

Kentucky Opiate Replacement Treatment Outcome Study

Second Annual Follow-up Report
2012

*Outcome findings on intake assessments completed March 2007 through December
2010 and follow-up assessments completed July 2010 through June 2011*

TABLE OF CONTENTS

	PAGE
TABLE OF CONTENTS	i
EXECUTIVE SUMMARY	ii
INTRODUCTION	1
KORTOS STUDY OVERVIEW	2
KORTOS REPORT FORMAT	3
SOCIO-DEMOGRAPHICS OF CLIENTS AT OTP INTAKE	4
CHANGE FROM INTAKE TO FOLLOW-UP IN SUBSTANCE USE ABSTINENCE	6
TOBACCO ABSTINENCE	6
ALCOHOL ABSTINENCE	6
COCAINE ABSTINENCE	7
MARIJUANA ABSTINENCE	8
HEROIN ABSTINENCE	9
NON-PRESCRIPTION OPIOID ABSTINENCE	9
NON-PRESCRIPTION METHADONE ABSTINENCE	10
STIMULANT ABSTINENCE	11
TRANQUILIZER ABSTINENCE	12
CHANGE FROM INTAKE TO FOLLOW-UP IN EMPLOYMENT	13
CHANGE FROM INTAKE TO FOLLOW-UP FOR CRIMINAL JUSTICE SYSTEM INVOLVEMENT BY GENDER	14
CHANGE FROM INTAKE TO FOLLOW-UP FOR MENTAL HEALTH BY GENDER	16
TREATMENT EXPERIENCE AND CLIENT SATISFACTION	17
CLIENT SELF-REPORTED MEDICATION INFORMATION	17
TREATMENT SATISFACTION	18
REPORT SUMMARY AND CONCLUSIONS	21
SUBSTANCE ABSTINENCE	21
EMPLOYMENT	22
CRIMINAL JUSTICE SYSTEM INVOLVEMENT	22
PHYSICAL AND MENTAL HEALTH	22
SATISFACTION WITH OTP	23
CONCLUSIONS	23

KORTOS Second Annual Follow-up Report 2012

Kentucky Department for Behavioral Health,
Developmental and Intellectual Disabilities
Division of Behavioral Health
100 Fair Oaks Lane, 4E-D
Frankfort, KY 40621-0001
(502) 564-4448

Presented by:

Louis Kurtz, M.Ed.
Acting Director
Jeff Jamar, M.S.W.
Substance Abuse Treatment Branch Manager
Mark Fisher, M.S.
State Opioid Treatment Authority

Report Prepared by:

Erin Stevenson, Ph.D., M.S.W.
Allison Scrivner, M.S.
Jennifer Cole, Ph.D.
Robert Walker, M.S.W., L.C.S.W.
TK Logan, Ph.D.
University of Kentucky Center on Drug and Alcohol Research

June 2012

University of Kentucky
Center on Drug and Alcohol Research
333 Waller Ave, Suite 480
Lexington, KY 40504
(859) 257-1521

Suggested citation: Stevenson, E., Scrivner, A., Cole, J., Walker, R., & Logan, TK. (2012). Kentucky's Opiate Replacement Treatment Outcome Study - 2012 Annual Report. Lexington, KY: University of Kentucky, Center on Drug & Alcohol Research.

The Kentucky Opiate Replacement Treatment Outcome Study 2012 Follow-up Findings report is available as a PDF on the University of Kentucky Center on Drug and Alcohol Research website at <http://cdar.uky.edu/bho>



EXECUTIVE SUMMARY

Kentucky continues to experience high rates of prescription opioid drug abuse along with much of the Appalachian region.

Ten-year trends show a steady rise in individuals seeking treatment for abuse of prescription opioids (SAMHSA, 2011). In most states, persons addicted to opioids can seek recovery help from drug dependence through treatment with methadone or buprenorphine at a federally licensed opiate treatment program (OTP).

Kentucky's OTP outcome study began in 2007 with joint oversight of the Kentucky Division of Behavioral Health Director and the Kentucky Narcotic Treatment Authority. All Kentucky licensed OTPS participate in the state outcome study – KORTOS – by providing client level data as part of their licensure agreements. Kentucky Opiate Replacement Treatment Outcome Study (KORTOS) is an evaluative research project designed and managed by the University of Kentucky Center on Drug and Alcohol Research (UK CDAR) through a contract with the Division of Behavioral Health. The KORTOS project collects data on clients in Kentucky who are in treatment at an OTP with methadone or buprenorphine. These data are collected only in licensed opiate treatment programs and do not include data from independent physicians who prescribe buprenorphine.

Outcome findings are based upon intake assessments completed March 2007 through December 2010 and

follow-up assessments completed July 2010 through June 2011

In addition, client status data provide statewide disaster preparedness to ensure continuity of care for all OTP clients.

HIGHLIGHTS FROM THE 2012 KORTOS FOLLOW-UP STUDY REPORT

SUBSTANCE USE

Abstinence rates for illicit drug use increased dramatically for the sample between intake and follow-up. In particular, rates of abstinence from prescription opioid use spiked from 13% at intake to 90% abstinent at follow-up.

In addition, significant increases in abstinence were reported for:

- Non-prescription methadone from 63% at intake to 93% at follow-up
- Marijuana from 59% at intake to 89% at follow-up
- Cocaine from 86% at intake to 98% at follow-up
- Heroin from 87% at intake to 99% at follow-up
- Stimulants from 92% at intake to 98% at follow-up
- Tranquilizers from 62% at intake to 92% at follow-up

Slight increases were reported in abstinence from use of:

- Tobacco with 9% at intake and

12% abstinent at follow-up

- Alcohol misuse, measured as intoxication, from 86% at intake to 89% abstinent at follow-up

EMPLOYMENT

Over two-thirds of clients reported full or part-time employment at follow-up; up from 59% at intake.

CRIMINAL JUSTICE SYSTEM INVOLVEMENT

Decreased for the sample by follow-up with 45% decrease in arrests.

MENTAL HEALTH

Depression symptoms showed an overall decrease for OTP clients at follow-up.

TREATMENT SATISFACTION

Client satisfaction with services from OTPs was high. Positive effects from treatment reported by clients included improved finances, decreased substance use, improved interpersonal interactions, and improved mental and physical health.

Overall, findings from the 2012 KORTOS report indicate opioid recovery treatment helps clients achieve positive life changes. Copies of the full report and other study information are available online at <http://cdar.uky.edu/kortos>.

Abstinence from illegal drug use dramatically increased from intake to follow-up for OTP clients

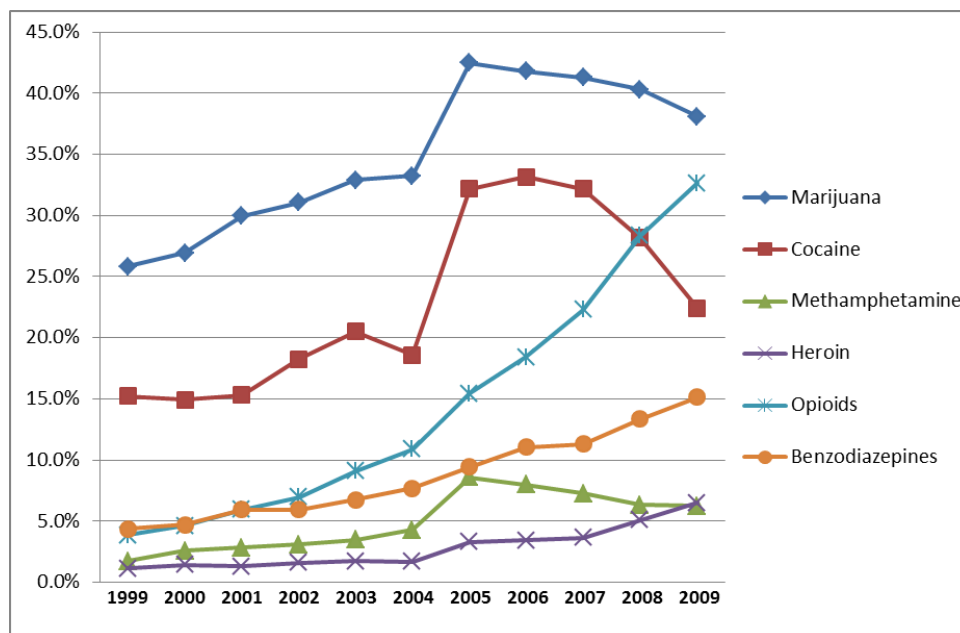
INTRODUCTION

The continuing trend of increased prescription opioid abuse is a nationwide concern. Figure 1 displays trends in substance use in Kentucky compared to the rest of the United States in Figure 2. The figures were compiled from ten years of data entered into the Treatment Episode Dataset, which is a survey of all clients at intake to substance abuse treatment.¹ Substances are reported in the figures if the client entering treatment reported that the drug was of major concern and one of the reasons (primary, secondary or tertiary) for seeking treatment services. In 1999, 3.8% of Kentucky adults in treatment reported non-medical use of prescription opioids compare to 2.6% nationwide. Among individuals entering treatment for substance abuse in 2009, 32.7% of adults in Kentucky reported use of prescription opioids compared to 11.7% of adults in the U.S.

Looking at trends in use of other drugs, it is clear that opioids are a major concern for treatment providers. One of the treatment methods for persons addicted to opioids is participation in medication-assisted treatment with methadone or buprenorphine. Over 400,000 people in the United States and over 1 million worldwide are enrolled in medication-assisted treatment with methadone or buprenorphine for opiate addiction². Length of treatment exposure³ and higher doses of methadone or buprenorphine have been identified as key indicators of success in treatment⁴.

Kentucky's Opiate Replacement Treatment Outcome Study (KORTOS) is an evaluative research project designed and managed by the University of Kentucky Center on Drug and Alcohol Research (UK CDAR) through a contract with the Division of Behavioral Health and the Kentucky Narcotic Treatment Authority. Kentucky's 11 federally licensed Opiate Treatment Programs (OTPs) – both public and private - contributed data to the state dataset for this report.

Figure 1. Kentucky trends in substance use reported at treatment intake between 1999-2009



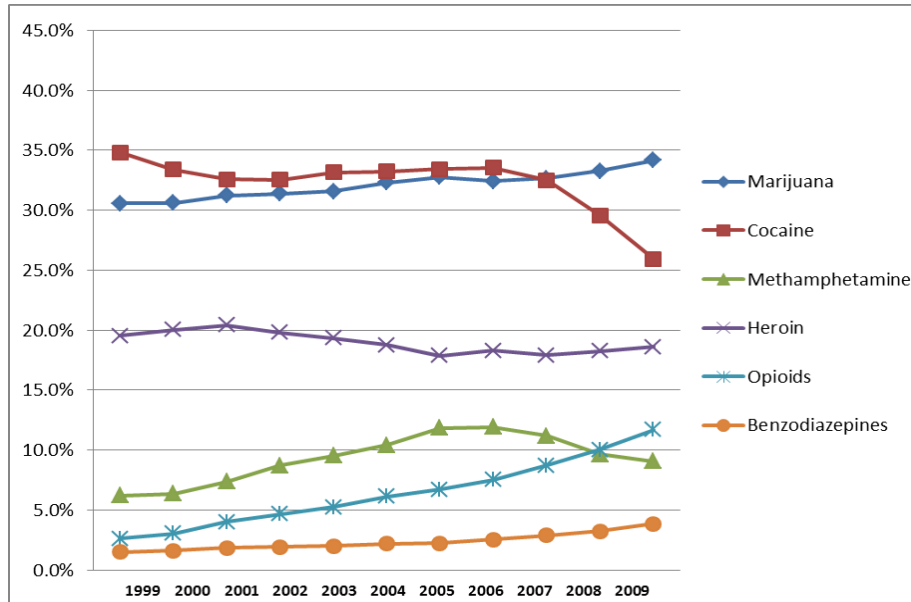
¹ United States Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. Office of Applied Studies. Treatment Episode Data Set -- Admissions (TEDS-A) -- Concatenated, 1992 to 2009 [Computer file]. ICPSR25221-v4. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2011-06-28. doi:10.3886/ICPSR25221.v4

² Kleber, H. D. (2008). Methadone maintenance 4 decades later. *JAMA*, 300, 2303-2305.

³ Steven, K., Chu, M., John-Hull, C., Madray, C., Louie, B., & Brown, L. (2009). Opioid dependence as a chronic disease: The interrelationships between length of stay, methadone dose, and age on treatment outcome at an urban opioid treatment program. *Journal of Addictive Disease*, 28 (1), 53-56.

⁴ Simeons, S., Matheson, C., Bond, C., Inkster, K., & Ludbrook, A. (2005). The effectiveness of community maintenance with methadone or buprenorphine for treating opiate dependence. *British Journal of General Practice*, 55, 139-146.

Figure 2. United States (excluding Kentucky) trends in substance use reported at treatment intake between 1999-2009



KORTOS Study Overview

The KORTOS project collects data from clients in Kentucky who participate in medication-assisted treatment with methadone or buprenorphine at an OTP. No data are collected from independent buprenorphine-prescribing physicians in private practice at this time.

Confidentiality of Data

Data are encrypted and stored on password-protected, secure servers at UK CDAR. A Federal Certificate of Confidentiality for KORTOS protects identifying data, and identifiers of study participants may not be released even under a subpoena or court order. All data are stored electronically with identifiers stored separately from client responses. Only aggregated client information is included in this report.

Data collection occurs in three segments:

1. Intake Data Collection

Data are collected by clinic staff during the initial intake and clinical assessment phase of treatment using a web-based data collection program. Responses at intake are based on client self-report of circumstances *prior to entry into treatment*, unless otherwise specified (i.e., current events). Intake data are considered part of the treatment process and collection of these data are covered under the consent to treatment provided by the OTP.

At the end of the intake interview, clients are told about the opportunity to participate in a 6-month follow-up telephone interview that is conducted by UK CDAR. Clients who volunteer to participate in the follow-up interview provide locator information including phone numbers of two relatives or friends who could help UK CDAR locate the client for the interview in 6 months. Intake assessments for the 2012 KORTOS Follow-up Report were completed March 2007 through December 2010.

2. Client Status Data Collection

Client status updates are entered into a web-based data collection program that securely links data into the master database stored at UK CDAR. These status entries are made on a regular basis to denote changes in client dose of methadone or buprenorphine, drug screen results (positive and negative), and client phase updates. In addition, discharge data are recorded for clients when they exit the treatment program. The Client Status data also make up the state's emergency management system to ensure OTP clients receive minimal disruption in treatment in case of a disaster.

3. Follow-up Data Collection

Follow-up data are collected for the sample of clients who are still active in treatment and who volunteered at intake to participate in the 6-month follow-up telephone interview. Clients give informed consent at intake for UK CDAR to contact them for a telephone follow-up interview. Follow-up interviews are done by the UK CDAR research team and are independent of the treatment agency in order to confidentially examine client progress in treatment. The follow-up interviews examine current substance use, employment, criminal justice involvement, physical health, and mental health status and help track the ongoing progress of clients receiving medication-assisted treatment. Follow-up assessments were completed July 2010 through June 2011.

KORTOS Report Format

The overall goal of the KORTOS project is to examine the long-term functioning and recovery for OTP clients who are participating in maintenance treatment. By comparing the intake data with the follow-up data in a pre-test/post-test format, this report will provide information about the progress of OTP clients about six months into their treatment program. At six months post-intake, OTP clients are required by law to attend weekly substance abuse treatment counseling sessions, provide random observed drug screens on a weekly basis, and may have earned one take-home dose for the weekends. This report will examine outcome indicators including substance use abstinence, employment, education, mental health symptoms, criminal justice system involvement, and use of recovery supports.

This is the second annual KORTOS report and includes **232** clients from Kentucky OTPs who completed both an intake and then a six-month follow-up interview between May 2010 and August 2011.

- The 2012 KORTOS report begins by describing client socio-demographics at intake when clients were just starting treatment.
- This is followed by a series of tables and figures depicting changes that occurred for clients between intake and follow-up regarding abstinence from substance use, employment, criminal justice system involvement, and physical and mental health. Comparisons are made by gender.
- In addition, a rate of change is calculated as appropriate to show statistically significant increases or decreases that are of note.
- Next, feedback from clients at follow-up about their experiences with the OTPs is summarized.
- Finally, discussion of the report's findings is provided along with suggestions for potential issues that may need to be addressed for clients in continuing maintenance treatment.

Additional copies of the report are available for printing and distribution on the KORTOS web site at <http://cdar.uky.edu/kortos>.

SOCIO-DEMOGRAPHICS OF CLIENTS AT OTP INTAKE

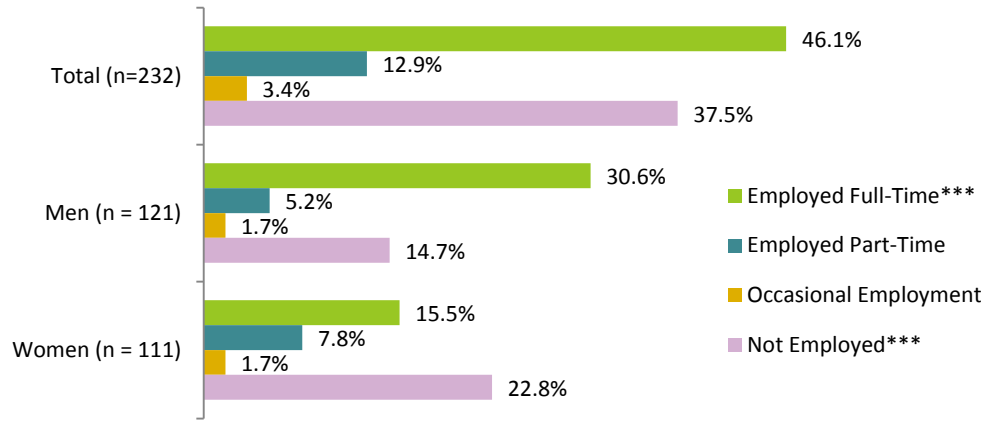
Table 2 displays socio-demographic characteristics of the sample of 232 clients as they entered the OTP. Slightly more than half were male (52.2%) and most were white (98.7%). The average age was 32 years old. Approximately one-third of clients had either a high school education or GED (35.9%) or some post-secondary education (33.3%) while slightly less than one-third (30.9%) had less than a high school education. Clients had an average of 1.2 children and 30.6% were married. Among women at admission, about 17% were currently pregnant. The mean number of prior admissions for substance abuse treatment (not counting the current admission) was 2.

TABLE 2. SOCIO-DEMOGRAPHICS OF CLIENTS AT OTP INTAKE (N = 232)

VARIABLE	PERCENT OR MEAN
GENDER	
Male	52.2%
Female	47.8%
RACE	
White	98.7%
Black	0.4%
American Indian	0.4%
Asian	0.4%
AVERAGE AGE	31.9 (range: 19-68)
EDUCATION	
Less than a high school diploma or GED	30.9%
High school diploma or GED	35.9%
Post-secondary education	33.3%
MARITAL STATUS	
Never married	30.6%
Married	30.6%
Cohabiting	18.5%
Widowed	6.0%
Separated	5.6%
Divorced	8.6%
AVERAGE NUMBER OF CHILDREN	1.2 (range: 0-5)
AMONG WOMEN (n=111), PERCENT WHO WERE PREGNANT AT ADMISSION	17.1%
MEAN NUMBER OF PRIOR TREATMENT ADMISSIONS	2 times (sd=2.2)

Figure 3 displays the percentage of males and females in each employment category at intake. Less than half of the sample reported being employed full-time at intake. Fewer women than men reported full-time employment.

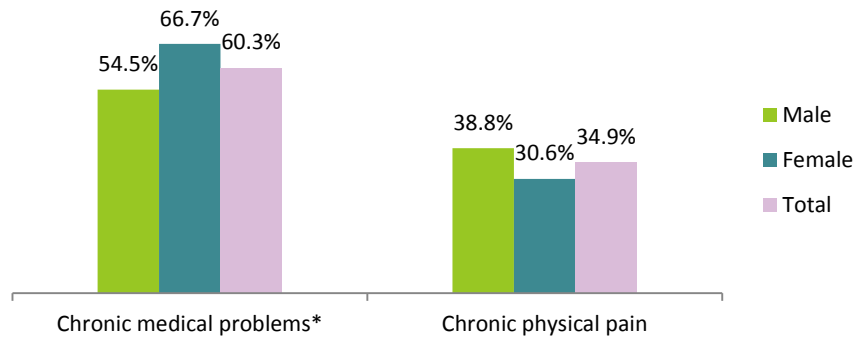
FIGURE 3. PERCENTAGE OF INDIVIDUALS IN EMPLOYMENT CATEGORIES AT INTAKE BY GENDER ^a (N=232)



a—Significance established using z test for proportions; *p < .05, **p < .01, ***p < .001.

Figure 4 depicts the percentages of men and women reporting chronic medical problems and chronic pain (i.e., physical non-cancer pain lasting 3 months or longer). A significantly higher percentage of women (66.7%) than men (54.5%) reported a chronic medical condition like asthma, diabetes, or cardiovascular disease. Six in ten individuals in the sample reported chronic medical problems at intake. Almost 35% of cases had chronic pain with no statistically significant differences noted by gender. About 7% of men and 4% of women reported receiving SSI/SSDI income for disability related to their chronic conditions (not displayed in a figure).

FIGURE 4. PERCENTAGE REPORTING CHRONIC MEDICAL PROBLEMS AND CHRONIC PAIN AT INTAKE BY GENDER ^a (N=232)



a—Significance established using z test for proportions; *p < .05, **p < .01, ***p < .001.

CHANGE FROM INTAKE TO FOLLOW-UP IN SUBSTANCE USE ABSTINENCE

At both intake and follow-up, clients are asked to self-report use of tobacco, alcohol, and illicit drugs in the past 30 days. The following analyses were conducted to compare changes in tobacco, alcohol, and illicit drug abstinence by gender for the 121 men and 111 women in the sample and are reflected in the tables below displaying changes from intake to follow-up. Rates of change in abstinence are shown to indicate statistically significant increases or decreases in abstinence from particular substances.

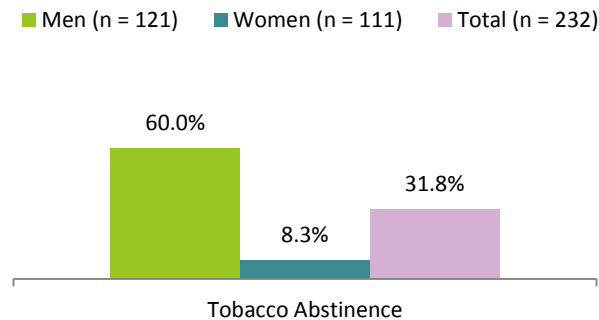
TOBACCO ABSTINENCE

There was no significant change from intake to follow-up for clients who reported tobacco abstinence (See Table 3). Only 8.3% of males and 10.8% of females reported tobacco abstinence at intake. Figure 5 displays the percent increase in tobacco abstinence. At follow-up, 13.2% of men reported abstinence (a 60% increase) and 11.7% of women reported tobacco abstinence (an 8.3% increase).

TABLE 3. PERCENTAGE OF CLIENTS REPORTING TOBACCO ABSTINENCE IN THE PAST 30 DAYS BY GENDER

	INTAKE	FOLLOW-UP
TOBACCO ABSTINENCE		
Men (n = 121)	8.3%	13.2%
Women (n = 111)	10.8%	11.7%
Total (n = 232)	9.5%	12.5%

FIGURE 5. PERCENT OF CHANGE IN REPORTED TOBACCO ABSTINENCE FROM INTAKE TO FOLLOW-UP^a



a—Significance established using z test for proportions; *p < .05, **p < .01, ***p < .001.

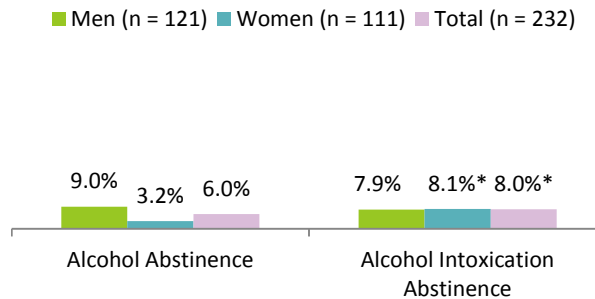
ALCOHOL ABSTINENCE

At intake, over three-quarters of clients reported abstinence from alcohol in the past 30 days (See Table 4). At follow-up, 83.2% of individuals reported alcohol abstinence representing a 6.0% increase (See Figure 6). Reported abstinence from alcohol intoxication also increased significantly by 8.0% from 86.2% at intake to 89.2% at follow-up.

TABLE 4. PERCENTAGE OF CLIENTS REPORTING ALCOHOL ABSTINENCE IN THE PAST 30 DAYS BY GENDER

	INTAKE	FOLLOW-UP
ALCOHOL ABSTINENCE		
Men (n = 121)	73.6%	80.2%
Women (n = 111)	83.8%	86.5%
Total (n = 232)	78.4%	83.2%
ALCOHOL INTOXICATION ABSTINENCE		
Men (n = 121)	83.5%	86.0%
Women (n = 111)	89.2%	92.8%
Total (n = 232)	86.2%	89.2%

FIGURE 6. PERCENT OF CHANGE IN REPORTED ALCOHOL ABSTINENCE FROM INTAKE TO FOLLOW-UP^a



a—Significance established using z test for proportions; *p < .05, **p < .01, ***p < .001.

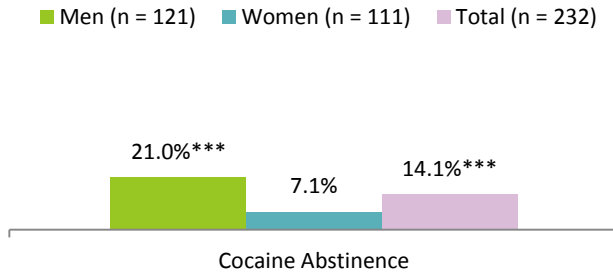
COCAINE ABSTINENCE

Table 5 shows 85.8% of clients reported being abstinent from cocaine in the 30 days prior to intake. At follow-up, 97.8% of clients reported abstinence, a 14.1% increase. Specifically, men reported a significant 21.0% increase in cocaine abstinence from intake to follow-up (See Figure 7).

TABLE 5. PERCENTAGE OF CLIENTS REPORTING COCAINE ABSTINENCE IN THE PAST 30 DAYS BY GENDER

	INTAKE	FOLLOW-UP
COCAINE ABSTINENCE		
Men (n = 121)	82.6%	100.0%
Women (n = 111)	89.2%	95.5%
Total (n = 232)	85.8%	97.8%

FIGURE 7. PERCENT OF CHANGE IN REPORTED COCAINE ABSTINENCE FROM INTAKE TO FOLLOW-UP^a



a—Significance established using z test for proportions; *p < .05, **p < .01, ***p < .001.

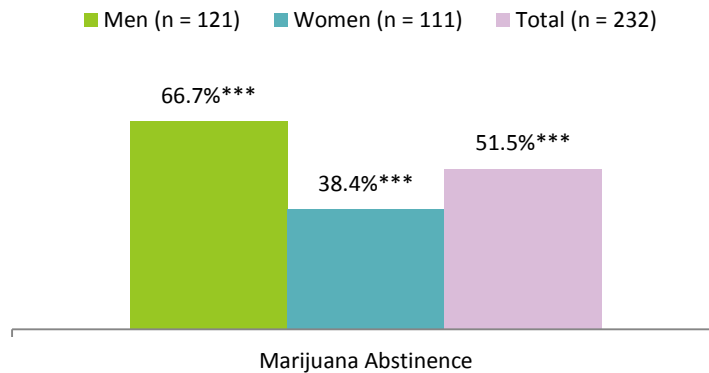
MARIJUANA ABSTINENCE

A significant increase in marijuana abstinence from intake to follow-up was reported by both men and women (See Table 6). Figure 8 displays significant increases in reported marijuana abstinence for the whole sample. Men reported a 66.7% increase in marijuana abstinence and women a 38.4% increase in marijuana abstinence from intake to follow-up.

TABLE 6. PERCENTAGE OF CLIENTS REPORTING MARIJUANA ABSTINENCE IN THE PAST 30 DAYS BY GENDER

	INTAKE	FOLLOW-UP
MARIJUANA ABSTINENCE		
Men (n = 121)	52.1%	86.8%
Women (n = 111)	65.8%	91.0%
Total (n = 232)	58.6%	88.8%

FIGURE 8. PERCENT OF CHANGE IN REPORTED MARIJUANA ABSTINENCE FROM INTAKE TO FOLLOW-UP^a



a—Significance established using z test for proportions; *p < .05, **p < .01, ***p < .001.

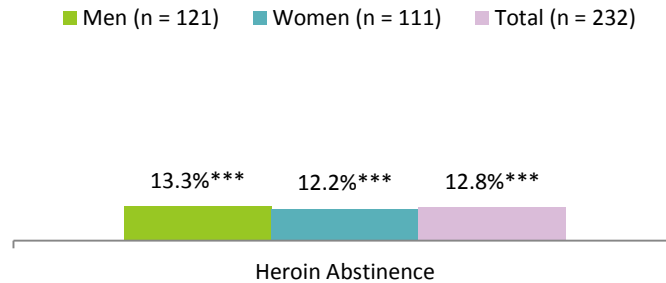
HEROIN ABSTINENCE

As shown in Table 7, the majority of clients reported they were already abstinent from heroin at intake to the OTP. By follow-up, over 98% of the sample reported heroin abstinence. Figure 9 shows a 12.8% increase for the whole sample in reported abstinence from heroin use at follow-up. The increases in reported abstinence for males (13.3%) and females (12.2%) were statistically significant.

TABLE 7. PERCENTAGE OF CLIENTS REPORTING HEROIN ABSTINENCE IN THE PAST 30 DAYS BY GENDER

	INTAKE	FOLLOW-UP
HEROIN ABSTINENCE		
Men (n = 121)	86.8%	98.3%
Women (n = 111)	88.3%	99.1%
Total (n = 232)	87.5%	98.7%

FIGURE 9. PERCENT OF CHANGE IN REPORTED HEROIN ABSTINENCE FROM INTAKE TO FOLLOW-UP^a



a—Significance established using z test for proportions; *p < .05, **p < .01, ***p < .001.

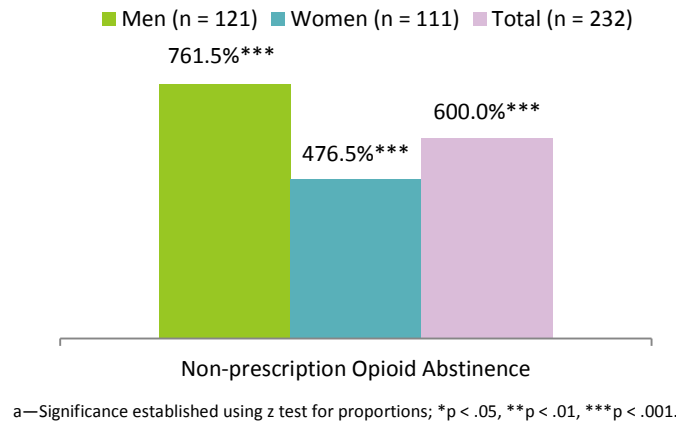
NON-PRESCRIPTION OPIOID ABSTINENCE

A dramatic increase in non-prescription opioid abstinence from intake to follow-up was reported by both men and women (See Table 8 and Figure 10). At intake to the OTP, only 10.7% of men and 15.3% of women reported non-prescription opioid abstinence in the 30 days prior. However, at follow-up over 88% of women and over 92% of men reported non-prescription opioid abstinence. This reflects a statistically significant increase in reported non-prescription opioid abstinence for the sample as well as for males and females.

TABLE 8. PERCENTAGE OF CLIENTS REPORTING NON-PRESCRIPTION OPIOID ABSTINENCE IN THE PAST 30 DAYS BY GENDER

	INTAKE	FOLLOW-UP
NON-PRESCRIPTION OPIOID ABSTINENCE		
Men (n = 121)	10.7%	92.6%
Women (n = 111)	15.3%	88.3%
Total (n = 232)	12.9%	90.5%

FIGURE 10. PERCENT OF CHANGE IN REPORTED NON-PRESCRIPTION OPIOID ABSTINENCE FROM INTAKE TO FOLLOW-UP^a



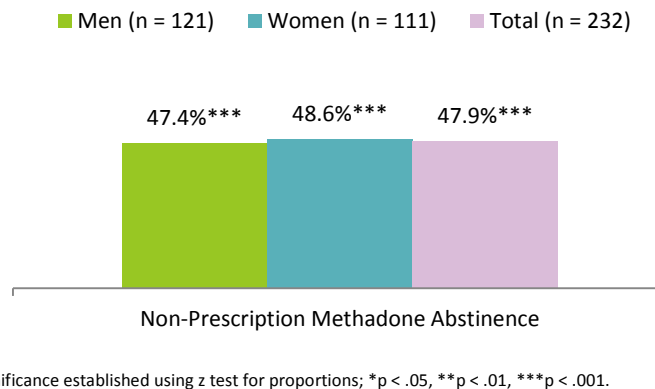
NON-PRESCRIPTION METHADONE ABSTINENCE

About 63% of men and women reported abstinence from non-prescription methadone 30 days prior to intake (See Table 9). At follow-up, over 90% reported non-prescription methadone abstinence. In Figure 11, significant increases in reported non-prescription methadone abstinence are displayed, with percent increases of over 45% in abstinence from intake to follow-up for men, women, and the entire sample.

TABLE 9. PERCENT OF CLIENTS REPORTING NON-PRESCRIPTION METHADONE ABSTINENCE IN THE PAST 30 DAYS BY GENDER

	INTAKE	FOLLOW-UP
NON-PRESCRIPTION METHADONE ABSTINENCE		
Men (n = 121)	62.8%	92.6%
Women (n = 111)	63.1%	93.7%
Total (n = 232)	62.9%	93.1%

FIGURE 11. PERCENT OF CHANGE IN REPORTED NON-PRESCRIPTION METHADONE ABSTINENCE FROM INTAKE TO FOLLOW-UP^a



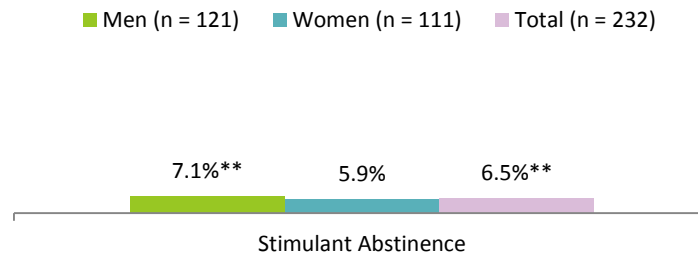
STIMULANT ABSTINENCE

Over 90% of clients reported abstinence from stimulants 30 days prior to intake (See Table 10). At follow-up, the percentage of clients reporting abstinence increased to 98.3%, representing a 6.5% increase (See Figure 12). Men also reported a significant increase in stimulant abstinence of 7.1%.

TABLE 10. PERCENTAGE OF CLIENTS REPORTING STIMULANT ABSTINENCE IN THE PAST 30 DAYS BY GENDER

	INTAKE	FOLLOW-UP
STIMULANT ABSTINENCE		
Men (n = 121)	92.6%	99.2%
Women (n = 111)	91.9%	97.3%
Total (n = 232)	92.2%	98.3%

FIGURE 12. PERCENT OF CHANGE IN REPORTED STIMULANT ABSTINENCE FROM INTAKE TO FOLLOW-UP^a



a—Significance established using z test for proportions; *p < .05, **p < .01, ***p < .001.

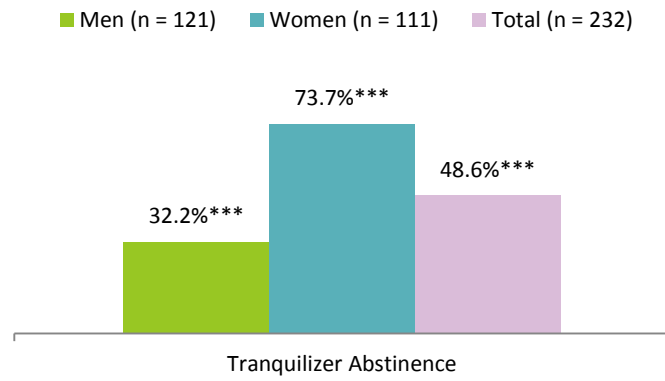
TRANQUILIZER ABSTINENCE

Reports of tranquilizer abstinence increased significantly for both men and women (See Table 11 and Figure 13). At intake, 71.9% of men and 51.4% of women reported not using tranquilizers in the 30 days prior. At follow-up, 95.0% of men (a 32.2% increase) and 89.2% of women (a 73.7% increase) reported tranquilizer abstinence.

TABLE 11. PERCENTAGE OF CLIENTS REPORTING TRANQUILIZER ABSTINENCE IN THE PAST 30 DAYS BY GENDER

	INTAKE	FOLLOW-UP
TRANQUILIZER ABSTINENCE		
Men (n = 121)	71.9%	95.0%
Women (n = 111)	51.4%	89.2%
Total (n = 232)	62.1%	92.2%

FIGURE 13. PERCENT OF CHANGE IN REPORTED TRANQUILIZER ABSTINENCE FROM INTAKE TO FOLLOW-UP^a



a—Significance established using z test for proportions; *p < .05, **p < .01, ***p < .001.

CHANGE FROM INTAKE TO FOLLOW-UP IN EMPLOYMENT

Overall, positive changes in employment were reported from intake to follow-up for the sample of clients. At intake, 46.1% of clients reported that their usual employment status in the 12 months prior to treatment intake was full-time employment (See Table 12). At follow-up, 58.1% reported working full-time in the past 6 months. This represents a statistically significant increase in full-time employment from intake to follow-up. Slightly more than 37% of clients reported not being employed at intake and at follow-up, 29% reported not being employed, a non-significant decrease.

TABLE 12. CHANGE IN REPORTED EMPLOYMENT FROM INTAKE TO FOLLOW-UP^a

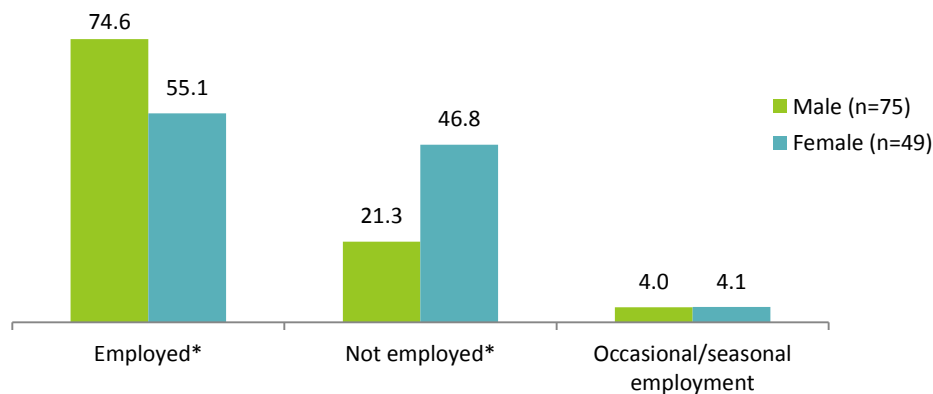
EMPLOYMENT PATTERN ^b	IN THE PAST 12 MONTHS AT INTAKE (n = 232)	IN THE PAST 6 MONTHS AT FOLLOW-UP (n = 124)
Not employed	37.5%	29.0%
Full-time*	46.1%	58.1%
Part-time	12.9%	8.9%
Occasional work	3.4%	4.0%

a- Time frames and sample size are not the same for intake (past 12 months) and follow-up (past 6 months between intake and follow-up)

b- Significance established using z test for proportions; *p < .05, **p < .01, ***p < .001.

In Figure 14, differences in employment at follow-up by gender are displayed. Almost three-fourths of males were employed either full or part-time compared to only 55% of females. Similarly, only 21.3% of males were unemployed while almost half of women were unemployed.

FIGURE 14. GENDER DIFFERENCES IN PERCENTAGE OF CLIENTS EMPLOYED AT FOLLOW-UP (N=124)



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

CHANGE FROM INTAKE TO FOLLOW-UP FOR CRIMINAL JUSTICE SYSTEM INVOLVEMENT BY GENDER

Table 13 displays changes in arrests, drug court, probation, and parole involvement self-reported by clients in the sample. The percent of women reporting an arrest decreased significantly from intake to follow-up. At intake, 22.5% of women reported an arrest in the 12 months prior and at follow-up, 11.7% of women reported having been arrested in the past 6 months (a 48.0% decrease). The percentage of men reporting any jail time significantly decreased from 15.7% at intake to 6.6% at follow-up (a 57.9% decrease). Figure 15 displays the percentage increase/decrease for each item.

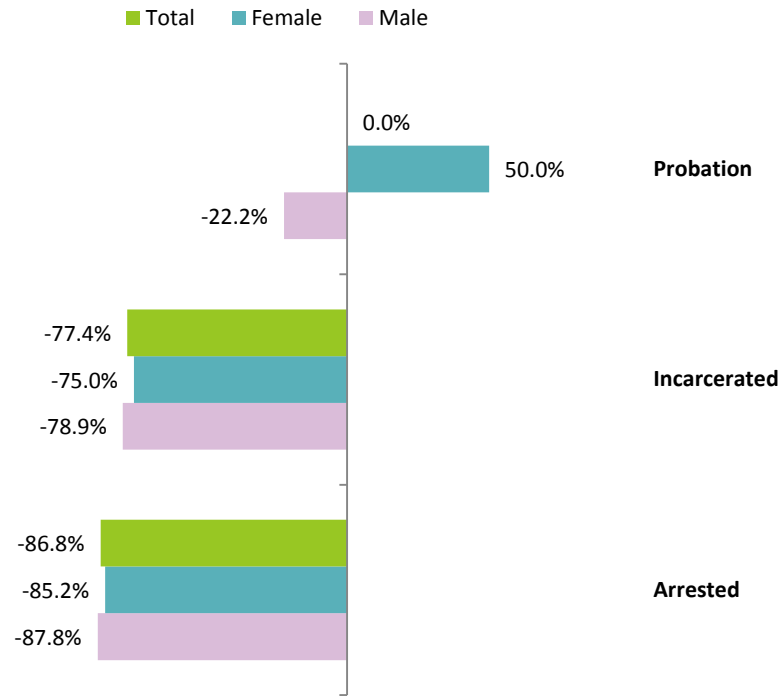
TABLE 13. PERCENT OF CLIENTS REPORTING CRIMINAL JUSTICE SYSTEM INVOLVEMENT AT INTAKE AND FOLLOW-UP BY GENDER^a

	INTAKE	FOLLOW-UP
ARRESTED		
Men (n = 121)***	55.4%	6.8%
Women (n = 111)***	55.1%	8.2%
Total (n = 232)***	55.3%	7.3%
CURRENTLY IN DRUG COURT		
Men (n = 121)	0.0%	1.4%
Women (n = 111)	0.0%	0.0%
Total (n = 232)	0.0%	0.8%
CURRENTLY ON PROBATION		
Men (n = 121)	12.2%	9.5%
Women (n = 111)	8.2%	12.2%
Total (n = 232)	10.6%	10.6%
CURRENTLY ON PAROLE		
Men (n = 121)	1.4%	2.7%
Women (n = 111)	0.0%	0.0%
Total (n = 232)	0.8%	1.6%
INCARCERATED ^a		
Men (n = 121)**	25.7%	5.4%
Women (n = 111)*	24.5%	6.1%
Total (n = 232)**	25.2%	5.7%

a- Time frames and sample size are not the same for intake (past 12 months) and follow-up (past 6 months between intake and follow-up)

b- Significance established using z test for proportions; *p < .05, **p < .01, ***p < .001.

FIGURE 15. PERCENT OF CHANGE IN REPORTED CRIMINAL JUSTICE SYSTEM INVOLVEMENT FROM INTAKE TO FOLLOW-UP^{ab}



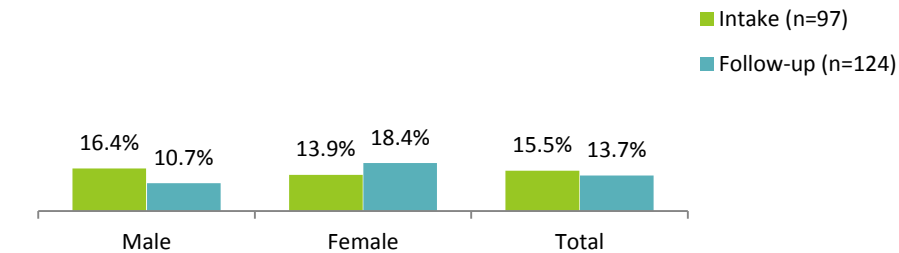
a- Time frames and sample size are not the same for intake (past 12 months) and follow-up (past 6 months between intake and follow-up)

b- Significance established using z test for proportions; *p < .05, **p < .01, ***p < .001.

CHANGE FROM INTAKE TO FOLLOW-UP FOR MENTAL HEALTH BY GENDER

At intake, a little over 15% of the sample reported depression symptoms and at follow-up, reported depression dropped to 14%. The same pattern is noted for males only, with 16% reporting depression symptoms at intake and only 11% at follow-up. On the other hand, more women reported depression symptoms at follow-up (18%) than at intake (14%). This is not statistically significant, but is a pattern that merits some attention (See Figure 16).

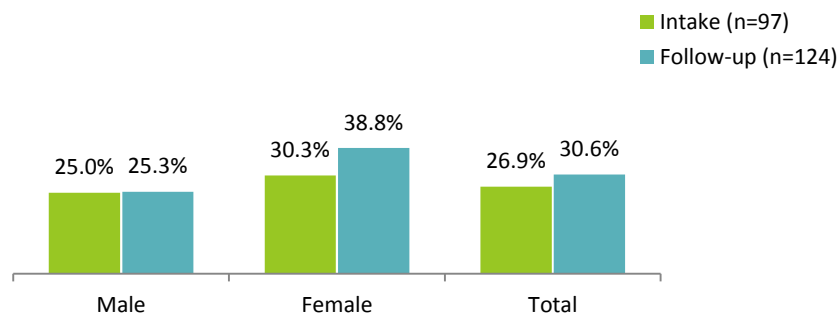
FIGURE 16. PERCENTAGE REPORTING DEPRESSION IN THE PAST 30 DAYS AT INTAKE AND FOLLOW-UP BY GENDER^a



a- Significance established using z test for proportions; *p < .05, **p < .01, ***p < .001.

Figure 17, displays reported anxiety symptoms by gender from intake to follow-up. Slight increases occurred for the sample, with 27% reporting symptoms of anxiety at intake and 31% reporting symptoms at follow-up. Males showed little variation, with about 25% reporting anxiety symptoms at both interview points. Females reported an increase in anxiety symptoms from 30% at intake to 39% at follow-up. Again, this was not statistically significant.

FIGURE 17. PERCENTAGE REPORTING ANXIETY IN THE PAST 30 DAYS AT INTAKE AND FOLLOW-UP BY GENDER^a



a- Significance established using z test for proportions; *p < .05, **p < .01, ***p < .001.

TREATMENT EXPERIENCE AND CLIENT SATISFACTION

CLIENT SELF-REPORTED MEDICATION INFORMATION

The majority of men and women in the KORTOS follow-up sample were taking methadone through the oversight of an OTP between intake and follow-up (See Figure 18). Only 9.3% of men and 4.1% of women were taking buprenorphine in the form of Suboxone. Of the clients who knew their current dosage (n = 119), the average dose of methadone was 77.4 mg and the average Suboxone dose was 16.7 mg (See Figure 19).

FIGURE 18. TYPE OF MEDICATION REPORTED FOR THE PERIOD BETWEEN INTAKE AND FOLLOW-UP BY GENDER (n = 124)

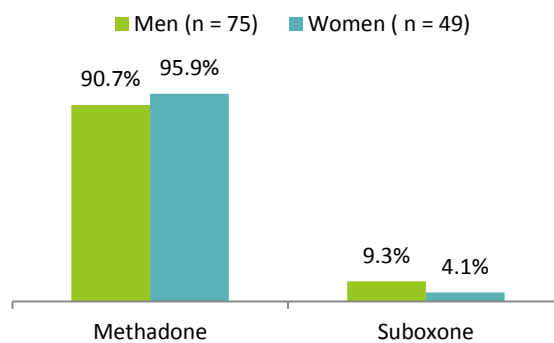
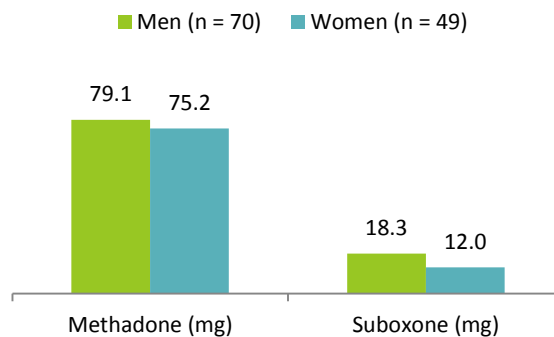


FIGURE 19. AVERAGE MEDICATION DOSE (mg) REPORTED FOR THE PERIOD BETWEEN INTAKE AND FOLLOW-UP BY GENDER (n = 119)



In addition to weekly counseling sessions, individuals in the licensed OTPs are required to provide random observed drug screens during the course of treatment. These data are entered into the OTPs internal record-keeping system, as well as into the statewide KORTOS client status program. Table 14 displays results of the 9,677 drug screen entries made during the intake-to-follow-up period for all clients regardless of follow-up status. At the time of this report, not every OTP had complied with data entry requirements for Client Status. Therefore, all client data entered during the intake-to-follow-up period are included in this report regardless of follow-up status

to give a wider snapshot of overall client activity. Since one screen can be positive for multiple illicit substances, the total counts do not correspond to 100. In general, 65% of drug screens were free of illicit use. Marijuana use was detected in 11% of the screens.

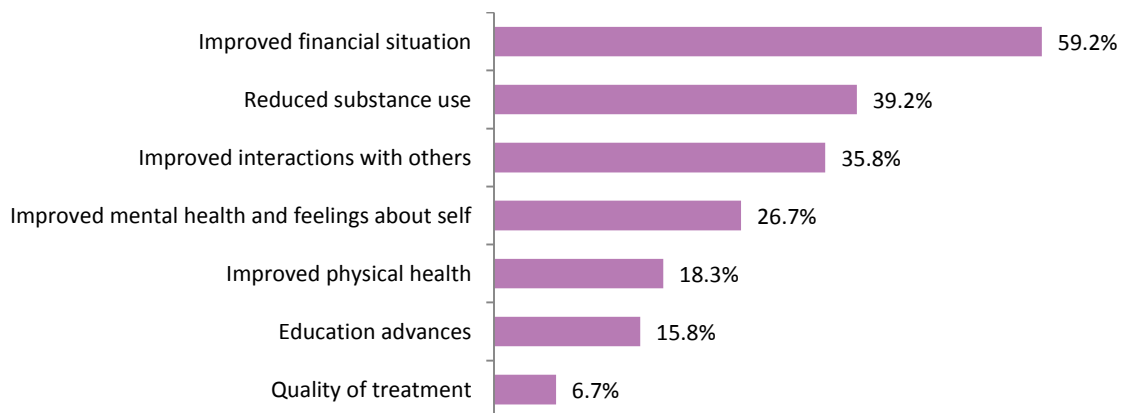
TABLE 14. DRUG SCREEN RESULTS COLLECTED DURING INTAKE-TO-FOLLOW-UP PERIOD FOR ALL CLIENTS REGARDLESS OF FOLLOW-UP STATUS (N=9677)

Results	Count	Percentage
Free of illicit use	7530	64.7%
Opiates (includes oxycodone)	862	7.4%
Benzodiazepines	321	2.8%
Cocaine	103	0.9%
Amphetamines (includes methamphetamines)	167	1.5%
Marijuana	1196	10.3%
PCP/Ecstasy	1	0.01%
Alcohol	4	0.03%
Negative for opiate replacement medication	29	0.3%
Diluted sample	54	0.5%
Refused	37	0.3%

TREATMENT SATISFACTION

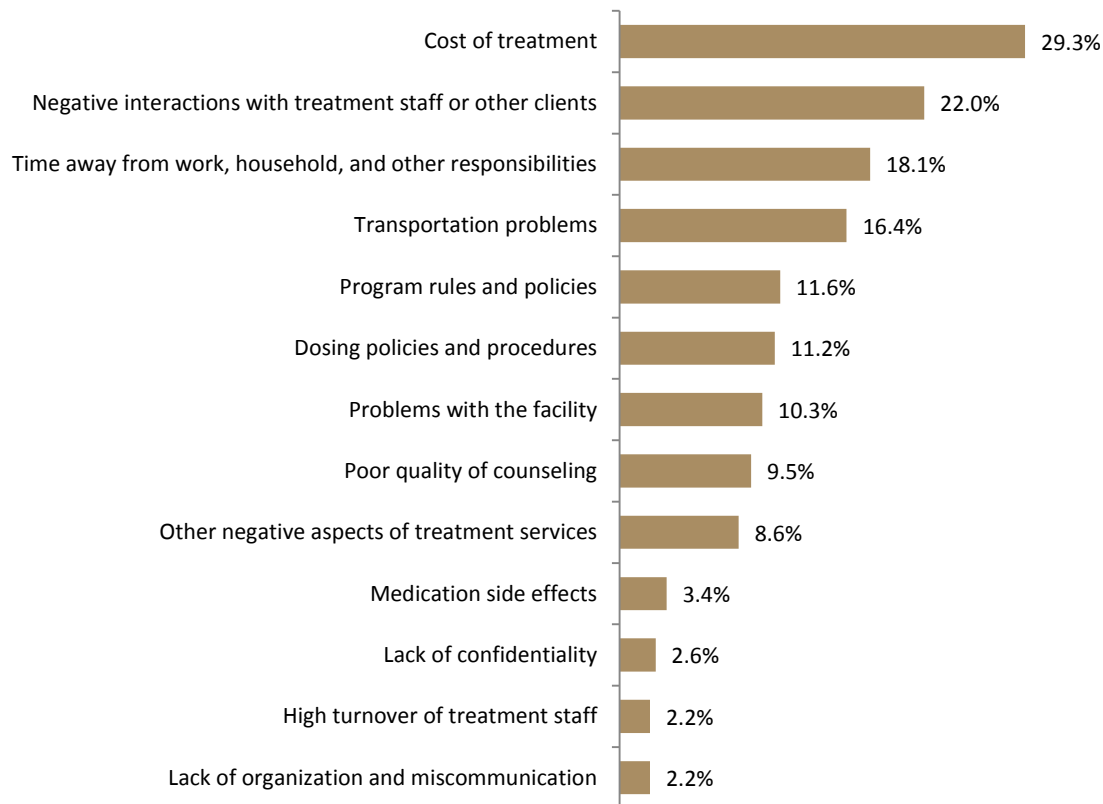
At the beginning of the follow-up interview, clients were given the opportunity to rate their treatment experience at the OTP. The rating scale runs from 1 being *the worst possible treatment* experience to 10 being *the best possible* experience. The average rating given by the follow-up sample was 8.3 (sd=1.7). Clients were then asked to identify the most positive and negative aspects of their participation with the OTP. More than half (59.2%) reported that their improved financial situation was a positive aspect, and 39.2% felt their reduced substance use was a positive (Figure 20).

FIGURE 20. PERCENTAGE OF CLIENTS REPORTING POSITIVE ASPECTS OF TREATMENT (N=232)



Negative aspects of treatment that were reported to follow-up interviewers by clients in the sample are displayed in Figure 21. Items mentioned by clients include the cost of treatment services (29.3%), negative interactions with staff and other clients (22.0%), time spent away from work, household, or other responsibilities due to treatment (18.1%), and transportation problems (16.4%). Responses in the “other” category included comments like: “Not knowing when treatment will end,” “False drug screening,” “Stigma,” and “Relapse.”

FIGURE 21. PERCENTAGE OF CLIENTS REPORTING NEGATIVE ASPECTS OF TREATMENT (N=232)



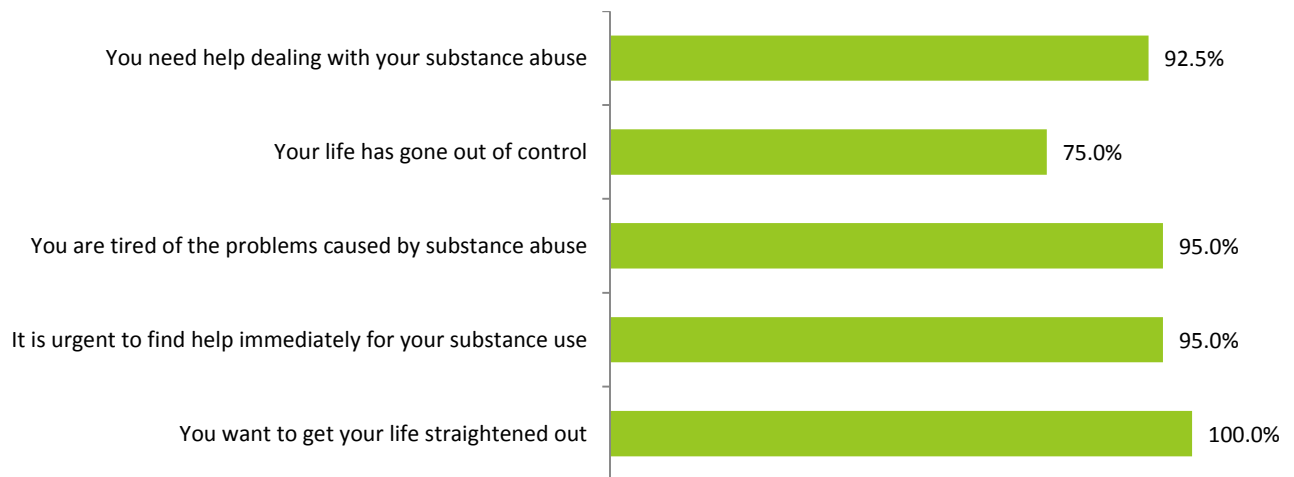
The majority of clients indicated their treatment and counseling experiences at the OTP were positive when asked a series of consumer satisfaction questions. The percentage of clients who *agreed* or *strongly agreed* with each statement is displayed in Figure 22.

FIGURE 22. PERCENTAGE OF CLIENTS THAT AGREED OR STRONGLY AGREED WITH STATEMENTS ABOUT THEIR OTP EXPERIENCE (N=232)



A subset of questions to measure client motivation for treatment participation was included in the follow-up interview near the end of FY11. Clients were asked to rate how much they agree or disagree with a series of statements. The percentage of clients who *agreed* or *strongly agreed* with each statement is displayed in Figure 23. The majority of clients were motivated to get help with their substance abuse problems, were tired of their problems related to substance abuse, and felt getting help was urgent. All the clients wanted to get their lives straightened out. About three-fourths of clients felt their life had gone out of control due to substance abuse issues.

FIGURE 23. PERCENTAGE OF CLIENTS INDICATING PRIMARY MOTIVATION FOR TREATMENT (n=40)



REPORT SUMMARY AND CONCLUSIONS

The 2012 KORTOS follow-up report depicts outcomes for individuals after six months in treatment at an OTP. The primary goal of an OTP is abstinence from illicit substance use and this goal was achieved according to the report's findings. In addition, decreases are reported in criminal justice system involvement and improvements noted in employment status. Overall, treatment satisfaction rates reported by clients at follow-up were very high. The report also examined potential gender differences among the OTP clients from intake to follow-up. The following paragraphs provide a summary of report findings and recommendations for the future.

Substance Abstinence

Individuals who participated in the KORTOS research study were opioid dependent prior to intake and many clients reported using multiple substances before entering treatment. Significant gains in abstinence were reported for clients at the 6-month follow-up interview in all substance categories, except tobacco use, which showed only a slight increase in abstinence, and alcohol use, which showed no significant change. In a state with major income for decades derived from tobacco production, the positive change for these clients is something to watch in future years. A wide range of negative health conditions are related to tobacco use. Across the state, BRFSS data show about 28% of the general population are regular smokers compared to 87% of the KORTOS sample at follow-up (<http://apps.nccd.cdc.gov/BRFSS-SMART/>). Recent evidence from empirical studies indicate providing smoking cessation services during substance abuse treatment encourages better outcomes for clients.^{5,6} Though the study does not capture access to tobacco abstinence counseling in the OTPs, it might be helpful to find out what is being done to help address tobacco use and encourage tobacco abstinence. It remains that a majority of clients in this sample are using tobacco at both intake and follow-up.

Since alcohol use is legal, the measurement of alcohol to intoxication serves as an indicator of more serious alcohol use issues. Among this sample, there was a significant increase in abstinence from intoxication due to alcohol abuse. This is particularly important since alcohol combined with methadone or buprenorphine can be a dangerous cardiovascular system depressant.⁷ At intake to the OTP, the sample had high rates of abstinence from stimulant use, but very low abstinence reported for use of opioids, tranquilizers, and other sedatives. In particular, only 13% of the sample was abstinent from prescription opioid use at intake. This is not surprising considering a diagnosis of opioid dependence is required as a condition of their enrollment in the OTP. The positive results of OTP participation are seen at follow-up where 91% of individuals report being abstinent from opioid use over the past six months. This indicates a significant positive change in substance use for the majority of the sample.

With the exception of tobacco use, abstinence rates were high for other commonly abused substances at follow-up. Marijuana abstinence increased significantly from intake to follow-up, though about one in ten clients continued to report using marijuana in the 30 days before follow-up. Though many individuals perceive less harm from marijuana use than from opioid or other drug abuse, it remains a fact that marijuana use is illegal and may

⁵ Baca, C.T., & Yahne, C.E. (2009). Smoking cessation during substance abuse treatment: What you need to know. *Journal of Substance Abuse Treatment*, 36, 205-219.

⁶ Harrell, P.T., Montoya, I.D., Preston, K.L., Juliana, L.M., & Gorelick, D.A. (2011). Cigarette smoking and short-term addiction treatment outcomes. *Drug and Alcohol Dependence*, 115(3), 161-166. doi:10.1016/j.drugalcdep.2010.08.017.

⁷ McCance-Katz, E. F., Sullivan, L. E. and Nallani, S. (2010), Drug Interactions of Clinical Importance among the Opioids, Methadone and Buprenorphine, and Other Frequently Prescribed Medications: A Review. *The American Journal on Addictions*, 19: 4–16. doi: 10.1111/j.1521-0391.2009.00005.x

have negative effects on recovery efforts from opiate addiction⁸. Educating clients about the impact a drug charge for marijuana possession could have on them, including incarceration and loss of OTP services, might also help improve abstinence rates for this substance.

Employment

Employment rates for the sample increased significantly from intake to follow-up. Over two-thirds of individuals reported either full-time or part-time jobs at follow-up. There were significant gender differences in employment at both intake and follow-up with fewer women than men reporting employment. During the time period encompassed by these follow-up interviews, statewide unemployment rates were averaging 10% for adults seeking employment.⁹ The rate of unemployment for this sample at 29% is significantly higher than the state average of 10%. This difference is even more drastic for women with a 47% unemployment rate at follow-up. Though the recession of the past few years has a role in current unemployment issues, there may still be a need for additional technical training and education support referrals to help clients achieve employment stability is essential in treatment settings like OTPs. Connecting clients with Kentucky's workforce development opportunities could improve employment outcomes for individuals (<http://oet.ky.gov>).

Criminal Justice System Involvement

Unlike in past years, the criminal justice system policies are slowly expanding to provide more support for individuals involved in the system who take methadone or buprenorphine prescribed through an OTP.¹⁰ Thus, criminal justice system involvement in this sample is significantly higher than in the 2010 KORTOS report. The percentage of individuals reporting arrests decreased significantly from intake to follow-up for the sample. There was also a significant decrease in reported incarceration including nights in jail at follow-up. The decrease in criminal justice system involvement is a positive sign for the clients and their families, as well as for the communities who have a decreased burden for the costs of incarceration for these individuals.

Physical and Mental Health

In general, physical health of the follow-up sample was poor with over 64% reporting chronic medical problems and over one-third reporting chronic non-cancer pain. A significantly higher number of women than men reported chronic medical problems. Statewide health issues are a major problem with obesity reported by 31% of Kentuckians and the average citizen reporting feeling physically unhealthy for an average of 5 out of the past 7 days.¹¹ Encouraging OTP clients to participate in behavioral health activities that support not only addiction recovery but also overall well-being with yoga, walking, and nutrition education may benefit outcomes.

Mental health symptom findings showed mixed results with an overall decrease in reported depression for the sample, but an increase for women at follow-up. Similarly, the percentage of individuals reporting anxiety symptoms increased slightly by follow-up. Yet, reports of anxiety symptoms reported by women doubled to about 2 in 5 women at follow-up. Though none of these changes are statistically significant, they merit further

⁸ Arria, A.M., Caldeira, K.B., Vincent, K.B., O'Grady, K.E., & Wish, E.D. (2008). Perceived harmfulness predicts nonmedical use of prescription drugs among college students: Interactions with sensation seeking. *Prevention Science*, 9(3), 191-201.

⁹ U.S. Bureau of Labor Statistics. (2011). Local area unemployment statistics: Kentucky. Retrieved from <http://www.bls.gov/lau/>

¹⁰ NIDA (2012). Principles of drug abuse treatment for criminal justice populations. NIH Publication 11-5316.

¹¹ <http://www.countyhealthrankings.org/>

examination. Individuals struggling with both addiction and mental or physical health symptoms have co-occurring behavioral health needs. Integrated treatment for these issues is the ideal approach.^{12 13} Though many OTPs may not have internal resources to address co-morbid conditions, addressing these issues with referrals as well as follow-up discussions with clients in weekly counseling sessions may be a good starting place.¹⁴

Satisfaction with OTP

Overall, treatment satisfaction rates reported by clients at follow-up were very high. The average rating for treatment experiences was 8.3 (scale from 1=worst to 10 =best). When asked a series of questions about whether they agreed or disagreed with statements about the OTP facility, the vast majority (91% and higher) of clients agreed or strongly agreed that they were treated with respect, staff explained the client's rights, the facility was clean, the client understood his or her treatment plan, the client understood what was expected of him or her during treatment, the client was receiving the services needed to get better, and the client felt better about himself/herself as a result of treatment. When clients were asked what they believed were the most positive aspects of their OTP experience, the majority of the sample reported an improvement in their financial situation. In addition, about 2 out of 5 clients reported reduced substance use as a positive treatment outcome. Over one third of the sample felt that improvements in their interactions and relationships with others were the most positive impact of treatment, and over one fourth said improved mental health and feelings about self were important. The most negative aspects of treatment that were reported by clients at follow-up were the cost of treatment (29.3%), negative interactions with treatment staff or clients (22.0%), and time away from work, household, or other responsibilities (18.1%).

Conclusions

Kentucky is the only state we know of that collects outcome data from its OTPs, both public and private agencies. This 2012 follow-up report for KORTOS provides a valuable look at the outcomes of maintenance treatment in a state that has high rates of prescription opioid abuse. The significant increases in abstinence across all substances except tobacco, increased full-time employment, and decreased rates of criminal justice system involvement indicate successful achievement of the overall treatment goals for the OTPs in Kentucky.

¹² Gagne, C., White, W., & Anthony, W.A. (2007). Recovery: A common vision for the fields of mental health and addictions. *Psychiatric Rehabilitation Journal*, 31(1), 32–37.

¹³ Davidson, L., Andres-Hyman, R., Tondora, J., Frey, J., & Kirk, T. (2008). From 'Double Trouble' to 'Dual Recovery': Integrating models of recovery in addiction and mental health. *Journal of Dual Diagnosis*, 4(3), 273–290.

¹⁴ Davidson, L., & White, W. (2007). The concept of recovery as an organizing principle for integrating mental health and addiction services. *Journal of Behavioral Health Services and Research*, 34, 109-120.