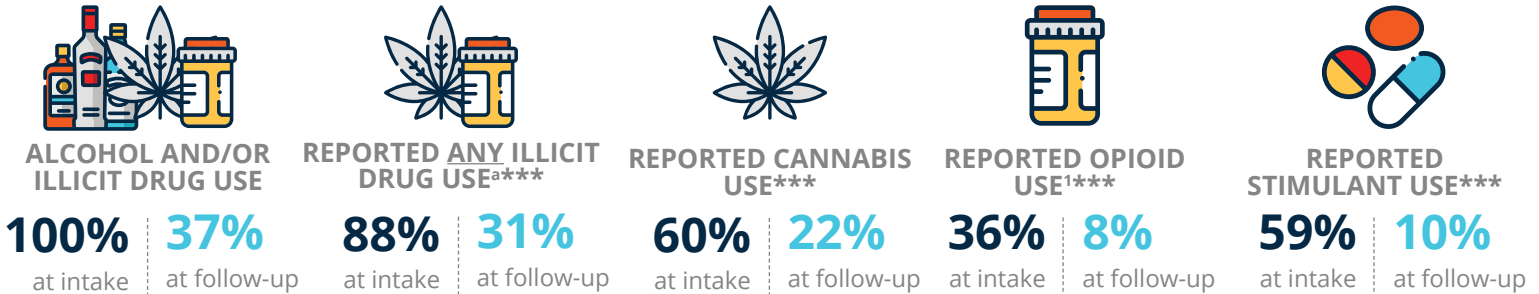
About 12 months after clients complete intake interviews, interviewers on the research team at the University of Kentucky Center on Drug and Alcohol Research (UK CDAR) contact participants who agree to be contacted to complete the follow-up interview and who are selected into the follow-up sample. The research team uses several strategies to facilitate accurate reporting of sensitive information: (1) the follow-up interviews are conducted by telephone with a UK CDAR staff person who is not associated with the treatment facility/recovery program; (b) individuals are informed that their responses are confidential and are reported at a group level only, meaning their responses are not linked to their 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 of research data is protected under federal law through a federal Certificate of Confidentiality; (e) participants can skip any questions they do not want to answer; and (f) UK CDAR staff go through an extensive training to facilitate accurate reporting and adhere to procedures to ensure data integrity and confidentiality of data. Details on how KTOS is conducted are presented in Appendix of the KTOS 2024 Annual Report (<https://cdar.uky.edu/KTOS/>).

In 2021 the average number of outgoing calls to reach clients was 14.5. A total of 23 calls were made for each completed follow-up survey. An average of 4.1 mailings were sent for every completed follow-up survey

Clients (n = 554) included in the KTOS 2024 Annual Report completed intake assessments in FY 2022 (July 1, 2021 through June 30, 2022) and then follow-up surveys with target months between July 1, 2022 through June 30, 2023). Also included in the KTOS 2024 Annual Report are trend graphs in targeted factors at intake and follow-up over more than a decade of annual reports.

Targeted Outcomes

Illicit Drug Use

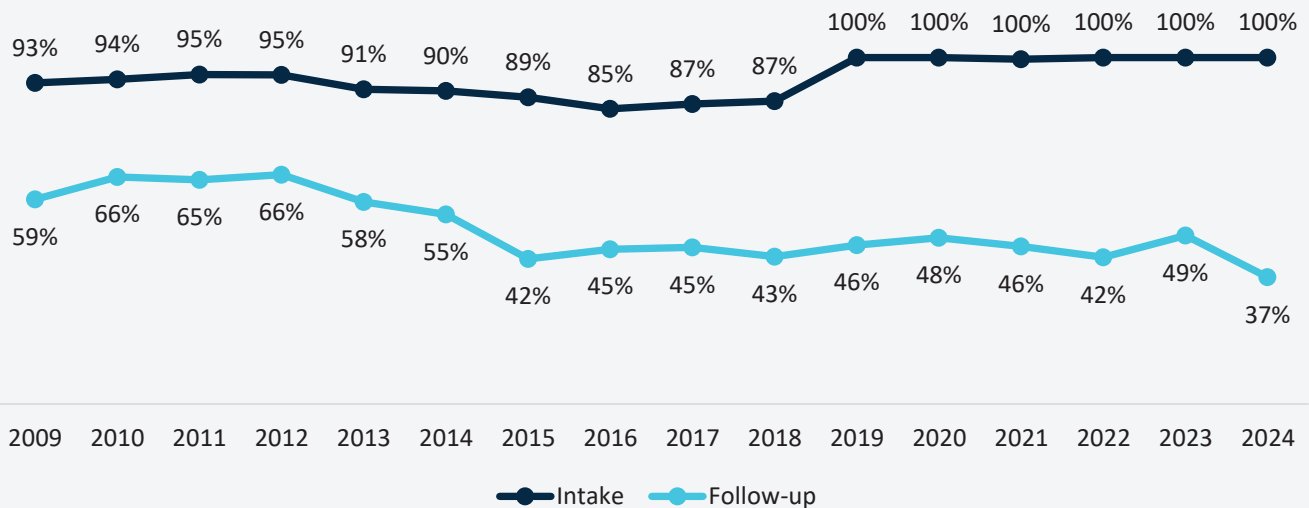


^a Including illicit use of opioids other than heroin, including prescription opioids, methadone, and buprenorphine-naloxone (bup-nx).
^{***}p < .001.

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.¹ At follow-up, the number of clients reporting alcohol and/or illicit drug use has decreased over the years.

FIGURE 1. TRENDS IN ANY ALCOHOL AND/OR ILLICIT DRUG USE AT INTAKE AND FOLLOW-UP, REP 2009-2024²



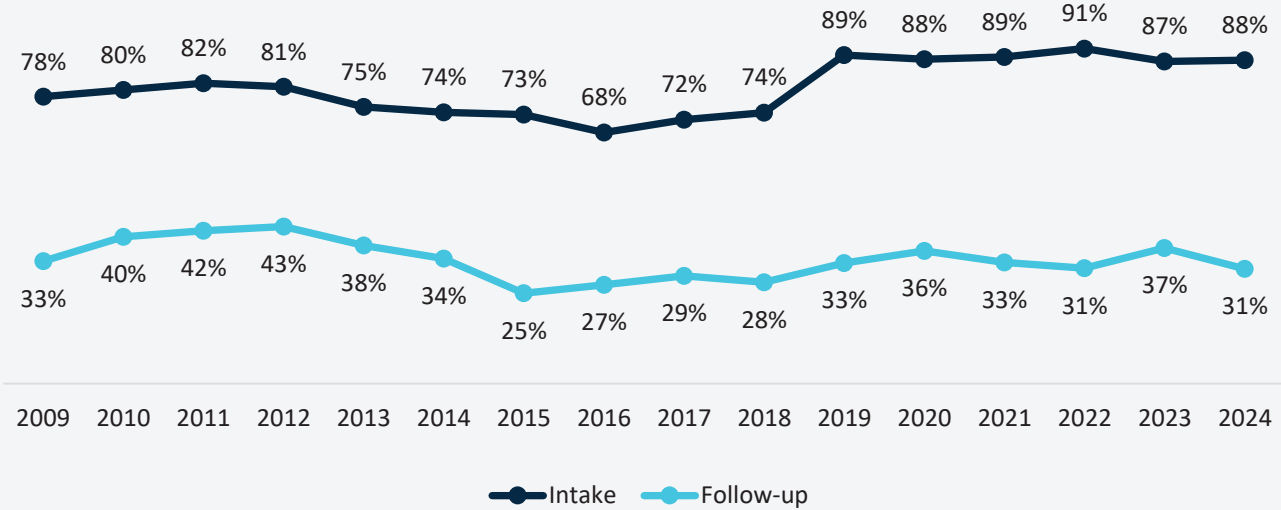
¹ In the several years preceding Rep 2019, the research team noticed that an increasing proportion of clients with completed KTOS intake surveys reported no substance use. Because the focus of this report is on SUD treatment outcomes, to be included in the follow-up study individuals had to report past-12-month alcohol and/or drug use, if they were not incarcerated the entire 12 months before entering the program.

² 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%.

Trends in 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 2024.³ 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. TRENDS IN ANY PAST-12-MONTH ILLICIT DRUG USE AT INTAKE AND FOLLOW-UP, REPORTS 2009 - 2024



Alcohol Use



REPORTED ANY ALCOHOL USE***

51% at intake | **17%** at follow-up



REPORTED PROBLEM ALCOHOL USE ***

(i.e., alcohol use to Intoxication and/or binge drinking)

39% at intake | **8%** at follow-up

A significantly smaller percent of individuals reported alcohol and problem alcohol use at follow-up than at intake.

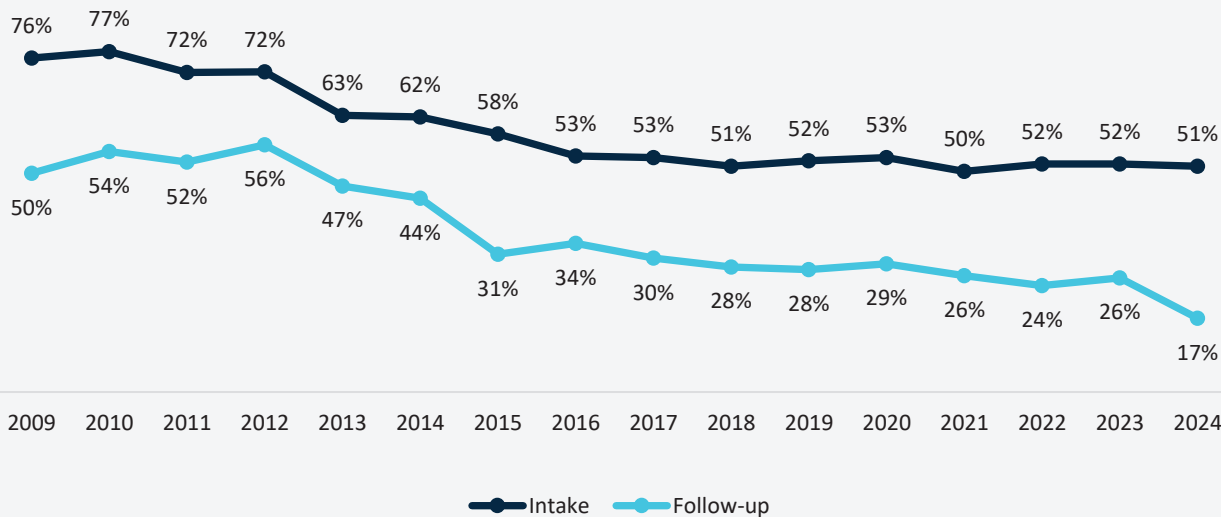
***p < .001.

³ 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.

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



Severity of Substance Use Disorder

At intake, the majority of clients met criteria for severe SUD per DSM-5 symptom criteria, while at follow-up, only 12% of clients met criteria for severe SUD.



MET DSM-5 CRITERIA FOR SEVERE SUD***

63% at intake | **12%** at follow-up

Nicotine Use



REPORTED SMOKING TOBACCO USE***

81% at intake | **70%** at follow-up



REPORTED VAPORIZED NICOTINE USE

36% at intake | **40%** at follow-up

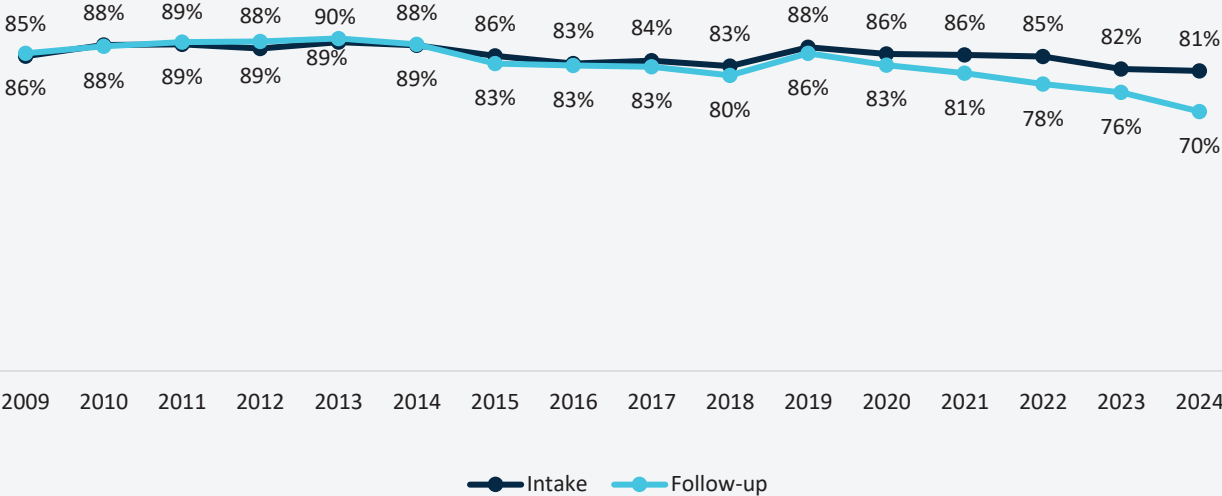
The percent of clients who reported smoking tobacco decreased from intake to follow-up, but there was no significant change in vaping e-cigarettes.

***p < .001.

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 2013. 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.

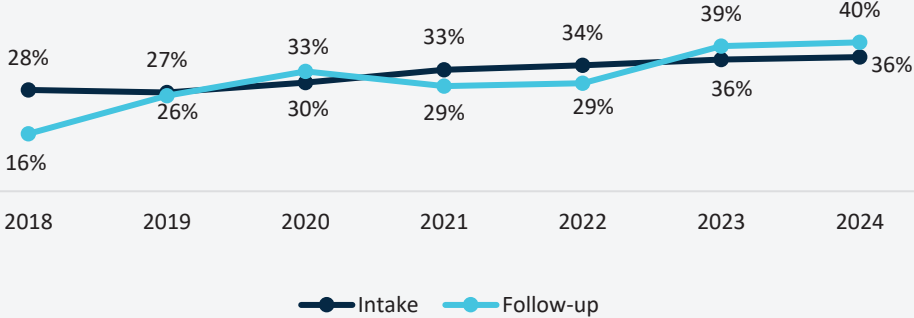
FIGURE 4. TRENDS IN SMOKING TOBACCO USE AT INTAKE AND FOLLOW-UP, REPORTS 2009-2024



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



Subjective Quality of Life



AVERAGE QUALITY OF LIFE RATING***

(1 = 'Worst imaginable' to 10 = 'Best imaginable')

7.2 | **8.3**

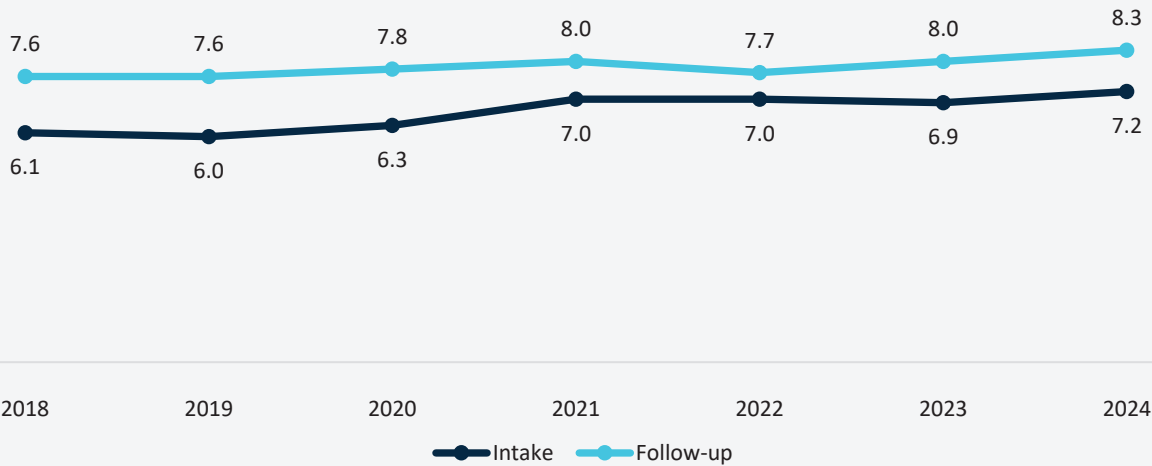
at intake | at follow-up

Individuals' average rating of their quality of life was significantly higher at follow-up than at intake.

Trends in Subjective Quality of Life

KTOS clients rated their quality of life between 6.0 and 7.2, on average, at intake. The average quality of life rating at follow-up ranged from 7.6 to 8.3. Over the past 7 years, at both intake and follow-up, clients rated their quality of life as the highest in 2024.

FIGURE 6. TRENDS IN THE RATING OF SUBJECTIVE QUALITY OF LIFE AT INTAKE AND FOLLOW-UP, REPORTS 2018 - 2024



Multidimensional Recovery Status

The multidimensional recovery status is based on individuals' reports of: no substance use disorder, employed at least part-time or in school, no reported homelessness, no arrest or incarceration, no suicide ideation (thoughts or attempts), fair to excellent overall health, had at least one person he/she could count on for recovery support, and mid to high-level of quality of life indicative of recovery.

***p < .001.



HAVING ALL POSITIVE RECOVERY DIMENSIONS***

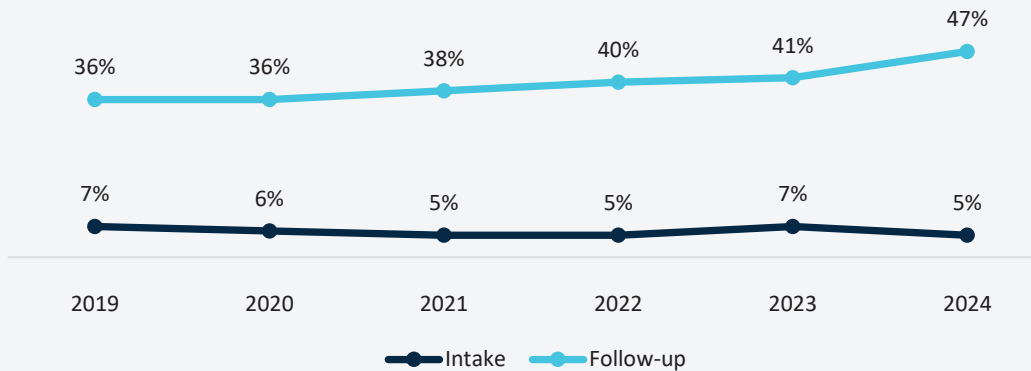
5% | **47%**

at intake | at follow-up

Trends in Clients Having All Positive Dimensions of Multidimensional Recovery

The percent of clients who had all positive dimensions of recovery ranged from a low of 5% to 7% at intake. For each year at follow-up, the percent of clients who had all positive dimensions of recovery was significantly higher when compared to intake and ranged from 36% in 2019 and 2020 to a high of 47% in 2024.

FIGURE 7. TRENDS IN THE PERCENT OF CLIENTS HAVING ALL POSITIVE DIMENSIONS OF MULTIDIMENSIONAL RECOVERY AT INTAKE AND FOLLOW-UP, REPORTS 2019 - 2024



Suicidality



REPORTED SUICIDAL THOUGHTS AND/OR ATTEMPTS***

19% at intake | **7%** at follow-up

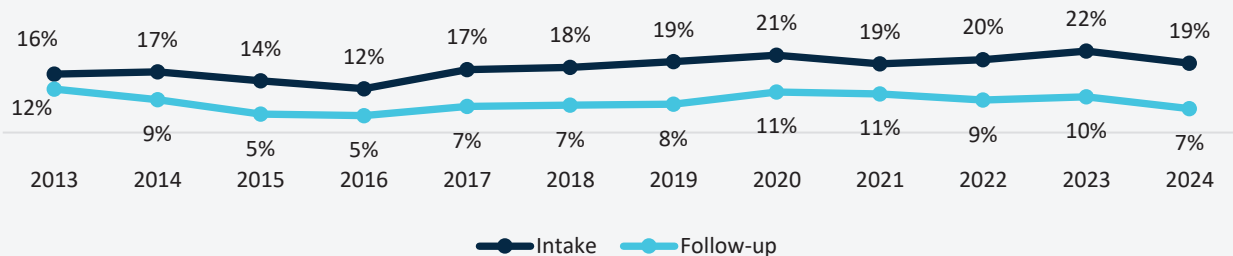
A significantly lower percent of individuals reported suicidal thoughts and/or attempts at follow-up than at intake.

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



Criminal Justice Involvement



REPORTED ANY ARREST***

57% at intake | **24%** at follow-up



REPORTED BEING INCARCERATED***

57% at intake | **27%** at follow-up

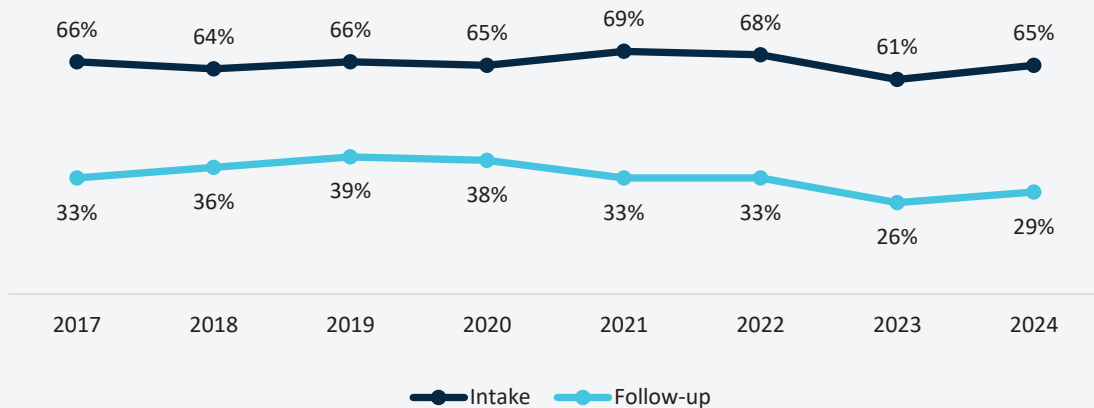
The percent of individuals involved in the criminal justice system decreased from intake to follow-up.

***p < .001.

Trends in Past-12-month Arrest and/or Incarceration

Over the past 8 years the percent of clients reporting an arrest and/or incarceration in the past 12 months at intake has ranged from a low of 61% in the 2023 report to a high of 69% 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 9. TRENDS IN THE NUMBER OF CLIENTS REPORTING BEING ARRESTED AND/OR INCARCERATED AT INTAKE AND FOLLOW-UP, REPORTS 2017 - 2024



Client Perception of the Treatment Program

Client Satisfaction

Client Perception of Care

At follow-up, clients were asked to rate their experience with the treatment program on a scale of 0 = "worst experience" to 10 = "best experience"



8.4
average rating

Satisfaction with Aspect of the Treatment Program



84%
program staff believed in me and that treatment would work for me

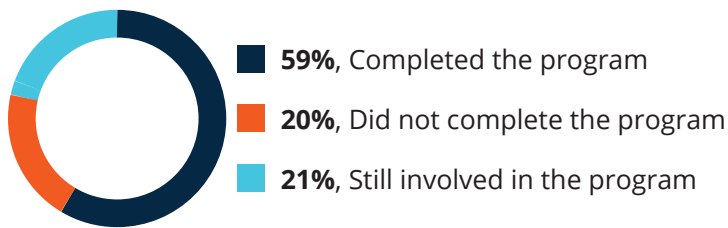


83%
felt listened to and heard by counselor or program staff



82%
worked on things that were most important to me

Client Involvement in the Program



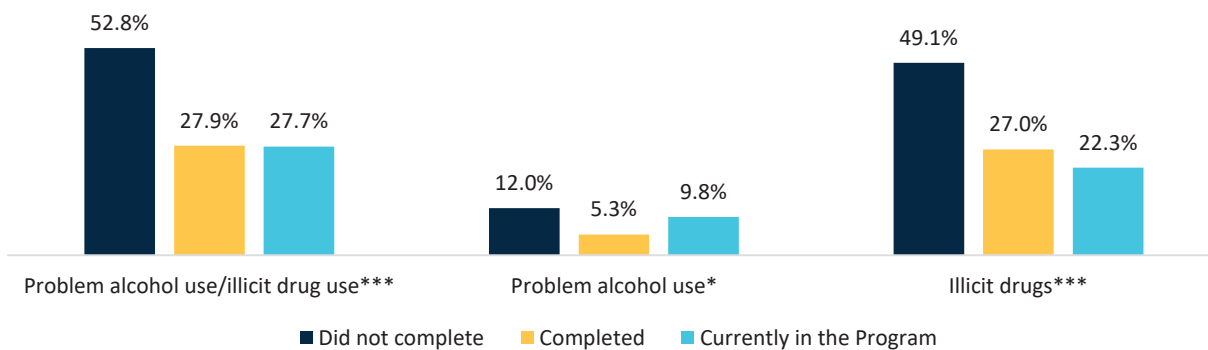
The majority of individuals self-reported that they had completed the SUD program/treatment.

Association of Targeted Outcomes with Program Completion Status

Substance Use

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%). 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 10. SUBSTANCE USE IN THE 12-MONTH FOLLOW-UP PERIOD BY PROGRAM COMPLETION STATUS

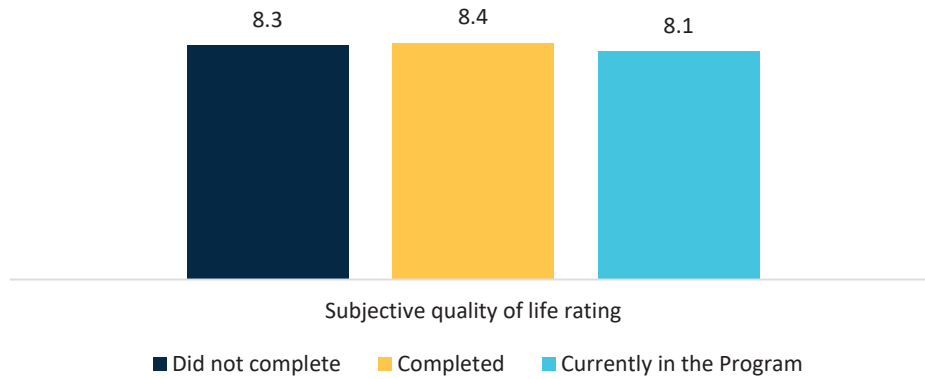


*p < .05, ***p < .001.

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).

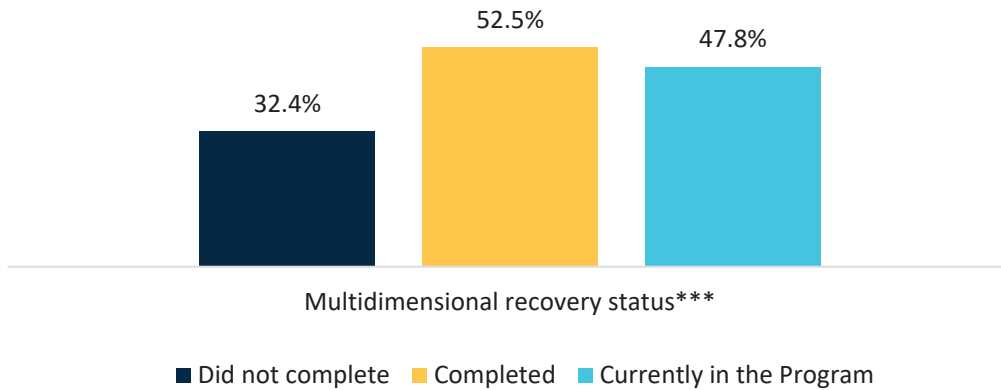
FIGURE 11. AVERAGE RATING OF QUALITY OF LIFE AT FOLLOW-UP BY PROGRAM COMPLETION STATUS



Multidimensional Recovery

A significantly higher percent of individuals who had completed the program reported they had all dimensions of recovery at follow-up compared to individuals who had not completed the program.

FIGURE 12. MULTIDIMENSIONAL RECOVERY STATUS BY PROGRAM COMPLETION STATUS

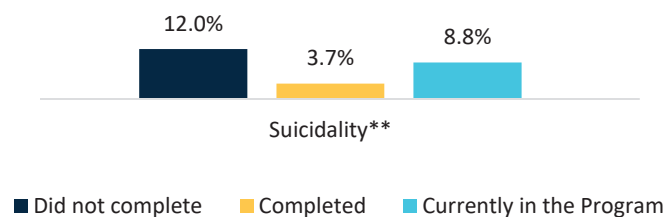


***p < .001.

Suicidality

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 13. SUICIDALITY IN THE 12-MONTH FOLLOW-UP PERIOD BY PROGRAM COMPLETION STATUS

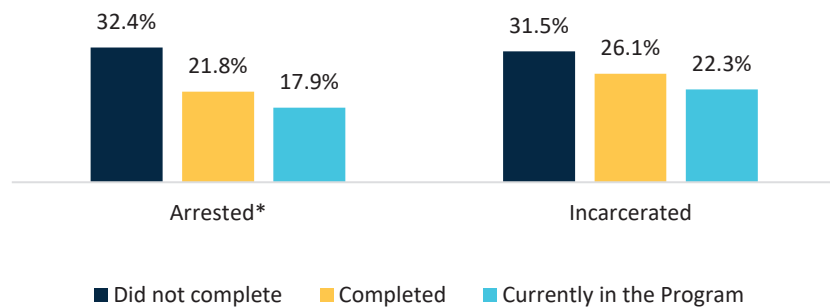


**p < .01.

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. There was no significant association between program completion status and incarceration during the follow-up period.

FIGURE 14. ARRESTS AND INCARCERATION DURING THE 12-MONTH FOLLOW-UP PERIOD BY PROGRAM COMPLETION STATUS



*p < .05.

Conclusion

Kentucky's multi-year client-level outcome evaluation, KTOS, is a valuable resource for understanding and informing publicly-funded SUD treatment. 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.

Examination of changes from intake to follow-up over many years provides the opportunity to see trends over time. Trends in 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. 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.⁴ More KTOS clients reported using stimulants than reported using opioids in the 12 months before entering treatment. Moreover, higher percentages reported using stimulants in the follow-up period than reported using opioids. Alcohol use among KTOS clients has been steadily declining at intake and follow-up since the 2010 report.

Each report year since subjective quality of life has been included in the surveys, clients have rated their quality of life at follow-up as significantly greater than their quality of life at intake. Having a question that integrates information from many aspects of a person's life can be powerful in understanding the full scope and nature of where

⁴ Among the individuals who reported using stimulants at intake, 98.8% of them reported using methamphetamine.

individuals are holistically with their current situation.⁵

The percent of individuals who report having all positive dimensions of recovery (based on severity of SUD, homelessness, employment, suicidality, overall health, having at least one person who provides recovery support, and subjective quality of life) has been significantly greater at follow-up than at intake for each report that has included this analysis.

Suicidality has been significantly lower at follow-up compared to intake each year for more than a decade. Trends in criminal justice outcomes show that each year there are significant decreases in the percent of individuals who reported arrests and/or incarceration at follow-up compared to intake. In the past three reports, the percent of individuals who reported an arrest and/or incarceration at intake was more than double the percent of individuals at follow-up.

The 2024 KTOS evaluation indicates that publicly-funded SUD treatment programs in Kentucky have been successful in facilitating positive changes in clients' lives in a variety of ways, including decreased substance use, decreased severity of substance use disorder, increased quality of life, increased multidimensional recovery, decreased suicidality, and decreased involvement with the criminal justice system. Overall, KTOS clients had significant improvements in key factors that have been associated with facilitating recovery.

Suggested citation: Cole, J., Logan, T., & Scrivner, A. (2024). *Kentucky Treatment Outcome Study 2024 Outcomes and Trends Findings at a Glance*. Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

⁵ Logan, T. & Cole, J. (2024). Subjective quality-of-life rating at substance use disorder treatment entry: associated client recovery needs and outcomes. *Journal of Social Work Practice in the Addictions*, 24(2), 193-211. DOI: 10.1080/1533256X.2023.2164967.