



KY-Moms Maternal Assistance Towards Recovery

2022 Outcome Report

Project Acknowledgments

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Postnatal assessments completed between July
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Executive Summary

KY-Moms MATR is a state-funded prevention and case management program aimed at reducing substance use and increasing positive birth outcomes for Kentucky women who are at risk for negative birth outcomes.

Evaluation Methods

The KY-Moms MATR outcome evaluation includes a face-to-face evidence-based assessment by program staff from Community Mental Health Centers (CMHCs) to assess substance use, mental health symptoms, intimate partner abuse, and other factors such as education, employment status, and living situation prior to pregnancy and while involved in the program.¹

This report presents: (1) demographic and targeted factors of pregnant and new mothers who are served by the KY-Moms MATR case management program and were eligible for a postnatal follow-up interview between July 2020 and June 2021, (2) self-reported birth and infant outcomes for KY-Moms MATR clients are described, and (3) changes in targeted risk factors for 26 women who participated in the KY-Moms MATR program, completed a face-to-face evidence-based baseline interview with program staff, and

completed a postnatal follow-up interview between July 2020 and June 2021. In addition, this report examines client satisfaction with their program experience.

Who Does the KY-Moms MATR Program Serve?

Overall, 73 pregnant women participated in the KY-Moms MATR program and completed a pre-birth baseline assessment for this report.² The majority of clients coming into the program were White (90.4%), about 28 years old, and either married or cohabiting with a partner (53.4%). Of the clients who were married or cohabiting (n = 39), the majority (92.3%) reported that their current partner was the father of the baby. Close to 1 in 5 clients had less than a high school diploma/GED and the majority (63.0%) were not currently employed.

Most clients (65.7%) were referred to KY-Moms MATR through an outside agency

such as a CHMC, health care provider, or Health Access Nurturing Development Services (HANDS). A small proportion (11.0%) were referred to the KY-Moms MATR program through the KY-Moms MATR prevention program. The remaining clients were self-referred (4.1%), referred by the justice system (5.4%), or referred by friends or family (4.1%). Overall, clients were an average of 24 weeks pregnant when they completed a prenatal baseline assessment and 83.6% reported that they had been pregnant before. Clients reported an average of 6.0 prenatal visits with a health care professional. Over half of clients (54.8%) were planning to breastfeed their babies.

KY-Moms MATR clients reported behavioral health risks associated with negative birth outcomes before becoming involved in the program. In the six months before pregnancy, 75.7% of clients reported illegal drug use, 30.0% reported alcohol use, and 87.1% reported smoking tobacco. In the past 30 days at baseline (while pregnant), 10.6% of clients reported illegal drug use, 3.0% reported alcohol use, and 77.3% reported smoking tobacco.

At baseline, clients were asked

¹ For more information, see: Scrivner, A., Logan, T., Cole, J., & Miller, J. (2020). *Evidence Base for the KY-Moms MATR Evaluation Assessment and Methods*. Lexington, KY: University of Kentucky, Center on Drug and Alcohol Research.

² Clients who completed a pre-birth baseline (n = 73) entered the KY-Moms MATR program between June 2019 and November 2020 and were eligible for follow-up between July 2020 and June 2021. There was an average of 15.6 days between when the client entered the program and when the baseline assessment was completed.

Clients Who Gave Birth to Their Babies Prior to Entering KY-MOMS MATR

Clients who had already had their baby when they entered the program (n = 22) reported an average of 14.4 visits with a healthcare professional during pregnancy and 3.1 visits since the baby was born. Close to one-third reported that had breastfed their baby and 27.3% had been told by a doctor of any special health care needs since the baby was born. The majority of clients reported illegal drug use (63.6%) and cigarette use (81.8%) during pregnancy. In addition, all clients reported at least one type of adverse childhood experience and half of clients reported experiencing emotional neglect, emotional maltreatment, and sexual abuse in childhood. Half of clients who already had their baby met study criteria for depression and/or anxiety during pregnancy and 18.2% screened positive for PTSD in the past 6 months. About 41% of clients in the 6 months before pregnancy and 22.7% of clients during pregnancy reported experiencing any type of partner abuse.

sixteen items measuring ten types of adverse childhood experiences from the Adverse Childhood Experiences (ACE). Results indicated that only 5.5% of clients reported no ACE while 34.2% reported experiencing between 4-6 ACE. Specifically, 56.2% reported that they had experienced emotional neglect, 53.4% experienced emotional maltreatment, 34.2% of clients reported experiencing physical maltreatment, 46.6% of clients reported sexual abuse as a child, and 34.2% experienced physical neglect before the age of 18. Almost two-thirds (65.8%) of clients reported that they had a household member with a substance abuse problem and 61.6% reported their parents were divorced or separated. Over half of clients (52.1%) reported they had a household member with a mental illness or had attempted suicide, 41.1% witnessed intimate partner abuse of a parent before the age of 18, and 30.1% reported a household member had been incarcerated.

At pre-birth baseline, clients were also asked about situations in which the client may have ever been the victim of a crime, harmed by someone else, or felt unsafe by someone other than a parent or guardian. Over two-thirds of clients (69.9%) had ever been abused by a dating or intimate partner, 67.1% reported they had ever been attacked or assaulted, 42.5% reported they had ever been sexually assaulted/raped, and 35.6% reported

they had ever been stalked by someone who scared them.

In the six months before pregnancy, 69.9% of clients met study criteria for depression and/or anxiety and 35.6% met study criteria for co-morbid depression and anxiety. In addition, 26.0% screened positive for post-traumatic stress disorder (PTSD) in the 6 months before pregnancy. Further, 35.6% of clients reported in the 6 months before pregnancy and 12.3% reported in the past 30 days that they had experienced any intimate partner abuse (including psychological abuse, control, physical abuse, and sexual abuse) perpetrated by a current or ex-partner.

Birth Events and Outcomes of KY-Moms MATR Clients

Even with increased risk factors for negative birth outcomes the KY-Moms MATR mothers had before participating in the program, their self-reported birth outcomes were very positive overall. Only about 11% of clients reported any labor and delivery complications such as premature rupture of

My case manager helped me more than any other program. She was amazing, always on top of things, if it wasn't for her I would not be where I am with a job, both kids in my own, the absolute biggest help ever.

membranes, short and fast labor, or prolonged labor. Forty percent of KY-Moms MATR mothers reported experiencing at least one maternal health condition such as diabetes, gestational diabetes (5.0%), hypertension, gestational hypertension (5.0%), uterine bleeding, previous preterm pregnancy (10.0%), or a previous C-section (10.0%). Less than one-quarter of clients reported any sexually transmitted infection (22.2%) and hepatitis B or C (22.2%). Only 10% of the babies were born prematurely and 15% of babies were born with low birthweight (less than 5lbs, 8oz). Babies were born with an average APGAR score of 9.0 and none of the babies were born with birth defects. According to the birth event data set, 80.0%

of KY-Moms MATR clients either did or intended to breastfeed their baby during the period from birth to hospital discharge.

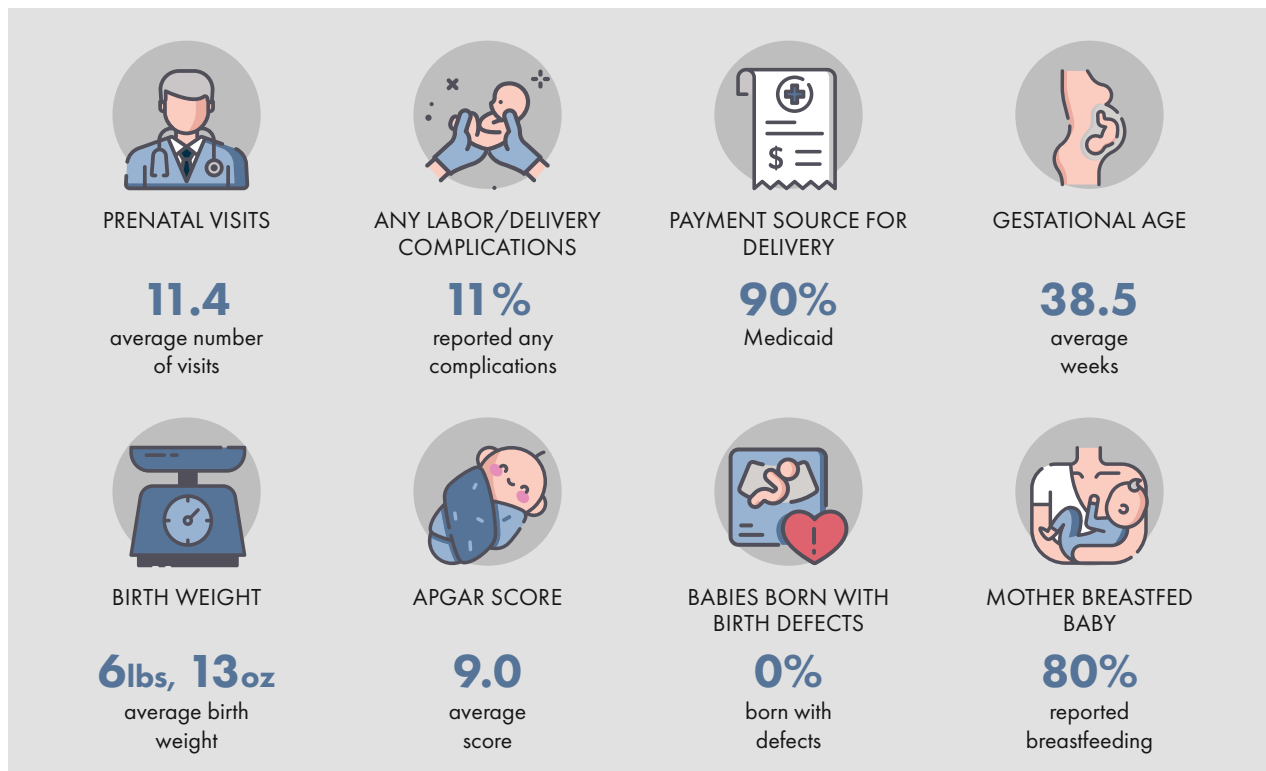
Change in Targeted Factors from Baseline to Follow-up

At baseline, clients are given the opportunity to participate in the follow-up portion of the study and to be contacted by the University of Kentucky Center on Drug and Alcohol Research (UK CDAR) for a follow-up assessment approximately 6 months after the birth of the baby. When UK CDAR staff contact KY-Moms MATR clients, the client must not be living in a jail or a controlled environment. During

FY21, 26 postnatal follow-up assessments were completed and included in the follow-up analysis.³

Clients were asked how their baby was doing at postnatal follow-up and all the mothers indicated the baby was “great” or “good.” Of the women who reported planning on breastfeeding at baseline (n = 18), 55.6% reported having breastfed their baby at postnatal follow-up. Of the clients who reported at prenatal baseline they were not planning on breastfeeding or had not

³ Clients who completed a postnatal follow-up assessment (n = 26) were admitted to the KY-Moms MATR program and completed baseline assessments between July 2019 and November 2020.



decided yet (n = 6), 50.0% reported having breastfed at follow-up, though none were still breastfeeding.

Substance Use

Overall, in the six months before the follow-up interview, significantly fewer clients reported using illegal drugs and/or alcohol compared to the 6 months before pregnancy (19.2% and 76.9%, respectively). Similarly, in the 30 days before pregnancy, 65.2% of clients reported using illegal drugs and/or alcohol and in the past 30 days at baseline, 21.7% of clients reported using illegal drugs and/or alcohol. At postnatal follow-up, none of the clients reported using illegal drugs and/or alcohol in the 30 days before the baby was born and 13.0% of clients reported illegal drug and/or alcohol use in the past 30 days at postnatal follow-up. Thus, the period when the smallest percentage of women reported using illegal drugs and/or alcohol was the 30 days before the baby was born (i.e., while the clients were pregnant and involved in KY-Moms MATR). A trend analysis from report year 2015 to the present shows a steady increase in clients reporting illegal drug use in the 6 months before pregnancy, suggesting the program is reaching high risk pregnant women.

Smoking rates also decreased significantly (from 80.0% of clients in the 6 months prior to pregnancy to 60.0% of clients

in the past 6 months at follow-up) as did smoking frequency among those who did smoke. Specifically, among clients who reporting smoking cigarettes in the 30 days prior to pregnancy, they reported an average of 7.5 cigarettes per day in the 30 days before their baby was born compared to 17.0 cigarettes per day in the 30 days before their pregnancy. About 8% of clients reported using e-cigarettes compared to 26.9% of clients in the past 6 months at follow-up.

Mental Health

Among mothers with any mental health symptoms, there was a reduction in the number of reported depression symptoms after participation in the KY-Moms MATR program. Specifically, among women who met study criteria for depression in the 6 months before pregnancy (n = 12), they reported an average of 7.0 symptoms at baseline and 1.8 symptoms in the past 6 months at postnatal follow-up. In addition, the number of clients who met study criteria for depression and/or generalized anxiety in the past 6 months decreased significantly from baseline to follow-up. A trend analysis of mental health shows that rates of depression and/or anxiety at baseline were fairly consistent from 2015 to 2018, and increased after 2019.

In addition, 32.0% of client screened positive for post-traumatic stress disorder (PTSD) in the six months before pregnancy.

Overall, evaluation results indicate that the KY-Moms MATR case management program has been successful in facilitating positive changes in clients in a variety of inter-related risk factors including:



REPORTED ANY ILLEGAL DRUG USE***

73% **8%**

at baseline at follow-up



MET STUDY CRITERIA FOR DEPRESSION AND/OR GENERALIZED ANXIETY***

65% **15%**

at baseline at follow-up



REPORTED ANY INTIMATE PARTNER ABUSE***

42% **4%**

at baseline at follow-up



REPORTED BEING CURRENTLY UNEMPLOYED**

62% **35%**

at baseline at follow-up

At follow-up, 8.0% of clients screened positive for PTSD.

Intimate Partner Abuse and Victimization

The percent of mothers who reported experiencing any form of intimate partner abuse perpetrated by a current or ex-partner significantly decreased from the 6 months before pregnancy (42.3%) to 3.8% in the past 6 months at postnatal follow-up. Trends show that the percent of clients who reported any partner abuse at prenatal baseline was fairly consistent from 2015 to 2019. In 2020, however, the percent of clients who reported any partner abuse was higher compared to report year 2019 and remained higher in 2022. Around one-quarter to over two-fifths of clients reported any form of intimate partner abuse each year in the six months before pregnancy. Overall, the number of clients who reported intimate partner abuse in the 6 months since the birth of the baby was also fairly consistent over the previous 7 years but decreased slightly in 2022.

The percent of clients who reported experiencing any victimization (i.e., any harassment or any assault) in the past 6 months decreased, but not significantly, from 23.1% the 6 months before pregnancy to 7.7% the past 6 months at follow-up.

Physical Health

Over one-third of clients (34.6%)

reported having chronic health problems at prenatal baseline. Only 8% of clients reported experiencing chronic pain in the 6 months before pregnancy compared to none of the clients at postnatal follow-up. The number of days clients reported their mental health was not good decreased from 7.5 days in the past 30 days at prenatal baseline to 3.8 days in the past 30 days at postnatal follow-up. Trend analysis shows that each year, the average number of days clients reported their physical health was not good decreased from baseline to follow-up. While the average number of days of their mental health was not good at baseline has been relatively steady over the past 8 years, the average number of days at follow-up has gradually increased.

Quality of Life and Emotional Support

On a scale of 1 = 'Worst imaginable' to 10 = 'Best imaginable', clients reported a significantly higher quality of life after the program (8.9) compared to prenatal baseline (7.0). In addition, clients reported they could count on significantly more people for emotional support in the past 30 days at follow-up (8.5) compared to the past 30 days at baseline (6.0). The majority of women at both baseline and follow-up were fairly or extremely satisfied with the level of emotional support they received from others.

Trend analysis shows that from 2015 to 2021, clients have rated their quality of life at baseline, on average, from 6.2 to 7.2. At postnatal follow-up, that rating was an average of around 8 or higher overall. The average number of people clients reported they could count on for emotional support in the past 30 days appears to have steadily increased over time. In 2015 clients reported they could count on 4.4 people and in 2022 clients reported an average of 6.0 people they could count on for emotional support. At follow-up, the average number of people clients could count on for emotional support decreased from 2016 to 2019, but increased in 2020 to a high of 9.0.

Economic Hardship, Living Situation, and Criminal Justice Involvement

Women in the KY-Moms MATR program reported improved economic conditions; significantly fewer clients reporting they had difficulty meeting basic living needs (such as food, shelter, utilities, and telephone) in the 30 days before the baby was born (7.7%) compared to the past 30 days at prenatal baseline (38.5%). While there was no significant change in living situation at follow-up, the majority of clients at prenatal baseline (76.9%) and postnatal follow-up (92.3%) reported living in a private residence (i.e., their own or someone else's home or apartment). Close to 15% of clients at baseline and 3.8%

of clients at follow-up reported being arrested in the past 6 months. Over one-quarter of clients reported spending at least one night in jail or prison in the 6 months before pregnancy and 3.8% of clients spent at least one night in jail at follow-up.

Multidimensional Recovery

About 8% of clients had all positive dimensions of recovery at baseline. By follow-up, 73.1% of clients had all positive dimensions of recovery, which was a significant increase. At intake, the positive factors with the lowest percent of individuals indicated were for not meeting study criteria for depression and/or anxiety and reporting no illicit drug use. At follow-up, the factors with the lowest percent of individuals reporting the positive dimensions of recovery were for not meeting study criteria for depression and/or anxiety, not reporting illicit drug use, and usual employment was employed full-time or part-time in the past 6 months.

Client Satisfaction with Program Experience

On a scale of 0 = "not at all right for me" to 10 = "exactly right for me", clients rated their overall KY-Moms MATR experience, on average, as 9.6 with 96.1% rating the program between 8 and 10. In addition, the majority of clients (96.2%) reported that the KY-Moms MATR program worked pretty well or extremely well for them and that they would refer a friend or family member to

their treatment provider. Clients agreed that they worked on things that were most important to them (96.2%), they felt completely heard by their case manager when they told them about personal things (92.3%), and that the program approach and method were a good fit for them (92.3%). The majority of clients (76.9%) reported that the program and the client mutually agreed that the client was ready to leave the program.

Areas of Concern

Despite significant improvements in many areas of clients' lives, there was a minority of new mothers who continued to struggle with targeted risk factors at follow-up.

Smoking

The majority of clients smoked during pregnancy (69.6% in the past 30 days at prenatal baseline and 52.2% in the 30 days before the baby was born), both of which are considerably higher than the 15.3% of pregnant women in Kentucky who reported smoking cigarettes or the 8.7% of women in the U.S. Additionally, a high percentage of KY Moms-MATR mothers reported smoking tobacco in the 30 days before pregnancy. This number is considerably higher than either the national estimate of 17.2% of non-pregnant women aged 15-44 who are self-reported smokers or the state estimate of women who report smoking (28.8%).

Mental Health and PTSD

In addition, 15.4% of KY-Moms MATR clients reported meeting study criteria for depression and/or anxiety in the six months after the baby was born. Further, 32.0% of clients had PTSD scores that met study criteria for probable PTSD in the 6 months before pregnancy.

Intimate Partner Abuse

At baseline, 42.3% of postnatal follow-up clients reported any form of intimate partner abuse in the 6 months before they found out they were pregnant. At follow-up, 7.7% of KY-Moms MATR clients reported experiencing intimate partner abuse in the 30 days before their baby was born and 3.8% reported experiencing intimate partner abuse in the past 6 months; thus, intimate partner abuse is an ongoing concern through the pregnancy and after the baby is born for a minority of clients.

Financial Issues

With 34.6% of KY-Moms MATR women reporting being currently unemployed and 26.9% of women reporting difficulty meeting basic needs because of financial reasons in the past 6 months at follow-up, economic hardship is a continuing problem for many of these new mothers.

Multidimensional Recovery Status

Even though there were significantly more clients who had all positive dimensions of recovery at follow-up when compared to baseline, over one-quarter of KY-Moms MATR clients (26.9%) still did not have all the positive dimensions of recovery. At follow-up, the factors with the lowest percent of individuals reporting the positive dimensions of recovery were for not meeting study criteria for depression and/or anxiety, not reporting illicit drug use, and usual employment was employed full-time or part-time in the past 6 months.

Program Issues

While clients were largely satisfied with their program experience, over one-third of clients (34.6%) reported that there were things they did not fully discuss with their counselor/program staff. In addition, 20.0% of clients reported that they would warn their friend or family member about certain things or tell them who to work with or who to avoid. Approximately 23% of clients reported that the length of the program was too short. Even though 65.4% of clients met study criteria for either depression or anxiety (or both) and 76.9% of clients reported using illegal drugs and/or alcohol in the 6 months before pregnancy, close to 42% of clients reported they did not receive either substance abuse or mental health treatment while in the KY-Moms MATR

program.

Summary

Overall, evaluation results indicate that the KY-Moms MATR program has been successful in facilitating positive changes in clients in a variety of inter-related risk factors including substance use, mental health symptoms, and intimate partner abuse. Results also indicate clients appreciate their experiences in the program and have a better quality of life after participation. These changes suggest there would be significant benefit in sustaining and expanding the KY-Moms MATR program to serve more high-risk pregnant women across the state.

Overview of the Report

This report presents the results of an outcome evaluation of the KY-Moms MATR program. This outcome evaluation was conducted by the Behavioral Health Outcome Study team at the University of Kentucky Center on Drug and Alcohol Research (UK CDAR) in collaboration with the Division of Behavioral Health in the Department for Behavioral Health, Developmental and Intellectual Disabilities. The evaluation results are organized into 6 main sections as outlined below.

Part I: Introduction and Evaluation Method. This section briefly describes the KY-Moms MATR program and how cases are selected into the analysis for the outcome evaluation.

Part II: Who is Served by the KY-Moms MATR Program? This section describes the KY-Moms MATR client characteristics for 73 women who participated in the KY-Moms MATR program, completed a baseline assessment between June 2019 and November 2020, and were eligible for follow-up in FY 2021. Characteristics examined include: (1) demographics, (2) self-referral status, (3) information about the pregnancy, (4) risk status, (5) substance use, (6) adverse childhood experiences and victimization, (7) mental health, stress, and sleep difficulty, and (8) intimate partner abuse. Clients who entered the program after the birth of their child are also described separately in this section.

Part III: Birth Events and Outcomes. This section uses the Kentucky Vital Statistics birth data to examine: (1) maternal behavior and health characteristics, and (2) infant health characteristics for 20 KY-Moms MATR case management clients and their babies.

Part IV: Change in Targeted Factors from Baseline to Follow-up for Clients in the Postnatal Follow-up Sample. This section examines change among women with a pre-birth baseline and a completed postnatal follow-up interview (n=26) for FY21⁴ in: (1) information about the baby, (2) substance use, (3) mental health, sleep, and stress, (4) intimate partner abuse and victimization experiences, (5) economic and living circumstances, economic hardship, and criminal justice involvement, (6) physical health, (7) quality of life and emotional support, and (8) multidimensional recovery status. Past-30-day and past-6-month measures are examined separately where applicable.

Part V: Client Experience and Satisfaction with KY-Moms MATR Case Management. This section describes the experience of the KY-Moms MATR case management program assessed by clients who completed a postnatal follow-up (n = 26): (1) manner in which the client left the program, and (2) KY-Moms MATR case management program satisfaction.

Part VI: Conclusion and Study Limitations. This section summarizes the report findings, discusses limitations, and describes implications of the main findings.

⁴ Post-birth follow-up interviews are now being collected as requested by the state. However, because there are so few post-birth follow-ups completed this fiscal year (n = 2), they will not be analyzed as a part of this report.

Part I: Introduction and Evaluation Method

This section briefly describes the KY-Moms MATR program and the program evaluation methodology.

Kentucky has the highest rates in the nation for women experiencing intimate partner violence in their lifetime (ranked 50th) with 45.3% of women reporting psychological, physical, and sexual violence.⁵ Kentucky also ranks 39th in the nation for adverse childhood experiences with 17.8% of children experiencing two or more adverse conditions.⁶ In 2020, Kentucky had the highest rate of child abuse and neglect in the U.S.: 23.5 cases of child abuse or neglect per 1,000 children.⁶ Moreover, Kentucky had the third highest rate of child victims with caregivers' drug abuse as a risk factor.⁷ Kentucky ranks 48th in mortality rate for women, 34th in maternal mortality, 37th in the nation for infant mortality and 37th in the nation for babies born with low birthweight.⁶ It also has one of the lowest rates in the nation for breastfeeding.⁶ Further, Kentucky is one of the highest in the nation for rates of tobacco use during pregnancy (49th), drug deaths among females (46th), and depression (44th).⁶ In 2020 Kentucky had a ranking of 46th for overall health for women and a ranking of 41st for overall children's health.⁶

KY-Moms: Maternal Assistance Towards Recovery (MATR) is a state-funded prevention, outreach, and case management program aimed at reducing substance use risk during pregnancy. Alcohol, tobacco, and illicit drug use during pregnancy have been shown to negatively influence fetal development (including significantly decreased birth weight and shorter gestational age) and women's health.^{8, 9, 10, 11, 12} In addition, substance use is often related to mental health problems and an increased risk of partner abuse and sexual assault.^{13, 14} All three of these interrelated risk factors increase the likelihood of negative birth outcomes.^{15, 16} Additionally, risks of negative birth outcomes are increased when women who use alcohol and illegal

⁵ United Health Foundation. (2019). *America's health rankings health of women and children, State findings: Kentucky, 2019*. Minnetonka, MN: United Health Foundation. Retrieved on September 17, 2020 from <https://www.americashealthrankings.org/explore/annual/measure/Overall/state/KY>.

⁶ United Health Foundation. (2021). *America's health rankings health of women and children, State findings: Kentucky, 2020*. Minnetonka, MN: United Health Foundation. Retrieved on September 23, 2021 from <https://www.americashealthrankings.org/learn/reports/2020-health-of-women-and-children/state-summaries-kentucky>

⁷ U.S. Department of Health & Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2021). *Child Maltreatment 2019*. Available from <https://www.acf.hhs.gov/cb/research-data-technology/statistics-research/child-maltreatment>

⁸ Bailey, B. A., McCook, J. G., Hodge, A., & McGrady, L. (2012). Infant birth outcomes among substance using women: why quitting smoking during pregnancy is just as important as quitting illicit drug use. *Maternal and Child Health Journal*, 16(2), 414-422.

⁹ Gouin, K., Murphy, K., & Shah, P. S. (2011). Effects of cocaine use during pregnancy on low birth weight and preterm birth: systematic review and metaanalyses. *American Journal of Obstetrics and Gynecology*, 204(4), 340-e1-12.

¹⁰ Behnke, M., Smith, V. C., Levy, S., Ammerman, S. D., Gonzalez, P. K., Ryan, S. A., ... & Watterberg, K. L. (2013). Prenatal substance abuse: short-and long-term effects on the exposed fetus. *Pediatrics*, 131(3), e1009-e1024.

¹¹ Pinto, S. M., Dodd, S., Walkinshaw, S. A., Siney, C., Kakkar, P., & Mousa, H. A. (2010). Substance abuse during pregnancy: effect on pregnancy outcomes. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 150(2), 137-141.

¹² Young, N.K., Gardner, S., Otero, C., Dennis, K., Chang, R., Earle, K., & Amatetti, S. (2007). *Substance-Exposed Infants: State Responses to the Problem*. National Center on Substance Abuse and Child Welfare.

¹³ Logan, T., Walker, R., Jordan, C. & Leukefeld, C. (2006). *Women and victimization: contributing factors, interventions, and implications*. Washington, DC: American Psychological Association Press.

¹⁴ Kessler, R., McGonagle, K., Zhao, S., Nelson, C. Hughes, M., Eshleman, S., Wittchen, H., & Kendler, K. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: Results from the National Comorbidity Survey. *Archives of General Psychiatry*, 51, 8-19.

¹⁵ Shah, P. S., & Shah, J. (2010). Maternal exposure to domestic violence and pregnancy and birth outcomes: a systematic review and meta-analyses. *Journal of Women's Health*, 19(11), 2017-2031.

¹⁶ Schetter, C. D., & Tanner, L. (2012). Anxiety, depression and stress in pregnancy: implications for mothers, children, research, and practice. *Current Opinion in Psychiatry*, 25(2), 141-148.

drugs avoid obtaining prenatal care due to access, fear of losing custody of their babies, or fear of being arrested.¹⁷

The overall goal of the KY-Moms MATR program is to increase positive birth outcomes for pregnant women in Kentucky who are at risk because of substance use, poor mental health status, and victimization that negatively impact the health of the pregnant mother, and fetal and birth outcomes. The program is administered by the Division of Behavioral Health in the Department for Behavioral Health, Developmental and Intellectual Disabilities.¹⁸ The program has two components including providing: (1) substance abuse prevention education to pregnant women at all risk levels, and (2) client-centered intensive case management services to pregnant and parenting women who are diagnosed with a substance use disorder (referred to in this report as KY-Moms MATR program). This report focuses on outcomes for mothers who are involved with the intensive case management services component of the program.

The KY-Moms MATR program case managers provide support, referrals, information, and other needed services (e.g., transportation) in a client-centered format. More specifically, this intervention focuses on meeting clients' needs as they evolve over time, as different risks manifest, and needs change as the pregnancy progresses.¹⁹ By focusing on clients' needs, client-centered intensive case management encourages continued engagement in clinical services and helps with a variety of practical needs.^{20, 21} KY-Moms MATR case managers use evidence-based practices, including Motivational Interviewing, to promote engagement in vital services such as substance abuse and mental health treatment, partner violence services, and to encourage consistent prenatal care.^{22, 23} Further, the curriculum has been standardized across the sites as of 2017 with updates to the curriculum in 2020.

Pregnant women who are referred to the KY-Moms MATR program are first screened for eligibility. Typically, women are referred by community organizations such as health departments, private OB/GYN providers, child welfare caseworkers, pregnancy crisis centers, domestic violence shelters and community mental health center clinicians. The screening tool used by KY-Moms MATR referral sources is the "Pregnancy Behavioral Health Risk Assessment Screening" tool, which assesses a variety of risks including substance use, mental health, and intimate partner abuse, any of which make a woman eligible for prevention education services. Women that screen in for substance use risk factors are referred to a therapist for a substance use assessment for a diagnosis. Once a diagnosis is reached (mild, moderate, or severe substance use disorder), the women would be eligible for case management services. Adolescents (under age 18) are also eligible regardless of other risk factors.

¹⁷ Roberts, S.C & Nuru-Jeter, A. (2010). Women's perspectives on screening for alcohol and drug use in prenatal care. *Women's Health Issues*, 3, 193-200.

¹⁸ Since 2015, all of Kentucky's regional community mental health centers except Bluegrass participate in the KY-Moms MATR program.

¹⁹ Austin, L. (2013). Treatment Planning and Case Management in Community. *The Praeger Handbook of Community Mental Health Practice: Working in the local community*, 1, 83.

²⁰ Center for Substance Abuse Treatment. Comprehensive Case Management for Substance Abuse Treatment. Rockville (MD): Substance Abuse and McLaughlin, C. P., & Kaluzny, A. D. (2000). Building client centered systems of care: choosing a process direction for the next century. *Health Care Management Review*, 25(1), 73-82

²¹ Sheedy C. K., and Whitter M. (2009). *Guiding Principles and Elements of Recovery-Oriented Systems of Care: What Do We Know from the Research?* HHS Publication No. (SMA) 09-4439. Rockville, MD: Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration.

²² Ingersoll, K. S., Ceperich, S. D., Hettema, J. E., Farrell-Carnahan, L., & Penberthy, J. K. (2013). Preconceptional motivational interviewing interventions to reduce alcohol-exposed pregnancy risk. *Journal of Substance Abuse Treatment*, 44(4), 407-416.

²³ May, P. A., Marais, A. S., Gossage, J. P., Barnard, R., Joubert, B., Cloete, M., et al. (2013). Case management reduces drinking during pregnancy among high-risk women. *The International Journal of Alcohol and Drug Research*, 2(3), 61-70.

Evaluation Method

The KY-Moms MATR outcome evaluation includes a face-to-face evidence-based assessment by program staff from CMHCs to assess substance use, mental health symptoms, intimate partner abuse, and other factors such as education, employment status, and living situation prior to pregnancy and while involved in the program.²⁴ Overall, a total of 73 pre-birth baselines were completed between June 2019 and November 2020 with women who had due dates that would result in target months for a follow-up interview between July 2020 and June 2021. In previous years, clients who had their babies prior to entering KY-Moms MATR were not included in the report analysis. However, beginning this report year, the decision was made to include these individuals and analyze them separately. As a result, there were 22 women who gave birth to their babies prior to entering the KY-Moms MATR program and were targeted for follow-up in FY21.

At prenatal baseline, clients are offered the opportunity to be contacted for a postnatal follow-up interview. KY-Moms MATR clients are eligible to be included in the sample to be followed up if: (1) the client consents to be contacted by UK CDAR BHOS staff, (2) the prenatal baseline is submitted to UK CDAR within 30 days of completion, (3) the client is in the program at least 30 days before the birth of the baby, and (4) adequate contact information is provided for follow-up staff to use to attempt to locate and contact them for the follow-up interview. If any of these criteria are not met, the client is not included in the sample to be followed up.²⁵ If the client is included in the follow-up sample, an interviewer at UK CDAR contacts the client about 6 months after the birth of their baby (based upon estimated due date reported by the client at prenatal baseline).

The UK CDAR team begins their efforts to locate and conduct follow-up interviews with women who are eligible for follow-up one month before their target month (i.e., six months after the due date of their baby) and continues their efforts until the women have completed the follow-up interview or for two months after the target month, whichever comes first. When the follow-up team contacts women, the client must not be living in a jail or controlled environment. UK CDAR interviewers obtain verbal consent to complete the follow-up interview. Client responses to the follow-up interviews are kept confidential to facilitate accurate reporting of client outcomes and satisfaction with program services. During FY21, 26 postnatal follow-up assessments were completed (a 63.4% follow-up rate).²⁶ See Appendix A for more details about follow-up methods and eligibility.

To be included in the analysis for the birth event outcome section of this report, however, clients had to have given permission to the research team to access and to have had matching information from the Kentucky Vital Statistics birth event data set in order to compare birth outcomes. With this criterion in mind, although 26 clients completed a postnatal follow-up assessment, six clients did not give permission to use their birth data. This left a final sample for the birth event data of 20 women who met analysis criteria, gave birth between January 2020 and December 2020, and completed a postnatal follow-up assessment between July 2020 and June 2021 (an average of 5.9 months after giving birth).

²⁴ For more information, see: Scrivner, A., Logan, T., Cole, J., & Miller, J. (2020). *Evidence Base for the KY-Moms MATR Evaluation Assessment and Methods*. Lexington, KY: University of Kentucky, Center on Drug and Alcohol Research.

²⁵ As a result of the prenatal baseline criteria, 32 clients were not eligible for the follow-up sample. See Appendix C for information on each category of ineligibility.

²⁶ Clients who completed a postnatal follow-up assessment (n = 26) were admitted to the KY-Moms MATR program and completed baseline assessments between July 2019 and November 2020.

A Closer Look at Clients Who Did Not Have a Postnatal Follow-up Interview

When those with a postnatal follow-up interview (n = 26) were compared with those who did not have a postnatal follow-up interview (n = 47)²⁷ on a variety of prenatal baseline variables, there were couple of significant differences. More clients who were followed up reported having no chronic health problems at baseline and clients who were not followed up reported a higher average level of pain over the past 30 days, among client who reported chronic pain. More clients who were followed up reported illegal drug use in the past 30 days at baseline compared to clients who were not followed up (see Appendix B).

	Followed up (n = 26)	Not followed up (n = 47)
Demographics	No difference	
Living situation	No difference	
Employment	No difference	
Physical health	More reported having no chronic health problems	Reported a higher average level of pain over the past 30 days among client who reported chronic pain
Illegal drug use		More illegal drug use in the past 30 days
Alcohol use	No difference	
Mental health	No difference	
Intimate partner abuse	No difference	

²⁷ See Appendix C for details reasons why client did not complete a follow-up interview

PART II: Who is Served by the KY-Moms MATR Program? A Description of All KY-Moms MATR Clients at Baseline

The KY-Moms MATR outcome evaluation includes a face-to-face baseline interview by program staff to assess targeted factors such as substance use, mental health symptoms, intimate partner abuse, and other factors such as education, employment status, and living situation prior to pregnancy and while involved in the program. Between June 2019 and November 2020, 73 pregnant women completed a prenatal baseline interview and 22 women who gave birth prior to entering KY-Moms MATR and were eligible for a six-month postnatal follow-up within FY 21 completed follow-up interviews.^{28, 29}

Clients Who Entered the Program Before the Birth of Their Child

Demographics

Table II.1 shows that the majority of clients were White (90.4%) and were an average of 28.2 years old. In addition, the majority (53.4%) were married or cohabiting at baseline. Of those clients who were living with an intimate partner (n = 39), 92.3% reported this partner was the father of the baby. About 8% of the KY-Moms MATR mothers reported at prenatal baseline they were currently homeless. Of those who indicated they were homeless (n = 6), 50.0% were staying temporarily with friends/family, and 50.0% considered themselves homeless because they were in a residential facility.

TABLE II.1. DEMOGRAPHICS FOR ALL KY-MOMS MATR CLIENTS AT BASELINE (N = 73)

Age ³⁰	28.2 years (range of 17-44)
Race	
White.....	90.4%
African American.....	4.1%
Mexican	0.0%
Puerto Rican	0.0%
Other or multiracial.....	5.5%
Marital Status	
Married or cohabiting.....	53.4%
Never married.....	32.9%
Separated or divorced	11.0%
Widowed	2.7%
Of those married or cohabiting	(n = 39)
Partner is the father of baby	92.3%
Homeless	8.2%

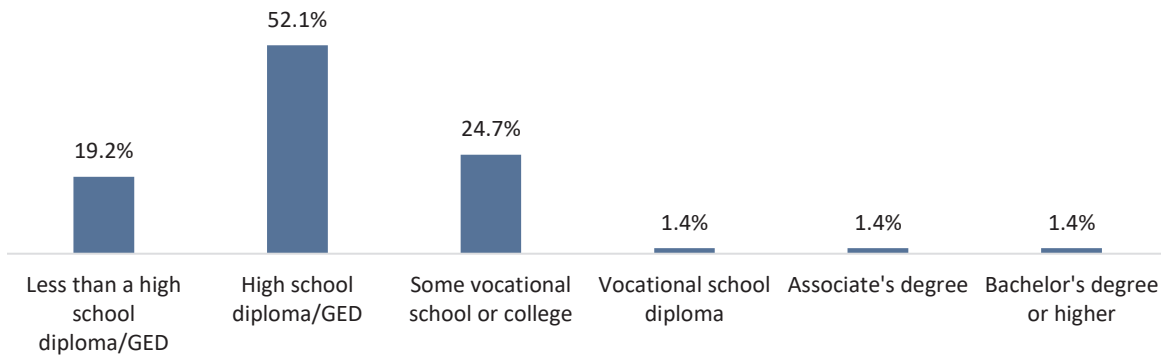
²⁸ Clients who completed a prenatal baseline (n = 73) entered the KY-Moms MATR program between June 2019 and November 2020 and were eligible for follow-up between July 2020 and June 2021. There was an average of 15.6 days between when the client entered the program and when the baseline assessment was completed.

²⁹ Because the KY-Moms MATR evaluation only analyzes clients who completed a baseline, it is not known how many women were served by the KY-Moms MATR program but did not complete a baseline assessment.

³⁰ Two clients had incorrect birthdates; therefore, age could not be calculated.

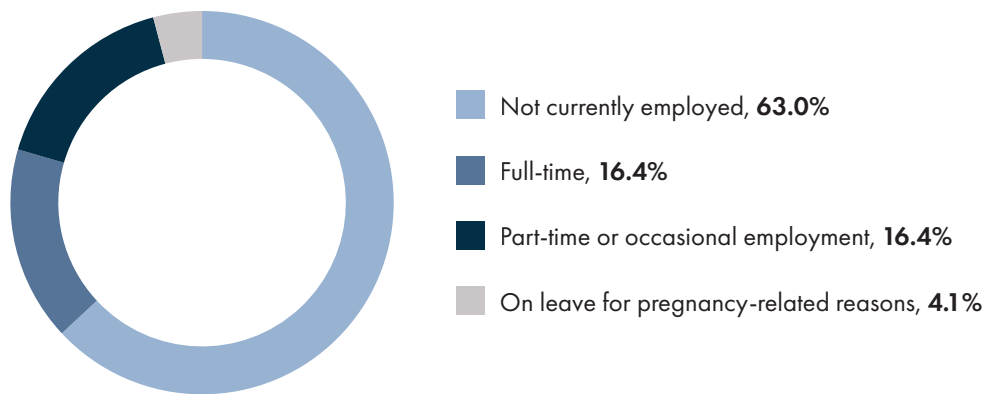
About 19% of clients had less than a high school diploma or GED at baseline (see Figure II.1). Over half of clients (52.1%) reported their highest level of education was a high school diploma or GED. Close to 1 in 4 of clients had completed some vocational/technical school or college. Only a small minority of clients had completed vocational/technical school (1.4%), an associate’s degree (1.4%), or a bachelor’s degree (1.4%).

FIGURE II.1. HIGHEST LEVEL OF EDUCATION COMPLETED AT BASELINE (N = 73)



The majority of women in KY-Moms MATR case management were unemployed (63.0%) at the time of the pre-birth baseline interview. Only 16.4% of clients were employed full-time and 16.4% either worked part-time or had occasional/seasonal work. Close to 4% reported they were currently on leave from their job due to pregnancy-related reasons.

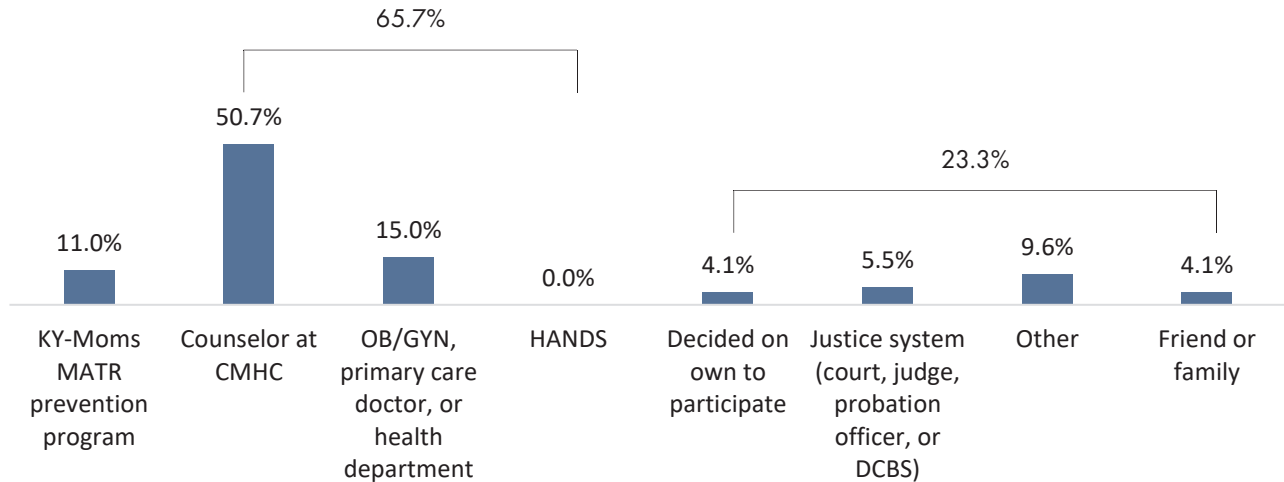
FIGURE II.2. CURRENT EMPLOYMENT STATUS AT BASELINE (N = 73)



Self-reported Referral Status

Figure II.3 shows the self-reported referral source for all KY-Moms MATR clients at baseline. Close to two-thirds of clients (65.7%) were referred by outside agencies such as a counselor at one of the community mental health centers (50.7%) or a health care provider (15.0%). A smaller proportion (11.0%) of clients were referred to the KY-Moms MATR program by the prevention program. Over one-quarter of clients (23.3%) were referred to the program in other ways such as deciding on their own to participate (4.1%), the justice system (e.g., judge, court, probation officer, or DCBS; 5.5%), and a family member or friend (4.1%).

FIGURE II.3. SELF-REPORTED REFERRAL SOURCE FOR ALL KY-MOMS MATR CLIENTS AT BASELINE (N = 73)



Information About the Pregnancy

Overall, at the time clients completed the prenatal baseline, they were an average of 24 weeks into their pregnancy (ranging 7 weeks to 39 weeks). All clients reported they were going to maintain custody of the baby.

At the time of prenatal baseline, clients had been to an average of 6.0 visits (range of 0-20 visits) with their prenatal health care provider and 54.8% reported they were planning on breastfeeding. Overall, 83.6% of clients reported they had been pregnant before.

TABLE II.2. PREGNANCY STATUS FOR ALL KY-MOMS MATR CLIENTS AT BASELINE (N = 73)

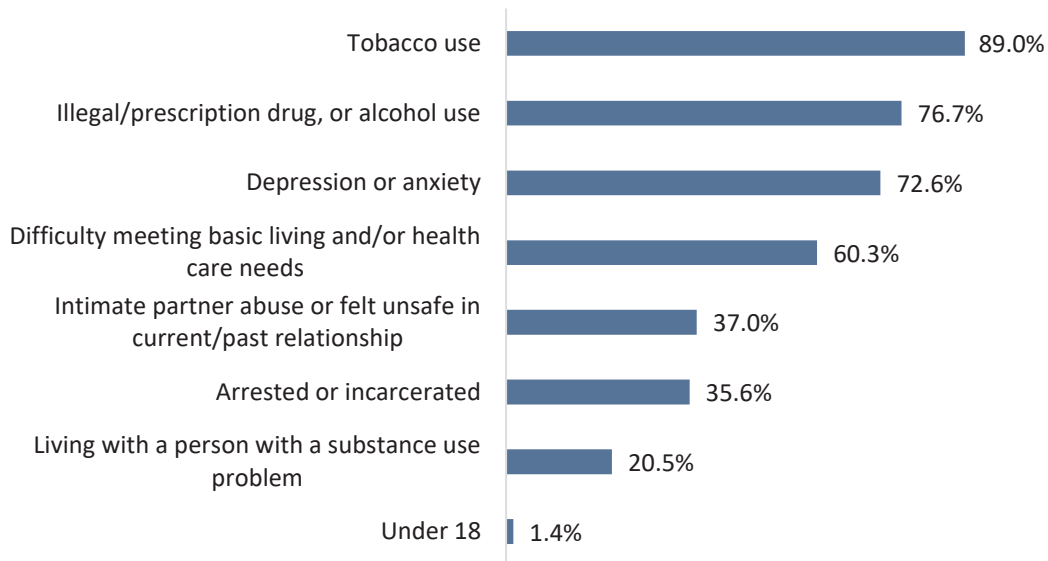
Average weeks pregnant	24.1 weeks (range of 7-39)
Plan to keep the baby.....	100.0%
Average number of visits with a healthcare professional .	6.0 (range 0-20)
Plan to breastfeed.....	54.8%
Been pregnant previously	83.6%

Risk Status

Figure II.4 shows that of the 73 clients who completed a KY-Moms MATR prenatal baseline, 98.6% (n = 72 clients) fit into at least one of the major risk factor categories assessed in the baseline interview. Overall, 89.0% of clients reported tobacco use (cigarettes, e-cigarettes, or smokeless tobacco) and 76.7% reported drug or alcohol use at baseline (in the 6 months before pregnancy, in the 30 days before pregnancy, or in the past 30 days). Less than three-quarters of clients (72.6%) reported they had symptoms of depression or anxiety for at least two weeks in a row at baseline (in the 6 months before pregnancy or in the past 30 days). About 60% of clients (60.3%) reported difficulty meeting basic living and/or health care needs and 37.0% reported intimate partner abuse and/or feeling unsafe in either their current relationship or because of a

partner from a previous relationship in the 6 months before pregnancy or in the past 30 days. Over one-third of clients (35.6%) reported having been arrested and/or incarcerated in the 6 months before pregnancy. Less than one-quarter of clients (20.5%) reported currently living with someone who had drug or alcohol problems, and 1.4% were under the age of 18 at the time of the baseline interview.

FIGURE II.4. PERCENT OF CLIENTS FALLING INTO AT LEAST ONE TARGETED RISK FACTOR AT BASELINE (N = 73)



Substance Use

Of the 70 clients who were not incarcerated or in a controlled environment all 6 months before pregnancy,³¹ the majority reported using alcohol and/or illegal drugs (78.6%) in the 6 months before pregnancy. Overall, a higher percentage of individuals reported using illegal drugs (75.7%) compared to the percent of individuals who reported using alcohol (30.0%) in the 6 months before pregnancy. The majority of clients reported smoking tobacco (87.1%) in the 6 months before pregnancy.

Of the 66 clients who were not in a controlled environment³² all 30 days before baseline, 12.1% reported using alcohol and/or illegal drugs.³³ Specifically, 10.6% reported illegal drug use and 3.0% reported alcohol use. Also, 77.3% reported smoking tobacco in the 30 days before baseline (see Figure II.5).

They were very helpful. I hardly had anything and they went above and beyond to help me.

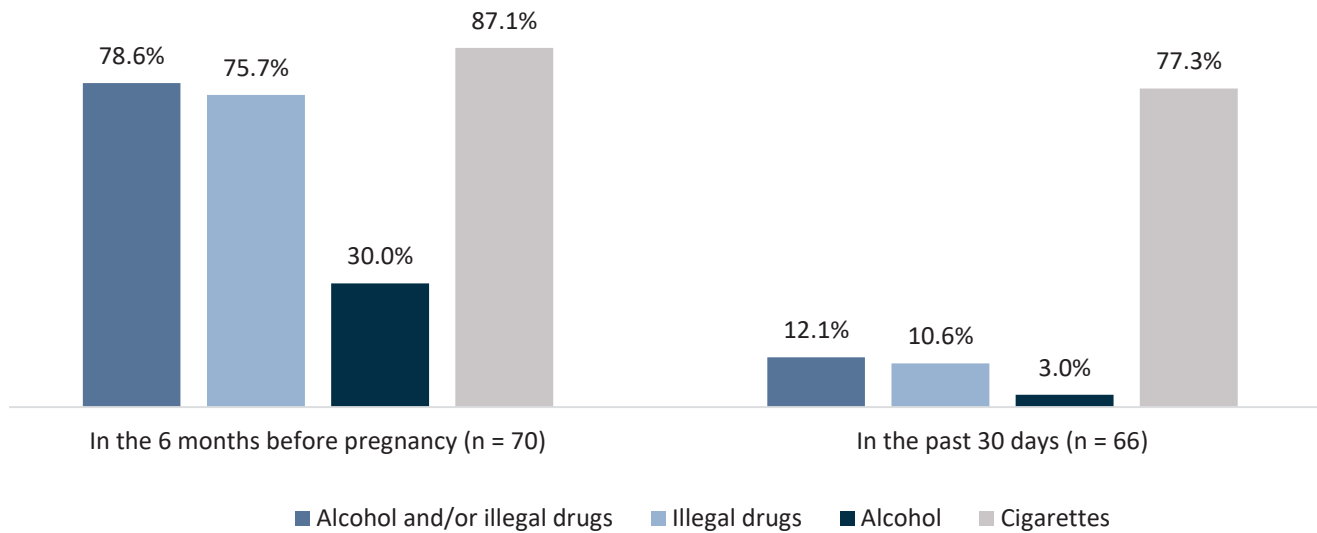
KY-MOMS MATR FOLLOW-UP CLIENT

³¹ One client was missing the number of days incarcerated at baseline and one clients were incarcerated or in a controlled environment all 180 days before pregnancy

³² A controlled environment is one where the client was not able to come and go as they pleased including a hospital, jail, or residential treatment.

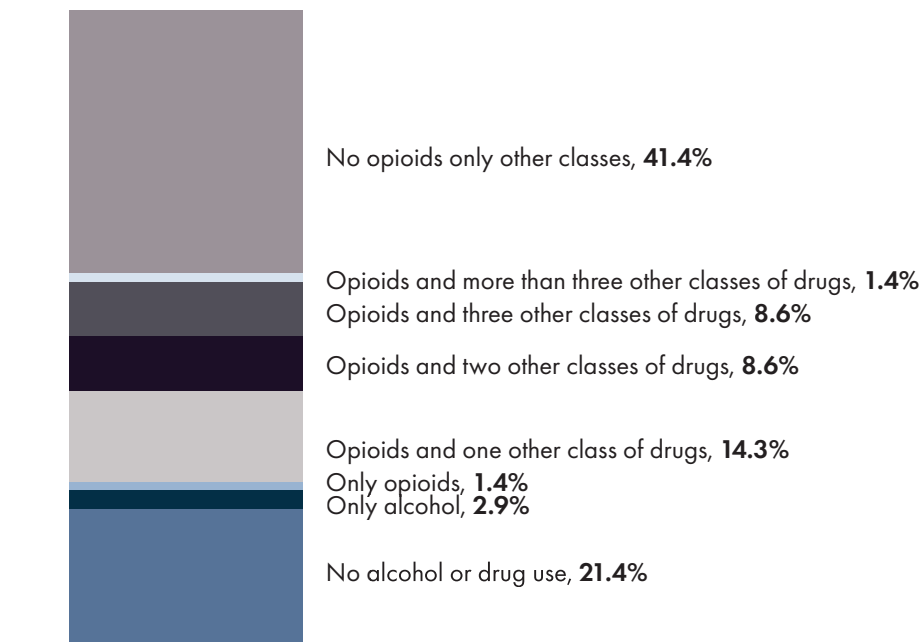
³³ This period includes while they were pregnant, but may not have known they were pregnant yet.

FIGURE II.5. PERCENT OF CLIENTS REPORTING ILLEGAL DRUGS, ALCOHOL, AND SMOKING TOBACCO AT BASELINE³⁴



Among the individuals who were not incarcerated or in a controlled environment all 180 days before entering treatment, Figure II.6 shows the percent of clients who used no alcohol and or illegal drugs (21.4%), alcohol only (2.9%), no opioids and other drug classes only (41.4%), and opioids only (1.4%). Additionally, Figure II.6 shows the percent of clients who reported using opioids with one other drug class (14.3%), opioids with two other drug classes (8.6%), opioids with three other drug classes (8.6%), and opioids with three or more other drug classes (1.4%).

FIGURE II.6. OPIOID AND OTHER DRUG CLASS USE IN THE 6 MONTHS BEFORE PREGNANCY (N = 70)³⁵



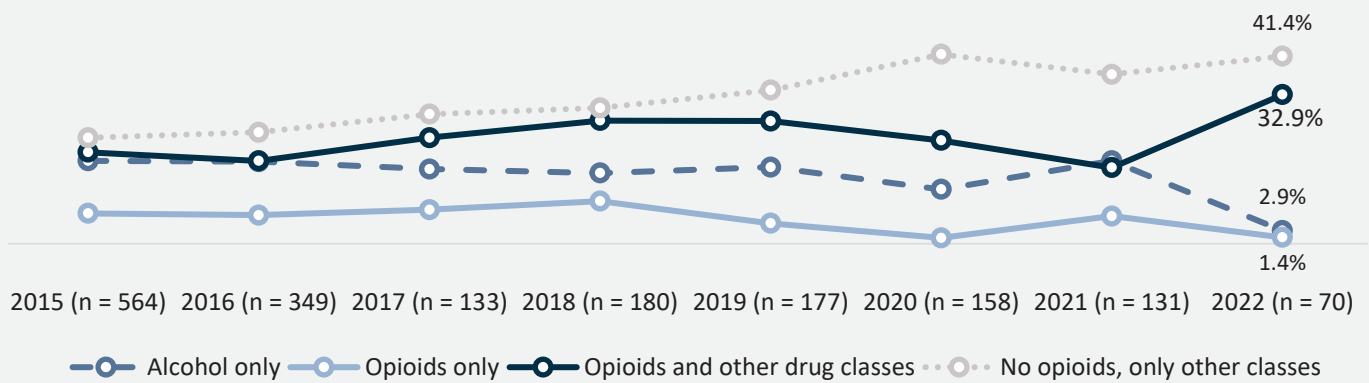
³⁴ Because being in a controlled environment decreases opportunities for substance use, individuals who were incarcerated all 180 days in the 6 months before pregnancy (n = 1), or in a controlled environment/incarcerated all 30 days before entering the program (n = 7) are not included in the analysis of substance use in the corresponding period.

³⁵ The broad drug classes examined were (1) Marijuana/cannabis, (2) Opioids including heroin, (3) CNS depressants, (4) Cocaine and stimulants, and (5) Other drugs (hallucinogens, inhalants, synthetic drugs).

Trends in Alcohol and Drug Use Classes³⁶ in the 6 Months Before Pregnancy at Baseline

In each report year, more clients who were not incarcerated all 180 days before pregnancy reported not using opioids, but reported using other classes of drugs in the 6 months before pregnancy. The percent of clients reporting using classes of drugs other than opioids in the 6 months before pregnancy almost doubled from 23.4% in the 2015 report to 41.8% in 2020. In 2021, 41.4% of clients reported using classes of drugs other than opioids in the 6 months before pregnancy.

FIGURE II.7. TRENDS IN CLASSES OF SUBSTANCES USED IN THE SIX MONTHS BEFORE PREGNANCY, 2015-2022



In the current report (2022), of those clients who reported using only classes of drugs other than opioids in the six months before pregnancy (n = 29), 72.4% reported marijuana use, 55.2% reported stimulant use, and 3.4% reported tranquilizer/sedative use.

In addition, 28.8% of clients reported having ever overdosed on drugs (which required intervention by someone to recover, including suicide attempts) in their lifetime. In the 6 months before pregnancy, 9.5% of clients reported overdosing on drugs.

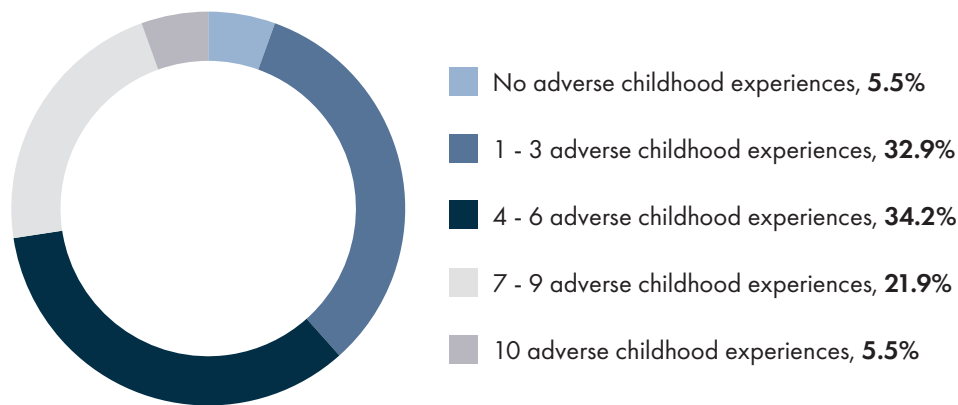
Adverse Childhood Experiences and Victimization

At baseline, clients were asked sixteen items about ten types of adverse childhood experiences from the

³⁶ Five classes: 1. Marijuana, 2. Opioids (prescription opiates, Suboxone, heroin, methadone), 3. Stimulants (amphetamines, methamphetamine, prescription stimulants, cocaine), 4. CNS depressants (barbiturates, tranquilizers), 5. Other illegal drugs (inhalants, hallucinogens, synthetic drugs).

Adverse Childhood Experiences (ACE).^{37, 38, 39} In addition to providing the percent of women who reported each of the ten 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 the number of items clients answered affirmatively to were added to create a score equivalent to the ACE score. A score of 0 means the client answered “No” to the five abuse and neglect items and the five household dysfunction items in the baseline interview. A score of 10 means the client reported all five forms of child maltreatment and neglect, and all 5 types of household dysfunction before the age of 18. Figure II.8 shows that only 5.5% reported they did not experience any of the ACE included in the baseline assessment, which means 94.5% of clients reported at least one type of ACE. Specifically, 32.9% reported experiencing 1 to 3 ACE, 34.2% reported experiencing 4 – 6 ACE, and 21.9% reported experiencing 7 – 9 ACE. Almost 6% of clients reported experiencing all 10 types of adverse childhood experiences. Overall, clients reported an average of 4.8 adverse childhood experiences.

FIGURE II.8. NUMBER OF TYPES OF ADVERSE CHILDHOOD EXPERIENCES REPORTED AT BASELINE (N = 73)



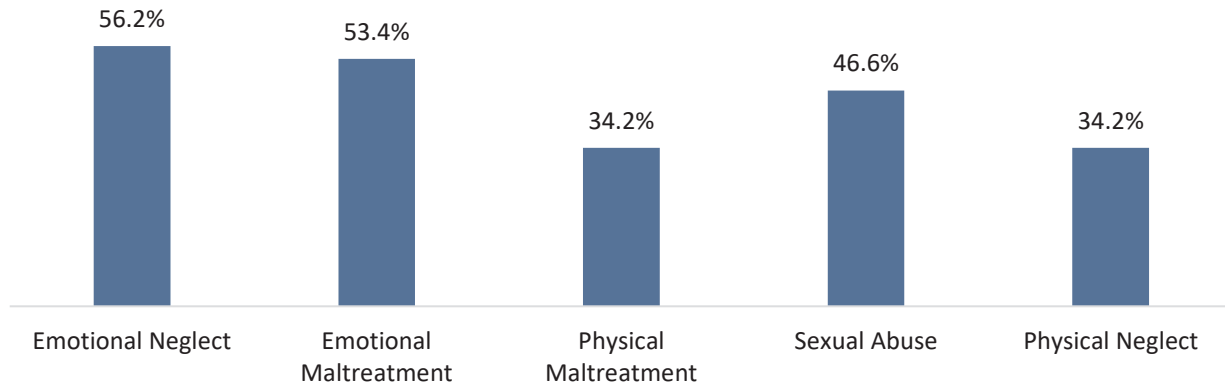
Over half of clients (56.2%) reported that they had experienced emotional neglect (e.g., felt that no one in the family loved them, or they weren't special/important, or did not feel close to each other or supported) and 53.4% experienced emotional maltreatment (e.g., insults, put down, humiliation, parent acted in a way that made the child believe they would be physically hurt). About 34% of clients reported experiencing physical maltreatment (e.g., being pushed/grabbed/slapped, or being hit so hard that it left marks) and 34.2% experienced physical neglect (e.g., didn't have enough to eat as a child, had no one to protect them, parents too high/drunk to take care of them) before the age of 18. Almost 47% of clients reported sexual abuse as a child (e.g., touched inappropriately by someone at least 5 years or older, or someone 5 years or older tried to or actually had sex with client).

³⁷ 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.

³⁸ 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>.

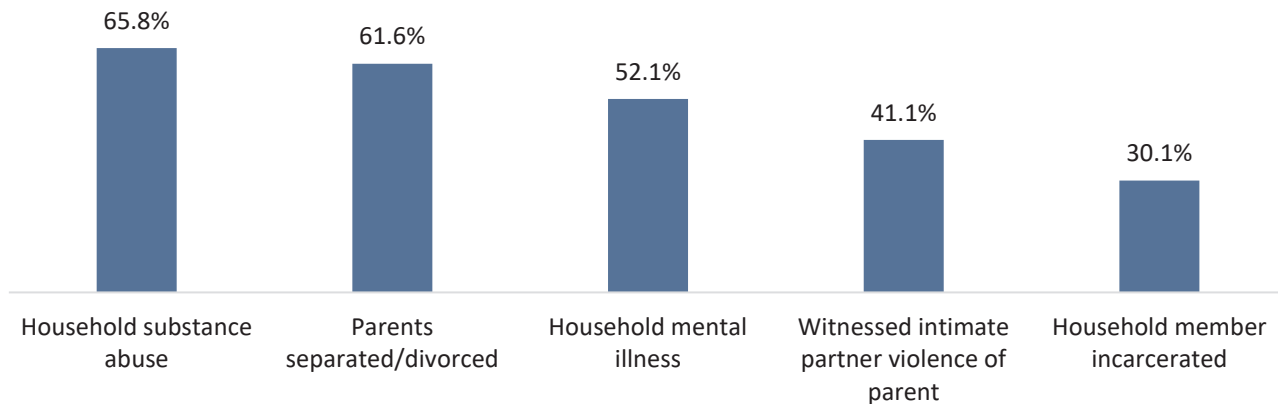
³⁹ The baseline assessment asked about 10 major categories of adverse childhood experiences: (a) three types of abuse (e.g., emotional maltreatment, physical maltreatment, and sexual abuse), (b) two types of neglect (e.g., emotional neglect, physical neglect), and (c) five types of family risks (e.g., witnessing partner violence victimization of parent, household member who was an alcoholic or drug user, 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).

FIGURE II.9. SPECIFIC MALTREATMENT AND ABUSE EXPERIENCES IN CHILDHOOD (N = 73)



About two-thirds of clients (65.8%) had a household member with a substance abuse problem and 61.6% of clients reported their parents were divorced or lived separately and (see Figure II.10). Over half of clients (52.1%) reported they had a household member with a mental illness or had attempted suicide, 41.1% witnessed intimate partner abuse of a parent before the age of 18, and 30.1% reported a household member who had been incarcerated.

FIGURE II.10. HOUSEHOLD RISKS IN CHILDHOOD (N = 73)

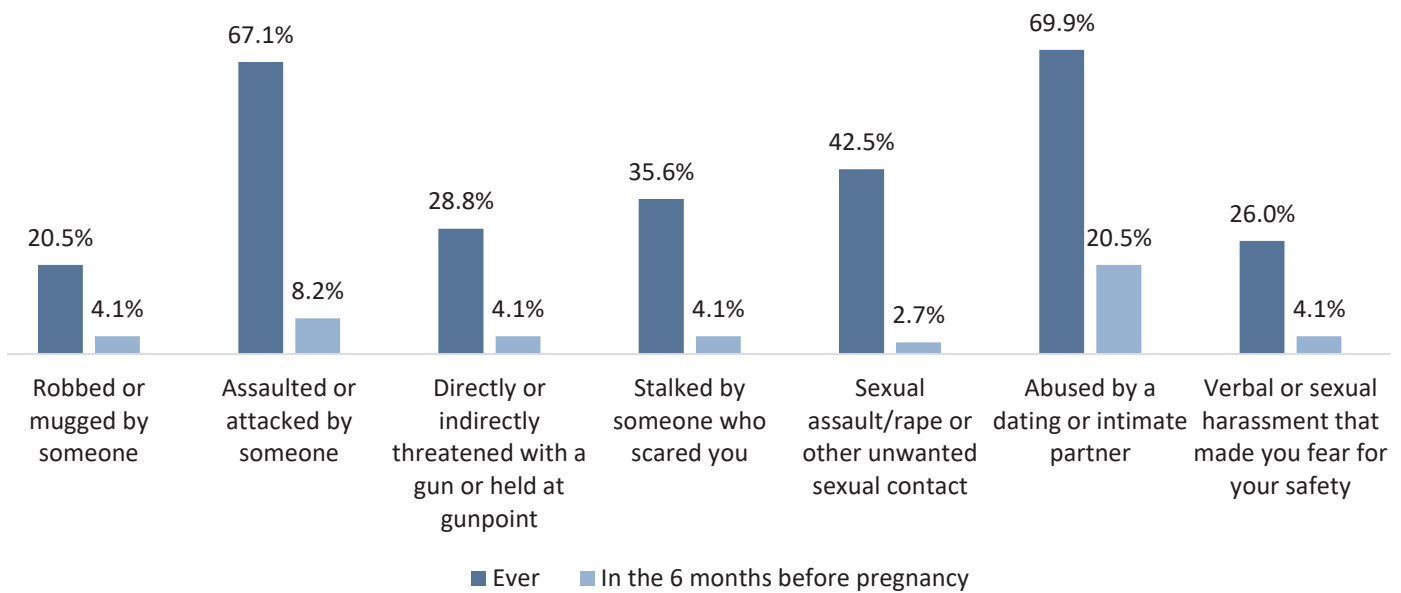


Victimization Experiences

At prenatal baseline, clients were also asked about situations in which they may have been the victim of a crime, harmed by someone else, or made to feel unsafe by someone other than a parent or guardian in their lifetime (including adulthood). Overall, 86.3% of clients reported ever experiencing any type of victimization. Figure II.11 shows that, specifically, 20.5% of clients reported having ever been robbed or mugged. Over two-thirds of clients (67.1%) reported having ever been assaulted or attacked by someone and 28.8% of clients reported they had been directly or indirectly threatened with a gun or held at gunpoint. Over one-third of clients (35.6%) reported having ever been stalked by someone who scared them. About 43% reported having ever been a victim of sexual assault, rape, or other unwanted sexual contact and 69.9% reported having ever been abused by a dating or intimate partner (partner physically assaulted, controlled, or emotionally abused the client). Over one-quarter of clients (26.0%) reported they were ever verbally, sexually, or otherwise harassed in some way that made them afraid for their safety.

In the 6 months before pregnancy, 28.8% reported any victimization. Specifically, 20.5% of clients reported being abused by a dating or intimate partner and 8.2% reported being assaulted or attacked by someone.

FIGURE II.11. PERCENT OF CLIENTS HAVING EVER EXPERIENCED VICTIMIZATION (N = 73)

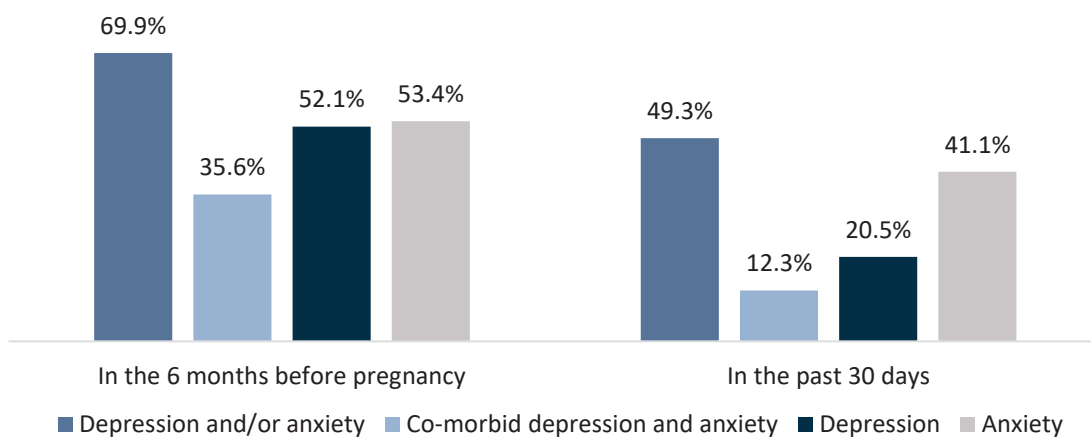


Mental Health, Stress, and Sleep Difficulty

In the 6 months before pregnancy, 69.9% of clients met study criteria for depression and/or anxiety and 35.6% of clients met criteria for co-morbid depression and anxiety. About 52% of clients met study criteria for depression and 53.4% met criteria for anxiety (see Figure II.12).

In the past 30 days at baseline, almost half of clients (49.3%) met criteria for depression and/or anxiety and 12.3% met criteria for both depression and anxiety.

FIGURE II.12. PERCENT OF CLIENTS MEETING STUDY CRITERIA FOR DEPRESSION AND/OR ANXIETY AT BASELINE (N = 73)

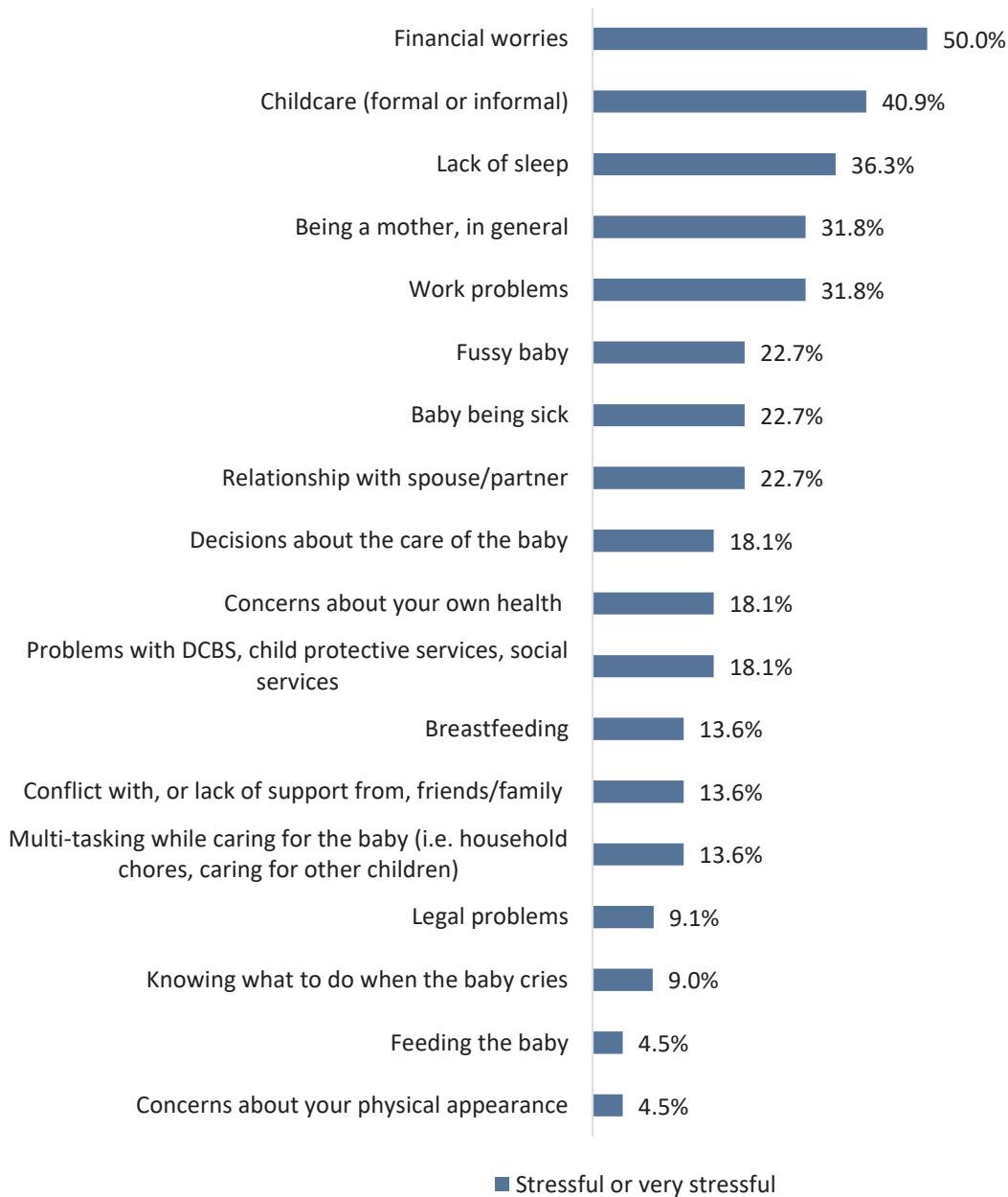


Over one-quarter of clients (26.0%) screened positive for post-traumatic stress disorder (PTSD) in the 6 months before pregnancy (not represented in a figure).

Stress

At baseline, clients were asked a series of questions regarding their expectations about how stressful certain events will be after they have their baby.⁴⁰ Responses ranged from a score of 1 (not at all stressful) to 4 (very stressful). Less than one-quarter of clients (21.9%) rated at least one item as stressful or very stressful. Specifically, the three items most reported as being stressful or very stressful were financial worries (50.0%), childcare (40.9%), and lack of sleep (36.3%).

FIGURE II.13. RATING OF EVENTS AFTER THE BIRTH OF THE BABY AS STRESSFUL/VERY STRESSFUL (N = 22)⁴¹



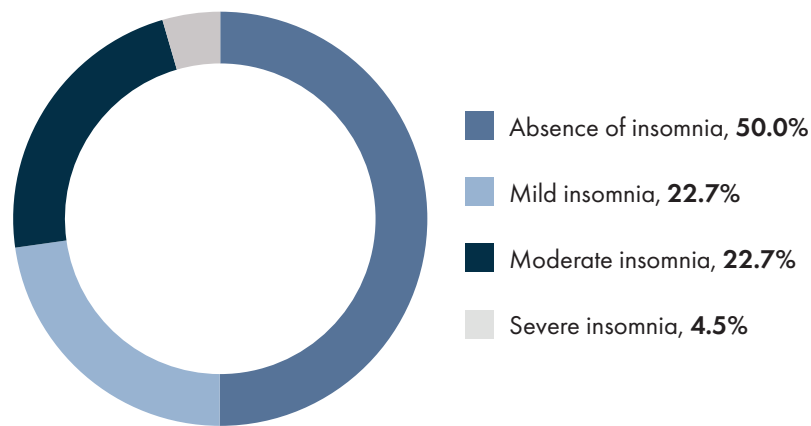
⁴⁰ Questions regarding stress are adapted from the Postpartum Stressor Scale, which includes a 9-item scale highlighting baby care, well-being, and work problems. Park, E. R., Psaros, C., Traeger, L., Stagg, A., Jacquart, J., Willett, J., Alert, M. D., LaRoche, K. L., & Ecker, J. L. (2015). Development of a postpartum stressor measure. *Maternal and Child Health Journal*, 19(10), 2094–2101. <https://doi.org/10.1007/s10995-015-1731-0>.

⁴¹ These measures were added in September 2020, therefore, only 22 clients had the opportunity to answer the questions.

Sleep Difficulty

Sleep difficulty in KY-Moms MATR assessments is measured using the Insomnia Severity Index (ISI).^{42, 43} The ISI consists of 7 self-reported items which measure the nature, severity, and impact of insomnia using the current time period. A 5-point Likert scale is used to rate each question on a scale of 0 (no problem) to 4 (very severe problem) where the total score can range from 0 to 28. A total score of 0-7 indicates an absence of insomnia, 8-14 indicates mild insomnia, 15-21 indicates moderate insomnia, and a score total of 22-28 indicates severe insomnia. Figure II.14 shows that 50.0% of clients were classified as having an absence of insomnia. In addition, 22.7% of clients were classified as having mild insomnia and 22.7% of clients were classified as having moderate insomnia. Only 4.5% of clients (one client) was classified as having severe insomnia. Overall, clients scored an average of 9.1 on the ISI.

FIGURE II.14. NUMBER OF TYPES SLEEP DIFFICULTIES REPORTED AT BASELINE (N = 22)⁴⁴



Any Intimate Partner Abuse

Figure II.15 shows that in the 6 months before pregnancy, 35.6% of clients reported experiencing any type of abuse (including psychological abuse, control, physical abuse, and sexual abuse)⁴⁵ perpetrated by a current or ex-partner and 12.3% of clients reported experiencing abuse in the past 30 days.

FIGURE II.15. ANY TYPE OF ABUSE IN THE 6 MONTHS BEFORE PREGNANCY AND IN THE PAST 30 DAYS (N = 73)



⁴² Bastien, C. H., Vallières, A., & Morin, C. M. (2001). Validation of the Insomnia Severity Index as an outcome measure for insomnia research. *Sleep Medicine*, 2(4), 297–307. [https://doi.org/10.1016/s1389-9457\(00\)00065-4](https://doi.org/10.1016/s1389-9457(00)00065-4).

⁴³ Morin, C., Belleville, G., Belanger, L., and Ivers, H. (2011). The Insomnia Severity Index: Psychometric indicators to detect insomnia cases and evaluate treatment response. *Sleep*, 24(5), 601-608.

⁴⁴ These measures were added in September 2020, therefore, only 22 clients had the opportunity to answer the questions.

⁴⁵ Any abuse was defined in this study as a client indicating “yes” to any of the partner abuse questions asked in the survey (e.g., verbal and psychological abuse, extreme jealousy and control, threats of violence towards client and others close to them, physical violence, stalking, partner purposely damaging or destroying property, sexual assault/threats of assault) at each period.

Clients Who Entered the Program After the Birth of Their Child

Demographics

Table II.B.1 shows that the majority of clients were White (86.4%) and were an average of 29.3 years old. In addition, half were married or cohabiting at baseline and 40.9% had never been married. Of those clients who were living with an intimate partner (n = 11), 90.9% reported this partner was the father of the baby. About 23% of the KY-Moms MATR mothers reported at prenatal baseline they were currently homeless. Of those who indicated they were homeless (n = 5), 50.0% were staying temporarily with friends/family, and 50.0% considered themselves homeless because they were in a residential treatment facility.

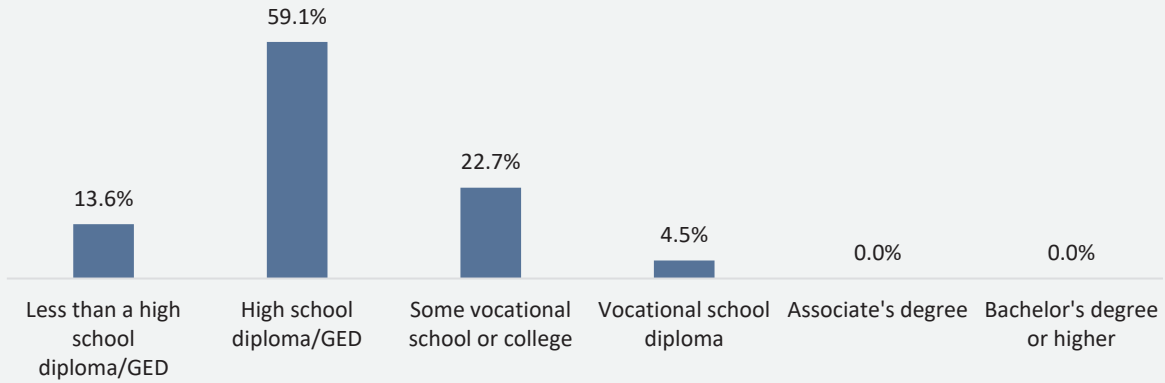
TABLE II.B.1. DEMOGRAPHICS FOR KY-MOMS MATR CLIENTS WHO HAD THEIR BABY BEFORE BASELINE (N = 22)

Age	29.3 years (range of 18-42)
Race	
White.....	86.4%
African American.....	13.6%
Mexican.....	0.0%
Puerto Rican.....	0.0%
Other or multiracial.....	0.0%
Marital Status	
Married or cohabiting.....	50.0%
Never married.....	40.9%
Separated or divorced.....	9.1%
Widowed.....	0.0%
Of those married or cohabiting	(n = 11)
Partner is the father of baby.....	90.9%
Homeless ⁴⁶	22.7%

About 14% of clients had less than a high school diploma or GED at baseline (see Figure II.B.1). Almost 60% of clients (59.1%) reported their highest level of education was a high school diploma or GED. Close to one-quarter of clients (22.7%) had completed some vocational/technical school or college. Only a small minority of clients had completed vocational/technical school (4.5%) and none had an associate's degree or a bachelor's degree.

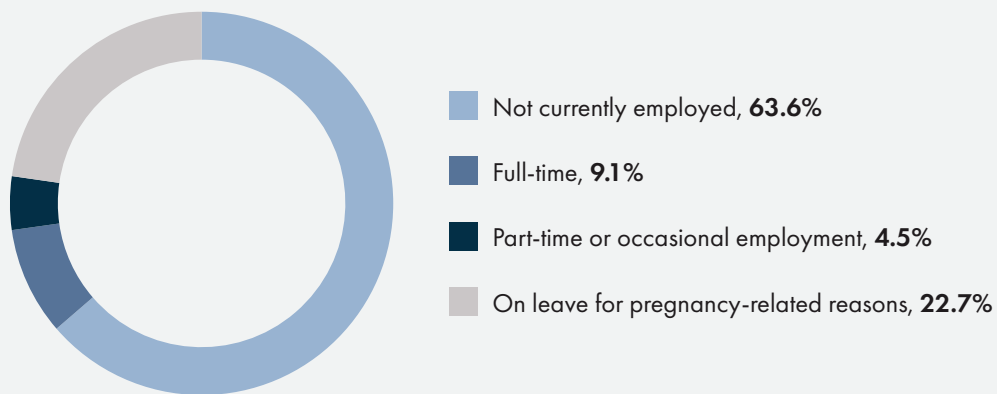
⁴⁶One client was missing the reason for why they considered themselves homeless.

FIGURE II.B.1. HIGHEST LEVEL OF EDUCATION COMPLETED AT BASELINE (N = 22)



The majority of women in KY-Moms MATR case management were unemployed (63.6%) at the time of the pre-birth baseline interview. Only 9.1% of clients were employed full-time and 4.5% either worked part-time or had occasional/seasonal work. Close to 23% reported they were currently on leave from their job due to pregnancy-related reasons.

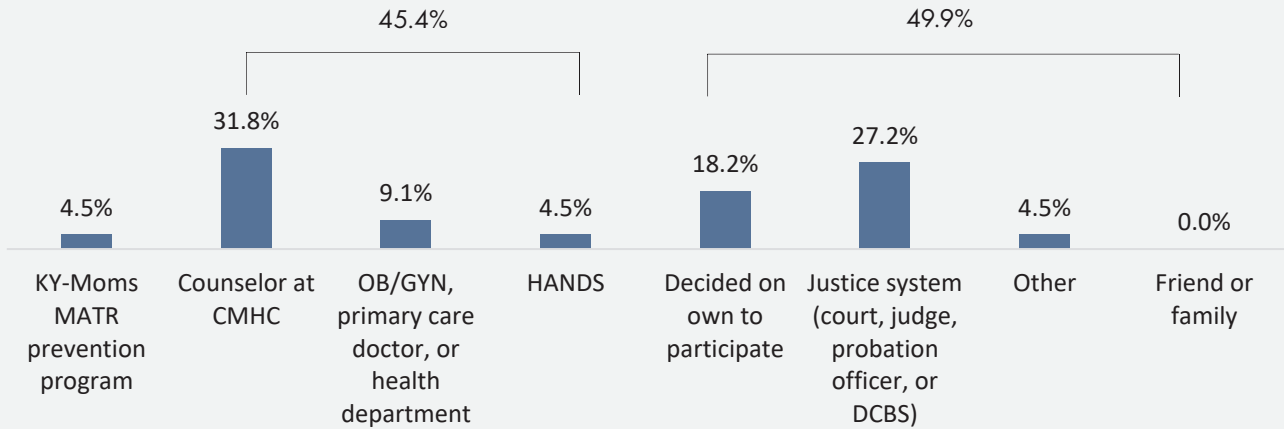
FIGURE II.B.2. CURRENT EMPLOYMENT STATUS AT BASELINE (N = 22)



Self-reported Referral Status

Figure II.B.3 shows the self-reported referral source for all KY-Moms MATR clients at baseline. About 45% of clients were referred by outside agencies such as a counselor at one of the community mental health centers (31.8%), a health care provider (9.1%), or HANDS (4.5%). A smaller proportion (4.5%) of clients were referred to the KY-Moms MATR program by the prevention program. Half of clients were referred to the program in other ways such as deciding on their own to participate (18.2%), the justice system (e.g., judge, court, probation officer, or DCBS; 27.2%), and other referral sources (4.5%).

FIGURE II.B.3. SELF-REPORTED REFERRAL SOURCE FOR ALL KY-MOMS MATR CLIENTS AT BASELINE (N = 22)



Information About the Pregnancy/Baby

At the time of post-birth baseline, all clients had a regular OB/GYN and had been to an average of 14.4 visits (range of 5-35 visits) with their prenatal health care provider during pregnancy and an average of 3.1 times (range of 0-10 visits) since the birth of the baby (see Table II.B.2). Almost one-third of clients (31.8%) reported they had breastfed and, of those clients (n = 7), 57.1% were still breastfeeding. Less than one-quarter of clients (22.7%) reported that they had been told by a doctor that there were special health care needs that directly impacted their pregnancy or the baby while pregnant such as heart issues, methadone use, diabetes, and high blood pressure. Since the baby was born, 27.3% of clients reported that they had been told by a doctor of any special health care needs with the vast majority of clients reporting feeding issues with the baby. Overall, 77.3% of clients reported they had been pregnant before.

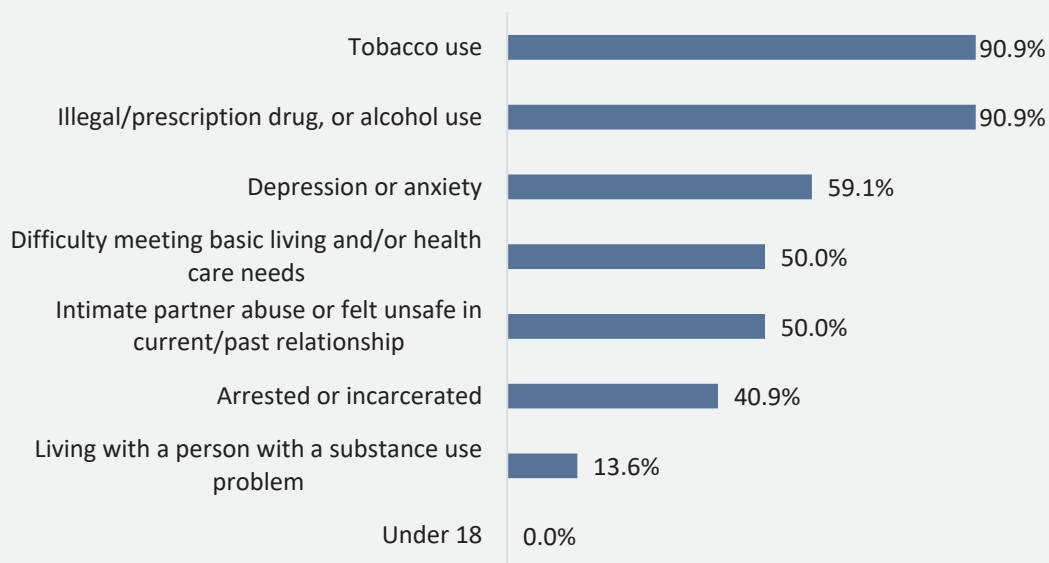
TABLE II.B.2. PREGNANCY STATUS FOR ALL KY-MOMS MATR CLIENTS AT BASELINE (N = 22)

Have a regular OB/GYN	100.0%
Average number of visits with a healthcare professional during pregnancy	14.4 (range 5-35)
Average number of visits with a healthcare professional since baby was born.....	3.1 (range 0-10)
Have breastfed baby	31.8%
Of those clients who reported breastfeeding	(n = 7)
Still breastfeeding	57.1%
Been pregnant previously	77.3%
Been told by a doctor of any special health care needs that directly impacted pregnancy or baby while pregnant	22.7%
Been told by a doctor of any special health care needs since the baby was born.....	27.3%
Been to the ER for your baby since the baby was born	13.6%

Risk Status

Figure II.B.4 shows that all clients who completed a KY-Moms MATR post-birth baseline fit into at least one of the major risk factor categories assessed in the baseline interview. Overall, 90.9% of clients reported tobacco use (cigarettes, e-cigarettes, or smokeless tobacco) and 90.9% reported drug or alcohol use at baseline (in the 6 months before pregnancy, during pregnancy, or in the past 30 days). Close to 60% of clients reported they had symptoms of depression or anxiety for at least two weeks in a row at baseline (in the 6 months before pregnancy, during pregnancy, or in the past 30 days). Half of clients reported difficulty meeting basic living and/or health care needs and half reported intimate partner abuse and/or feeling unsafe in either their current relationship or because of a partner from a previous relationship in the 6 months before pregnancy, during pregnancy, or in the past 30 days. About 41% of clients reported having been arrested and/or incarcerated in the 6 months before entering the program. Approximately 14% of clients reported currently living with someone who had drug or alcohol problems, and none were under the age of 18 at the time of the baseline interview.

FIGURE II.B.4. PERCENT OF CLIENTS FALLING INTO AT LEAST ONE TARGETED RISK FACTOR AT BASELINE (N = 22)



Substance Use

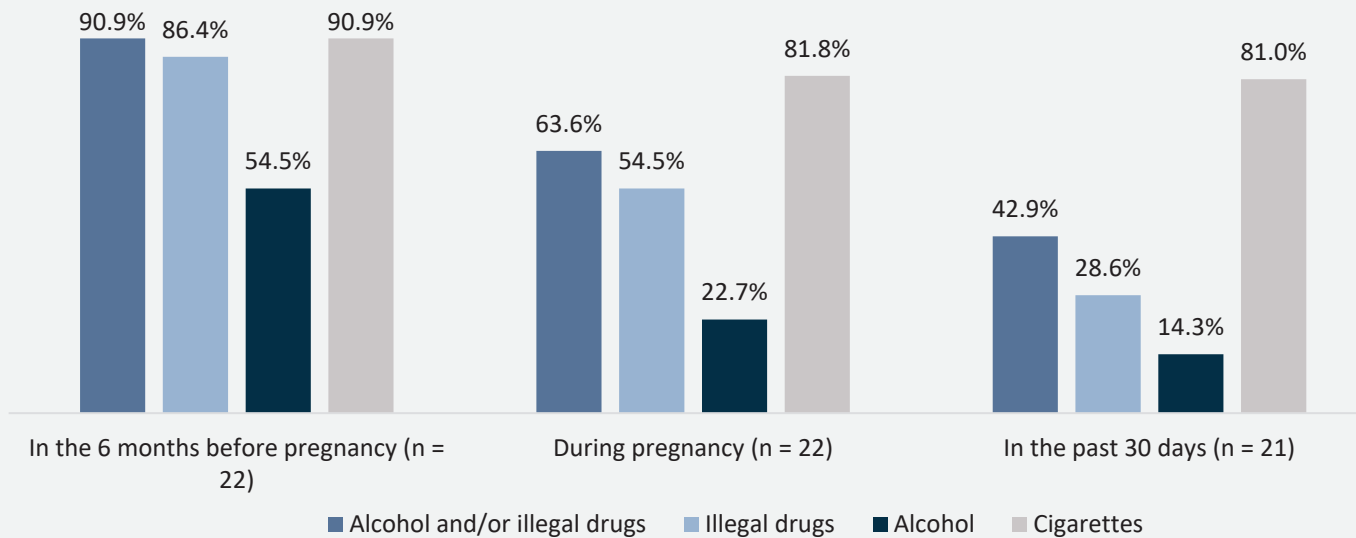
The majority reported using alcohol and/or illegal drugs (90.9%) in the 6 months before pregnancy.⁴⁷ Overall, a higher percentage of individuals reported using illegal drugs (86.4%) compared to the percent of individuals who reported using alcohol (54.5%) in the 6 months before pregnancy. The majority of clients reported smoking tobacco (90.9%) in the 6 months before pregnancy.

Almost two-thirds of clients (63.6%) reported using alcohol and/or illegal drugs during pregnancy. Specifically, over half (54.5%) reported they used illegal drugs and 22.7% reported alcohol use during pregnancy. The majority of clients (81.8%) reported smoking tobacco during pregnancy.

⁴⁷ None of the clients were incarcerated all 180 days before entering the program.

Of the 21 clients who were not in a controlled environment or incarcerated⁴⁸ all 30 days before baseline, 63.6% reported using alcohol and/or illegal drugs.⁴⁹ Specifically, 54.5% reported illegal drug use and 22.7% reported alcohol use. Also, 81.8% reported smoking tobacco in the 30 days before baseline (see Figure II.B.5).

FIGURE II.B.5. PERCENT OF CLIENTS REPORTING ILLEGAL DRUGS, ALCOHOL, AND SMOKING TOBACCO AT BASELINE⁵⁰



Of those clients who reported using illegal drugs during pregnancy (n = 12), 66.7% reported marijuana use, 33.3% reported stimulant use, 8.3% reported tranquilizer/sedative use, and 8.3% reported cocaine use.

Adverse Childhood Experiences and Victimization

Figure II.B.6 shows that all clients reported at least one type of ACE included in the assessment. Specifically, 40.9% reported experiencing 1 to 3 ACE, 31.8% reported experiencing 4 – 6 ACE, and 13.6% reported experiencing 7 – 9 ACE. Almost 14% of clients reported experiencing all 10 types of adverse childhood experiences. Overall, clients reported an average of 5.1 adverse childhood experiences.

⁴⁸ A controlled environment is one where the client was not able to come and go as they pleased including a hospital, jail, or residential treatment.

⁴⁹ This period includes while they may or may not have still been pregnant.

⁵⁰ Because being in a controlled environment decreases opportunities for substance use, individuals who were incarcerated all 180 days in the 6 months before entering the program (n = 0), or in incarcerated all 30 days before entering the program (n = 1) are not included in the analysis of substance use for the corresponding period.

FIGURE II.B.6. NUMBER OF TYPES OF ADVERSE CHILDHOOD EXPERIENCES REPORTED AT BASELINE (N = 22)

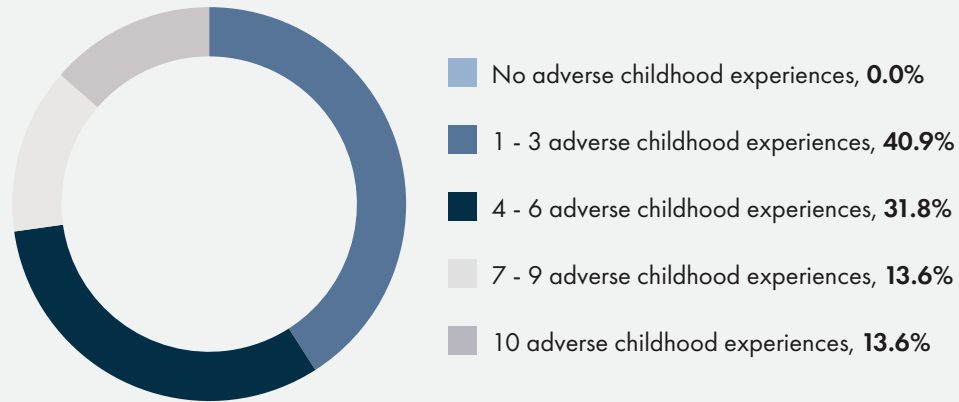
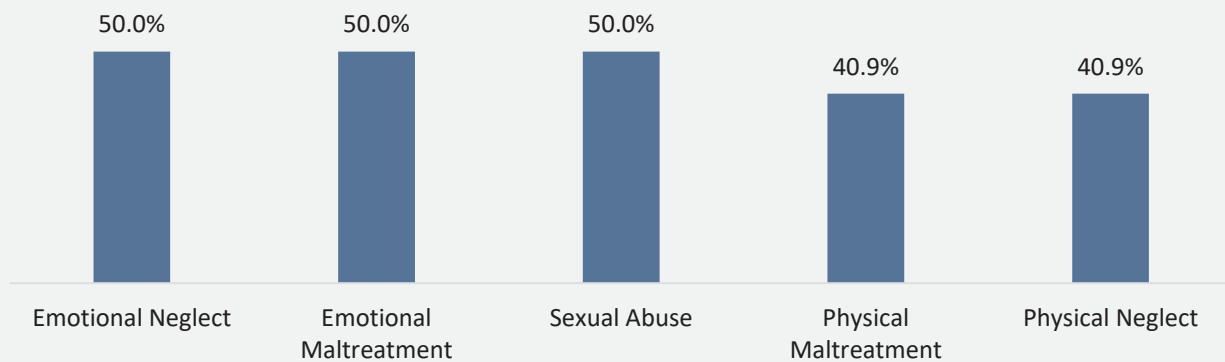


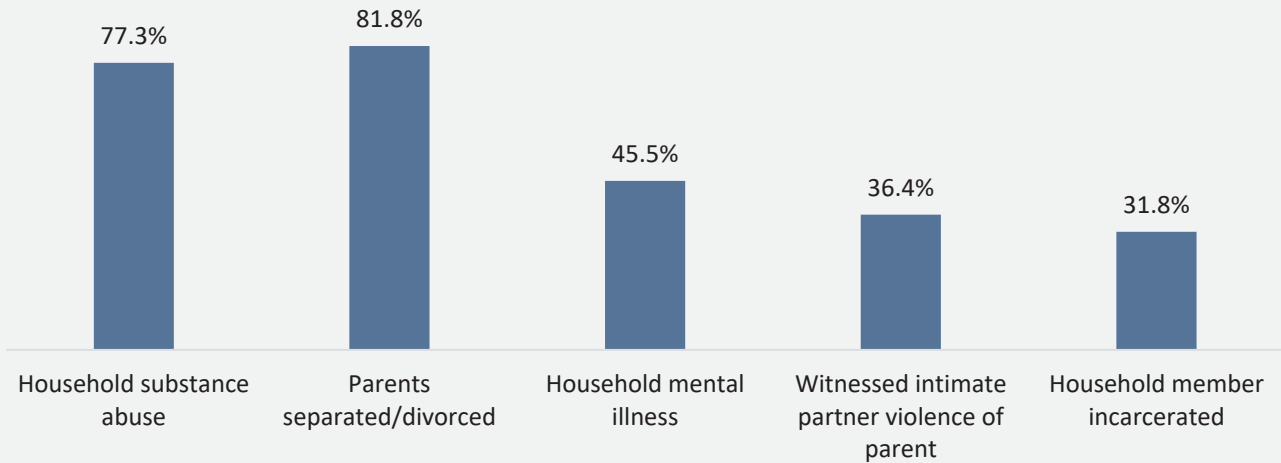
Figure II.B.7 shows that half of clients reported that they had experienced emotional neglect (e.g., felt that no one in the family loved them, or they weren't special/important, or did not feel close to each other or supported) and half experienced emotional maltreatment (e.g., insults, put down, humiliation, parent acted in a way that made the child believe they would be physically hurt). About 41% of clients reported experiencing physical maltreatment (e.g., being pushed/grabbed/slapped, or being hit so hard that it left marks) and 40.9% experienced physical neglect (e.g., didn't have enough to eat as a child, had no one to protect them, parents too high /drunk to take care of them) before the age of 18. Half of clients reported sexual abuse as a child (e.g., touched inappropriately by someone at least 5 years or older, or someone 5 years or older tried to or actually had sex with client).

FIGURE II.B.7. SPECIFIC MALTREATMENT AND ABUSE EXPERIENCES IN CHILDHOOD (N = 22)



Over three-quarters of clients (77.3%) had a household member with a substance abuse problem and 81.8% of clients reported their parents were divorced or lived separately and (see Figure II.B.8). Not quite half of clients (45.5%) reported they had a household member with a mental illness or had attempted suicide, 36.4% witnessed intimate partner abuse of a parent before the age of 18, and 31.8% reported a household member had been incarcerated.

FIGURE II.B.8. HOUSEHOLD RISKS IN CHILDHOOD (N = 22)

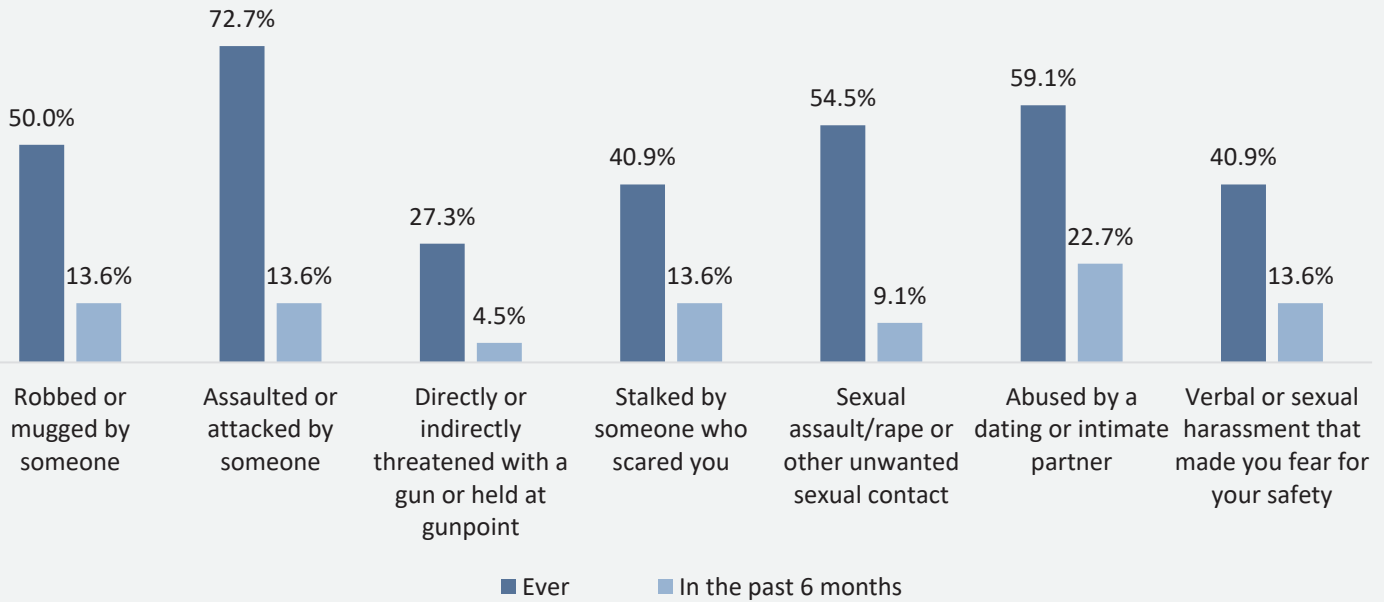


Victimization Experiences

At postnatal baseline, clients were also asked about situations in which they may have been the victim of a crime, harmed by someone else, or made to feel unsafe by someone other than a parent or guardian in their lifetime. Overall, 81.8% of clients reported ever experiencing any type of victimization. Figure II.B.9 shows that, specifically, 50.0% of clients reported having ever been robbed or mugged. Almost three-quarters of clients (72.7%) reported having ever been assaulted or attacked by someone and 27.3% of clients reported they had been directly or indirectly threatened with a gun or held at gunpoint. About 41% of clients reported having ever been stalked by someone who scared them. Over half (54.5%) reported having ever been a victim of sexual assault, rape, or other unwanted sexual contact and 59.1% reported having ever been abused by a dating or intimate partner (partner physically assaulted, controlled, or emotionally abused the client). About 41% of clients reported they were ever verbally, sexually, or otherwise harassed in some way that made them afraid for their safety.

In the past 6 months, 22.7% reported any victimization. Specifically, 22.7% of clients reported being abused by a dating or intimate partner and 13.6% reported being assaulted or attacked by someone.

FIGURE II.B.9. PERCENT OF CLIENTS HAVING EVER EXPERIENCED VICTIMIZATION (N = 22)



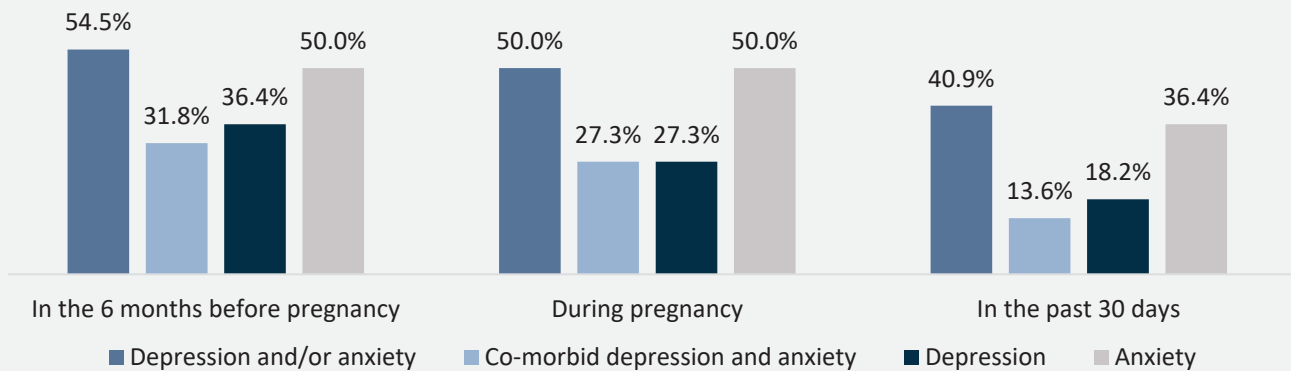
Mental Health

In the 6 months before pregnancy, 54.5% of clients met study criteria for depression and/or anxiety and 31.8% of clients met criteria for co-morbid depression and anxiety. About 36% of clients met study criteria for depression and 50.0% met criteria for anxiety (see Figure II.B.10).

During pregnancy, half of clients met study criteria for depression and/or anxiety and 27.3% of clients met criteria for co-morbid depression and anxiety. Over one-quarter of clients (27.3%) met study criteria for depression and 50.0% met criteria for anxiety.

In the past 30 days at baseline, 40.9% of clients met criteria for depression and/or anxiety and 13.6% met criteria for both depression and anxiety.

FIGURE II.B.10. PERCENT OF CLIENTS MEETING STUDY CRITERIA FOR DEPRESSION AND/OR ANXIETY AT BASELINE (N = 22)

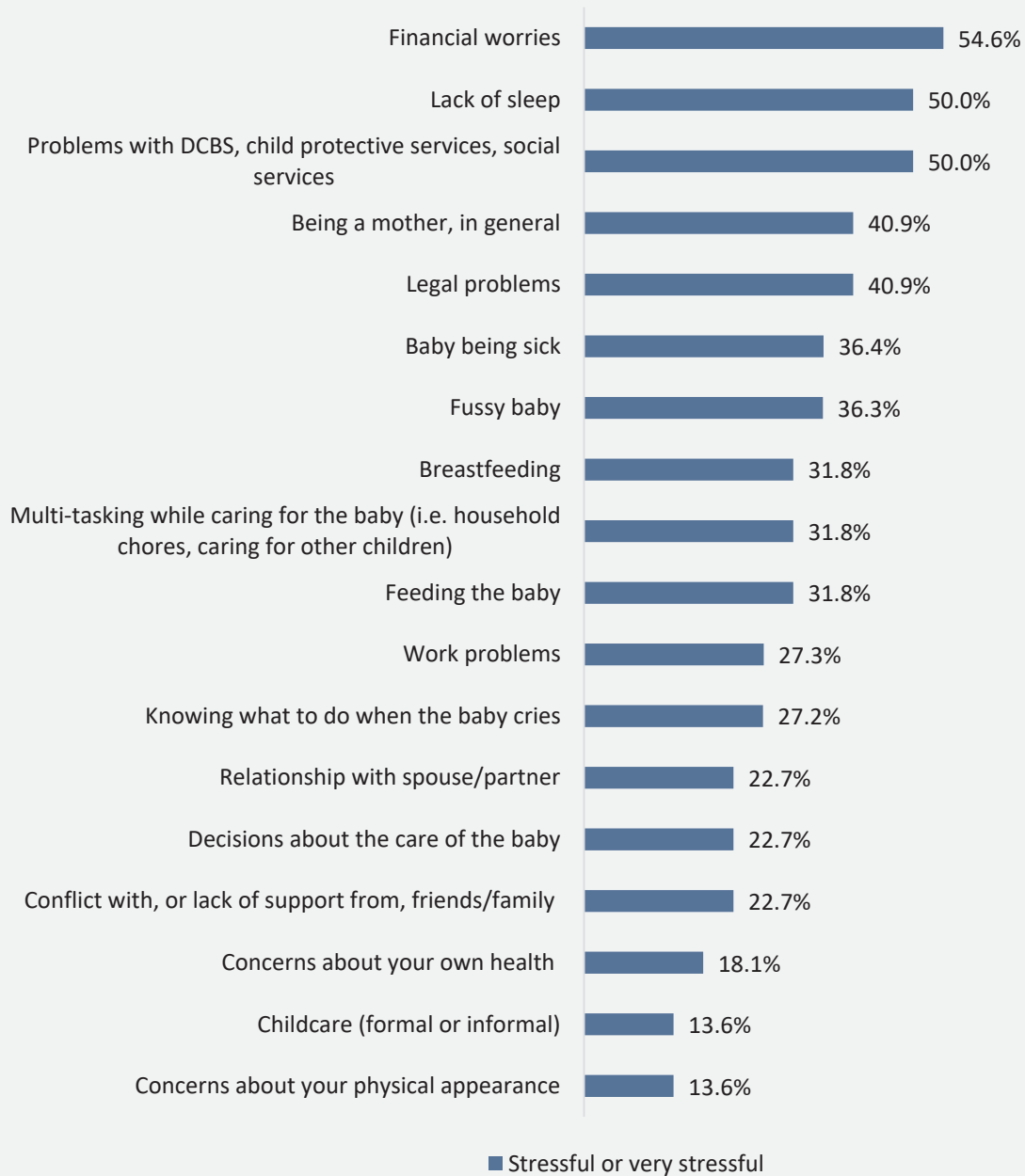


About 18% of clients screened positive for post-traumatic stress disorder (PTSD) in the past 6 months (not represented in a figure).

Stress

At postnatal baseline, clients were asked a series of questions regarding how stressful certain events have been in the past 6 months.⁵¹ Responses ranged from a score of 1 (not at all stressful) to 4 (very stressful). The top three most mentioned items as stressful were: financial worries (54.6%), lack of sleep (50.0%), and problems with DCBS, child protective services, or social services (50.0%).

FIGURE II.B.11. RATING OF EVENTS AFTER THE BIRTH OF THE BABY AS STRESSFUL/VERY STRESSFUL (N = 22)

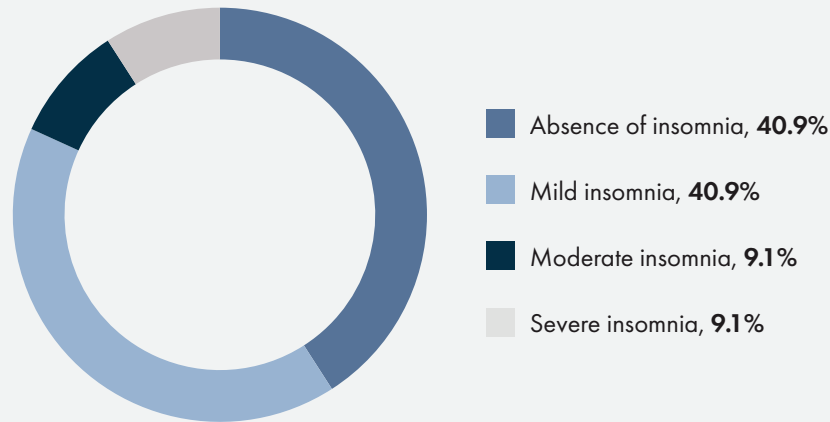


⁵¹ Questions regarding stress are adapted from the Postpartum Stressor Scale which includes a 9-item scale highlighting baby care, well-being, and work problems. Park, E. R., Psaros, C., Traeger, L., Stagg, A., Jacquart, J., Willett, J., Alert, M. D., LaRoche, K. L., & Ecker, J. L. (2015). Development of a postpartum stressor measure. *Maternal and Child Health Journal*, 19(10), 2094–2101. <https://doi.org/10.1007/s10995-015-1731-0>.

Sleep Difficulty

Figure II.B.12 shows that 40.9% of clients were classified as having an absence of insomnia. In addition, 40.9% of clients were classified as having mild insomnia and 9.1% of clients were classified as having moderate insomnia. Less than 10% of clients (two clients) were classified as having severe insomnia. Overall, clients scored an average of 11.1 on the ISI.

FIGURE II.B.12. NUMBER OF TYPES SLEEP DIFFICULTIES REPORTED AT BASELINE (N = 22)

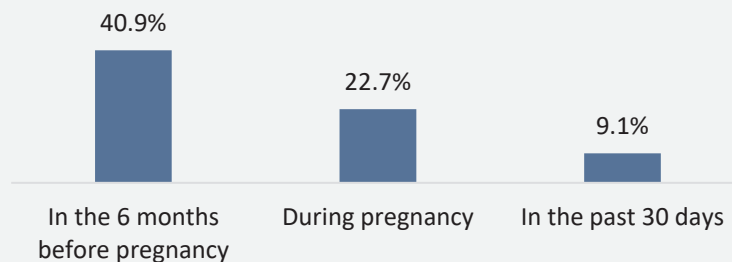


Almost one-quarter of clients (22.7%) reported that, in the past 30 days, they used alcohol, prescription drugs, or illegal drugs to reduce stress, anxiety, worry, sadness, or fear.

Any Intimate Partner Abuse

Figure II.B.13 shows that in the 6 months before pregnancy, 40.9% of clients reported experiencing any type of partner abuse (including psychological abuse, control, physical abuse, and sexual abuse)⁵² perpetrated by a current or ex-partner, 22.7% of clients reported experiencing partner abuse during pregnancy, and 9.1% of clients reported experiencing partner abuse in the past 30 days.

FIGURE II.B.13. ANY TYPE OF ABUSE IN THE 6 MONTHS BEFORE PREGNANCY AND IN THE PAST 30 DAYS (N = 22)



⁵² Any abuse was defined in this study as a client indicating “yes” to any of the partner abuse questions asked in the survey (e.g., verbal and psychological abuse, extreme jealousy and control, threats of violence towards client and others close to them, physical violence, stalking, partner purposely damaging or destroying property, sexual assault/threats of assault) at each period.

Summary

Most clients reported they were referred to the KY-Moms MATR program by either a counselor at a community mental health agency or the justice system. The majority of clients coming into the program before giving birth were White (86.4%), about 29 years old, and half were either married or cohabiting with a partner. Of the clients who were married or cohabiting, a majority (90.9%) reported that their current partner was the father of the baby. Close to 14% had less than a high school diploma/GED and the vast majority (63.6%) were unemployed.

Overall, clients were an average of 24 weeks into their pregnancy when they completed a prenatal baseline assessment and the majority (83.6%) reported that they had been pregnant before. At baseline, clients reported an average of 6.0 prenatal visits with a health care professional. Over half of clients (54.8%) were planning to breastfeed their babies.

KY-Moms MATR clients reported behavioral health risks associated with negative birth outcomes in the time before becoming involved in the program including high rates of smoking, alcohol and illegal drug use, depression or anxiety, financial difficulties, and intimate partner abuse. In addition, the majority of clients (94.5%) reported at least one adverse childhood experience and over half reported experiencing emotional neglect (56.2%) and emotional maltreatment (53.4%) in childhood.

Clients who had already had their baby when they entered the program and completed a postnatal baseline (n = 22) reported an average of 14.4 visits with a healthcare professional during pregnancy and 3.1 visits since the baby was born. Close to one-third reported they had breastfed their baby and 27.3% had been told by a doctor of any special health care needs since the baby was born. The majority of clients reported illegal drug use (63.6%) and cigarette use (81.8%) during pregnancy. In addition, all clients reported at least one type of adverse childhood experience and half of clients reported experiencing emotional neglect, emotional maltreatment, and sexual abuse in childhood. Half of clients who already had their baby met study criteria for depression and/or anxiety during pregnancy and 18% screened positive for PTSD in the past 6 months. About 41% of clients in the 6 months before pregnancy and 22.7% of clients during pregnancy reported experiencing any type of partner abuse.

Part III. Birth Events and Outcomes

This section uses the Kentucky Vital Statistics birth data to examine: (1) maternal behavior and health characteristics, and (2) infant health characteristics for 20 KY-Moms MATR case management clients and their babies.

Maternal Behavior and Health Characteristics

Medical and Public Services Utilization

According to the birth event data, KY-Moms MATR women reported an average of 11.4 prenatal visits during their pregnancy (see Table III.1). In addition, the majority of clients (85.0%) reported that they received the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) during pregnancy. The majority of clients (90.0%) reported that the source of payment for delivery of the baby was Medicaid and 10.0% of clients reported they had private insurance to pay for the delivery. Close to 11% of clients reported any labor and delivery complications such as premature rupture of membranes, short and fast labor, or prolonged labor.

TABLE III.1. MEDICAL AND PUBLIC UTILIZATION (N = 20)⁵³

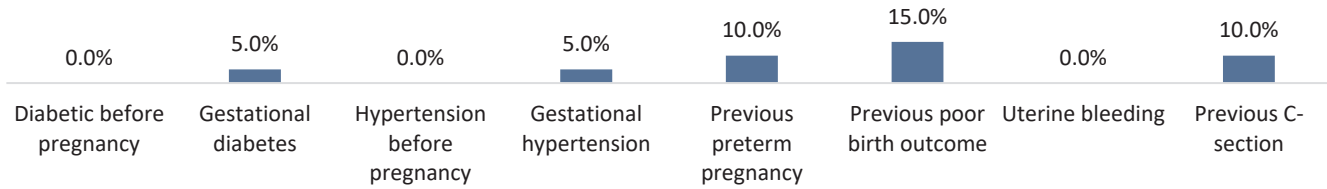
Average number of prenatal visits.....	11.4 (Range 6-20)
WIC food during pregnancy	85.0%
Payment source for delivery	
Medicaid.....	90.0%
Private insurance.....	10.0%
Any labor and delivery complication	10.5%

Maternal Health Risk Factors

General health conditions of pregnancy that could cause harm to the baby or the mother were collected from the Kentucky Vital Statistics data set. Forty percent of KY-Moms MATR mothers reported experiencing at least one maternal health condition such as gestational diabetes (5.0%), gestational hypertension (5.0%), uterine bleeding, previous preterm pregnancy (10.0%), or a previous C-section (10.0%; see Figure III.1).

⁵³ One client was missing data for characteristics of labor and delivery.

FIGURE III.1. OTHER MATERNAL HEALTH RISK FACTORS (n = 20)



Less than one-quarter of KY-Moms MATR clients (22.2%) reported having a sexually transmitted infection such as gonorrhea, syphilis, herpes, or chlamydia and 22.2% of clients reported they had hepatitis B or C (see Figure III.2).

FIGURE III.2. PERCENT OF WOMEN REPORTING A SEXUALLY TRANSMITTED INFECTION AND HEPATITIS B OR C (N = 18)⁵⁴

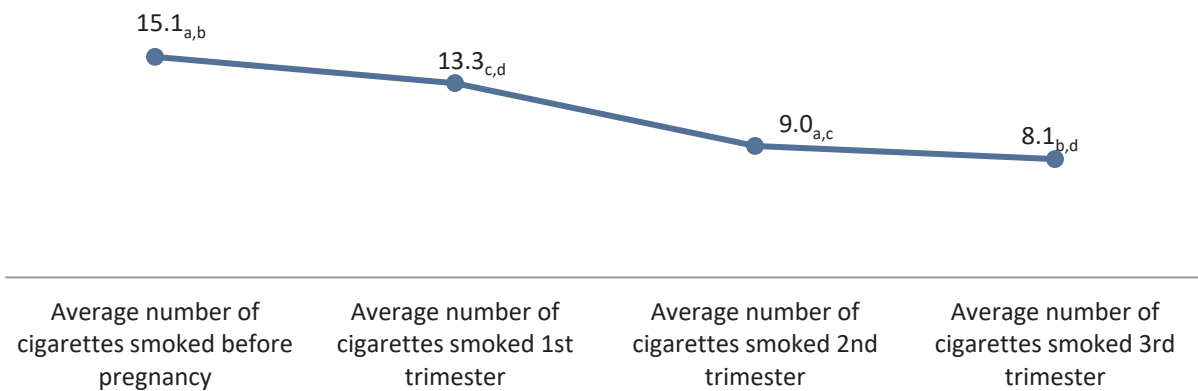


Smoking Patterns and Alcohol Use

In the Kentucky Vital Statistics data, 70% of KY-Moms MATR mothers reported smoking and among those mothers (n = 14), they reported, on average, fewer cigarettes in each progressive trimester (see Figure III.3). Clients reported an average of 15.1 cigarettes per day before pregnancy, an average of 13.3 per day in the first trimester, and in second trimester, clients reported an average of 9.0 cigarettes. By the third trimester, clients reported an average of 8.1 cigarettes per day.

None of the clients reported drinking alcohol during their pregnancy (not depicted in a figure).

FIGURE III.3. AVERAGE NUMBER OF CIGARETTES SMOKED PER TRIMESTER, AMONG WOMEN WHO SMOKE (n = 14)



a, b, c, d – Values sharing the same subscript differ at p < .05.

⁵⁴Two mothers were missing data on sexually transmitted infections.

Infant Health Characteristics

The average weeks of gestation was 38.5 for the women with data in the Kentucky Vital Statistics dataset. In addition, 10% of the babies were born prematurely (see Table III.2). Fifteen percent of babies were born with low birthweight (less than 5lbs, 8oz), but on average, babies born to KY-Moms MATR clients weighed 6lbs, 13oz. In addition, babies were born with an average APGAR score of 9.0. None of the clients had babies with birth defects or anomalies (such as Down’s syndrome, cleft palates, anencephaly, congenital heart failure, spina bifida, etc.). Fifteen percent of babies were taken to NICU and 10% of babies were born with a birthing problem such as inflammation of fetal membranes, intolerance to labor, or being placed on a ventilator (not including being admitted to the neonatal intensive care unit). According to the birth event data set, 80.0% of KY-Moms MATR clients either did or intended to breastfeed their baby during the period from birth to hospital discharge.

TABLE III.2 INFANT HEALTH CHARACTERISTICS (N = 20)

Percent of babies born premature	10.0%
Average weeks gestation	38.5 (Range 34-40)
Baby born with low birth weight	15.0%
Average weight of baby	6lbs, 13oz (Range 4lbs, 4oz – 8lbs, 11 oz)
Highest average APGAR score	9.0
Babies born with birth defects or anomalies	0.0%
Baby taken to NICU	15.0%
Any problems for baby during birth (not including NICU)	10.0%
Mother breastfed baby	80.0%

I felt that my case manager was there for me and understood me. She explained the child birthing process and educated me. It comforted me a lot.

KY-MOMS MATR FOLLOW-UP CLIENT

Part IV: Change in Targeted Factors from Baseline to Follow-up for Clients in the Postnatal Follow-up Sample

This section examines change in the follow-up sample (n = 26) for: (1) information about the baby, (2) substance use, (3) mental health, (4) intimate partner violence, (5) economic and living circumstances, economic hardship, and criminal justice involvement, (6) physical health, and (7) stress, quality of life, and emotional support. Past-30-day and past-6-month measures are examined separately where applicable.

It is important to keep in mind that because this section includes only those who completed a postnatal follow-up, the sample size is small and should be considered when interpreting the findings. To increase the statistical power to detect change in this small sample size, the alpha for statistical tests was increased to $p < .10$, instead of $p < .05$.

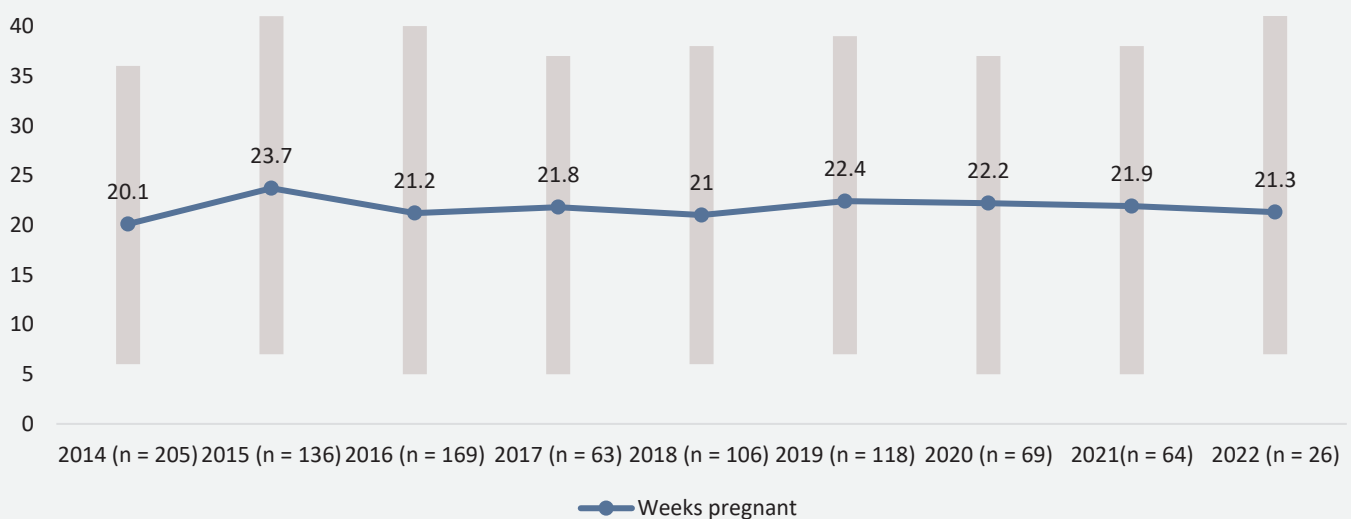
A. Information on the Pregnancy/Baby

When followed-up clients completed a prenatal baseline they were an average of 21.3 weeks pregnant (Min. = 7 weeks, Max. = 35 weeks).⁵⁵ At follow-up, clients reported being very involved in the KY-Moms MATR program an average of 6.7 months (Min. = 2, Max. = 15). Clients also reported being in the program for 1.7 months after the birth of their baby (Min. = 0, Max. = 7).

Trends in Average Number of Weeks Pregnant at Baseline by Report Year

The average number of weeks in pregnancy when a client completed a prenatal baseline assessment was relatively stable over the past 9 years. In report year 2014, clients were an average of 20.1 weeks into their pregnancies and in 2022 clients were an average of 21.3 weeks into their pregnancies when they completed a prenatal baseline.

FIGURE IV.A.1. AVERAGE NUMBER OF WEEKS CLIENT WAS PREGNANT AT BASELINE AMONG CLIENTS IN THE FOLLOW-UP SAMPLE, REPORT YEARS 2014-2022



⁵⁵To be included in the analysis, there must be at least 30 days between the date of program entry and the birth of the baby. The average number of days between program entry and baseline completion was 13.8 (Min. = 0 and Max. = 85). Therefore, even though a client was at 35 weeks in her pregnancy when the baseline was completed, she entered the program more than 30 days before the due date.

General Information Regarding the Pregnancy/Baby

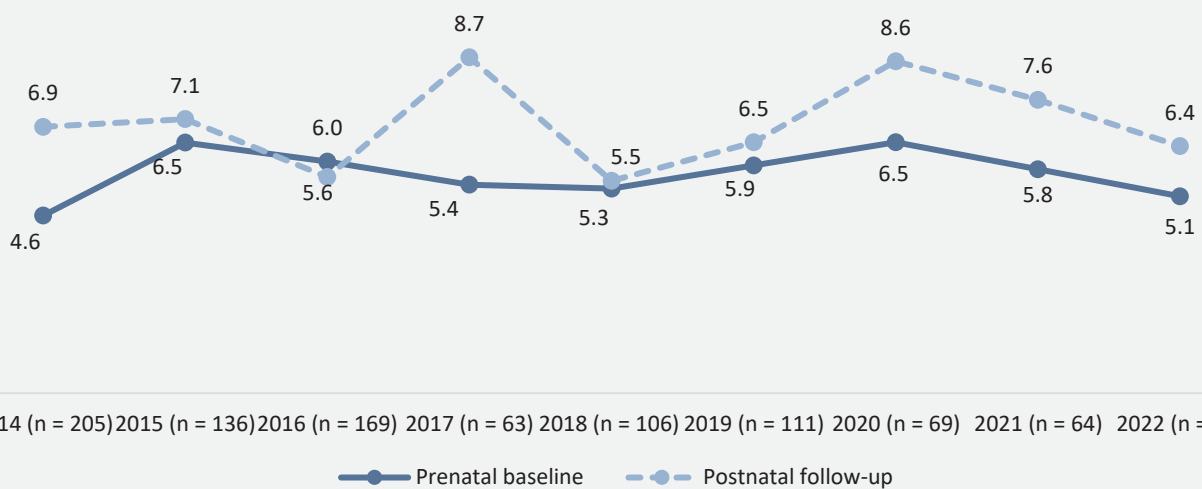
Clients were asked how their baby was doing at postnatal follow-up and all the mothers indicated the baby was “great” or “good.”

At prenatal baseline, KY-Moms MATR clients reported an average of 5.1 doctor visits about the pregnancy and at postnatal follow-up clients reported an average of 6.4 visits to the pediatrician or nurse since giving birth. Twelve percent of clients at baseline indicated they were told by a doctor that there were special health care needs that would directly impact the pregnancy or the baby at baseline.⁵⁶ At postnatal follow-up, 2 clients (7.7% of the postnatal follow-up sample) reported their doctor told them their baby had special health care needs. More specifically, one client reported their baby had acid reflux and irritable bowel syndrome, which are minor health care needs. However, one mother reported that her the baby had hydrocephalus brain surgery when the baby was two days old, which is a serious problem. In comparison, for all babies born in the United States, approximately 3.0% of babies are born with a birth defect (such as cleft palate, spina bifida, or neural tube defects).⁵⁷ In addition, 19% of children in the United States and 23% of children in Kentucky are considered to have special health care needs as defined by the federal Maternal and Child Health Bureau’s definition.⁵⁸

Trends in Average Number of Visits with a Health Care Provider at Baseline and Follow-up

In 2014, clients reported an average of 4.6 doctor visits about the pregnancy and at postnatal follow-up clients reported an average of 6.9 visits to the pediatrician or nurse since giving birth. In the 2017 outcomes report, clients reported an average of 5.4 prenatal visits, but an average of 8.7 doctor visits after the baby was born. In 2022, clients reported 5.1 doctor visits at prenatal baseline and 6.4 visits at postnatal follow-up.

FIGURE IV.A.2. AVERAGE NUMBER OF DOCTORS VISITS AT BASELINE AND FOLLOW-UP AMONG CLIENTS IN THE FOLLOW-UP SAMPLE, REPORT YEARS 2014-2022



⁵⁶ One client indicated they had not seen a doctor yet.

⁵⁷ Centers for Disease Control and Prevention. Update on overall prevalence of major birth defects --- Atlanta, Georgia, 1978--2005. *Morbidity and Mortality Weekly Report* 2008, 57(1), 1-5.

⁵⁸ *Children with special health care needs in the United States 2018-2019*. Retrieved from [https:// datacenter.kidscount.org/data/ tables/9703-children-with-special-health-care-needs#detailed/1/any/false/1696,1648,1603/any/18949,18950](https://datacenter.kidscount.org/data/tables/9703-children-with-special-health-care-needs#detailed/1/any/false/1696,1648,1603/any/18949,18950) on October 6, 2021.

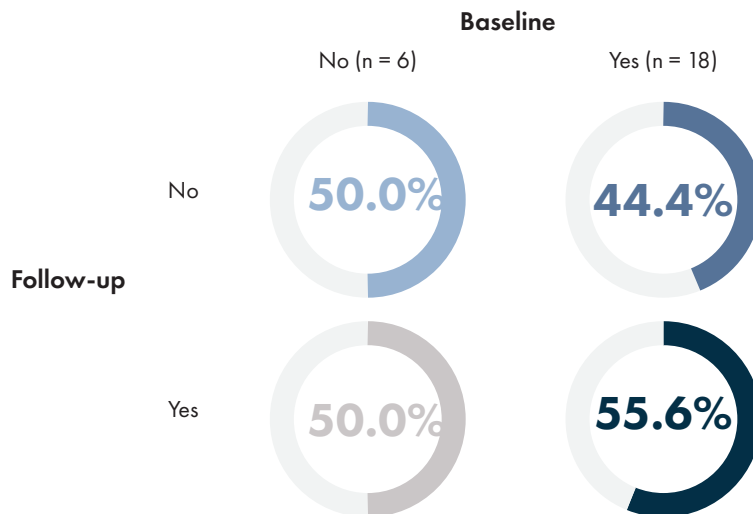
Emergency Room Visits for the Baby at Postnatal

At postnatal follow-up, 24.0% of clients reported they had taken their baby to the emergency room since giving birth (not depicted in a figure). Of those clients (n = 6), they reported taking their baby to the emergency room an average of 2.5 times (range of 1 to 10 times).

Breastfeeding

In general, clients followed through with their prenatal plans to breastfeed or not to breastfeed once the baby arrived. Over two-thirds of clients (69.2%) reported at prenatal baseline that they planned on breastfeeding their baby and at postnatal follow-up, 53.8% of clients reported having breastfed their baby for any period. Of the 18 women who reported planning on breastfeeding at prenatal baseline, 55.6% (n = 10) reported having breastfed their baby at postnatal follow-up and of those, 2 reported still breastfeeding. Of the 6 clients who reported at prenatal baseline they were not planning on breastfeeding or had not decided yet, 50.0% (or 4 clients) reported having breastfed at follow-up but none were still breastfeeding.

FIGURE IV.A.4. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING BREASTFEEDING PLANS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP

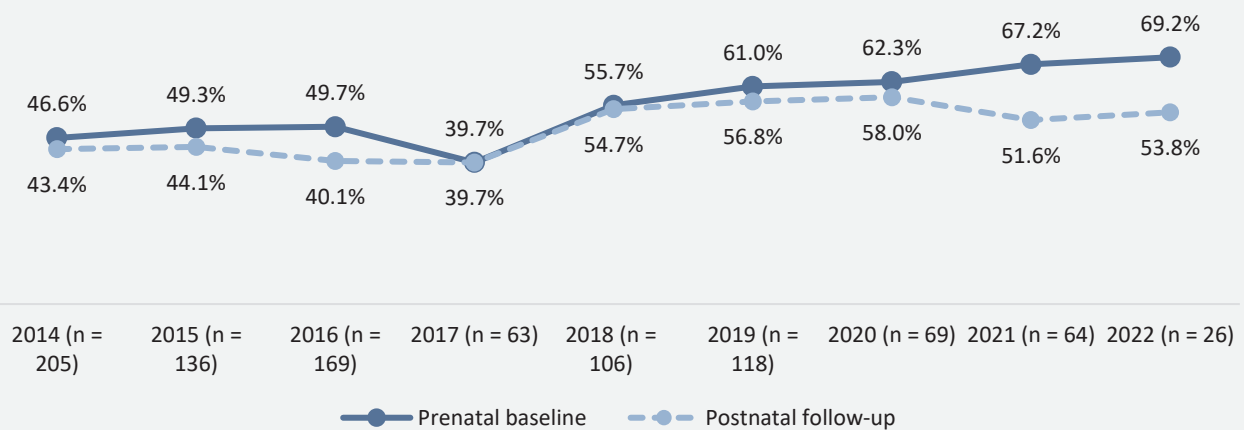


Additional analysis was examined between clients who planned on breastfeeding and clients who did not plan on breastfeeding or were unsure on baseline measures such as: chronic health problems, chronic pain, substance use, mental health, victimization, employment, fetal attachment, adverse childhood experiences, and highest level of education. There were no significant differences between clients who planned on breastfeeding and clients who did not plan on breastfeeding on the baseline measures.

Trends in Breastfeeding at Prenatal Baseline and Postnatal Follow-up

Overall, the percent of KY-Moms MATR clients who reported at prenatal baseline that they were planning on breastfeeding was fairly similar to the percent of clients at postnatal follow-up who reported that they had breastfed their babies. In 2014, 46.6% of clients reported at prenatal baseline they planned on breastfeeding their babies and, at follow-up, 43.4% of clients reported that they had breastfed. In 2022, 69.2% of clients planned at baseline on breastfeeding their babies and 53.8% of clients reported actually breastfeeding their babies at follow-up. The discrepancy between the percent who planned on breastfeeding at baseline and the percent who reported they had breastfed at follow-up was larger in the past two report years.

FIGURE IV.A.5. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING PLANNING ON BREASTFEEDING AT PRENATAL BASELINE AND ACTUALLY BREASTFED AFTER BABY WAS BORN, REPORT YEARS 2014-2022



Summary

Clients were a little over halfway through their pregnancies when they completed a prenatal baseline interview and reported at follow-up that they had been very involved in the program almost 7 months. Clients remained in the program, on average, almost 2 months after the baby was born. All the mothers in the follow-up sample reported their babies were “great” or “good” and had taken their babies to see a doctor an average of 6.4 times since the baby had been born, which is an average of around once per month. In addition, at baseline over two-thirds of mothers (69.2%) reported they were planning on breastfeeding their babies and 53.8% of mothers reported at postnatal follow-up they had breastfed their babies. Most women who indicated they planned to breastfeed their baby actually did breastfeed their baby.

B. Substance Use

This subsection examines change in the follow-up sample (n = 26) for: (1) overall substance use (illegal drug and alcohol use), (2) use of illegal drugs, alcohol, and cigarettes, (3) problems experienced with substance use, (4) readiness for substance abuse treatment, (5) substance abuse treatment and self-help meetings, and (6) medication-assisted treatment. Past-30-day and past-6-month substance use are examined separately where applicable.

Change in targeted risk factors was examined for two different periods over time.⁵⁹

Six-month periods⁶⁰

- **6 months before pregnancy.** Information collected from the client at prenatal baseline regarding the six months before she found out she was pregnant.
- **6 months since the birth of the baby.** Information collected at postnatal follow-up regarding the 6 months since the baby was born.

30-day periods⁶¹

- **30 days before pregnancy.** Information collected from the client at prenatal baseline regarding the 30 days before she found out she was pregnant.
- **30 days at prenatal baseline.** Information collected from the client at prenatal baseline regarding the past 30 days she has been pregnant.
- **30 days before the baby was born.** Information collected from the client at postnatal follow-up regarding the 30 days before giving birth while she was involved in KY-Moms MATR case management services.
- 30 days at postnatal follow-up. Information collected at postnatal follow-up regarding the past 30 days.

Overall Substance Use (Illegal Drug and Alcohol Use)

PAST-6-MONTH ILLEGAL DRUGS AND/OR ALCOHOL USE

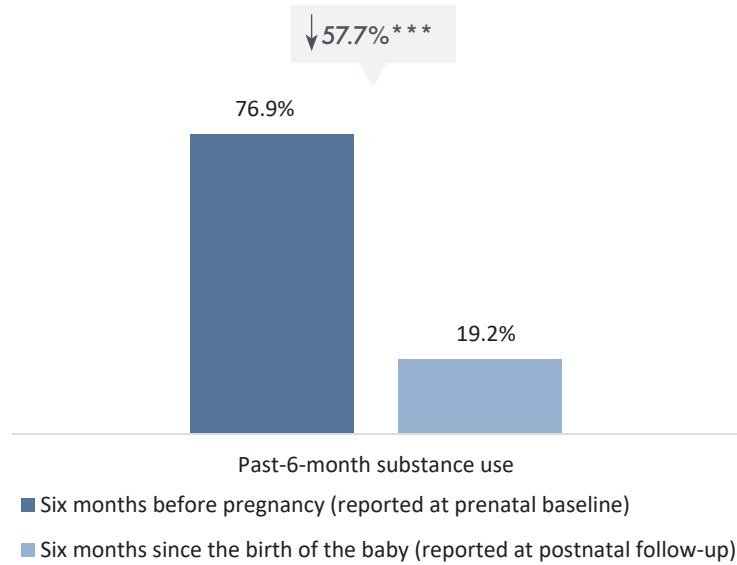
In the 6 months before pregnancy, 76.9% of clients reported using illegal drugs and/or alcohol. In the 6 months before the follow-up interview, 19.2% of clients reported using illegal drugs and/or alcohol (a significant decrease of 57.7%; see Figure IV.B.1).

⁵⁹ Significance was determined by McNemar's test for substance use, mental health problems and intimate partner violence unless otherwise indicated.

⁶⁰ Because opportunities to use alcohol and drugs are severely reduced while incarcerated this client was not included in this analysis; however, none of the clients in this reporting year reported being incarcerated all 365 days before pregnancy.

⁶¹ Because some clients were in a controlled environment (e.g., prison, jail, or residential facility) all 30 days before prenatal baseline changes in drug, alcohol, and tobacco use from baseline to follow-up were analyzed for only clients who were not in a controlled environment all 30 days before prenatal baseline. The assumption for excluding clients who were in a controlled environment all 30 days before entering treatment (n = 3) or all 30 days before the follow-up (n = 0 this year) from the change in past-30-day substance use analysis is that being in a controlled environment inhibits opportunities for alcohol and drug use.

FIGURE IV.B.1. PAST-6-MONTH SUBSTANCE USE FROM PRENATAL BASELINE TO POSTNATAL FOLLOW-UP (N = 26)



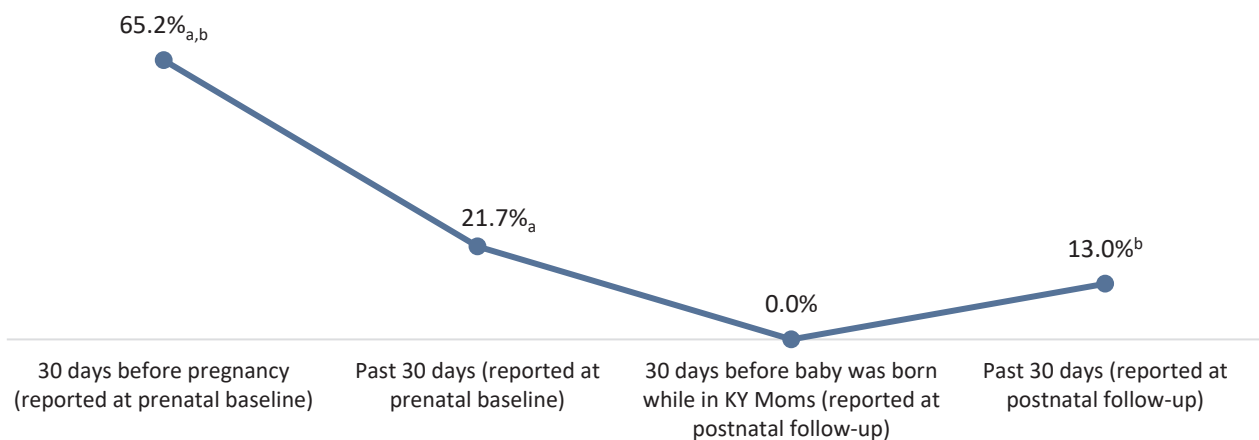
*** p < .01.

PAST-30-DAY ILLEGAL DRUGS AND/OR ALCOHOL USE

Figure IV.B.2 shows the results for overall illegal drug and/or alcohol use across all four past-30-day periods. In the 30 days before pregnancy, 65.2% of clients reported using illegal drugs and/or alcohol. In the past 30 days at baseline, 21.7% of clients reported using illegal drugs and/or alcohol.

At postnatal follow-up, none of the clients reported using illegal drugs and/or alcohol in the 30 days before the baby was born compared to 65.2% of clients in the 30 days before pregnancy and 21.7% in the past 30 days at prenatal baseline. Finally, 13.0% of clients reported illegal drug and/or alcohol use in the past 30 days at postnatal follow-up. Thus, the period when the smallest percentage of women reported using illegal drugs and/or alcohol was the 30 days before the baby was born (i.e., while the clients were pregnant and involved in KY-Moms MATR).

FIGURE IV.B.2. PAST-30-DAY SUBSTANCE USE FROM PRENATAL BASELINE TO POSTNATAL FOLLOW-UP (N = 23)



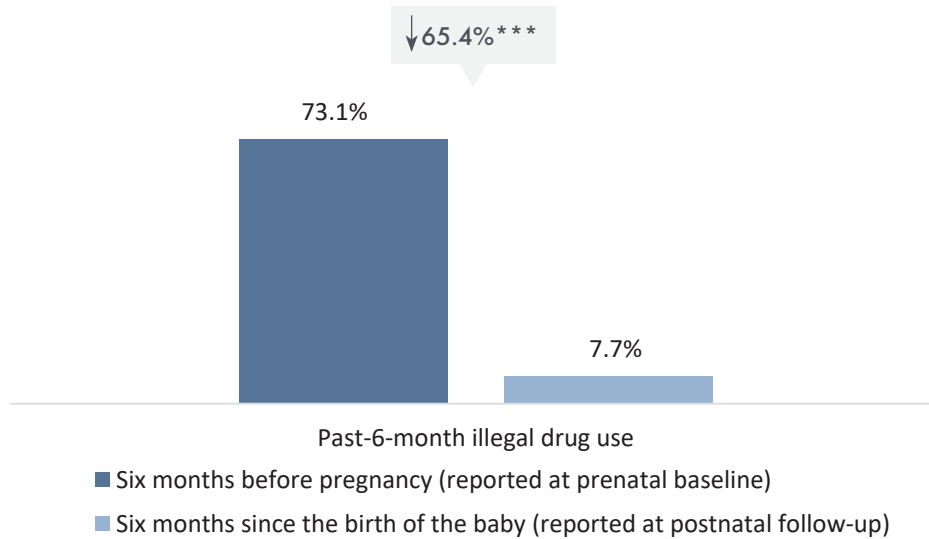
a, b- Values sharing the same subscript differ at p < .01.

Illegal Drug Use

PAST-6-MONTH ILLEGAL DRUG USE

Figure IV.B.3 shows that in the 6 months before pregnancy, 73.1% of clients reported using illegal drugs⁶² and in the past 6 months at follow-up 7.7% of clients reported illegal drug use (a significant decrease of 65.4%). Of those clients who reported illegal drug use at follow-up (n = 2), both reported marijuana use.

FIGURE IV.B.3. PAST-6-MONTH ILLEGAL DRUG USE FROM PRENATAL BASELINE TO POSTNATAL FOLLOW-UP (N = 26)



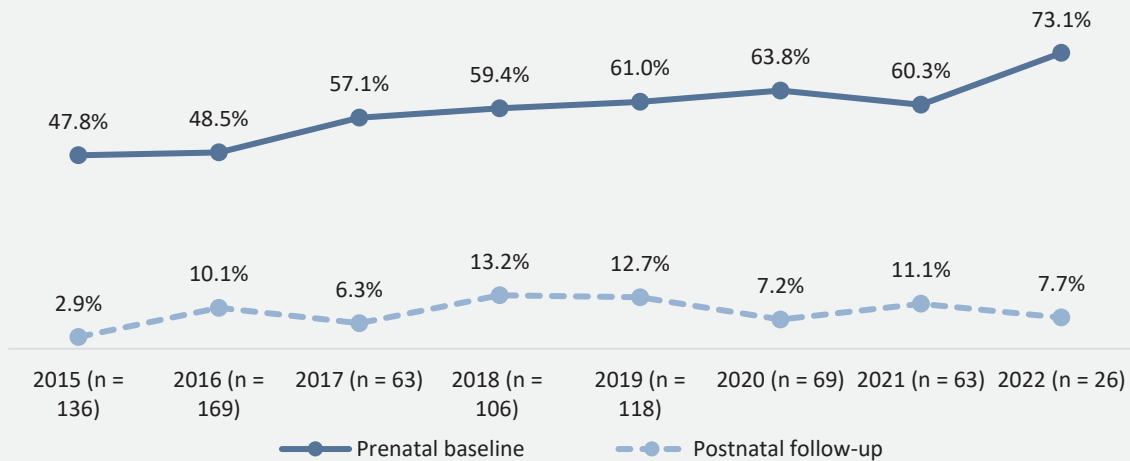
*** p < .01.

⁶² Illegal drug use includes marijuana, sedatives, barbiturates, non-prescribed prescription opiates, cocaine, heroin, hallucinogens, inhalants, non-prescribed methadone, and non-prescribed buprenorphine.

Trends in Past-6-month Illegal Drug Use at Prenatal Baseline and Postnatal Follow-up

Among clients who were in the follow-up sample each report year, the percent of women who reported illegal drug use in the 6 months before pregnancy increased since 2015 from 47.8% to 73.1% in 2022. The percent of women who reported illegal drug use in the past 6 months at postnatal follow-up generally increased as well from 2.9% in 2015 to 12.7% in 2019 before decreasing to 7.2% in 2020. In 2022, 7.7% of clients reported illegal drug use in the past 6 months at postnatal follow-up.

FIGURE IV.B.4. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING PAST-6-MONTH ILLEGAL DRUG USE AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2022



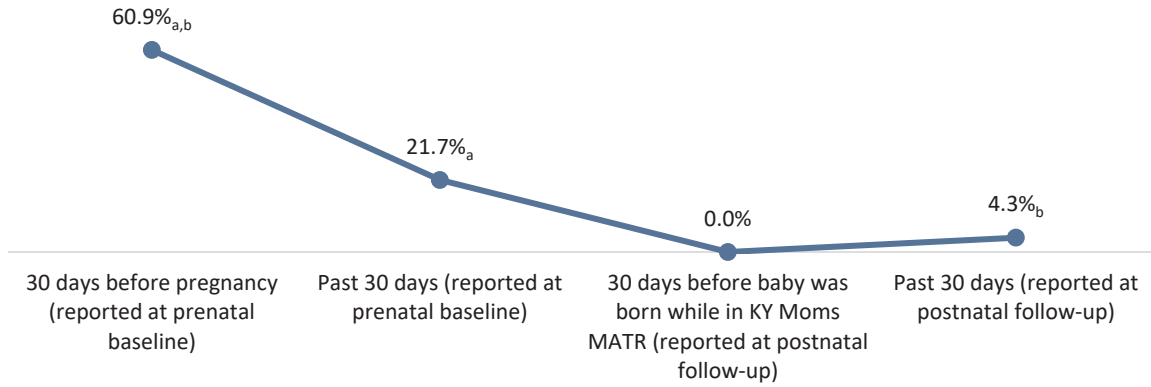
PAST-30-DAY ILLEGAL DRUG USE

A national survey of women indicated that in 2019, 16.6% of non-pregnant women age 15 and older reported using illegal drugs in the past month.⁶³ Less than two-thirds of KY Moms-MATR clients (60.9%) reported illegal drug use in the 30 days prior to becoming pregnant (see Figure IV.B.5). About 22% of KY Moms-MATR clients reported using illegal drugs in the past 30 days at baseline. In comparison, nationally, 5.8% of pregnant women aged 15-44 reported using illegal drugs in the past month.

At postnatal follow-up, none of clients reported using illegal drugs in the 30 days before the baby was born and 4.3% reported using illegal drugs 30 days before the follow-up assessment.

⁶³ Substance Abuse and Mental Health Services Administration. Reports and Detailed Tables from the 2019 National Survey on Drug Use and Health (NSDUH). Retrieved from <https://www.samhsa.gov/data/sites/default/files/reports/rpt29394/NSDUHDetailedTabs2019/NSDUHDefTabsSect6pe2019.htm> on October 6, 2021.

FIGURE IV.B.5. PAST-30-DAY ILLEGAL DRUG USE FROM PRENATAL BASELINE TO POSTNATAL FOLLOW-UP (N = 23)



a, b – Values sharing the same subscript differ at $p < .01$.

Injection Drug Use

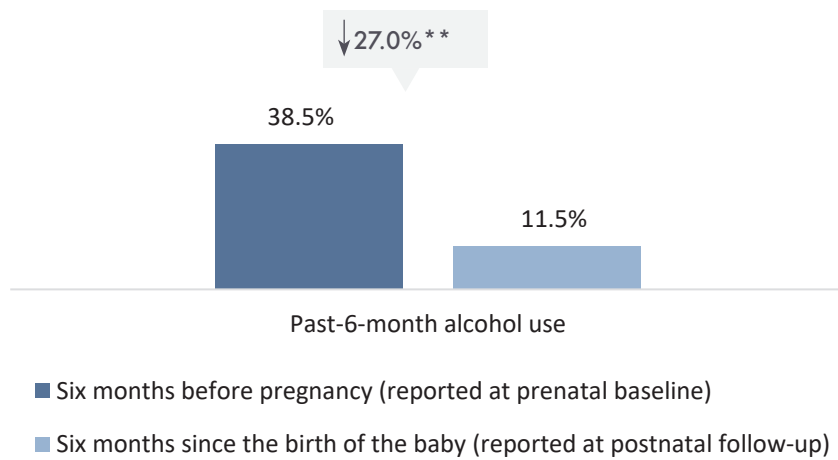
At prenatal baseline, 39.1% of clients reported ever injecting any drugs and none of the clients reported injecting a drug in the past 30 days. At postnatal follow-up, none of the clients reported injecting drugs since they began KY-Moms MATR or in the past 30 days.

Alcohol Use

PAST-6-MONTH ALCOHOL USE

Figure IV.B.6 shows that in the six months before pregnancy 38.5% of clients reported alcohol use, and after the baby was born, 11.5% of clients reported alcohol use in the past 6 months (a significant decrease of 27.0% from the six months before pregnancy).

FIGURE IV.B.6. PAST-6-MONTH ALCOHOL USE FROM PRENATAL BASELINE TO POSTNATAL FOLLOW-UP (N = 26)

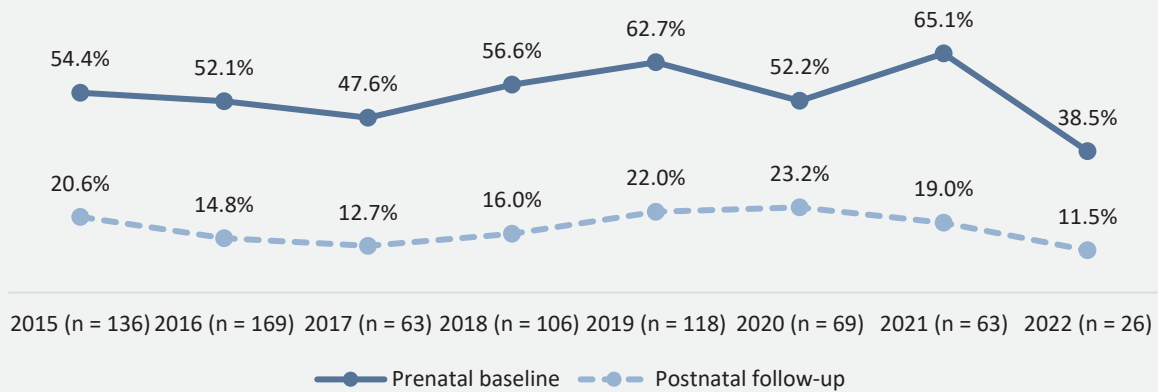


** $p < .05$.

Trends in Past-6-month Alcohol Use at Prenatal Baseline and Postnatal Follow-up

For the majority of the past 8 years, around half of clients reported alcohol use in the 6 months before pregnancy. In 2019 and 2021, however, around two-thirds of clients reported alcohol use at prenatal baseline, and in 2022, only 38.5% reported past-6-month alcohol use. In addition, alcohol use at follow-up was between 12% and 23%.

FIGURE IV.B.7. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING PAST-6-MONTH ALCOHOL USE AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2022⁶⁴

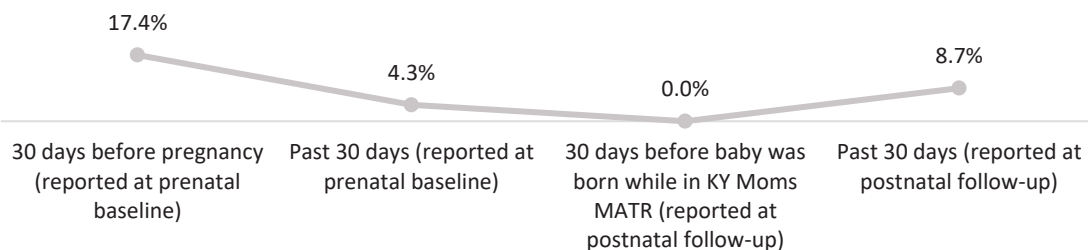


PAST-30-DAY ALCOHOL USE

Figure IV.B.8 shows that 17.4% of clients reported alcohol use in the 30 days prior to becoming pregnant. At the national level, 55.3% of non-pregnant women aged 15-44 reported drinking alcohol in the past 30 days. In the past 30 days at prenatal baseline, 4.3% of clients reported using alcohol. Nationally, 9.5% of women aged 15-44 reported using alcohol during pregnancy.

At postnatal follow-up, none of the clients reported using alcohol in the 30 days before the baby was born while they were involved in KY-Moms MATR and 8.7% of clients reported alcohol use in the past 30 days.

FIGURE IV.B.8. PAST-30-DAY ALCOHOL USE FROM PRENATAL BASELINE TO POSTNATAL FOLLOW-UP (N = 26)



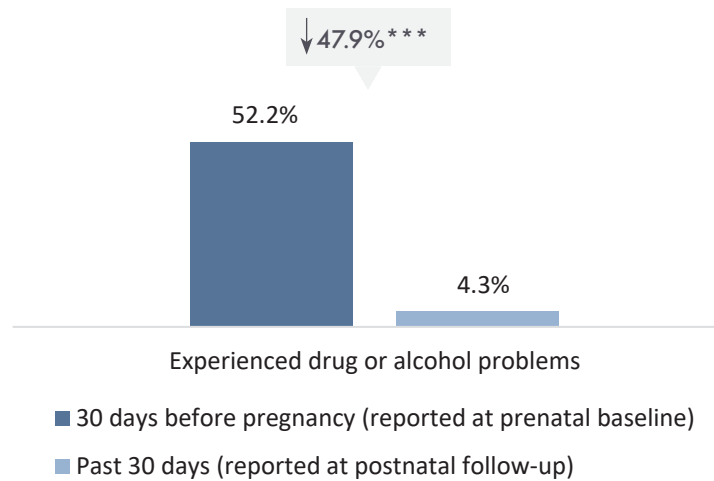
a, b, c- Values sharing the same subscript differ at $p < .01$.

⁶⁴The small sample size in 2022 could be affecting the decrease in alcohol use at baseline.

Problems Experienced with Substance Use

In the 30 days before pregnancy, 52.2% of clients reported they experienced problems with drugs or alcohol such as craving, withdrawal, wanting to quit but being unable, or worrying about relapse (see Figure IV.B.9). In the past 30 days at follow-up, 4.3% of clients reported experiencing problems with drugs or alcohol (a significant decrease of 47.9%).

FIGURE IV.B.9. CLIENTS EXPERIENCING PROBLEMS WITH ILLEGAL DRUGS OR ALCOHOL USE IN THE PAST 30 DAYS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 23)

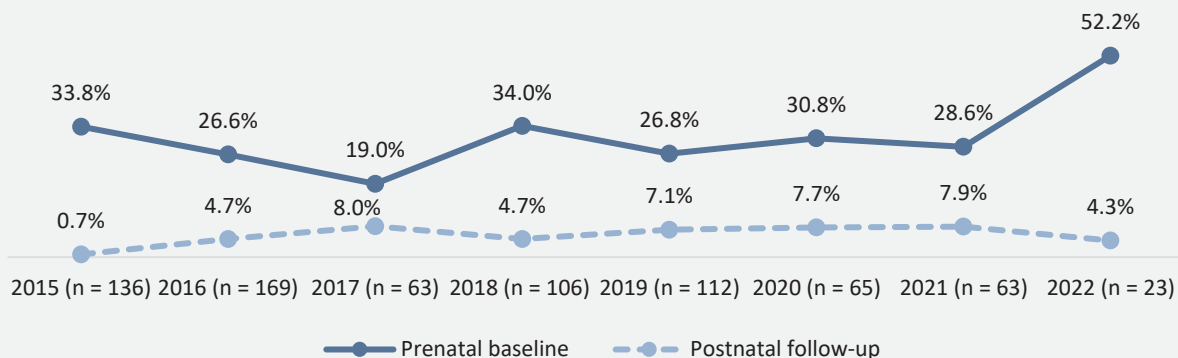


***p < .01.

Trends in Experiencing Problems with Substance Use at Prenatal Baseline and Postnatal Follow-up

In report year 2015, 33.8% of clients reported they experienced problems with drugs or alcohol in the 30 days before pregnancy and in the past 30 days at follow-up, 0.7% of clients experienced problems. In report year 2022, over half of clients experienced problems with drugs or alcohol in the 30 days before pregnancy compared to 4.3% of clients in the past 30 days at the postnatal follow-up.

FIGURE IV.B.10. CLIENTS IN THE FOLLOW-UP SAMPLE EXPERIENCING PROBLEMS WITH SUBSTANCE USE IN THE PAST 30 DAYS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2022⁶⁵



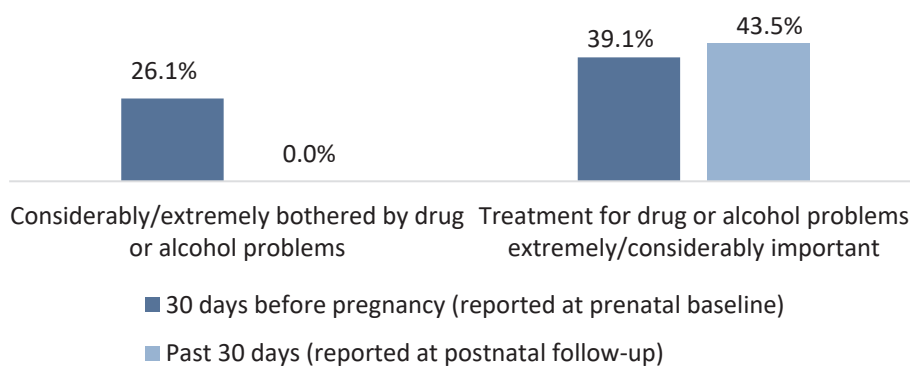
⁶⁵ The small sample size in 2022 could be affecting the percent of clients reporting problems with drugs or alcohol use at baseline.

Readiness for Substance Abuse Treatment

Figure IV.B.11 shows that 26.1% of clients reported they were considerably or extremely troubled or bothered by drug or alcohol problems in the 30 days before pregnancy. In the past 30 days at postnatal follow-up, none of the clients reported that they were considerably or extremely troubled or bothered by drug or alcohol problems.

The figure below also shows that 39.1% of clients in the 30 days before pregnancy and 43.5% of clients in the past 30 days at postnatal follow-up reported that treatment for drug or alcohol problems was considerably or extremely important, which was not a significant increase.

FIGURE IV.B.11. READINESS FOR TREATMENT FOR ILLEGAL DRUG OR ALCOHOL USE IN THE PAST 30 DAYS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 23)^a

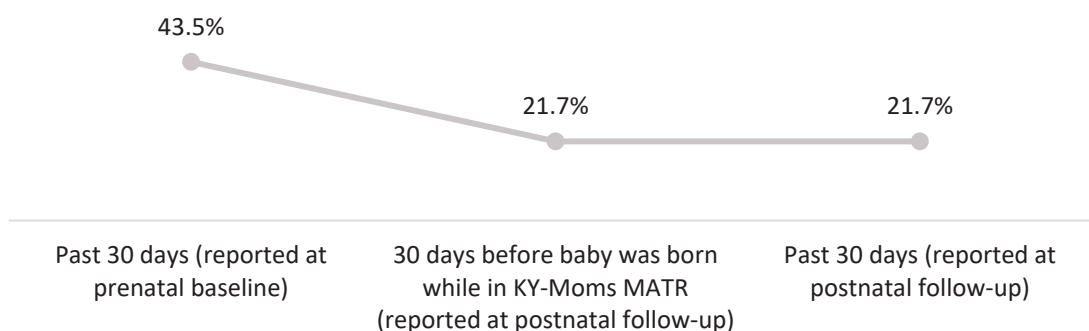


^a --No measure of associate could be computer for the cross tabulation because there was a value of 0 for considerably/extremely bothered by drug or alcohol problems at follow-up.

Substance Abuse Treatment

Figure IV.B.12 shows that in the past 30 days at baseline, 43.5% of clients reported participating in treatment for substance abuse. At postnatal follow-up, 21.7% of clients reported participating in treatment for substance abuse in the 30 days before the baby was born and 21.7% of clients reported participating in treatment for substance abuse in the past 30 days.

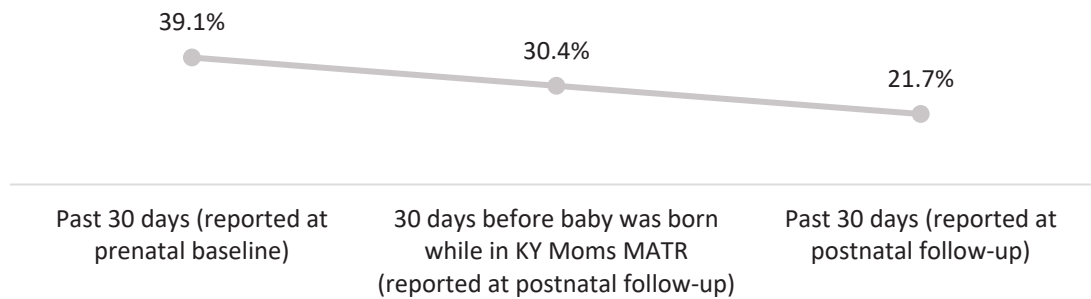
FIGURE IV.B.12. CLIENTS REPORTING SUBSTANCE ABUSE TREATMENT IN THE PAST 30 DAYS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 23)



Self-help Meetings

Figure IV.B.12 shows that in the past 30 days at baseline, 39.1% of clients reported participating in self-help group meetings. At postnatal follow-up, 30.4% of clients reported participating in self-help group meetings in the 30 days before the baby was born and 21.7% of clients reported attending self-help group meetings in the past 30 days.

FIGURE IV.B.13. CLIENTS REPORTING ATTENDING A SELF-HELP GROUP IN THE PAST 30 DAYS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 23)



Medication-assisted Treatment

At baseline, over three-quarters of clients (76.9%) reported having ever received buprenorphine/naloxone, naltrexone, or methadone as part of a medication-assisted treatment for their substance abuse problems and 33.3% of clients reported participating in medication-assisted treatment (MAT) in the 6 months before pregnancy. Of those clients who reported participating in MAT in the past 6 months before pregnancy ($n = 3$), 33.3% ($n = 1$) reported receiving Suboxone/Subutex (buprenorphine-naloxone), and 66.7% ($n = 2$) reported methadone. In addition, 33.3% of clients reported obtaining the medication from a doctor in the specialty clinic and 66.7% were dispensed the medication in a methadone clinic. On average, these clients reported using these medications an average of 5.7 out of the 6 months before pregnancy, and for all 30 days in the last 30 days at baseline. All of these clients at baseline reported they had used the prescribed medication within the past 48 hours and that the MAT helped treat their drug problems.

At follow-up, 44.4% of clients reported participating in medication-assisted treatment (MAT) in the past 6 months. Of those clients who reported participating in MAT in the past 6 months ($n = 4$), 50.0% ($n = 2$) reported receiving Suboxone/Subutex (buprenorphine-naloxone) and 50.0% ($n = 2$) reported methadone. On average, these clients reported using these medications 6 out of the past 6 months, and for all 30 days in the past 30 days. All of these clients at follow-up reported the MAT helped treat their drug problems.

Also, at follow-up, clients were asked what the single biggest issue was for getting on MAT.⁶⁶ One-third of clients reported that they didn't believe it would help them or that they didn't need and 33.3% of clients reported that they had no issues. Less than one-quarter of KY-Moms MATR clients (23.8%) reported that they never thought about it and 4.8% reported that they didn't want to take medications for their drug problem.

⁶⁶This question was added to the most recent follow-up assessment and, therefore, 5 clients did not have the opportunity to answer.

Tobacco Use

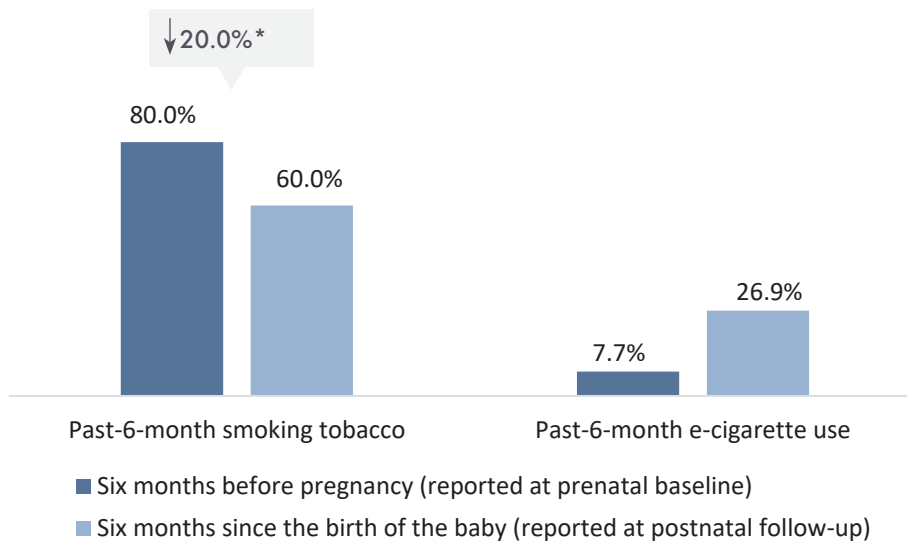
PAST-6-MONTH TOBACCO USE

At prenatal baseline, 80.0% of clients reported smoking tobacco in the 6 months prior to pregnancy (Figure IV.B.14). At postnatal follow-up, 60.0% of clients reported smoking tobacco in the past 6 months, which was a significant decrease of 20.0%.

About 8% of clients reported using e-cigarettes (e.g., battery-powered nicotine delivery devices that vaporize a liquid mixture consisting of propylene glycol, glycerin, flavorings, nicotine, and other chemicals) compared to 26.9% of clients in the past 6 months at follow-up (which was not a significant increase).

None of the clients reported smokeless tobacco use in the 6 months prior to pregnancy or in the past 6 months at postnatal follow-up (not depicted in a figure).

FIGURE IV.B.14. PAST-6-MONTH SMOKING TOBACCO AND E-CIGARETTE USE AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 25)⁶⁷



*p < .10.

The incentives, the videos, and education helped me a lot. My case manager was great and was always there for me. I learned a lot about pregnancy.

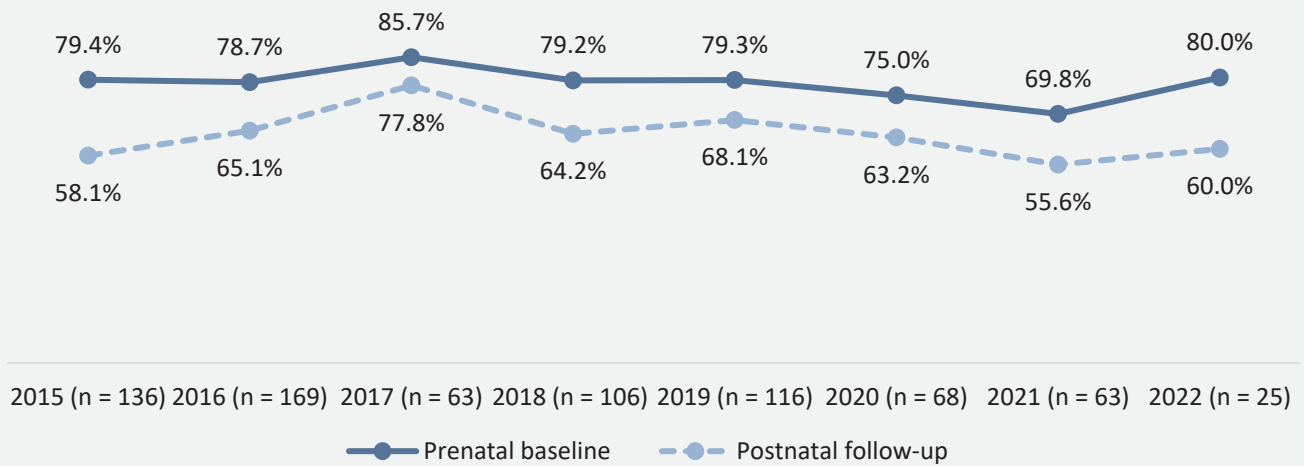
KY-MOMS MATR FOLLOW-UP CLIENT

⁶⁷ One client was missing data for tobacco use at follow-up.

Trends in Past-6-month Cigarette Use at Prenatal Baseline and Postnatal Follow-up

Cigarette use was high at prenatal baseline each year with well over three-quarters of women reporting smoking cigarettes in the six months before pregnancy from 2015 to 2020. In 2021, the percent of women reporting smoking cigarettes appeared to decrease slightly to 69.8%. At follow-up, many of the women continued to smoke cigarettes. From 2015 to 2017, the percent of women reporting smoking cigarettes at baseline and follow-up increased overall; however, from 2018 to 2020 the percent of women reporting smoking cigarettes was relatively stable at both baseline and follow-up before increasing in 2022.

FIGURE IV.B.15. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING CIGARETTE USE IN THE PAST 6 MONTHS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2022



PAST-30-DAY TOBACCO USE

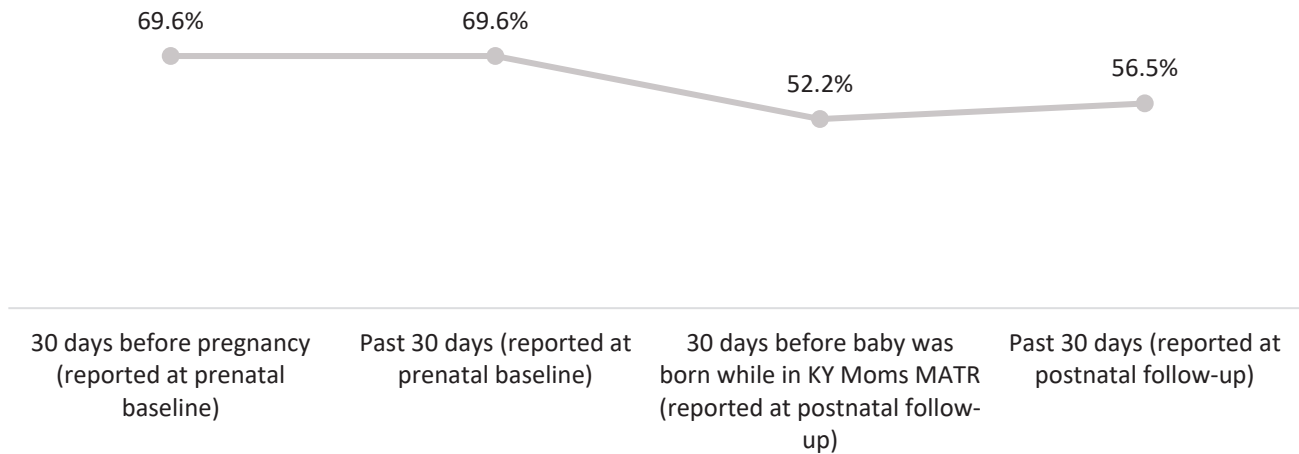
At prenatal baseline, 69.6% of clients reported smoking tobacco products in the 30 days prior to pregnancy (Figure IV.B.16). This number is considerably higher than either the national estimate of 17.2% of non-pregnant women aged 15-44 who are self-reported smokers⁶⁸ or the estimate of Kentucky women who report smoking (28.8%).⁶⁹ In addition, 69.6% of clients reported smoking tobacco in the past 30 days at prenatal baseline compared to 15.3% of pregnant women in Kentucky who reported smoking cigarettes and 8.7%, nationally.

At postnatal follow-up, in the 30 days before the baby was born, 52.2% of clients reported smoking tobacco products. The percent of women who reported cigarette use in the past 30 days at postnatal follow-up increased slightly to 56.5%.

⁶⁸ Substance Abuse and Mental Health Services Administration. Reports and Detailed Tables from the 2019 National Survey on Drug Use and Health (NSDUH). Retrieved from <https://www.samhsa.gov/data/sites/default/files/reports/rpt29394/NSDUHDetailedTabs2019/NSDUHDefTabsSect6pe2019.htm> on October 6, 2021.

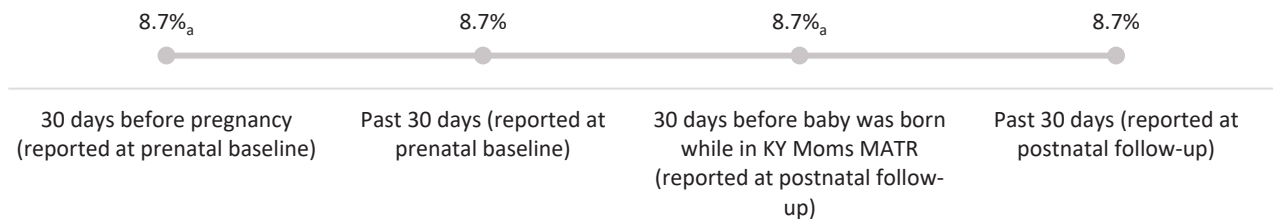
⁶⁹ America’s Health Rankings Health of Women and Children Report 2021 found at https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/overall_hwc_2020/state/KY

FIGURE IV.B.16. PAST-30-DAY SMOKING TOBACCO AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 23)



Less than 10% of women (8.7%) reported using e-cigarette in the 30 days before pregnancy, past 30 days at baseline, 30 days before the baby was born, and past 30 days at postnatal follow-up (see Figure IV.B.17). This percent is similar to the percent of women in Kentucky (6.7%; without regard to pregnancy status) who reported e-cigarette use

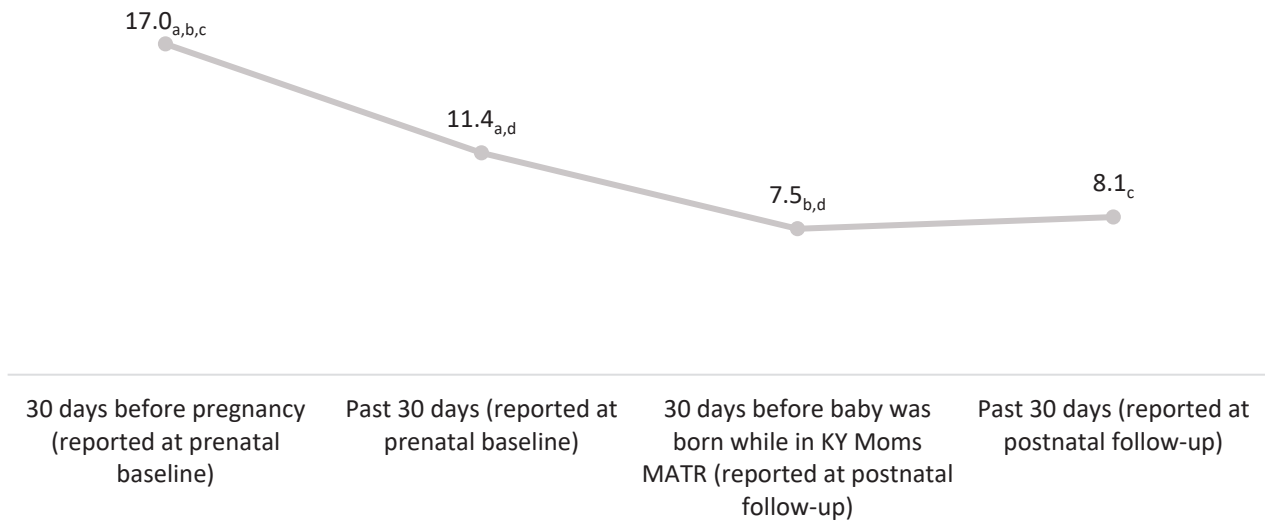
FIGURE IV.B.17. PAST-30-DAY E-CIGARETTE USE AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 23)



AVERAGE NUMBER OF CIGARETTES SMOKED IN THE PAST 30 DAYS

Figure IV.B.18 shows that for women who reported smoking tobacco in the 30 days prior to pregnancy (n = 16), the average number of cigarettes smoked declined from prior to pregnancy to after the client became involved in KY-Moms MATR and remained low after the birth of the baby. At prenatal baseline, women who smoked reported that in the 30 days before they found out they were pregnant they smoked an average of 17.0 cigarettes per day (less than one pack) and an average of 11.4 cigarettes per day in the past 30 days at prenatal baseline. At postnatal follow-up, in the 30 days before the baby was born when the client was in the KY-Moms MATR program, the average number of cigarettes decreased further to 7.5. While there was an increase to 8.1 cigarettes after the baby was born compared to the 30 days before the baby was born, they still smoked significantly fewer cigarettes compared to before pregnancy suggesting positive changes in smoking.

FIGURE IV.B.18. AVERAGE NUMBER OF CIGARETTES SMOKED AMONG WOMEN REPORTING CIGARETTE USE IN THE 30 DAYS PRIOR TO PREGNANCY (N = 16)



a, b, c – Values sharing the same subscript differ at $p < .01$
 d – Values sharing the same subscripts differ at $p < .05$.

Summary

KY-Moms MATR clients reported significant reductions in substance use in the past 30 days of pregnancy at prenatal baseline and further reductions after beginning participation in KY-Moms MATR. Specifically, 65.2% of clients reported illegal drug use in the 30 days before pregnancy compared to none of the clients in the 30 days before the baby was born and 13.0% of clients in the past 30 days at postnatal follow-up. While 17.4% of clients reported alcohol use in the 30 days before pregnancy, only none reported alcohol use in the 30 days before the baby was born. In addition, in the 30 days before the baby was born, significantly fewer clients experienced or were bothered by substance use problems (such as craving, withdrawal, wanting to quit but being unable, or worrying about relapse).

The number of women who reported smoking cigarettes in the 30 days before the baby was born decreased, but not significantly, compared to the 30 days prior to pregnancy. Nationally, however, more KY-Moms MATR mothers smoked cigarettes before, during and after pregnancy. The average number of cigarettes clients reported smoking, however, decreased significantly from the 30 days before pregnancy (17.0) to the 30 days before the baby was born (7.5) and remained low in the past 30 days at follow-up.

C. Mental Health, Sleep Difficulty, and Stress

This subsection examines mental health change in the follow-up sample ($n = 26$) for the following factors: (1) depression, (2) generalized anxiety, (3) comorbid depression and anxiety, (4) post-traumatic stress disorder. Past-6-month and past-30-day mental health symptoms are examined separately where applicable.

Depression Symptoms

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

“Did you have two weeks in a row (or more) when you were consistently depressed or down, most of the day, nearly every day?” and

“Did you have two weeks in a row (or more) when you were much less interested in most things or much less able to enjoy the things you used to enjoy most of the time?”

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

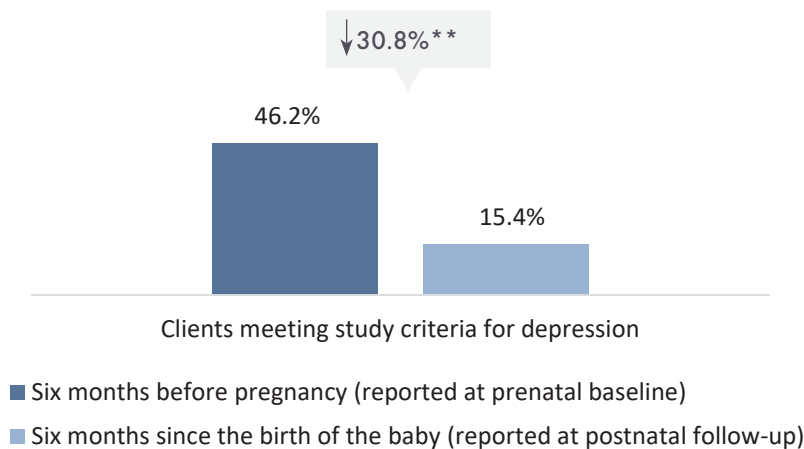
STUDY CRITERIA FOR DEPRESSION

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.

CLIENTS MEETING STUDY CRITERIA FOR DEPRESSION IN THE PAST 6 MONTHS

In the 6 months before they became pregnant, 46.2% of the women met study criteria for depression. In the past 6 months at postnatal follow-up, 15.4% of KY-Moms MATR clients met study criteria for depression, which was a significant decrease of 30.8% from baseline.

FIGURE IV.C.1. MEETING STUDY CRITERIA FOR DEPRESSION IN 6 MONTHS BEFORE PREGNANCY AND PAST 6 MONTHS AT POSTNATAL FOLLOW-UP (N = 26)

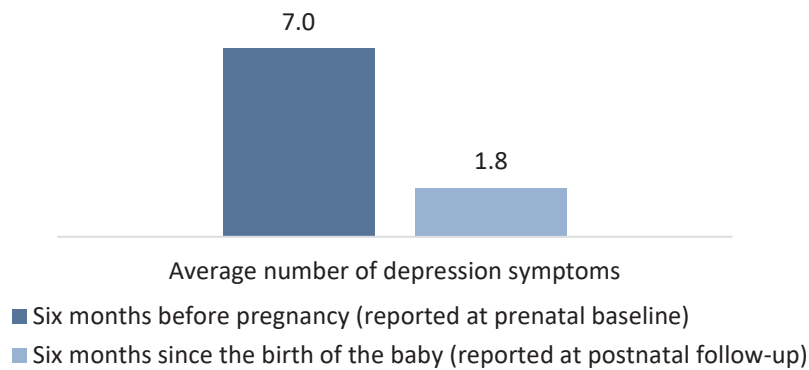


**p < .05.

AVERAGE NUMBER OF DEPRESSION SYMPTOMS IN THE PAST 6 MONTHS

Of the clients who met study criteria for depression in the 6 months before pregnancy (n = 12), they reported an average of 7.0 symptoms. In the past 6 months at postnatal follow-up, these same clients reported significantly fewer symptoms (average of 1.8 symptoms) indicating that the reduction in depressive symptoms was sustained after KY-Moms MATR participation.

FIGURE IV.C.2. AVERAGE NUMBER OF DEPRESSION SYMPTOMS AMONG THOSE CLIENTS WHO MET STUDY CRITERIA FOR DEPRESSION IN THE 6 MONTHS BEFORE PREGNANCY AT PRENATAL BASELINE (N = 12)***

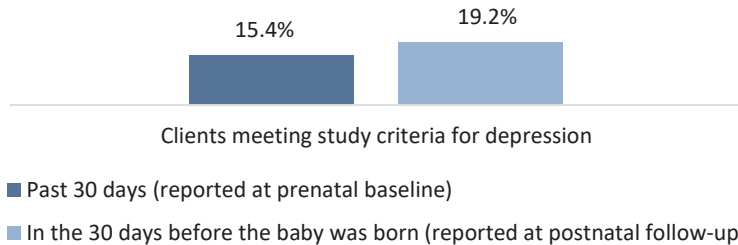


*** p < .01; Significance tested with paired sample t-test.

CLIENTS MEETING STUDY CRITERIA FOR DEPRESSION IN THE PAST 30 DAYS

In the past 30 days at prenatal baseline, 15.4% of the women met study criteria for depression (see Figure IV.C.3). At postnatal follow-up, 19.2% of clients met study criteria for depression in the 30 days before the baby was born, which was not a significant increase.⁷⁰

FIGURE IV.C.3. MEETING STUDY CRITERIA FOR DEPRESSION IN THE 30 DAYS BEFORE PRENATAL BASELINE AND 30 DAYS BEFORE THE BABY WAS BORN (N = 26)



Generalized Anxiety Symptoms

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

“In the 6 months before pregnancy, 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 GENERALIZED ANXIETY

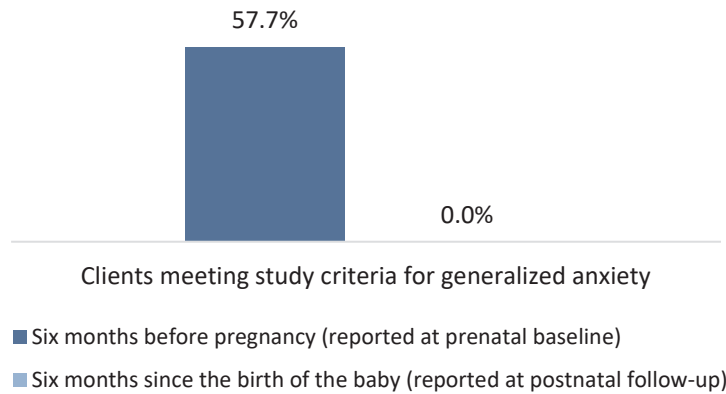
To meet study criteria for generalized anxiety, clients had to say “yes” to the one screening question and at least 3 of the other 6 symptoms. Thus, minimum score to meet study criteria: 4 out of 7.

⁷⁰ Only 4 clients met study criteria for depression in the past 30 days at baseline and, therefore, the average number of depression symptoms are not included in analysis.

CLIENTS MEETING STUDY CRITERIA FOR GENERALIZED ANXIETY IN THE PAST 6 MONTHS

In the 6 months before pregnancy, 57.7% of clients reported symptoms that met study criteria for generalized anxiety (see Figure IV.C.4). In the past 6 months at postnatal follow-up, none of the clients met study criteria for generalized anxiety. Among clients who met study criteria for generalized anxiety in the 6 months before pregnancy (n = 15), they reported an average of 4.9 symptoms (not presented in a figure).

FIGURE IV.C.4. MEETING STUDY CRITERIA FOR GENERALIZED ANXIETY IN 6 MONTHS BEFORE PREGNANCY AND PAST 6 MONTHS AT POSTNATAL FOLLOW-UP (N = 26)^a

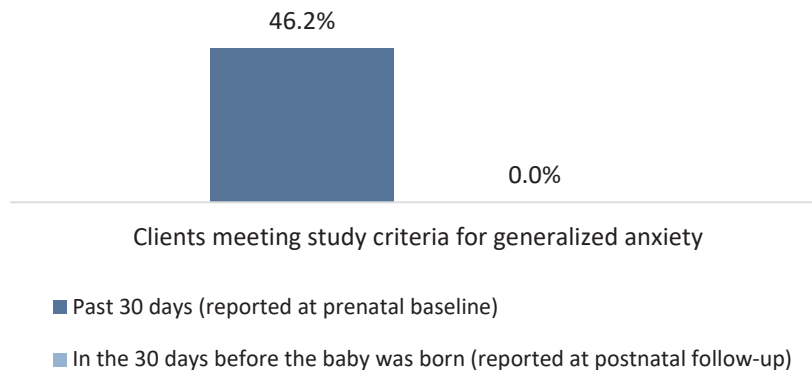


^a--No test of statistical association could be computed for generalized anxiety in the past 6 months at postnatal follow-up because one of the cell values was 0.

CLIENTS MEETING STUDY CRITERIA FOR ANXIETY IN THE PAST 30 DAYS

At prenatal baseline, 46.2% of clients reported symptoms that met study criteria for generalized anxiety in the past 30 days (see Figure IV.C.5). In the 30 days before the baby was born, none of the KY-Moms MATR clients met criteria for generalized anxiety. Clients who met criteria for generalized anxiety in the past 30 days at prenatal baseline (n = 12), clients reported an average of 5.1 symptoms.

FIGURE IV.C.5. MEETING STUDY CRITERIA FOR GENERALIZED ANXIETY IN THE 30 DAYS BEFORE PRENATAL BASELINE AND 30 DAYS BEFORE THE BABY WAS BORN (N = 26)^a



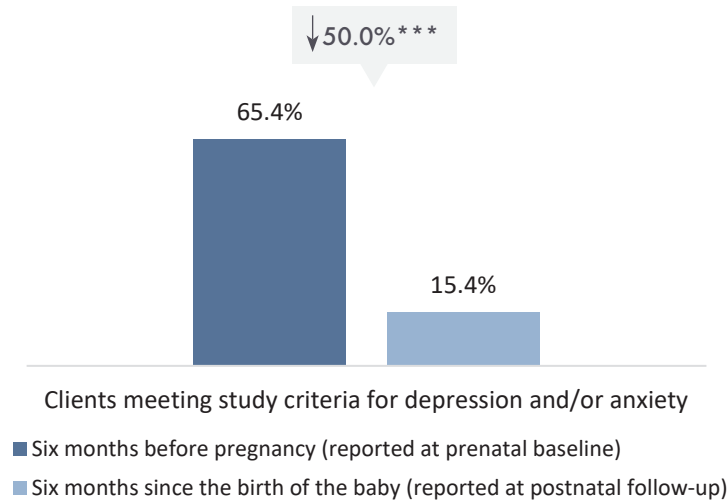
^a--No test of statistical association could be computed for generalized anxiety in the past 30 days at postnatal follow-up because one of the cell values was 0.

Depression and Anxiety Symptoms

CLIENTS MEETING STUDY CRITERIA FOR DEPRESSION AND/OR ANXIETY IN THE PAST 6 MONTHS

Figure IV.C.6 shows that 65.4% met study criteria for either depression or anxiety (or both) in the 6 months before pregnancy. In the past 6 months at postnatal follow-up, 15.4% of clients met criteria for depression and/or anxiety, which was a significant decrease of 50.0%.

FIGURE IV.C.6. MEETING STUDY CRITERIA FOR DEPRESSION AND/OR ANXIETY IN THE PAST 6 MONTHS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 26)



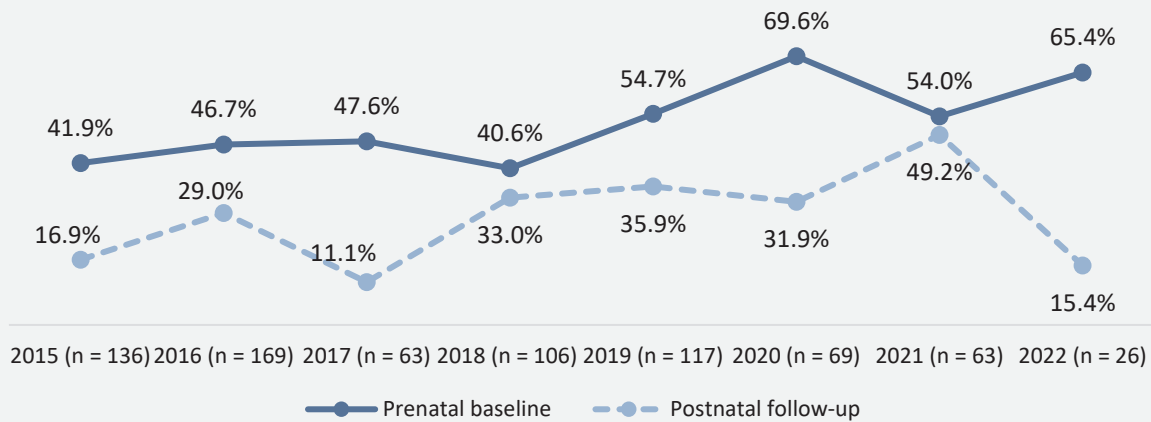
***p < .01.

Trends in Depression And/or Anxiety at Prenatal Baseline and Postnatal Follow-up

The percent of clients who met study criteria for depression and/or anxiety at prenatal baseline was fairly consistent from 2015 to 2018. After 2018, the percent of clients who met study criteria for depression and/or anxiety at prenatal baseline increased. In 2021, the percent of women reporting depression and/or anxiety at prenatal baseline appeared to decrease compared to the previous year, and then was higher in 2022.

At follow-up, while the percent of women who met study criteria for depression and/or anxiety decreased compared to baseline, the degree to which the percent decreased fluctuated from 2015 to 2018. In 2021, the percent of women who met study criteria for depression and/or anxiety was higher compared to previous years and was similar to baseline. In 2022, with a smaller sample than in previous years, a small percent of clients met study criteria for depression and/or anxiety.

FIGURE IV.C.7. CLIENTS IN THE FOLLOW-UP SAMPLE WHO MET STUDY CRITERIA FOR DEPRESSION AND/OR ANXIETY IN THE PAST 6 MONTHS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2022⁷¹

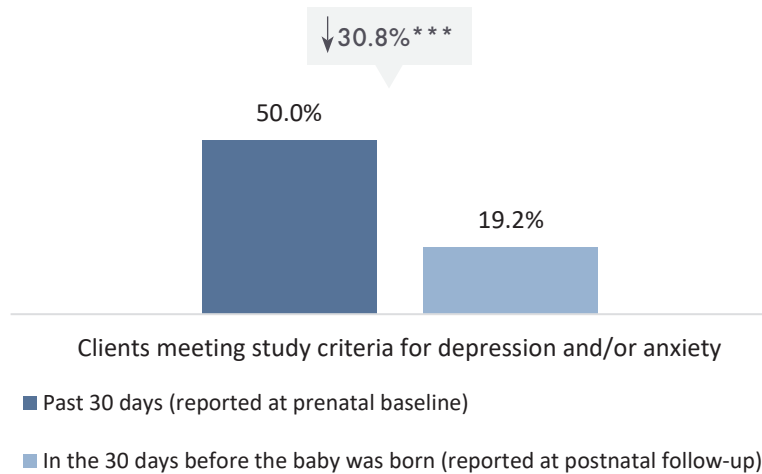


CLIENTS MEETING STUDY CRITERIA FOR DEPRESSION AND/OR ANXIETY IN THE PAST 30 DAYS

In the past 30 days at prenatal baseline, 50.0% of clients met study criteria for either depression or anxiety (or both), and in the 30 days before the baby was born, 19.2% of the women met study criteria for depression and/or anxiety, which was a significant decrease of 30.8%.

⁷¹ The small sample size in report year 2022 may be affecting the number of clients who met study criteria for depression and/or anxiety.

FIGURE IV.C.8. MEETING STUDY CRITERIA FOR DEPRESSION AND/OR ANXIETY IN THE 30 DAYS BEFORE PRENATAL BASELINE AND 30 DAYS BEFORE THE BABY WAS BORN (N = 26)

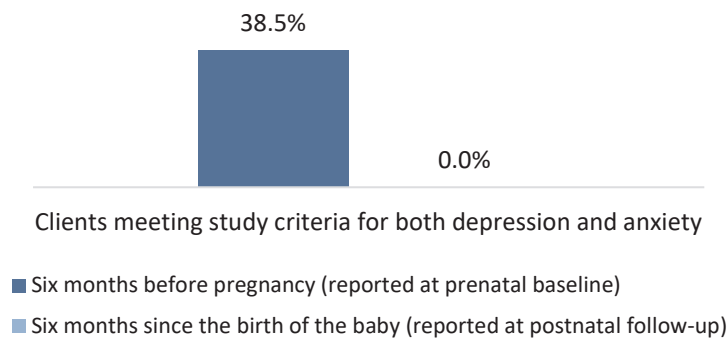


*** p < .01.

CLIENTS MEETING STUDY CRITERIA FOR COMORBID DEPRESSION AND ANXIETY IN THE PAST 6 MONTHS

Over one-third of clients (38.5%) met criteria for comorbid depression and anxiety in the 6 months before they became pregnant, and at postnatal follow-up, none of the clients reported comorbid depression and anxiety (see Figure IV.C.9).

FIGURE IV.C.9. MEETING STUDY CRITERIA FOR COMORBID DEPRESSION AND GENERALIZED ANXIETY IN THE PAST 6 MONTHS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 26)^a

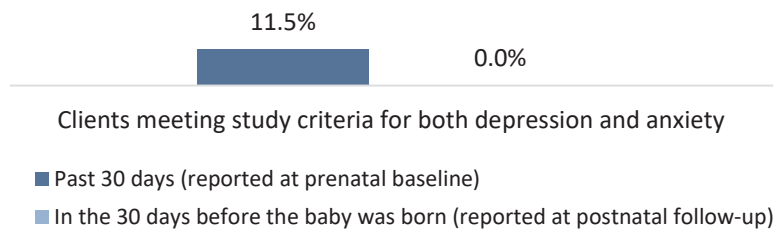


^a--No test of statistical association could be computed for comorbid depression and generalized anxiety in the past 30 days at postnatal follow-up because one of the cell values was 0.

CLIENTS MEETING STUDY CRITERIA FOR COMORBID DEPRESSION AND ANXIETY IN THE PAST 30 DAYS

Close to 12% of clients in the past 30 days at prenatal baseline and none of the clients in the 30 days before the baby was born met study criteria for both depression and anxiety (see Figure IV.C.10).

FIGURE IV.C.10. MEETING STUDY CRITERIA FOR COMORBID DEPRESSION AND GENERALIZED ANXIETY IN THE 30 DAYS BEFORE PRENATAL BASELINE AND THE 30 DAYS BEFORE THE BABY WAS BORN (N = 26)^a

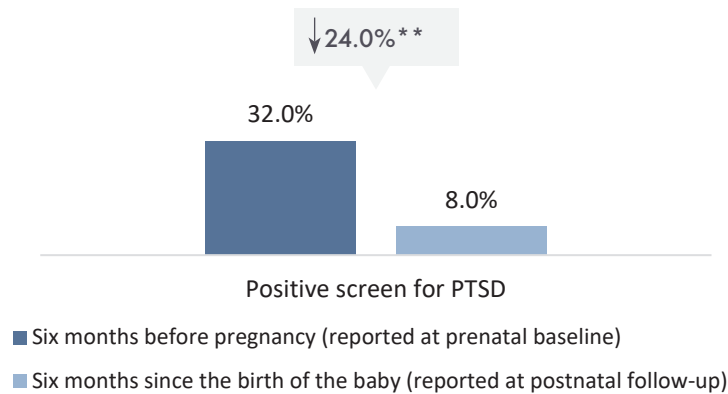


a--No test of statistical association could be computed for comorbid depression and generalized anxiety in the past 6 months at postnatal follow-up because one of the cell values was 0.

Post-traumatic Stress Disorder

Thirty-two percent of clients screened positive for post-traumatic stress disorder (PTSD)⁷² in the six months before pregnancy. At follow-up, 8.0% of clients screened positive for PTSD, which was a significant decrease of 24.0% (see Figure IV.C.11).

FIGURE IV.C.11. CLIENTS WHO SCREENED POSITIVE FOR POST-TRAUMATIC STRESS DISORDER IN THE PAST 6 MONTHS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 25)⁷³



** p < .05.

Summary

The number of clients who met study criteria for depression and/or for anxiety decreased significantly from prenatal baseline to postnatal follow-up. Further, the average number of depression symptoms decreased significantly from before pregnancy to 6 months after the birth of the baby. The number of clients who met study criteria for comorbid depression and anxiety in the past 6 months decreased from 38.5% at prenatal baseline to 0.0% at postnatal follow-up. In addition, the number of clients who screened positive for PTSD decreased significant from the 6 months before pregnancy to the 6 months since the birth of the baby.

⁷² 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.

⁷³ One client was missing data for PTSD at follow-up.

D. Intimate Partner Violence and Victimization Experiences

This subsection examines intimate partner abuse and victimization in the follow-up sample ($n = 26$) such as: (1) felt unsafe, (2) any form of intimate partner abuse, (3) psychological abuse, (4) coercive control, (5) physical abuse, (6) sexual assault, and (7) victimization experiences. These are examined from prenatal baseline to postnatal follow-up. Past 6-month and past 30-day partner abuse measures are examined separately where applicable.

Felt Unsafe Because of Fear of Current or Ex-partner

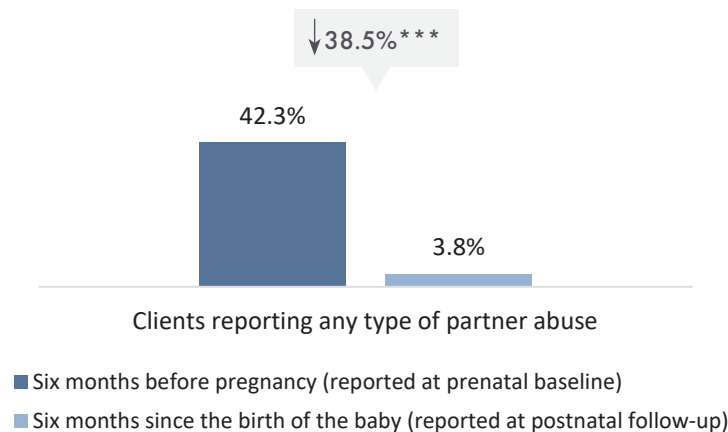
Including fear of a current or ex-partner, none of the clients reported they felt unsafe at baseline and only one client (4.0%) reported they felt unsafe at follow-up.⁷⁴

Any Intimate Partner Violence

ANY FORM OF INTIMATE PARTNER VIOLENCE IN THE PAST 6 MONTHS

Figure IV.D.1 shows that in the 6 months before pregnancy, 42.3% of clients reported experiencing any form of intimate partner abuse (including psychological abuse, control, physical abuse, and sexual abuse)⁷⁵ perpetrated by a current or ex-partner and 3.8% of clients reported experiencing partner violence in the past 6 months at postnatal follow-up (significant decrease of 38.5%).

FIGURE IV.D.1. ANY TYPE OF ABUSE IN THE 6 MONTHS BEFORE PREGNANCY AND THE PAST 6 MONTHS AT POSTNATAL FOLLOW-UP (N = 26)



*** $p < .01$.

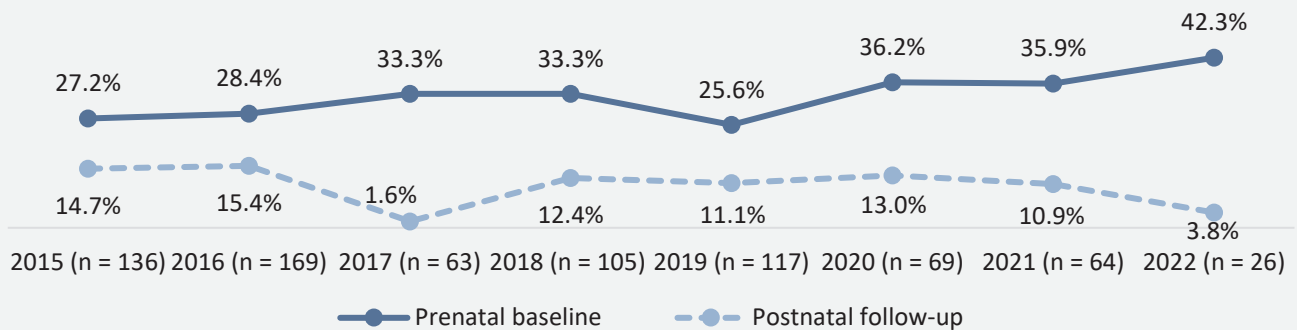
⁷⁴ One client declined to answer if they felt unsafe at follow-up.

⁷⁵ Any intimate partner abuse was defined in this study as a client indicating “yes” to any of the partner violence questions asked in the survey (e.g., verbal and psychological abuse, extreme jealousy and control, threats of violence towards client and others close to them, physical violence, stalking, partner purposely damaging or destroying property, sexual assault/threats of assault) at each period.

Trends in Any Past-6-month Partner Abuse at Prenatal Baseline and Postnatal Follow-up

The percent of clients who reported any partner abuse at prenatal baseline was fairly consistent from 2015 to 2019. Since 2019, however, the number of clients who reported any partner abuse has increased. Overall, the percent of clients who reported partner abuse at follow-up was also fairly consistent with about 11% to 15% of clients reporting partner abuse in the 6 months since the birth of the baby (with the exception of 2017 at 1.6% and 2022 at 3.8%).

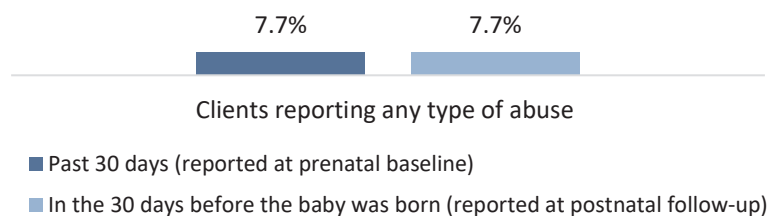
FIGURE IV.D.2. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING ANY PARTNER ABUSE IN THE PAST 6 MONTHS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2022



ANY ABUSE IN THE PAST 30 DAYS

Less than 10% of KY-Moms MATR clients (7.7%) in the past 30 days at prenatal baseline and in the 30 days before the baby was born clients reported experiencing any type of abuse (see Figure IV.D.3).

FIGURE IV.D.3. ANY TYPE OF ABUSE IN THE 30 DAYS BEFORE PRENATAL BASELINE AND THE 30 DAYS BEFORE THE BABY WAS BORN (N = 26)



Psychological Abuse

PSYCHOLOGICAL ABUSE IN THE PAST 6 MONTHS

Less than one-third of clients (30.8%) reported at prenatal baseline that a partner psychologically abused them (e.g., insulted the client, shouted, criticized them, criticized them in front of others, treated them like an inferior, tried to make them feel crazy, or told them their feelings were irrational or crazy) in the 6 months before pregnancy and 3.8% of clients reported psychological abuse in the past 6 months at postnatal follow-up. Compared to the 6 months before they were pregnant, there was a significant 27.0% decrease in reports of psychological abuse in the 6 months after clients had their baby (see Figure IV.D.4).

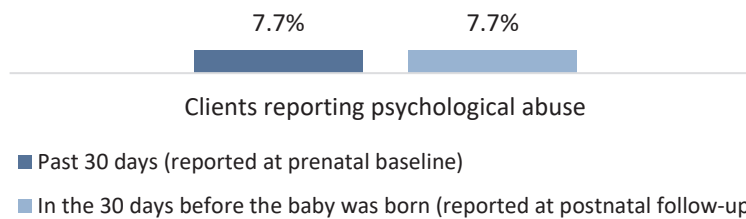
FIGURE IV.D.4. PSYCHOLOGICAL ABUSE IN THE 6 MONTHS BEFORE PREGNANCY AND THE PAST 6 MONTHS AT POSTNATAL FOLLOW-UP (N = 26)



PSYCHOLOGICAL ABUSE IN THE PAST 30 DAYS

Less than 8% of clients in the past 30 days at prenatal baseline and in the 30 days before the baby was born reported psychological abuse.

FIGURE IV.D.5. PSYCHOLOGICAL ABUSE IN THE 30 DAYS BEFORE PRENATAL BASELINE AND THE 30 DAYS BEFORE THE BABY WAS BORN (N = 26)

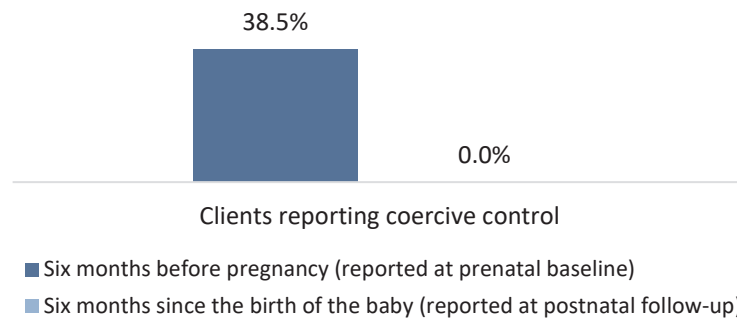


Coercive Control

COERCIVE CONTROL IN THE PAST 6 MONTHS

For this study, coercive control is described as abuse by a partner wherein the partner threatened the client or a family member in order to frighten her, was extremely jealous and controlling, interfered with other relationships, stalked her, or purposely destroyed property that belonged to her or a close friend/family member. In the 6 months before becoming pregnant, 38.5% of clients reported being a victim of coercive control and none of the clients in the past 6 months at postnatal follow-up reported experiencing coercive control from their partner (see Figure IV.D.6).

FIGURE IV.D.6. COERCIVE CONTROL BY A PARTNER IN THE 6 MONTHS BEFORE PREGNANCY AND THE 6 MONTHS BEFORE POSTNATAL FOLLOW-UP (N = 26)

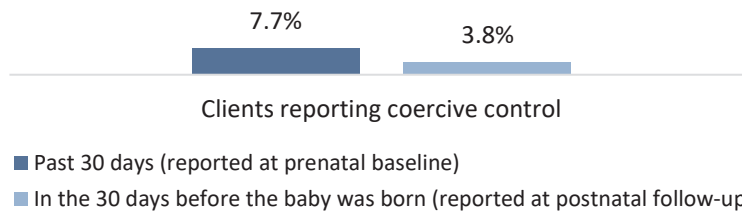


α--No test of statistical association could be computed for coercive control in the past 6 months at postnatal follow-up because one of the cell values was 0.

COERCIVE CONTROL IN THE PAST 30 DAYS

In the past 30 days at prenatal baseline 7.7% of clients reported coercive control and in the 30 days before the baby was born, 3.8% reported coercive control occurred while they were pregnant (see Figure IV.D.7).

FIGURE IV.D.7. COERCIVE CONTROL BY A PARTNER IN THE 30 DAYS BEFORE PRENATAL BASELINE AND THE 30 DAYS BEFORE THE BABY WAS BORN (N = 26)



Physical Abuse

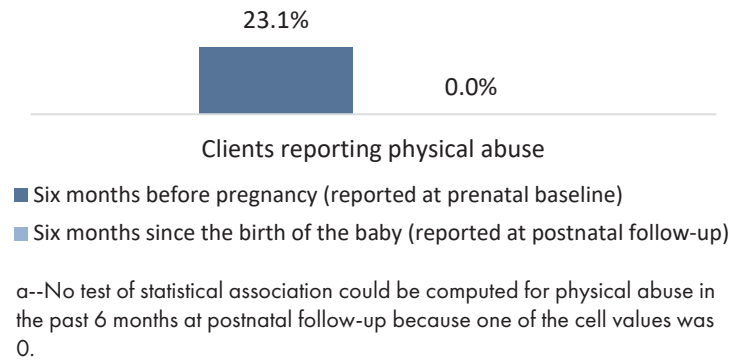
PHYSICAL ABUSE IN THE PAST 6 MONTHS

About 23% of women reported that a partner physically abused them (e.g., pushing, shoving, kicking, beating up, strangling, burning, attacking with a weapon) in the 6 months before they became pregnant (see Figure IV.D.8). In the past 6 months at postnatal follow-up, none of the clients reported physical abuse by a partner.

“They were always good to me and listened, they were very helpful with everything I was going through, and helped me get baby items.”

KY-MOMS MATR FOLLOW-UP CLIENT

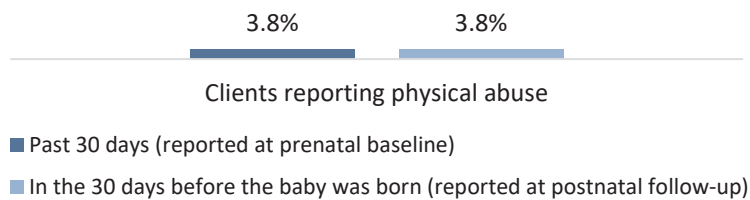
FIGURE IV.D.8. PHYSICAL ABUSE IN THE 6 MONTHS BEFORE PREGNANCY AND THE PAST 6 MONTHS AT POSTNATAL FOLLOW-UP (N = 26)



PHYSICAL ABUSE IN THE PAST 30 DAYS

One client (3.8%) in the past 30 days at prenatal baseline and in the 30 days before the birth of the baby reported a partner physically abused them (see Figure IV.D.9).

FIGURE IV.D.9. PHYSICAL ABUSE IN THE 30 DAYS BEFORE PRENATAL BASELINE AND THE 30 DAYS BEFORE THE BABY WAS BORN (N = 26)

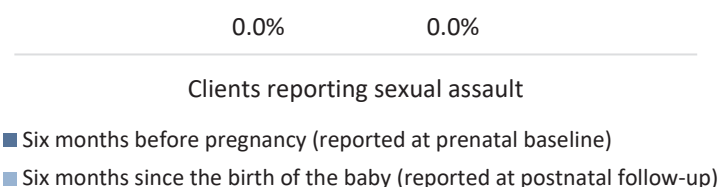


Sexual Assault

SEXUAL ASSAULT IN THE PAST 6 MONTHS

None of the clients reported at prenatal baseline that they had been sexually assaulted by a partner (e.g., partner made them do sexually degrading things, caused them to have sex because they were afraid of what would happen if they didn't, made the client have sex by threatening to harm them or someone close to them, or physically forcing them to have sex) in the 6 months before pregnancy. In the past 6 months at postnatal follow-up, none of the clients indicated they had been sexually assaulted by a partner (see Figure IV.D.10).

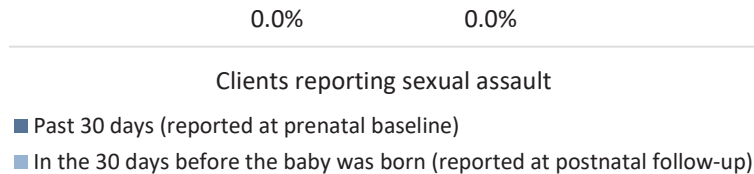
FIGURE IV.D.10. PARTNER SEXUALLY ASSAULTED CLIENT IN THE 6 MONTHS BEFORE PREGNANCY AND THE 6 MONTHS BEFORE POSTNATAL FOLLOW-UP (N = 26)



SEXUAL ASSAULT IN THE PAST 30 DAYS

None of the clients reported being a victim of sexual assault by a partner in the past 30 days at prenatal baseline or in the 30 days before the baby was born.

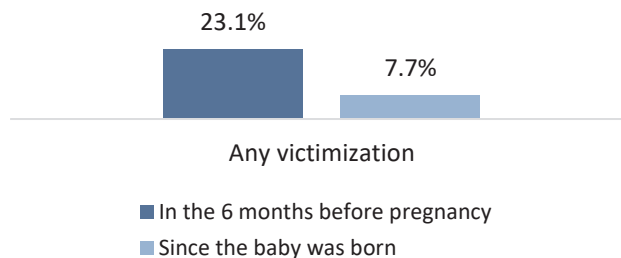
FIGURE IV.D.11. PARTNER SEXUALLY ASSAULTED CLIENT IN THE 30 DAYS BEFORE PREGNANCY AND THE 30 DAYS BEFORE THE BABY WAS BORN (N = 26)



Any Victimization Experiences

Clients were asked about situations in which the client may have been the victim of a crime, harmed by someone else, or made to feel unsafe by someone in the past 6 months at baseline and follow-up. Because relatively small percentages of clients reported each type of criminal victimization experience in the 6-month periods, the items were collapsed. The percent of clients who reported experiencing any criminal victimization (i.e., any harassment or any assault) in the past 6 months decreased (but not significantly) from 23.1% the 6 months before pregnancy to 7.7% the past 6 months at follow-up (see Figure IV.D.12).

FIGURE IV.D.12. PERCENT OF CLIENTS WHO EXPERIENCED CRIMINAL VICTIMIZATION (N = 26)



Summary

Clients’ experiences of several forms of partner violence were examined from prenatal baseline to postnatal follow-up. About 42% of KY-Moms MATR clients reported experiencing some type of partner abuse in the 6 months before pregnancy. At postnatal follow-up, 3.8% of clients reported experiencing some type of abuse in the past 6 months since the baby was born, which was a significant decrease. Less than 10% of KY-Moms MATR clients (7.7%) in the past 30 days at prenatal baseline and in the 30 days before the baby was born clients reported experiencing any type of abuse. The number of clients reporting psychological abuse decreased significantly from before pregnancy to the past 6 months at postnatal follow-up. None of the clients reported experiencing a sexual assault by a partner or other type of perpetrator at baseline or follow-up. The number of clients who reported experiencing any criminal victimization decreased, but not significantly, from the six months before pregnancy (23.1%) to the past 6 months at follow-up (7.7%).

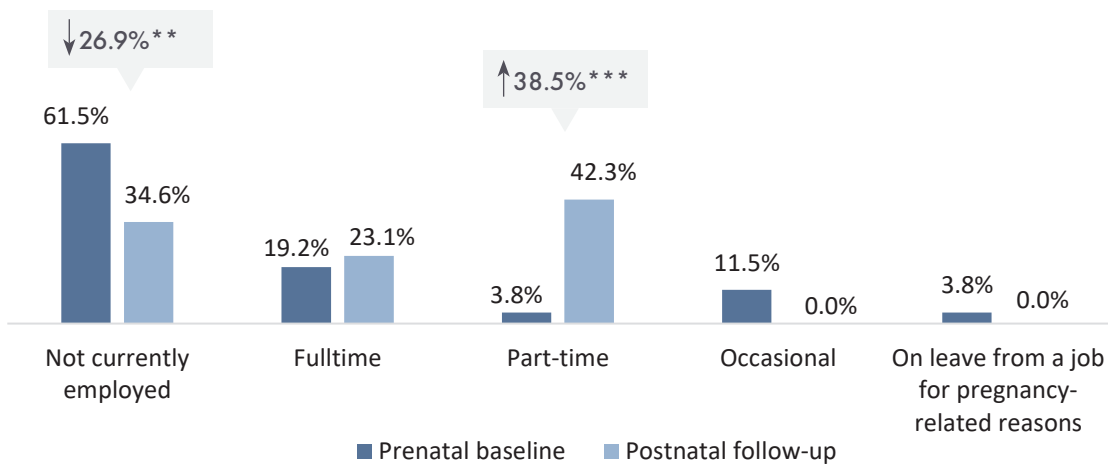
E. Economic and Living Circumstances, Economic Hardship, and Criminal Justice Involvement

This subsection examines employment, economic hardship, living situation, and criminal justice involvement in the follow-up sample (n = 26) from baseline to follow-up. Specifically, this section examines: (1) current employment status, (2) hourly wage, among employed individuals, (3) public assistance, (4) economic hardship, (5) living situation, and (6) criminal justice involvement. Past-6-month and past-30-day measures are examined separately where applicable.

Current Employment Status

Clients' current employment status changed significantly from prenatal baseline to postnatal follow-up. Over one-third clients (38.3%) were employed in some capacity (full-time, part-time, occasional, or on leave) at prenatal baseline and 65.4% of clients at follow-up (not represented in a figure). Less than two-thirds of clients (61.5%) at prenatal baseline and 34.6% of clients at postnatal follow-up reported being unemployed, which was a significant decrease of 26.9% (see Figure IV.E.1).

FIGURE IV.E.1. CURRENT EMPLOYMENT STATUS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 26)^a



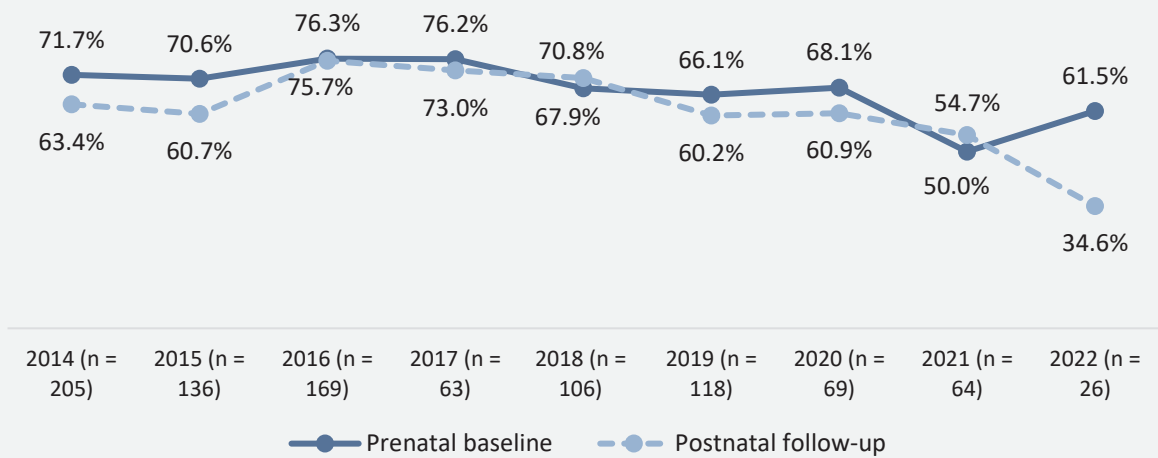
^a – Significance tested with the Stuart-Maxwell Test for Marginal Homogeneity, p < .01.

p < .05, *p < .01.

Trends in Current Unemployment Status at Prenatal Baseline and Postnatal Follow-up

The majority of women at both prenatal baseline and postnatal follow-up were unemployed from 2014 through 2021 report years. Furthermore, from 2016 to 2018, the percent of clients who reported being unemployed changed only minimally from baseline to follow-up. In fact, in 2018, the percent of clients reporting being unemployed at follow-up was slightly greater than the percent of clients reporting being unemployed at baseline. In 2019 and 2020, the percent of clients who reported being unemployed was slightly greater at baseline compared to follow-up. In 2022, however, 61.5% clients were unemployed at baseline and 34.6% of clients were unemployed at follow-up.

FIGURE IV.E.2. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING CURRENT UNEMPLOYMENT STATUS AT PRENATAL BASELINE, REPORT YEARS 2014-2022

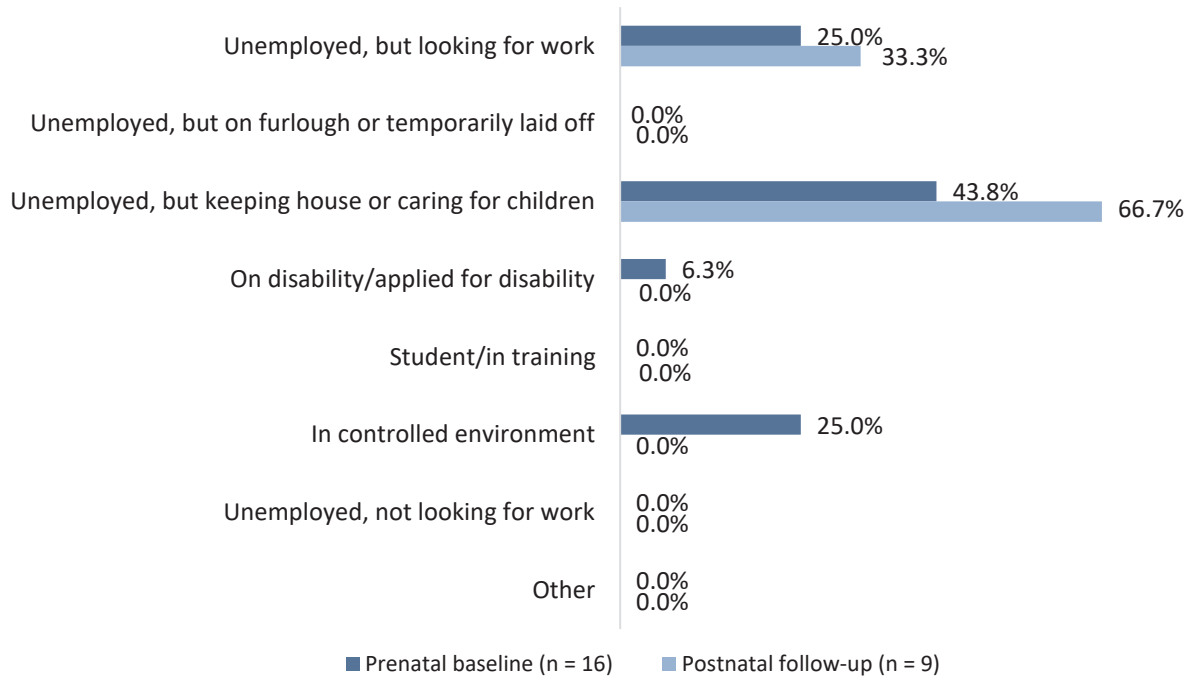


For clients who were employed (full- or part-time) at each point, the average hourly wage clients reported was \$8.27 at prenatal baseline (n = 6) and \$10.77 at postnatal follow-up (n = 16⁷⁶; not depicted in a figure). About 14% of clients who were employed at baseline (including clients on leave for pregnancy-related reasons) and 5.9% of the clients who were employed at follow-up reported they were also in school or receiving additional vocational training (not depicted in a figure).

Of the clients who reported they were not currently employed at each point, the majority of clients (66.7%) who were unemployed at follow-up reported they were keeping house or caring for children full-time compared to 43.8% of clients at prenatal baseline (see Figure IV.E.3). At baseline, 25.0% of clients reported they were looking for work and, at follow-up, 33.3% of clients reported looking for work.

⁷⁶One client reported declined to report their hourly wage at follow-up.

FIGURE IV.E.3. REASON FOR UNEMPLOYMENT AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP



The majority of clients at prenatal baseline (76.9%) and postnatal follow-up (84.6%) expected to be employed in the next 12 months.

Public Assistance

Clients were asked at postnatal follow-up what type of public assistance they received during their pregnancy.

The vast majority of clients (84.6%) reported receiving public assistance while they were pregnant and involved in KY-Moms MATR and 92.3% reported currently receiving public assistance at postnatal follow-up (not depicted in a figure).

The majority of clients who received public assistance reported receiving Women, Infants and Children (WIC; 100.0% during pregnancy and 70.8% after the birth of their baby) and Supplement Nutrition Assistance Program (SNAP; 77.3% during pregnancy and 62.5% after the birth of their baby).

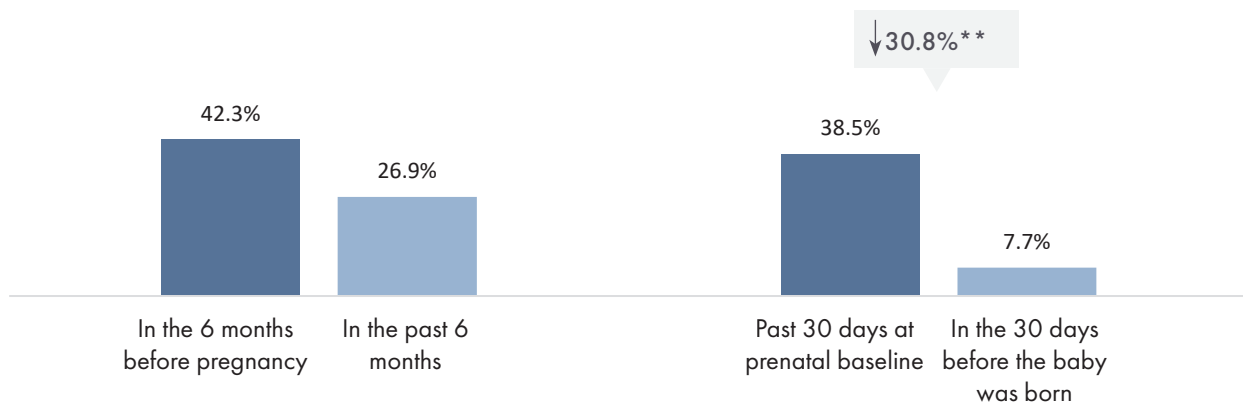
Economic Hardship

Economic hardship may be a better indicator of the actual day-to-day stressors clients face than a measure of income. Therefore, the prenatal baseline and postnatal follow-up surveys included several questions about clients’ difficulty meeting expenses for basic needs and food insecurity.⁷⁷ 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 receiving medical care for financial reasons.

⁷⁷ SIPP; She, P., & Livermore, G. (2007). Material hardship, poverty, and disability among working-age adults. *Social Science Quarterly*, 88(4), 970-989.

In the 6 months before becoming pregnant, 42.3% of clients reported they had difficulty meeting at least one of the basic living needs for financial reasons and 26.9% of clients reported difficulty meeting basic living needs in the past 6 months at postnatal follow-up (since the baby was born; see Figure IV.E.4). Over one-third of clients (38.5%) reported having difficulty meeting basic living needs in the past 30 days at prenatal baseline. In the 30 days before the baby was born, 7.7% of clients had difficulty meeting basic needs such as food, shelter or utilities (a significant decrease of 30.8%).

FIGURE IV.E.4. DIFFICULTY IN MEETING BASIC LIVING NEEDS FOR FINANCIAL REASONS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 26)



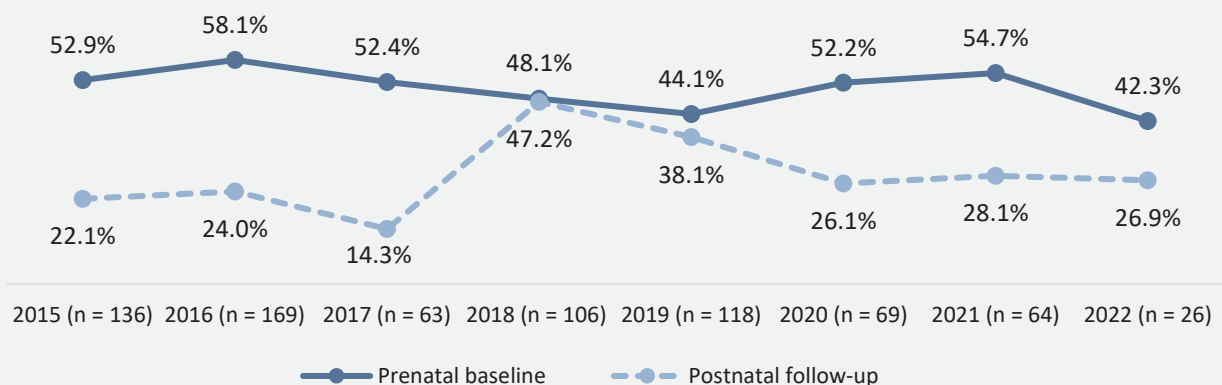
** p < .05.

In the past 6 months at follow-up, 15.4% of KY-Moms MATR clients reported having difficulty paying rent/mortgage, 19.2% of clients reported they were unable to pay their gas/electric bill, 19.2% had telephone service disconnected, and 3.8% said there was a time when there was not enough food to eat.

Trends in Difficulty Meeting Basic Living Needs at Prenatal Baseline and Postnatal Follow-up

The percent of clients who reported having difficulty meeting basic living needs in the six months before pregnancy remained between 42% and 58% over the past 8 years at baseline. In 2018 and 2019, the percent of clients who reported difficulty meeting basic living needs at follow-up did not decrease significantly from baseline to follow-up.

FIGURE IV.E.5. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING DIFFICULTY MEETING BASIC HOUSEHOLD NEEDS IN THE 6 MONTHS BEFORE PREGNANCY AT PRENATAL BASELINE AND IN THE PAST 6 MONTHS AT POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2022



Close to 19% of clients reported their household had difficulty meeting health care needs (such as not going to the doctor, not having a prescription filled, or not going to the dentist because of financial reasons) in the 6 months before pregnancy (see Figure IV.E.6). At follow-up, 11.5% of clients reported they had difficulty meeting health care needs in the 6 months since the baby was born.

In the past 30 days at prenatal baseline, 15.4% of clients reported their household had difficulty meeting health care needs because of financial reasons. In the 30 days before the baby was born, 7.7% of clients reported difficulty meeting health care needs.

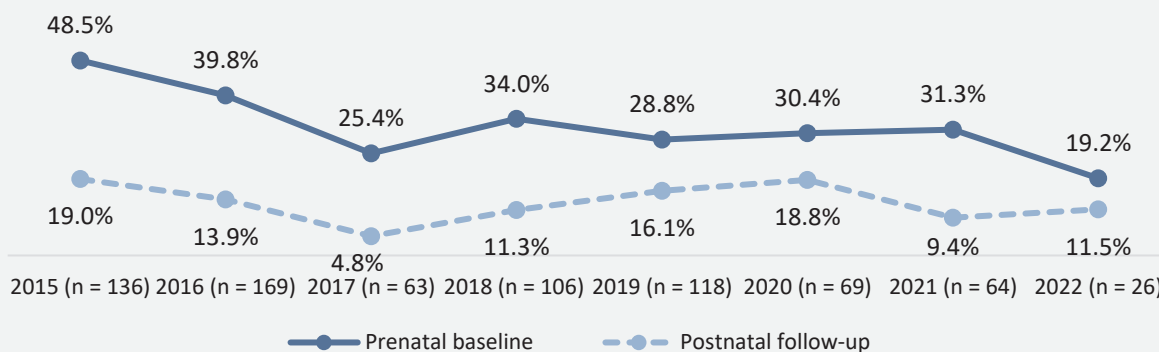
FIGURE IV.E.6. DIFFICULTY IN MEETING HEALTH CARE NEEDS FOR FINANCIAL REASONS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 26)



Trends in Difficulty Meeting Basic Health Care Needs at Prenatal Baseline and Postnatal Follow-up

Overall, at baseline, the percent of clients reporting that they had difficulty meeting health care needs steadily declined from 2015 to 2017. In 2015, almost half of clients reported having difficulty meeting health care needs in the 6 months before pregnancy and in 2018, one-fourth of clients (25.4%). Since 2018 the percent of clients who have reported having difficulty meeting basic health care needs has fluctuated from a high of 34.0% in 2018 to a low of 19.2% in 2022. At postnatal follow-up, on average, less than one-fifth of clients reported struggling to meet health care needs. In 2022, 11.5% of clients reported difficulty meeting basic health care needs at postnatal follow-up.

FIGURE IV.E.7. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING DIFFICULTY MEETING HEALTH CARE NEEDS IN THE 6 MONTHS BEFORE PREGNANCY AT PRENATAL BASELINE AND IN THE PAST 6 MONTHS POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2022



Living Situation

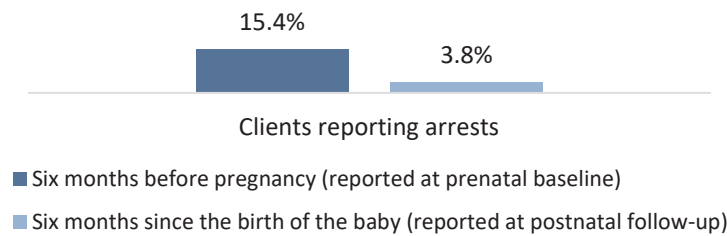
None of the KY-Moms MATR clients reporting being homeless at prenatal baseline or at postnatal follow-up (not depicted in a figure). The majority of clients at prenatal baseline (76.9%) and postnatal follow-up (92.3%) reported living in a private residence (i.e., their own or someone else’s home or apartment) before the birth of their baby.

Criminal Justice Involvement

ARRESTS

Clients were asked about their arrests in the 6 months before pregnancy (at baseline) and since the baby was born (at postnatal follow-up). In the 6 months before pregnancy, 15.4% of clients reported an arrest (see Figure IV.E.8). Among those clients who reported being arrested in the 6 months before pregnancy (n = 4), the average number of times clients reported being arrested was 1.5 (not depicted in a figure). At follow-up, this percent had decreased, but not significantly, to 3.8% (one client).

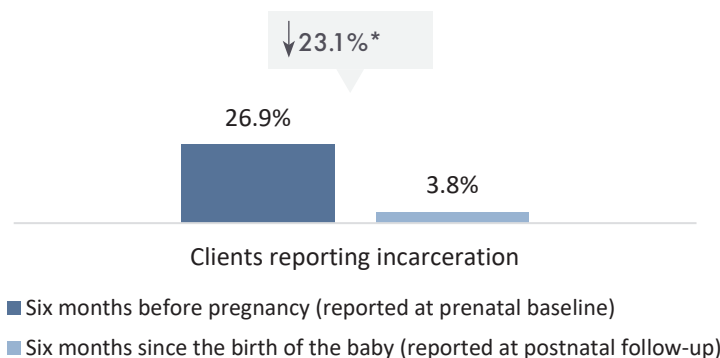
FIGURE IV.E.8. CLIENTS REPORTING ARRESTS IN THE 6 MONTHS BEFORE PREGNANCY AND THE 6 MONTHS BEFORE POSTNATAL FOLLOW-UP (N = 26)



INCARCERATION

At baseline, 26.9% of clients reported spending at least one night in jail or prison in the 6 months before pregnancy (Figure IV.E.9). Among those clients who reported being incarcerated in the 6 months before pregnancy (n = 7), the average number of nights incarcerated was 51.6 (not depicted in a figure). At follow-up, only one client (3.8%) reported spending at least one night in jail or prison since the baby was born, which was a significant decrease of 23.1%.

FIGURE IV.E.9. CLIENTS REPORTING BEING INCARCERATED IN THE 6 MONTHS BEFORE PREGNANCY AND THE 6 MONTHS BEFORE POSTNATAL FOLLOW-UP (N = 26)

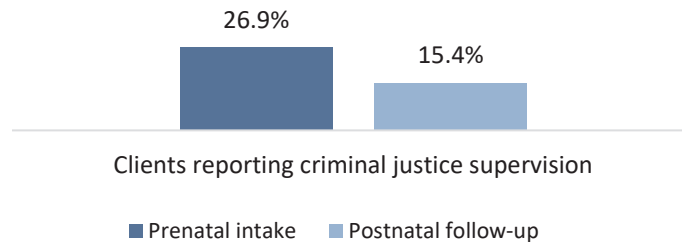


*p < .10.

CRIMINAL JUSTICE SUPERVISION

At prenatal baseline, 26.9% of clients reported they were currently under criminal justice system supervision (e.g., probation, or parole; Figure IV.E.11). At follow-up, 15.4% were currently under criminal justice system supervision.

FIGURE IV.E.11. CLIENTS REPORTING BEING CURRENTLY UNDER SUPERVISION BY THE CRIMINAL JUSTICE SYSTEM AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 26)



Summary

The percent of clients who reported full-time employment did not change significantly at postnatal follow-up, but the number of clients who reported being unemployed decreased significantly to 34.6% at follow-up. In addition, of the clients who reported they were not currently employed at each point, the majority of clients (66.7%) who were unemployed at follow-up reported they were keeping house or caring for children full-time compared to 43.8% of clients at prenatal baseline. The majority of clients were able to receive public assistance (mainly SNAP and WIC) while pregnant and in KY-Moms MATR and after the birth of the baby. The percent of clients who reported having difficulty meeting basic living needs for financial reasons decreased significantly in the 30 days before the baby was born compared to the past 30 days at prenatal baseline. There were also decreases in the percent of clients who reported being arrested, spending at least one night in jail or prison, and criminal justice supervision from the 6 months before pregnancy at prenatal baseline to the past 6 months at postnatal follow-up, but those decreases were not significant.

F. Physical Health

This subsection describes physical health problems reported at prenatal baseline and change in physical health status of clients from prenatal baseline to postnatal follow-up (n = 26) including: (1) chronic health problems at baseline, (2) current health, (3) chronic pain, and (4) perceptions of poor physical and mental health.

Chronic Health Problems Reported at Prenatal Baseline

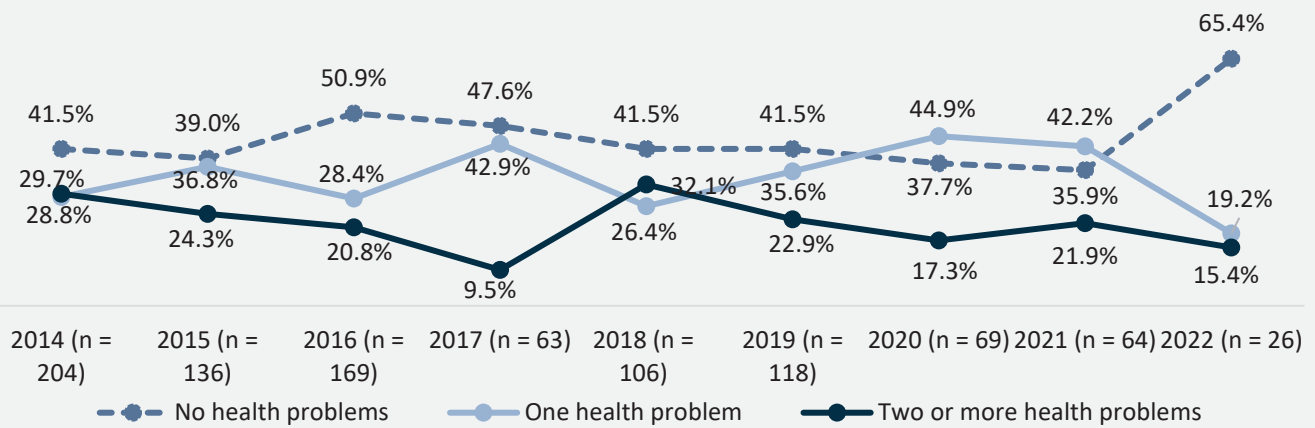
At prenatal baseline, 65.4% of postnatal follow-up clients reported no health problems, 19.2% reported having one chronic health problem, and 15.4% of clients had two or more chronic health problems.

Among the clients who reported at least one physical health problem at prenatal baseline (n = 9), 55.6% of KY-Moms MATR clients reported Hepatitis C, 22.2% reported a sexually transmitted infection (STI), 22.2% of clients reported asthma, and 11.1% reported dental problems (not included in the figure).

Trends in Chronic Health Problems at Prenatal Baseline

In general, for each year, more clients reported having no chronic health problems at prenatal baseline, with the exception of 2020 and 2021. In 2016, for example, a little over half of clients (50.9%) reported they had no chronic health problems. The percent of clients who reported one health problem and multiple health problems were similar over the first three years and in 2018 and in 2022. In 2020 and 2021, more clients reported having one chronic health problem compared to no health problems or multiple health problems. In 2022, almost two-thirds of clients reported they had no chronic health problems.

FIGURE IV.F.1. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING CHRONIC HEALTH PROBLEMS AT PRENATAL BASELINE, REPORT YEARS 2014-2022⁷⁸



At prenatal baseline, 11.5% reported they had major health problems that were not currently being treated. Of those clients who indicated they had major health problems that were not being treated (n = 3), clients mentioned various responses such as Hepatitis C and gallstones. At postnatal follow-up, 2 clients reported major health problems that were not currently being treated. Of those clients, they mentioned asthma, insomnia, and gallstones.

They're involved and can answer anything. They care and are interested in making sure I'm okay and see if I need anything.

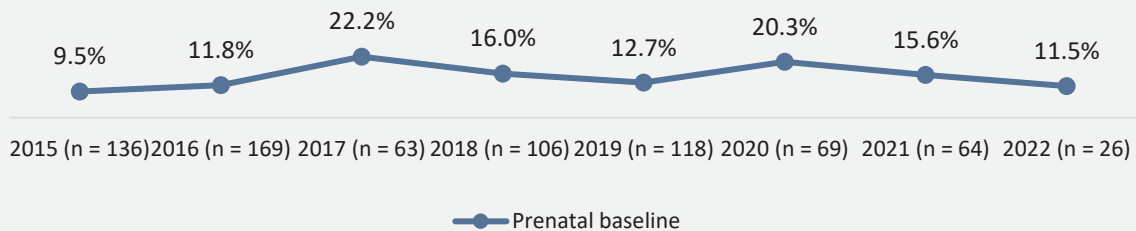
KY-MOMS MATR FOLLOW-UP CLIENT

⁷⁸ The small sample size in 2022 report year may be affecting the number of chronic health problems.

Trends in Health Problems Not Being Treated at Prenatal Baseline

Less than one-quarter of clients each year reported having major health problems that were not currently being treated at baseline. In 2015, 9.5% of clients reported having a health problem that was not being treated and the highest percentage of clients reporting a major health problem that was not being treated was found in 2017 (22.2%). After 2017, the number of clients who reported having major health problems that were not currently being treated decreased to 12.7% in 2019 and increased to 20.3% in 2020. In 2022, the percent of clients who reported having a major health problem that was not being treated was 11.5%.

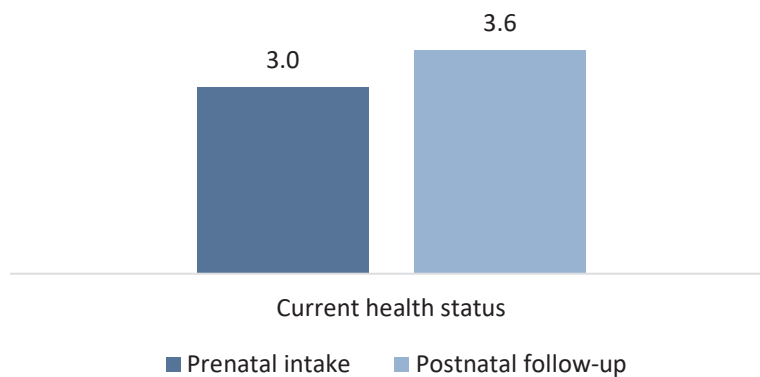
FIGURE IV.F.2. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING HEALTH PROBLEMS THAT WERE NOT BEING TREATED AT PRENATAL BASELINE, REPORT YEARS 2015-2022



Current Health Status

At prenatal baseline, clients reported their current health as an average of 3.0 on a scale of 1 – 5, with 1 being “poor” and 5 being “excellent.” At postnatal follow-up, clients reported that their current health was an average of 3.6, which was a significant increase compared to prenatal baseline (see Figure IV.F.3).

FIGURE IV.F.3. AVERAGE OVERALL HEALTH RATING FROM PRENATAL BASELINE TO POSTNATAL FOLLOW-UP (N = 26)***

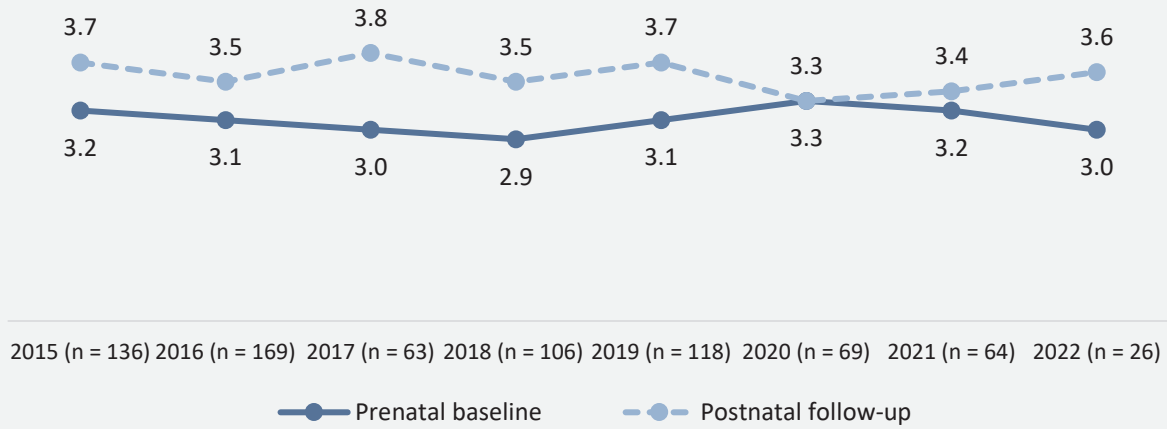


***p < .01.

Trends in Current Health Rating at Prenatal Baseline and Postnatal Follow-up

The average health rating was relatively stable at both baseline and postnatal follow-up. Overall, clients' average rating of their health was around 3 at baseline. At follow-up, clients' average health rating was generally 3.5 or higher.

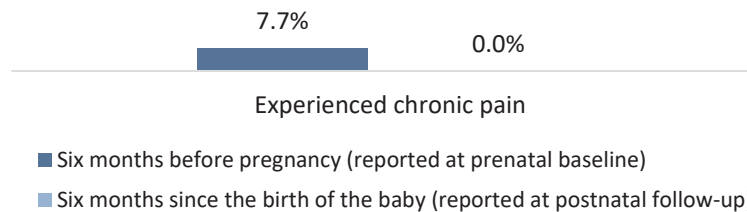
FIGURE IV.F.4. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING AVERAGE HEALTH RATING AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2022



Chronic Pain

At prenatal baseline, 7.7% of women reported experiencing chronic pain in the 6 months before pregnancy and, of those clients (n = 2), they reported experiencing pain an average of 15.0 days in the 30 days before pregnancy. One client reported that this chronic pain continued into their pregnancy with that client reporting experiencing 30 days of chronic pain in the past 30 days at prenatal baseline. None of the clients reported experiencing chronic pain in the past 6 months at postnatal follow-up.

FIGURE IV.F.5. CHRONIC PAIN IN THE 6 MONTHS BEFORE PREGNANCY AND THE 6 MONTHS BEFORE POSTNATAL FOLLOW-UP (N = 26)

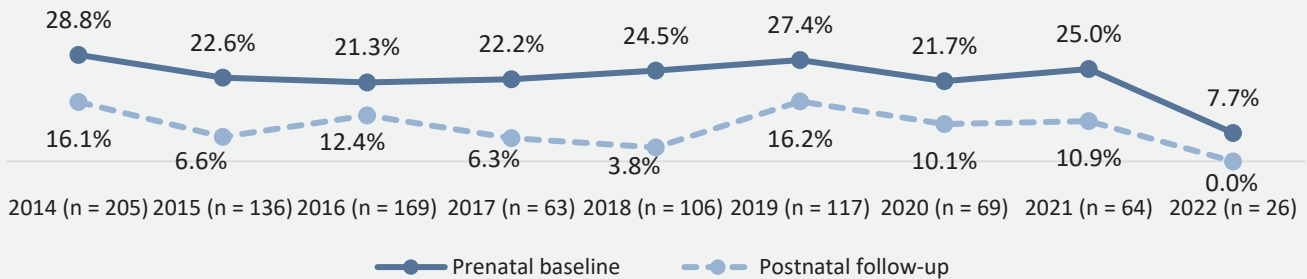


a--No test of statistical association could be computed for chronic pain in the past 6 months at postnatal follow-up because one of the cell values was 0.

Trends in Past-6-month Chronic Pain at Prenatal Baseline and Postnatal Follow-up

Around one-quarter of clients each year reported having chronic pain at baseline. In 2014, 28.8% of clients at baseline and 16.1% of clients at follow-up reported having chronic pain. In 2021, 25.0% of clients reported experiencing chronic pain at baseline and 10.9% of clients reported chronic pain at postnatal follow-up. The 2022 report, with its smaller sample size, showed the largest divergence from the other years, with only 7.7% reporting chronic pain at baseline and 0.0% at follow-up.

FIGURE IV.F.6. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING PAST-6-MONTH CHRONIC PAIN AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2014-2022



Perceptions of Poor Physical or Mental Health Limiting Activities

Clients were asked how many days in the past 30 days their physical and mental health were not good at prenatal baseline and postnatal follow-up (see Figure IV.F.7). Clients reported an average of 3.3 days out of the past 30 days their physical health was not good at prenatal baseline and 3.2 days at follow-up with 2 clients (7.7%) at each point reporting 14 or more days of poor physical health which is considered frequent physical distress. In comparison, America’s Health Rankings indicate that 9.8% of Kentucky women reported reporting frequent physical distress.⁷⁹ Fewer KY-Moms MATR clients reported frequent physical distress compared to other women surveyed in Kentucky.

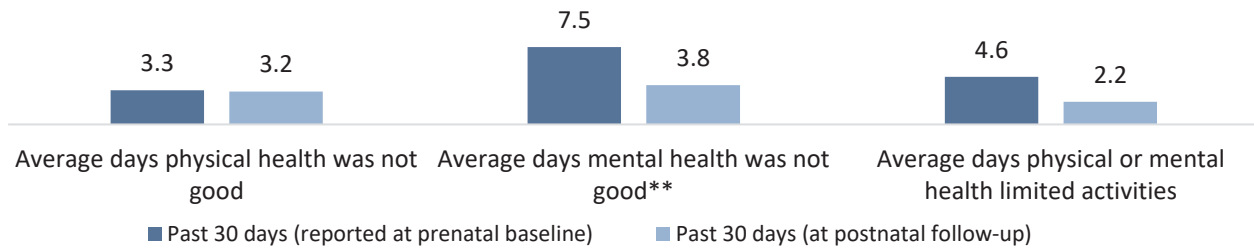
The average number of days clients reported their mental health was not good decreased significantly from 7.5 days at prenatal baseline to 3.8 days at postnatal follow-up. Specifically, 19.2% of clients reported 14 or more days of mental distress at prenatal baseline and 11.5% of clients reported frequent mental distress in the past 30 days at follow-up. America’s Health Rankings indicate that in the past 30 days 24.8% of Kentucky women reported frequent mental distress.⁸⁰ This indicates fewer KY-Moms MATR clients reported frequent mental distress at prenatal baseline and postnatal follow-up compared to women surveyed in Kentucky.

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 slightly, but not significantly, from 4.6 days at baseline to 2.2 days at follow-up.

⁷⁹ America’s Health Rankings: Health of Women and Children. Retrieved from https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/physical_distress_women/state/KY.

⁸⁰ Retrieved from https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/mental_distress_women/state/KY.

FIGURE IV.F.7. PERCEPTIONS OF POOR PHYSICAL HEALTH AND MENTAL HEALTH LIMITING ACTIVITIES IN THE PAST 30 DAYS AT BASELINE AND FOLLOW-UP (N = 26)



**p < .05.

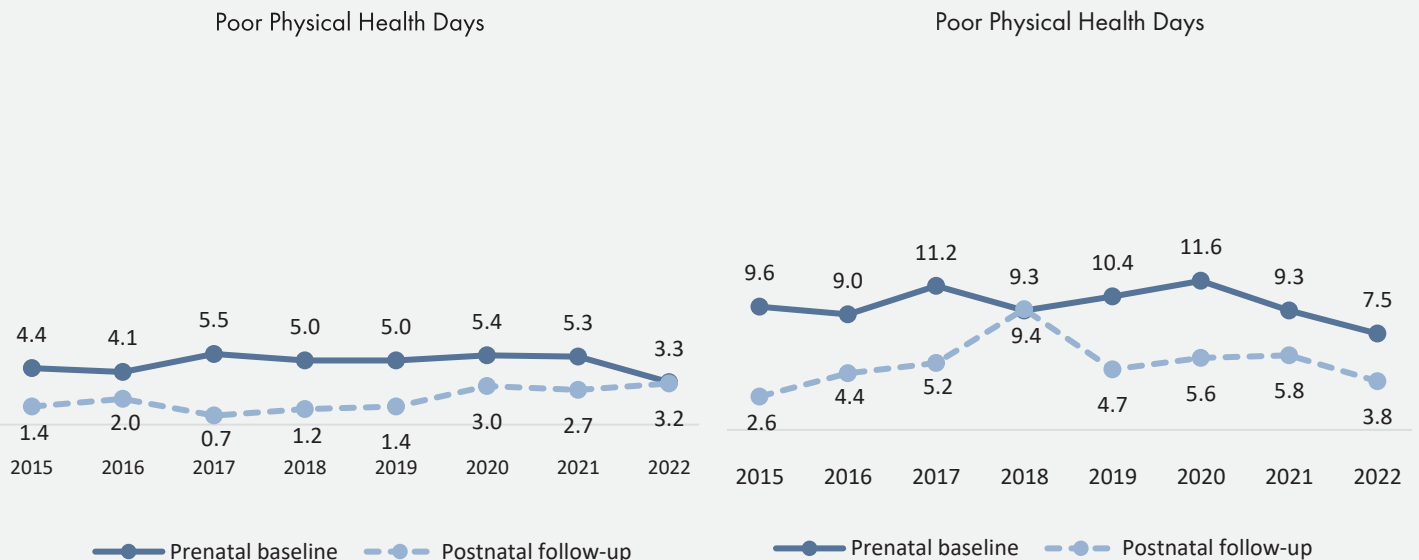
Significance tested with paired sample t-test.

Trends in Average Number of Days Physical and Mental Health Were Not Good at Prenatal Baseline and Postnatal Follow-up

At baseline and follow-up, clients are asked how many days in the past 30 days their physical health had not been good. Each year, the average number of days clients report their physical health was not good has significantly decreased from baseline to follow-up. In 2022, clients reported an average of 3.3 days their physical health was not good compared to 3.2 days at follow-up.

At baseline and follow-up, clients are also asked how many days in the past 30 days their mental health had not been good. While the average number of days of their mental health was not good at baseline has been relatively steady, the average number of days at follow-up has increased from 2015 to 2018, then decreased in 2019. In 2022, the average number of days their mental health was not good was 3.8.

FIGURE IV.F.8. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING AVERAGE NUMBER OF DAYS IN THE PAST 30 DAYS PHYSICAL AND MENTAL HEALTH WERE NOT GOOD AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2022



Summary

At prenatal baseline, around 35% of clients reported having at least one chronic health problem such as Hepatitis C, asthma, other STIs, and dental problems. About 12% of clients at prenatal baseline reported they had health problems that were not currently being treated. Clients' overall current health status rating improved significantly from 3.0 at prenatal baseline to 3.6 on a scale of 1 – 5 at postnatal follow-up. Less than 10% of clients in the 6 months before pregnancy and none of the clients in the past 6 months at postnatal follow-up reported experiencing chronic pain. Clients also reported a significant decrease in the average number of days their mental health was not good.

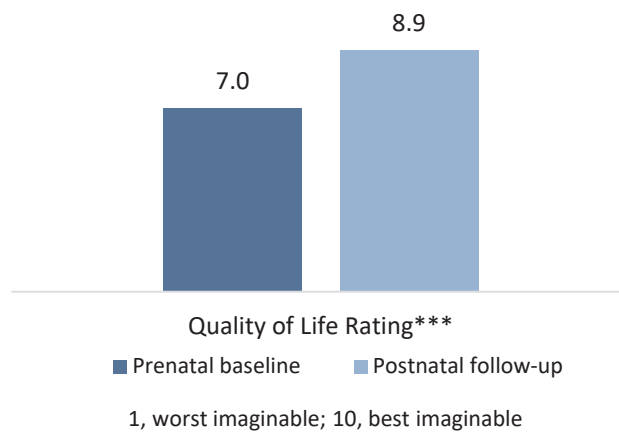
G. Quality of Life and Emotional Support

This subsection examines changes in stress, quality of life, and emotional support for the follow-up sample ($n = 26$) including the following factors: (1) quality of life ratings, (2) the number of people clients said they could count on for emotional support, and (3) their satisfaction with the level of emotional support from others.

Quality of Life

At both prenatal baseline and postnatal follow-up, clients were asked to rate their current quality of life using ratings ranging from 1 = 'Worst imaginable' to 10 = 'Best imaginable'. Clients rated their quality of life before entering the KY-Moms MATR program as a 7.0, on average (see Figure IV.G.1). The average rating of quality of life increased significantly to 8.9 at postnatal follow-up.

FIGURE IV.G.1. PERCEPTION OF QUALITY OF LIFE AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP ($n = 26$)

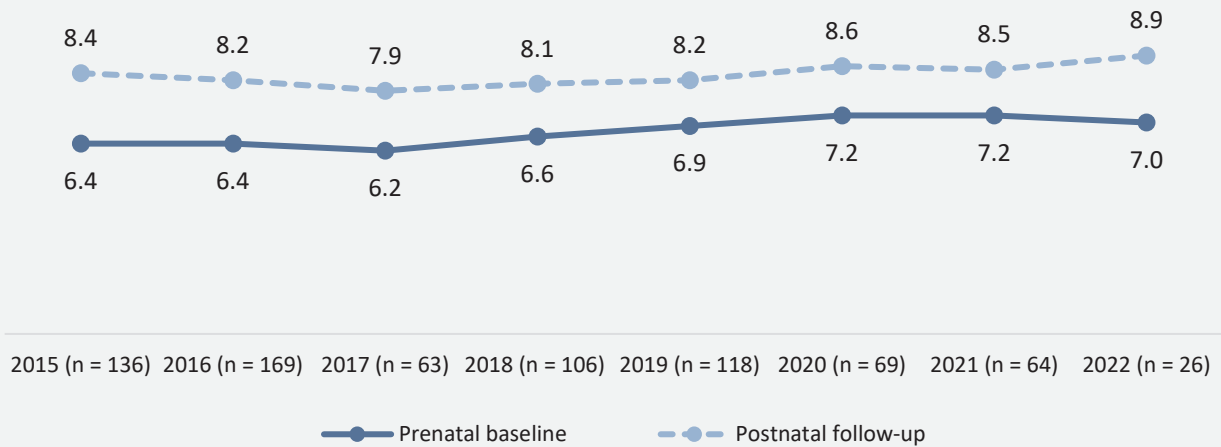


*** $p < .01$.

Trends in Quality of Life at Prenatal Baseline and Postnatal Follow-up

KY-Moms MATR clients are asked to rank their overall quality of life on a scale from 1 (worst imaginable) to 10 (best imaginable) at both baseline and follow-up. At baseline, clients have rated their quality of life, on average, from 6.2 to 7.2. At postnatal follow-up, that rating was an average of around 8 or higher.

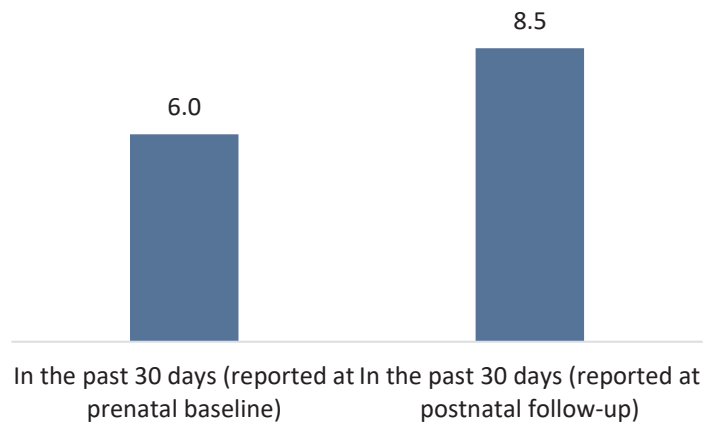
FIGURE IV.G.2. CLIENTS IN THE FOLLOW-UP SAMPLE RANKING THEIR QUALITY OF LIFE AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2022



Emotional Support

In the past 30 days at baseline, clients reported they could count on an average of 6.0 people for emotional support. In the past 30 days at postnatal follow-up, clients reported that they could count on an average of 8.5 people for emotional support, which was not a significant increase (see Figure IV.G.3).

FIGURE IV.G.3. AVERAGE NUMBER OF PEOPLE CLIENT COULD COUNT ON FOR EMOTIONAL SUPPORT AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 26)**

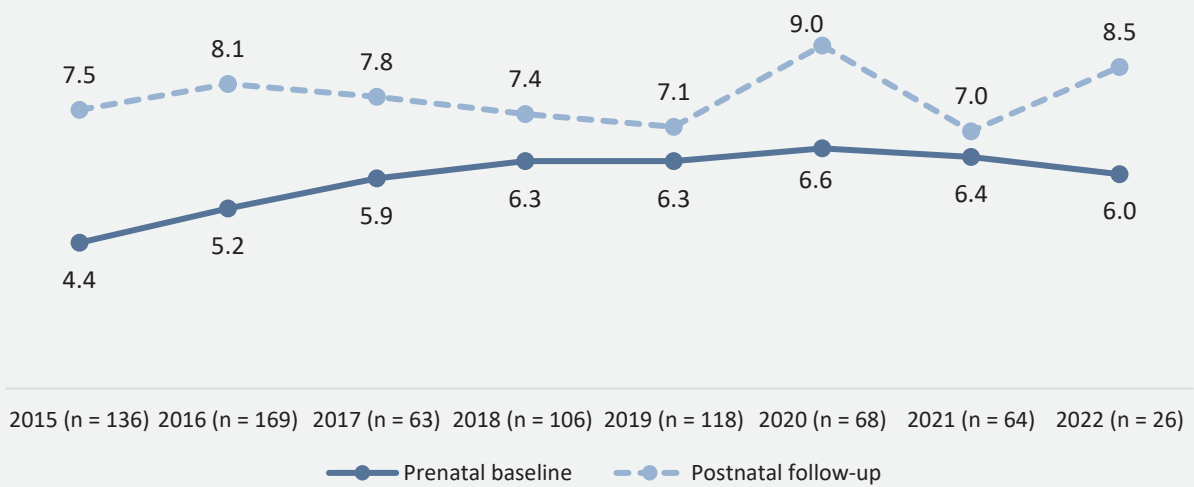


**p < .05.

Trends in the Average Number of People Clients Can Count on for Emotional Support in the Past 30 Days at Prenatal Baseline and Postnatal Follow-up

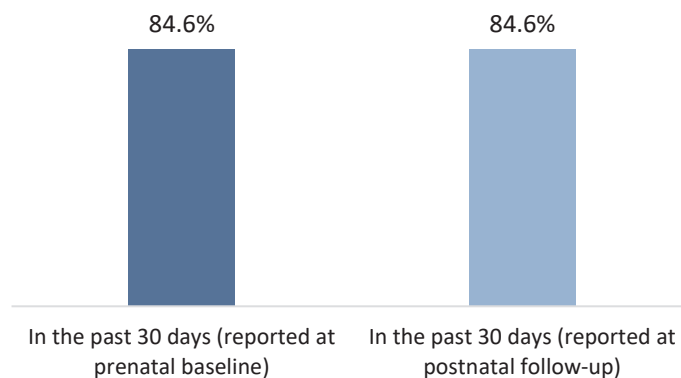
The average number of people clients reported they could count on for emotional support in the past 30 days appears to have steadily increased over time. In 2015, clients reported at baseline that they could count on 4.4 people with increases in the averages until 2020 (6.6 people). In 2022 clients reported an average of 6.0 people they could count on for emotional support. At follow-up, the average number of people clients could count on for emotional support decreased from 2016 to 2019, but increased in 2020 to a high of 9.0.

FIGURE IV.G.4. CLIENTS IN THE FOLLOW-UP SAMPLE ON THE AVERAGE NUMBER OF PEOPLE CLIENTS CAN COUNT ON FOR EMOTIONAL SUPPORT IN THE PAST 30 DAYS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2022



The majority of clients were satisfied with the level of emotional support they received from others in the past 30 days. About 85% of clients at prenatal baseline and postnatal follow-up reported they were extremely or fairly satisfied with the level of emotional support they received from others (see Figure IV.G.5).

FIGURE IV.G.5. FAIRLY/EXTREMELY SATISFIED WITH THE OVERALL LEVEL OF SUPPORT IN LIFE (N = 26)



Summary

Clients reported a significantly greater quality of life at postnatal follow-up compared to prenatal baseline. Compared to baseline, clients reported a significantly more people they could count on for emotional support at postnatal follow-up. Almost 85% of KY-Moms MATR clients at postnatal follow-up were satisfied with the level of support they received from others.

H. Multidimensional Recovery Status

This subsection examines multidimensional recovery status from the period before becoming pregnant to postnatal follow-up (n = 26).

Recovery goes beyond relapse 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).”⁸¹ 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.⁸² In other words, recovery encompasses multiple dimensions of individuals’ lives and functioning. The multidimensional recovery measure uses items from the baseline and follow-up surveys to classify individuals who have all positive dimensions of recovery.

TABLE IV.H.1. COMPONENTS OF MULTIDIMENSIONAL RECOVERY STATUS

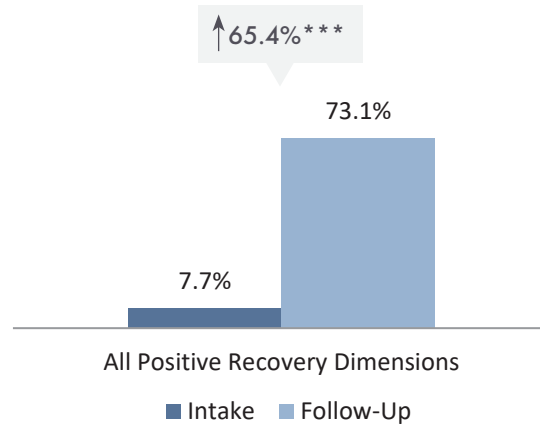
Indicator	Positive Recovery Dimensions	Negative Recovery Dimensions
Illicit drug use	No illicit drug use	Any Illicit drug use
Employment.....	Employed at least part-time or in school	Unemployed (not on disability, not going to school, not a caregiver)
Homelessness.....	No reported homelessness	Reported homelessness
Criminal Justice System Involvement ...	No arrest or incarceration	Any arrest or incarceration
Depression and/or anxiety	No depression or anxiety.	Depression or anxiety
Partner violence	No partner violence	Any partner violence
Overall health	Fair to excellent overall health	Poor overall health
Recovery support.....	Had at least one person she could count on for recovery support	Had no one she could count on for recovery support
Quality of life	Mid to high-level quality of life	Low-level quality of life

At prenatal baseline, 7.7% of clients were classified as having all positive dimensions of recovery in the 6 months before pregnancy (see Figure IV.H.1). At postnatal follow-up, 73.1% of clients were classified as all positive dimensions of recovery at follow-up, which was a significant increase of 65.4%.

⁸¹ 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.

⁸² 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 IV.H.1. MULTIDIMENSIONAL RECOVERY AT BASELINE AND FOLLOW-UP (N = 26)



***p < .01.

Table IV.H.2 presents the frequency of clients who reported each of the specific components of the multidimensional recovery measure at intake and follow-up. At intake, the positive factors with the lowest percent of individuals indicated were for not meeting study criteria for depression and/or anxiety and not reporting illicit drug use. At follow-up, the factors with the lowest percent of individuals reporting the positive dimensions of recovery were for not meeting study criteria for depression and/or anxiety, no illicit drug use, and usual employment was employed full-time or part-time in the past 6 months.

TABLE IV.H.2. PERCENT OF CLIENTS WITH SPECIFIC POSITIVE DIMENSIONS OF RECOVERY AT BASELINE AND POSTNATAL FOLLOW-UP (N = 26)

Factor	Baseline Yes	Follow-up Yes
Reported no illicit drug use in the past 6 months	26.9%	92.3%
Usual employment was employed full-time or part-time in the past 6 months (or unemployed because a student, retired, home caregiver, on disability).....	80.8%	92.3%
Reported no homelessness (or living in recovery center at follow-up).....	100.0%	100.0%
Reported not being arrested and/or incarcerated in the past 6 months	73.1%	96.2%
Did not meet study criteria for depression and/or generalized anxiety in the past 6 months.....	34.6%	84.6%
Reported no partner violence in the past 6 months	57.7%	96.2%
Self-rating of overall health in the past 6 months was fair, good, very good, or excellent	92.3%	100.0%
Reported having someone they could count on for recovery support	100.0%	100.0%
Reported a quality-of-life rating in the mid or higher range (rating of 5 or higher).....	92.3%	100.0%

Summary

An analysis of multidimensional recovery that takes into account illicit drug use, employment, homelessness, criminal justice system involvement, depression and/or anxiety, partner violence, overall health, recovery support, and quality of life was computed for clients at prenatal baseline and postnatal follow-up. Less than 10% of clients were classified as having all positive dimensions of recovery at baseline, whereas 73.1% were classified as having all positive dimensions at follow-up.

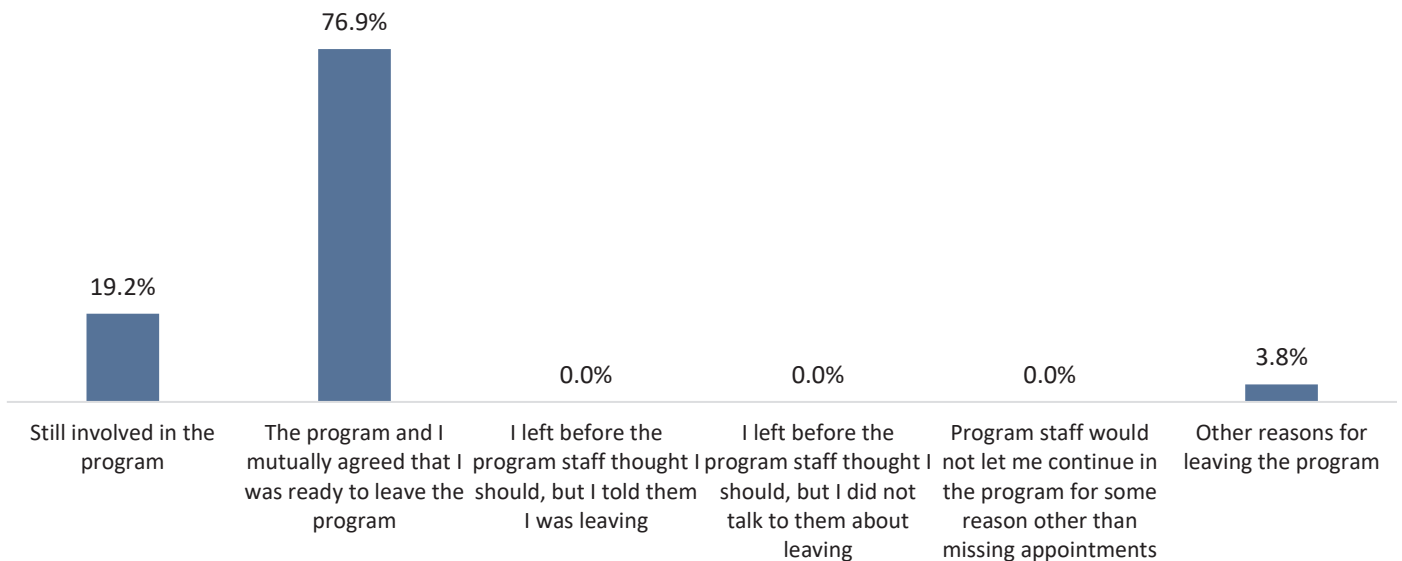
Part V. Client Experience with KY-Moms MATR Case Management

This section describes the experience of the KY-Moms MATR case management program assessed by clients who completed a postnatal follow-up (n = 26): (1) manner in which the client left the program, and (2) satisfaction with KY-Moms MATR case management.

Manner in Which the Client Left the Program

Clients reported they were involved in the KY-Moms MATR program an average of 6.7 months (a range of 2 to 15 months). About 19% of clients were still involved in the program at follow-up (see Figure V.1). The majority of clients (76.9%) reported that the program and the client mutually agreed that the client was ready to leave the program. None of the clients reported they left before the program staff thought they should, but told they staff they were leaving, or that they left before the program staff thought they should, but did not talk to the staff about leaving. None of the clients reported that program staff would not let them continue in the program for some reason other than missing appointments and 3.8% reported other reasons for leaving the KY-Moms program.

FIGURE V.1. HOW DID THE CLIENT LEAVE THE KY-MOMS PROGRAM (N = 26)



KY-Moms MATR Case Management Program Satisfaction and Experiences

Clients were asked questions about their satisfaction with the KY-Moms MATR case management services. The statements presented in Figure V.2 had different response options, with ratings ranging from 0 to 10. The higher values corresponded to the more positive responses and the lower values corresponded to the negative responses.

Figure V.2 shows the percent of clients who gave a rating between 8 and 10 for each item. The majority of clients reported that they worked on things that were most important to them (96.2%), they felt completely

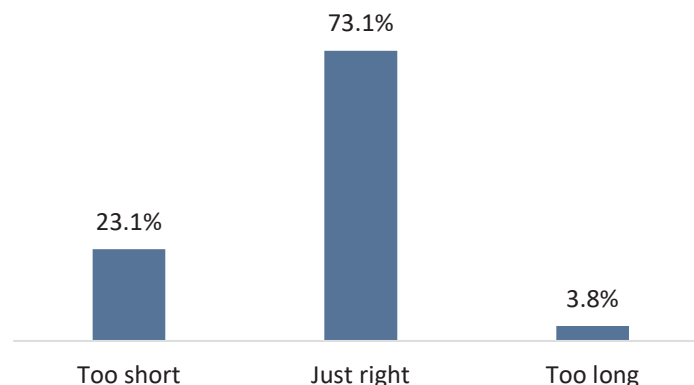
heard by their case manager when they told them about personal things (92.3%), and that the program approach and method were a good fit for them (92.2%). About 88% of clients stated their expectations and hopes for the program were perfectly met. Close to 85% of clients reported they felt the program staff cared about them and their treatment progress, they had a lot of input into treatment goals, plans, and how they were progressing over time, they had a very strong connection with a counselor or staff person during treatment, and the program staff believed in them and that the treatment would work. Close to two-thirds of clients (65.4%) reported that they discussed everything with their case manager and held nothing back.

FIGURE V.2. RATINGS OF 8, 9, or 10 FOR PROGRAM EXPERIENCES WITH KY-MOMS (N = 26)



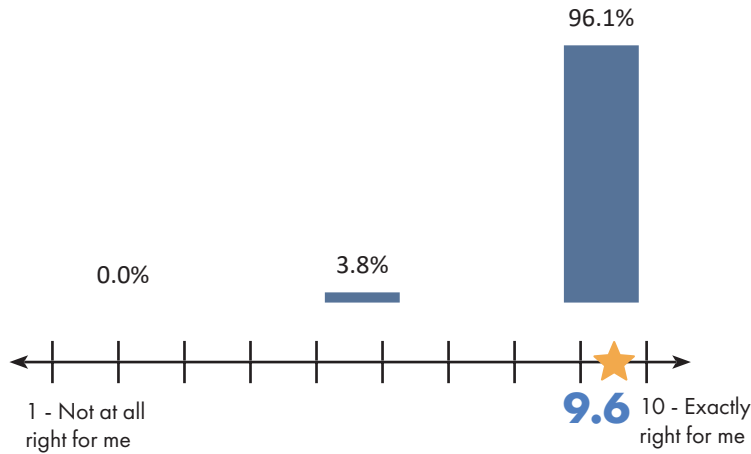
Clients were asked about their satisfaction with the length of the KY-Moms MATR program. About 73% of clients reported that the length of the program was just right (see Figure V.3) Close to one quarter of clients (23.1%) reported that the length of the KY-Moms program was too short and 3.8% of clients reported the program was too long.

FIGURE V.3. CLIENTS' EVALUATION OF THE LENGTH OF THE KY-MOMS MATR PROGRAM (N = 26)



On a scale of 0 = “not at all right for me” to 10 = “exactly right for me”, clients rated their overall KY-Moms MATR experience, on average, as 9.6 (see Figure V.4). Overall, 96.1% gave a rating between 8 and 10, with 76.9% of clients giving the highest possible rating, 10.

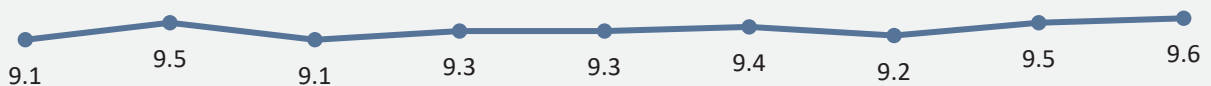
FIGURE V.4. RATING OF EXPERIENCE WITH KY-MOMS (N = 26)



Trends in Ratings of Experience with KY-Moms MATR at Postnatal Follow-up

KY-Moms MATR clients have consistently rated their experience with the program as an average of 9.1 or higher over the past 9 years, indicating that they are very satisfied with the KY-Moms MATR program.

FIGURE V.5. AVERAGE SATISFACTION RATING OF THE KY-MOMS MATR PROGRAM AT POSTNATAL FOLLOW-UP, REPORT YEARS 2014-2022



2014 (n = 204) 2015 (n = 134) 2016 (n = 169) 2017 (n = 63) 2018 (n = 105) 2019 (n = 118) 2020 (n = 68) 2021 (n = 61) 2022 (n = 22)

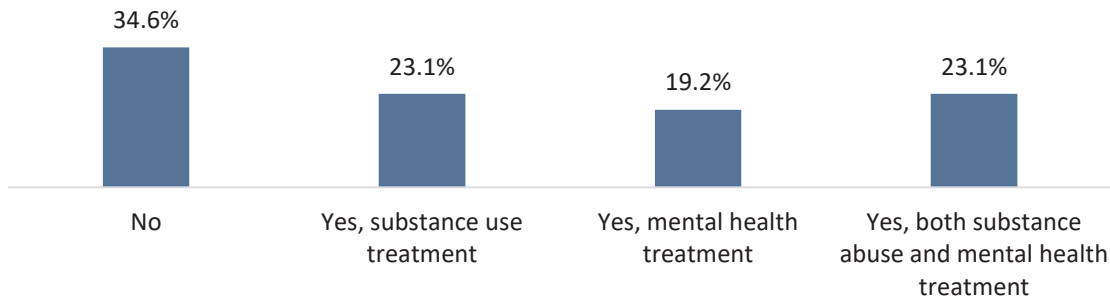
—●— Postnatal follow-up

Overall, the majority of clients (96.2%) reported that the KY-Moms program worked pretty well or extremely well for them. Almost all clients (96.2%) in the postnatal follow-up sample indicated they would refer a 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 = 25), 20.0% reported they would warn their friend or family member

about certain things or tell them who to work with or who to avoid.

Close to 35% of clients reported they did not receive either substance abuse or mental health treatment while in the KY-Moms MATR program (see Figure V.6). Overall, 23.1% of clients reported they went to substance abuse treatment, 19.2% went to mental health treatment, and 23.1% went to both substance use and mental health treatment.

FIGURE V.6. SUBSTANCE ABUSE TREATMENT OR MENTAL HEALTH COUNSELING WHILE IN KY-MOMS (N = 26)



Less than one-quarter (23.1%) reported they had been in other treatment programs since ending their participation with the KY-Moms MATR program. Of those clients (n = 6), clients reported being involved in an average of 1.3 other treatment program or episode (range of 1-3).

My case manager was amazing, she was so sweet, she helped me out so much. I felt like I could tell her anything. Made me feel very comfortable.

KY-MOMS MATR FOLLOW-UP CLIENT

Part VI. Conclusion

Areas of Success

Healthy Babies

In spite of significant risk factors (low income, high rates of unemployment, adverse childhood experiences, victimization, substance use, mental health problems and intimate partner abuse) and 40% reporting at least one maternal health condition, the KY-Moms MATR mothers had positive birth outcomes. Ten percent of the babies born to KY-Moms MATR mothers were born premature and babies were an average gestation of 38.5 weeks. Fifteen percent of babies were born with low birth weight (less than 5lbs, 8oz), but on average, babies were an average of 6lbs, 13oz. In addition, babies were born with an average APGAR score of 9.0. None of the clients had babies with birth defects or anomalies (such as Down's syndrome, cleft palates, anencephaly, congenital heart failure, spina bifida, etc.). Fifteen percent of babies were taken to NICU and 10% of babies were born with a birthing problem such as inflammation of fetal membranes, intolerance to labor, or being placed on a ventilator (not including being admitted to the neonatal intensive care unit).

Substance Use

Close to 61% of clients reported illegal drug use in the 30 days before becoming pregnant, compared to 16.6% of non-pregnant women age 15 and older reported using illegal drugs in the past month in a national survey.⁸³ In the past 30 days at prenatal baseline, 21.7% of clients reported illegal drug use and in the 30 days before the baby was born, none of the clients reported illegal drug use. This decrease was sustained to 4.3% in the 30 days before follow-up. Past-6-month Illegal drug use decreased significantly at postnatal follow-up (7.7%) compared to the 6 months before clients found out about the pregnancy (73.1%).

A similar pattern was seen with reduction in alcohol use with clients reporting significantly less use while pregnant and in KY-Moms MATR and a sustained decrease after the birth of their baby. About 17% of clients reported using alcohol in the 30 days before pregnancy. Further, 4.3% of KY-Moms MATR clients reported any alcohol use in the past 30 days at prenatal baseline and none reported alcohol use in the 30 days before the baby was born.

The number of clients who reported smoking tobacco decreased significantly from the 6 months before pregnancy to the past 6 months at follow-up. The number of clients who reported smoking decreased, but not significantly, from the 30 days before the client became pregnant to the 30 days before the baby was born. However, the average number of cigarettes clients smoked decreased from before the client found out about their pregnancy (17.0) to the past 30 days at prenatal baseline (11.4). The number of cigarettes decreased further in the 30 days before the baby was born (7.5).

Mental Health

Clients' mental health also showed significant improvements. Specifically, there were significant reductions in the number of women who met study criteria for depression and for anxiety in the six months since the birth of the baby. There was also a reduction in the average number of symptoms clients reported from baseline to follow-up among the clients who met criteria for depression or for anxiety at baseline.

⁸³ Substance Abuse and Mental Health Services Administration. *Reports and Detailed Tables from the 2018 National Survey on Drug Use and Health (NSDUH)*. Retrieved from <https://www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUHDetailedTabs2018R2/NSDUHDefTabsSect1pe2018.htm> on September 30, 2019.

Victimization and Trauma

Reported incidences of any intimate partner abuse, such as psychological abuse and coercive control, decreased from the 6 months before clients found out they were pregnant (42.3%) to the past 6 months at postnatal follow-up (3.8%). While fewer clients who completed a follow-up reported having been the victim of a crime, harmed by someone else, or made to feel unsafe by someone at postnatal follow-up (7.7%) compared to 23.1% in the 6 months before pregnancy, the decrease was not significant. In addition, significantly fewer clients screened positive for PTSD in the 6 months since the baby was born at postnatal follow-up (8.0%) compared to the six months before pregnancy (32.0%).

Multidimensional Recovery Status

The multidimensional recovery status takes into account illicit drug use, employment, homelessness, criminal justice system involvement, depression and/or anxiety, partner violence, overall health, recovery support, and quality of life, and was computed for clients at prenatal baseline and postnatal follow-up. At prenatal baseline, 7.7% of clients were classified as having all positive dimensions of recovery in the 6 months before pregnancy. At postnatal follow-up, 73.1% of clients were classified as all positive dimensions of recovery at follow-up, which was a significant increase of 65.4%.

Other Areas of Improvement

In addition to the improvement in targeted risk factors, there were improvements in other areas of the mothers' lives after becoming involved in the KY-Moms MATR program including significantly fewer average days in the past 30 days their mental health (7.5 vs. 3.8 days) was not good at follow-up compared to baseline. Women also reported improved economic conditions with significantly fewer clients reporting they had difficulty meeting basic living needs as a result of financial problems in the 30 days before the baby was born (7.7%) compared to the past 30 days at prenatal baseline (38.5%).

Clients reported significantly higher quality of life at postnatal follow-up compared to prenatal baseline. Clients' level of satisfaction with the KY-Moms MATR was high. Specifically, the majority indicated that the program extremely well for them and, on a scale of 0 = "not at all right for me" to 10 = "exactly right for me", clients rated their overall KY-Moms MATR experience, on average, as 9.6. Additionally, the vast majority of clients reported that they worked on things that were most important to them, they felt completely heard by their case manager when they told them about personal things, and that the program approach and method were a good fit for them. In addition, almost all clients (96.2%) indicated they would recommend the KY-Moms MATR program to a friend. Less than one-quarter (23.1%) reported they had been in other treatment programs since ending their participation with the KY-Moms MATR program.

Areas of Concern

Despite significant improvements in many areas of clients' lives, there was a minority of new mothers who continued to struggle with targeted risks such as tobacco use, mental health problems and PTSD, adverse childhood experiences, intimate partner abuse, financial issues, and multidimensional recovery status at follow-up.

Smoking

The majority of clients smoked during pregnancy (69.6% in the past 30 days at prenatal baseline and 52.2% in the 30 days before the baby was born), both of which are considerably higher than the 15.3% of pregnant women in Kentucky who reported smoking cigarettes or the 8.7% of women in the U.S. Additionally, a high percentage of KY Moms-MATR mothers reported smoking tobacco in the 30 days before pregnancy (69.6%), and in the 30 days before postnatal follow-up (56.5%). These percentages were considerably higher than either the national estimate of 17.2% of non-pregnant women aged 15-44 who are self-reported smokers or the state estimate of women who report smoking (28.8%). Several studies have shown that childhood exposure to cigarette smoke contributes to the incidence of sudden infant death syndrome,^{84, 85} respiratory infections,⁸⁶ middle ear disease and adenotonsillectomy,⁸⁷ poor lung function and asthma,^{88, 89,} ⁹⁰ neurodevelopmental and behavioral problems,⁹¹ and childhood cancer.^{92, 93, 94} As a result, there may be a need to increase postpartum support services for smoking cessation in the KY-Moms MATR program.

In addition, in the 6 months since the baby was born, 26.9% of clients reported e-cigarette use, which was an increase (though not significant) compared to the 6 months before pregnancy. While many individuals may think that e-cigarette exposure to a child is less harmful than exposure to tobacco cigarettes, children exposed to the liquid nicotine were over 5 times more likely to be admitted to hospital and over 2.5 times greater odds of having a serious medical outcomes than children who were exposed to tobacco cigarettes.⁹⁵ In addition, even after the implementation of the Child Nicotine Poisoning Prevention Act in 2016, there is an increased risk of children being exposed to liquid nicotine poisoning.⁹⁶

⁸⁴ Anderson, H. R., & Cook, D. G. (1997). Passive smoking and sudden infant death syndrome: review of the epidemiological evidence. *Thorax*, 52(11), 1003–1009.

⁸⁵ Zhang, K., & Wang, X. (2013). Maternal smoking and increased risk of sudden infant death syndrome: a meta-analysis. *Legal Medicine*, 15(3), 115-121.

⁸⁶ Strachan, D. P., & Cook, D. G. (1997). Health effects of passive smoking. 1. Parental smoking and lower respiratory illness in infancy and early childhood. *Thorax*, 52(10), 905–914.

⁸⁷ Strachan, D. P., & Cook, D. G. (1998). Health effects of passive smoking. 4. Parental smoking, middle ear disease and adenotonsillectomy in children. *Thorax*, 53(1), 50–56.

⁸⁸ Strachan, D. P., & Cook, D. G. (1998). Health effects of passive smoking. 9. Parental smoking and spirometric indices in children. *Thorax*, 53(1), 884-893.

⁸⁹ Von Mutius, E. (2002). Environmental factors influencing the development and progression of pediatric asthma. *Journal of Allergy and Immunology*, 109(6), 525-532.

⁹⁰ Burke, H., Leonardi-Bee, J., Hashim, A., Pine-Abata, H., Chen, Y., Cook, D. G., Britton, J., & McKeever, T. M. (2012). Prenatal and passive smoke exposure and incidence of asthma and wheeze: systematic review and meta-analysis. *Pediatrics*, 129(4), 735-744.

⁹¹ Eskenazi, B., & Castorina, R. (1999). Association of prenatal maternal or postnatal child environmental tobacco smoke exposure and neurodevelopmental and behavioral problems in children. *Environmental Health Perspectives*, 107(12), 991–1000.

⁹² John, E., Savitz, D., & Sandler, D. (1991). Prenatal exposure to parents' smoking and childhood cancer. *American Journal of Epidemiology*, 133(2), 123-132.

⁹³ Vasco, AJ, & Vainio, H. From in utero and childhood exposure to parental smoking to childhood cancer: a possible link and the need for action. *Human and Experimental Toxicology*, 18, 192-201.

⁹⁴ Hofhuis, W., Jongste, JC, & Merkus, P. (2003). Adverse health effects of prenatal and postnatal tobacco smoke exposure on children. *Archives of Disease in Childhood*, 88, 1086-1090.

⁹⁵ Govindarajan, P., Spiller, H., Casavant, M., Chounthirath, T., & Smith, G. (2018). E-cigarette and liquid nicotine exposures among young children. *Pediatrics*, 141(5) e20173361; DOI: 10.1542/peds.2017-3361.

⁹⁶ Chang, J., Wang, B., Chang, C., & Ambrose, B. (2019). National estimates of poisoning events related to liquid nicotine in young children treated in US hospital emergency departments, 2013–2017. *Injury Epidemiology*, 59(5), 742-745.

Mental Health and PTSD

About 15% of KY-Moms MATR clients reported meeting study criteria for depression and/or anxiety in the 6 months after the baby was born. Caring for a newborn and the typical new mother sleep deprivation may be especially difficult for women experiencing trauma, depression, and/or anxiety. Prior trauma and depression/anxiety may increase risk for, or exacerbate, postpartum depression. Postpartum depression is a common problem affecting millions of new mothers and though it usually presents itself around 4 weeks postpartum,⁹⁷ it can continue for as long as 14 months.⁹⁸ While it is mostly caused by the swing of hormones that occur after birth, a study by the Centers for Disease Control & Prevention found that postpartum depression was significantly associated with tobacco use in the last trimester, intimate partner abuse, and financial stress (including the use of Medicaid).^{99, 100} In addition, studies have found that marital status (being single), having a history of depression or anxiety as well as experiencing depression or anxiety during pregnancy can be risk factors for experiencing postpartum depression.^{101, 102} For women who have experienced mental health problems, targeted or adapted mental health services may be critical to preventing postpartum depression or reducing its severity.

Eight percent of clients had PTSD scores that met a positive screen for PTSD in the 6 months before post-natal follow-up. Other research found about 1 in 10 individuals with exposure to traumatic events developed PTSD at some point, with the highest risk of PTSD associated with assaultive violence (20.9%).¹⁰³ Individuals with PTSD have a high rate of alcohol/drug abuse or dependence in their lifetime^{104, 105} and the overall prevalence of PTSD is high among individuals with substance use disorders.^{106, 107}

Adverse Childhood Experiences

At baseline, 94.5% of clients reported at least one adverse childhood experience such as neglect or abuse before the age of 18. The average number of ACE in the sample of KY Moms-MATR clients was 5.2, with 70.2% of women reporting 4 or more ACE. Of particular importance, prior research shows the risk of

⁹⁷ American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

⁹⁸ Wolkind S, Zajicek E, & Ghodsian J. (1990). Continuities in maternal depression. *International Journal of Family Psychiatry*, 1, 167-182.

⁹⁹ Centers for Disease Control and Prevention (2008). Prevalence of self-reported postpartum depressive symptoms --- 17 states, 2004–2005. *MMWR*, 57(14), 361-366.

¹⁰⁰ Segre, L. S., O'Hara, M. W., Arndt, S., & Stuart, S. (2007). The prevalence of postpartum depression. *Social Psychiatry and Psychiatric Epidemiology*, 42(4), 316-321.

¹⁰¹ O'Hara, M. & McCabe, J. (2013). Postpartum depression: current status and future directions. *Annual Review of Clinical Psychology*, 9, 379-407.

¹⁰² Robertson, E., Grace, S., Wallington, T., & Stewart, D. E. (2004). Antenatal risk factors for postpartum depression: a synthesis of recent literature. *General Hospital Psychiatry*, 26(4), 289-295.

¹⁰³ Breslau, N., Kessler, R., Chilcoat, H., Schultz, L., Davis, G., & Andreski, P. (1998). Trauma and posttraumatic stress disorder in the community. The 1996 Detroit Area Survey of Trauma. *Archives of General Psychiatry*, 55(7), 626-632.

¹⁰⁴ Kessler, R., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry*, 52, 1048-1060.

¹⁰⁵ Regier, D., Farmer, M., Rae, D., Locke, B., Keith, S., & Judd, L. (1990). Comorbidity of mental disorders with alcohol and other drug abuse: Results from the Epidemiologic Catchment Area (ECA) Study. *Journal of the American Medical Association*, 264, 2511-2518.

¹⁰⁶ Cottler, L., Compton, W., Mager, D., Spitznagel, E., & Janca, A. (1992). Posttraumatic stress disorder among substance users from the general population. *American Journal of Psychiatry*, 149, 664-670.

¹⁰⁷ Najavits, L., Runkel, R., Neuner, C., Frank, A., Thase, M., Crits-Christoph, P., & Blaine, J. (2003). Rates and symptoms of PTSD among cocaine-dependent patients. *Journal of Studies on Alcohol*, 64, 601-606.

alcohol or drug use increases as the number of adverse childhood experiences increases.^{108, 109, 110, 111} Higher ACE scores are associated with initiating alcohol abuse and smoking in adolescence.^{112, 113} Additionally, experiencing more types of childhood abuse is associated with greater likelihood of experiencing an unintended first pregnancy among women.¹¹⁴ Poor self-rated health as well as health problems such as ischemic heart disease, cancer, and liver disease were more prevalent in those who reported a higher number of ACEs.¹¹⁵ Higher ACE scores have been linked to having a higher number of health risk factors for leading causes of death in adults and a higher rate of mortality in women.¹¹⁶

Intimate Partner Abuse

At baseline, 42.3% of postnatal follow-up clients reported any form of intimate partner abuse in the 6 months before they found out they were pregnant. At follow-up, 7.7% of KY-Moms MATR clients reported experiencing intimate partner abuse in the 30 days before their baby was born and 3.8% reported experiencing intimate partner abuse in the past 6 months, which suggests that the intimate partner abuse is an ongoing concern through the pregnancy and after the baby is born. Partner violence and trauma can contribute to mental health symptoms and can interfere with the parenting relationship.¹¹⁷ Infants can experience symptoms of trauma (eating problems, sleep disturbances, emotional developmental problems, poor health and irritability) as a result of witnessing or hearing intimate partner abuse.¹¹⁸ Thus, support and resources for trauma and partner violence is an issue that should be targeted during the pregnancy and postnatal period.

Financial Issues

With 34.6% of KY-Moms MATR women reporting being currently unemployed and 26.9% of women reporting difficulty meeting basic needs because of financial reasons in the past 6 months at follow-up, economic hardship is a continuing problem for many of these new mothers. As mentioned previously, financial stress has been linked to the risk for developing postpartum depression (and vice versa). Research

¹⁰⁸ Anda, R., Felitti, V., Walker, J., Whitfield, C., Bremner, J., Perry, B., Dube, S., & Giles, W. (2006). The enduring effects of abuse and related adverse experiences in childhood: a convergence of evidence from neurobiology and epidemiology. *European Archives of Psychiatry and Clinical Neurosciences*, 56(3), 174–86.

¹⁰⁹ Dube, S., Felitti, V., Dong, M., Giles, W., & Anda, R. (2003b). The impact of adverse childhood experiences on health problems: evidence from four birth cohorts dating back to 1900. *Preventative Medicine*, 37, 268-277.

¹¹⁰ Dube, S., Felitti, V., Dong, M., Chapman, D., Giles, W., & Anda, R. (2003a). Childhood abuse neglect and household dysfunction and the risk of illicit drug use: The Adverse Childhood Experiences Study. *Pediatrics*, 111, 564–572.

¹¹¹ Felitti, V., Anda, R., Nordenberg, D., Williamson, D., Spitz, A., Edwards, V., & Marks, J. (1998). The relationship of adult health status to childhood abuse & household dysfunction. *American Journal of Preventative Medicine*, 14(4), 245-258.

¹¹² Anda, R., Croft, J., Felitti, V., Nordenberg, D., Giles, W., Williamson, D., & Giovino, G. (1999). Adverse childhood experiences and smoking during adolescence and adulthood. *Journal of the American Medical Association*, 282, 1652–1658.

¹¹³ Dube, S., Miller, J., Brown, D., Giles, W., Felitti, V., Dong, M., & Anda, R. (2006). Adverse childhood experiences and the association with ever using alcohol and initiating alcohol use during adolescence. *Journal of Adolescent Health*, 38(4), 444.e1-10.

¹¹⁴ Dietz, P., Spitz, A., Anda, R., Williamson, D., McMahon, P., Santelli, J., Nordenberg, D., Felitti, V., & Kendrick, J. (1999). Unintended pregnancy among adult women exposed to abuse or household dysfunction during their childhood. *Journal of the American Medical Association*, 282, 1359–1364.

¹¹⁵ Felitti, V., Anda, R., Nordenberg, D., Williamson, D., Spitz, A., Edwards, V., & Marks, J. (1998). The relationship of adult health status to childhood abuse & household dysfunction. *American Journal of Preventative Medicine*, 14(4), 245-258.

¹¹⁶ Chen, E., Turiano, N., Mroczek, D., & Miller, G. (2016). Association of reports of childhood abuse and all-cause mortality rates in women. *Journal of the American Medical Association*, 73(9), 920-927.

¹¹⁷ Dubowitz, H., Black, M. M., Kerr, M. A., Hussey, J. M., Morrel, T. M., Everson, M. D., & Starr, R. H. (2001). Type and timing of mothers' victimization: Effects on mothers and children. *Pediatrics*, 107, 728-735.

¹¹⁸ Bogat, G. A., DeJonghe, E., Levendosky, A. A., Davidson, W. S., & von Eye, A. (2006). Trauma symptoms among infants exposed to intimate partner abuse. *Child Abuse & Neglect*, 30(2), 109-125.

suggests that financial stress has an adverse effect on parents' emotions and behaviors, which, in turn, may impact their parenting.¹¹⁹ In addition, children born to parents with limited economic resources have less to invest in the development of the child because they must invest a larger proportion of their resources into basic living needs (e.g., food, shelter, utilities, medical needs).¹²⁰ Therefore, providing referrals and support to help new mothers with financial difficulties may improve basic living situations for many mothers and promote continued long-term positive results for both mother and infant.

Multidimensional Recovery Status

Even though there were significantly more clients who had all positive dimensions of recovery at follow-up when compared to baseline, over one-quarter of KY-Moms MATR clients still did not have all the positive dimensions of recovery. At follow-up, the factors with the lowest percent of individuals reporting the positive dimensions of recovery were for not meeting study criteria for depression and/or anxiety, not reporting illicit drug use, and usual employment was employed full-time or part-time in the past 6 months.

Program Issues

While clients were largely satisfied with their program experience, over one-third of clients reported that there were things they did not fully discuss with their counselor/program staff. In addition, 20.0% of clients reported that they would warn their friend or family member about certain things or tell them who to work with or who to avoid. Approximately 23% of clients reported that the length of the program was too short and 3.8% of clients reported that the length of the program was too long. Even though 65.4% of clients met study criteria for either depression or anxiety (or both) and 76.9% of clients reported using illegal drugs and/or alcohol in the 6 months before pregnancy, close to 35% of clients reported they did not receive either substance abuse or mental health treatment while in the KY-Moms MATR program.

Trend Report Summary

Trend reports provided throughout this report reflect the importance of annual data collection. These data trends can show consistency, improvement, or highlight areas that may need further attention in the KY-Moms MATR program. Trend analysis of substance use appears to show an overall steady increase in clients reporting past-6-month illegal drug use at prenatal baseline. While the percent of clients reporting illegal drug use decreased significantly each year at follow-up compared to baseline, in 2018 and 2019 the percent of clients reporting illegal drug use at follow-up increased slightly. In 2021, the percent of women reporting illegal drug use increased compared to 2020, but decreased again slightly in 2022.

In addition, a nine-year trend analysis shows that rates of depression and/or anxiety remained stable at prenatal baseline but have appeared to increase in 2018 before decreasing in 2021. Rates of depression and/or anxiety at follow-up have fluctuated at postnatal follow-up in the past; however, in 2021, the percent of women meeting criteria for depression and/or anxiety has higher compared to previous years. In 2022, however, the number of women who met study criteria for depression and/or anxiety decreased to 15.4% at postnatal which could be a result of the small sample size during this reporting year. Further, with trend analysis, findings show that the number of clients who have reported any partner abuse at prenatal baseline

¹¹⁹ Bogat, G. A., DeJonghe, E., Levendosky, A. A., Davidson, W. S., & von Eye, A. (2006). Trauma symptoms among infants exposed to intimate partner abuse. *Child Abuse & Neglect*, 30(2), 109-125.

¹²⁰ Conger, R. D., & Conger, K. J. (2008). Understanding the processes through which economic hardship influences families and children. *Handbook of Families and Poverty*, 64-81.

had been fairly consistent from 2015 to 2019, but increased in 2020 and stayed there in 2022.

The percent of clients reporting difficulty meeting basic household needs at follow-up increased briefly in 2018, but has decreased since. In addition, overall, the difference between prenatal baseline and postnatal follow-up for unemployment status was stable over the previous seven years. In 2022, however, more clients reported they were not currently employed at prenatal baseline compared to follow-up.

Clients' average ratings of their current health has remained fairly consistent at both baseline and follow-up from 2015 to 2019. However, in 2020, the average current health rating was the same at baseline and follow-up, and in 2022, clients' average health rating returned to being higher at follow-up compared to baseline. In addition, for trends in the number of chronic health problems show in 2020 and 2021 there appear to be more clients that reported just one health problem compared to no health problems or multiple health problems. In 2022, nearly two thirds, of clients reported having no chronic health problems, which was considerably more compared to the previous 8 years.¹²¹ The number of clients who have reported chronic pain in the 6 months before pregnancy remained relatively constant at baseline (around one-quarter of clients) until 2022 when very few clients reported chronic pain. In addition, the average number of poor physical health days in the past 30 days clients have reported were consistent at baseline but have appeared to slightly increase at follow-up beginning in 2020. In terms of the average number of days clients reported poor mental health, the difference in the number of days reported at baseline and at follow-up were relatively stable over the years.

Further, clients' ranking of their quality of life has been consistent through the years for baseline and has appeared to increase slightly at follow-up. Trends also show that the average number of people clients can count on for emotional support has increased over the years at baseline but has fluctuated at follow-up since 2019.

Trend analysis also shows that KY-Moms MATR clients have been consistently and highly satisfied with their experiences in the program, with clients consistently ranking their experience with the program as an average of 9.3 (with 10 being the best possible rating) or higher over the past 9 years.

Limitations

There are several limitations to this outcome study. For this report year compared to previous years, a considerably smaller number of clients completed a follow-up and a baseline because of the COVID-19 pandemic. A smaller number of clients at baseline means that there is a smaller pool of eligible follow-up sample clients to pull from. In addition to fewer clients completing a baseline assessment, the percent of baseline clients not agreeing to be contacted for follow-up has increased. In 2022, 16.4% of the baseline sample did not agree to be contacted which is over three times more than in 2021.

¹²¹ This could be a result of the small follow-up sample size in the 2022 report year.

TABLE 1. NUMBER AND PERCENT OF CLIENTS CONSENTING TO FOLLOW-UP FOR EACH REPORT YEAR

Report year	Baseline sample size	Clients NOT consenting to follow-up
2018.....	181	16 (10.5%)
2019.....	177	0 (0.0%)
2020.....	158	10 (6.3%)
2021.....	131	7 (5.3%)
2022.....	73	12 (16.4%)

The sample size is small in this report should be considered when interpreting the findings. To increase the statistical power to detect change in this small sample size, the alpha for statistical tests was increased to $p < .10$, instead of $p < .05$.

Completing follow-up surveys continues to be a challenge in this fiscal year for three main reasons. First, an extensive protocol was developed to continue all study activities during the COVID-19 pandemic shutdown. All activities are up and going as normal currently, although there was a period of transition and protocol development. Because of this period of transition follow-up calls were put on hold until the end of May and so some of this current fiscal year was spent working more months than usual. Second, scam-related or robocalls increased 35%¹²² in 2019 to (over one-third of personal calls) and although they went down at the beginning of the pandemic they are back up.¹²³ This means people are less likely to answer the phone and more skeptical of providing us with information to confirm their identity. In addition, there has been some UK CDAR staff turnover and it is more time consuming to hire and train new staff during the COVID-19 pandemic. UK CDAR senior leadership have implemented several key changes and monitor the follow-up rates regularly to maintain improvements or to initiate changes to overcome challenges. Since June 1, study follow-up activities are being conducted in the office.

In addition, this outcome study does not provide of random assignment to the KY-Moms MATR program. Although it would be ethically and procedurally difficult to conduct a random assignment of pregnant women at risk for substance use to participate in a program such as KY-Moms MATR, random assignment could provide more confidence that the birth outcomes of these mothers are directly due to interventions provided by KY-Moms MATR. Also, this study has no control group and no comparison group in the birth data file with which to compare KY-Moms MATR clients.

Also, the majority of data for this report is self-reported by KY-Moms MATR clients. Recent research has

¹²² <https://www.usatoday.com/story/tech/news/2019/12/04/robocalls-us-eighth-most-spammed-country-report/2613528001/>

¹²³ Notaney, R. (2020). Over 3.3 billion robocalls in June mark 11% monthly increase, says YouMail robocall index: Robocalls on the rise as reopenings increase. <https://www.prnewswire.com/news-releases/over-3-3-billion-robocalls-in-june-mark-11-monthly-increase-says-youmail-robocall-index-301089892.html>

supported findings about the reliability and accuracy of individuals' reports of their substance use.^{124, 125, 126, 127} Skepticism about the validity of self-report data has prompted investigations of the concordance of self-report data on sensitive issues such as substance use with more objective measures, such as urinalysis or blood serum analysis of drugs and alcohol. In most of these studies the concordance or agreement is acceptable or high.^{128, 129, 130, 131} In several studies, when there were discrepant results, the majority were self-reported substance use that was not detected with urinalysis or blood serum analysis.^{132, 133, 134} Underreporting of substance use occurs less in certain conditions, such as, when assurances of confidentiality can be made and when positive results are not associated with negative consequences.¹³⁵ During the informed consent process at the beginning of the KY-Moms MATR follow-up survey, interviewers tell participants that the research team operates independently from the KY-Moms MATR program and individuals' responses will be reported in group format and will not be identifiable at the individual level. These assurances of confidentiality and lack of affiliation with the program staff may minimize individuals' concern about reporting stigmatizing behavior or conditions. In addition, studies of pregnant women and substance use indicate that self-report is as good as urine tests in identifying illegal drug use.^{136, 137}

Finally, clients are self-selected and voluntarily agree to participate in KY-Moms MATR case management rather than being randomly or mandated to participate. While these women report high risk factors such as substance use, mental health and interpersonal violence victimization, there is likely a segment of the pregnant population who are heavier drug users, have more severe mental health problems, or are at an even greater risk for safety compared to the women who voluntarily enter KY-Moms MATR. Women with more severe use may be more hesitant to seek or accept treatment because they either do not accept they

¹²⁴ Del Boca, F.K., & Noll, J.A. (2000). Truth or consequences: The validity of self-report data in health services research on addictions. *Addiction*, 95, 347-360.

¹²⁵ 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.

¹²⁶ Rutherford, M.J., Cacciola, J.S., Alterman, A.I., McKay, J.R., & Cook, T.G. (2000). Contrasts between admitters and deniers of drug use. *Journal of Substance Abuse Treatment*, 18, 343-348.

¹²⁷ 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*, 8 (90), 288-291.

¹²⁸ Buchan, B. J., Dennis, M. L., Tims, F. M., & Diamond, G. S. (2002). Cannabis use: Consistency and validity of self-report, on-site urine testing and laboratory testing. *Addiction*, 97 (Suppl. 1), 98-108.

¹²⁹ Denis, C., Fatséas, M., Beltran, V., Bonnet, C., Picard, S., Combourieu, I., Daulouède, J., & Auriacombe, M. (2012). Validity of the self-reported drug use section of the Addiction Severity and associated factors used under naturalistic conditions. *Substance Use & Misuse*, 47, 356-363.

¹³⁰ Rowe, C., Vittinghoff, E., Colfax, G., Coffin, P. O., & Santos, G. M. (2018). Correlates of validity of self-reported methamphetamine use among a sample of dependent adults. *Substance Use & Misuse*, 53 (10), 1742-1755.

¹³¹ Rygaard Hjorthoj, C., Rygaard Hjorthoj, A., & Nordentoft, M. (2012). Validity of Timeline Follow-Back for self-reported use of cannabis and other illicit substances—Systematic review and meta-analysis. *Addictive Behaviors*, 37, 225-233.

¹³² Babor, T. F., Steinberg, K., Anton, R., & Del Boca, F. (2000). Talk is cheap: Measuring drinking outcomes in clinical trials. *Journal of Studies on Alcohol*, 61, 53-63.

¹³³ Hilario, E. Y., Griffin, M. L., McHugh, R. K., McDermott, K. A., Connery, H. S., Fitzmaurice, G. M., & Weiss, R. D. (2015). Denial of urinalysis-confirmed opioid use in prescription opioid dependence. *Journal of Substance Abuse Treatment*, 48, 85-90.

¹³⁴ Weiss, R. D., Najavits, L. M., Greenfield, S. F., Soto, J. A., Shaw, S. R., & Wyner, D. (1998). Validity of substance use self-reports in dually diagnosed outpatients. *American Journal of Psychiatry*, 155(1), 127-128.

¹³⁵ Hilario, E. Y., Griffin, M. L., McHugh, R. K., McDermott, K. A., Connery, H. S., Fitzmaurice, G. M., & Weiss, R. D. (2015). Denial of urinalysis-confirmed opioid use in prescription opioid dependence. *Journal of Substance Abuse Treatment*, 48, 85-90.

¹³⁶ Christmas, J., Nisley, J., Dawson, K., Dinsmoor, M., Weber, S., Schnoll, S. (1992). Comparison of questionnaire screening and urine toxicology for detection of pregnancy complicated by substance use. *Obstetrics & Gynecology*, 80, 750-754.

¹³⁷ Yonkers, K. A., Howell, H. B., Gotman, N., & Rounsaville, B. J. (2011). Self-report of illicit substance use versus urine toxicology results from at-risk pregnant women. *Journal of Substance Use*, 16(5), 372-380.

have a problem, fear having the child removed from their custody, or fear being prosecuted.¹³⁸ On the other hand, the fact that this program is voluntary, but recruits and retains high risk women, is a strength of the program. High-risk pregnant mothers in other state-funded substance abuse programs in Kentucky are referred by the courts or the child protective service agency, the Department for Community Based Services. Recruiting and retaining clients who have no external motivating factor poses challenges to service providers who must rely on their interpersonal skills to engage clients in services.

Conclusion

This study provides support of the efforts by the Kentucky Division of Behavioral Health to address the rising statewide and national problem of drug-exposed pregnancies given the positive changes in the clients' substance-using behavior once interventions were initiated. Overall, pregnant women participating in KY-Moms MATR services significantly improved on all three targeted areas of behavioral health and had birth outcomes similar to the general population of mothers. Further, clients were overwhelmingly positive about the program. They indicated they would refer their friends or others to the program and felt like what they gained from the program helped them have a healthier pregnancy, improved their birth outcomes, and provided valuable information about the risk of substance use during pregnancy.

One of the most important policy questions implicit in this study is about the months and early years of the child's life after the mother has given birth. Mothers who persist in or return to drug-using lifestyles are at great risk for child neglect and other forms of child maltreatment,^{139, 140} as well as for setting the stage for their children to use and misuse alcohol and illegal drugs as adolescents and adults.^{141, 142} Thus, reducing risk during the early development of the child is in large part contingent on continued services and engagement with recovery and parenting supports. As Kentucky continues to work toward more integrated service provisions under the umbrella of behavioral health, the use of all possible resources will be important both for these mothers and their newborns. The KY-Moms MATR program plays a critical role toward this end.

¹³⁸ Tuchman, E. (2010). Women and addiction: The importance of gender issues in substance abuse research. *Journal of Addictive Diseases*, 29(2), 127-138.

¹³⁹ McKegane, N., Barnard, M. & McIntosh, J. (2002) Paying the price for their parent's addiction: meeting the needs of the children of drug using parents. *Drugs: Education, Prevention and Policy*, 9, 233–246.

¹⁴⁰ Barnard, M., & McKegane, N. (2004). The impact of parental problem drug use on children: what is the problem and what can be done to help? *Addiction*, 99(5), 552-559.

¹⁴¹ Ireland, T. O., Smith, C. A., & Thornberry, T. P. (2002). Developmental issues in the impact of child maltreatment on later delinquency and drug use. *Criminology*, 40(2), 359-400.

¹⁴² Biederman, J., Faraone, S. V., Monuteaux, M. C., & Feighner, J. A. (2000). Patterns of alcohol and drug use in adolescents can be predicted by parental substance use disorders. *Pediatrics*, 106(4), 792-797.

Appendix A: Methods

This evaluation project collects data from pregnant women in Kentucky who are at high risk for substance abuse and participate in KY-Moms MATR case management services. Fourteen community mental health centers participate in the program and collect baseline data on each client entering the KY-Moms MATR case management services program. Data analysis has three main phases: (1) change in behavior and risks over time, using the prenatal baseline information and the postnatal follow-up interviews among clients who gave birth, and (2) description of KY-Moms MATR clients' birth outcome information from the Vital Statistics birth outcome data set.

Baseline Assessment

The baseline assessment is an electronic, evidence-based interview developed by the University of Kentucky Center on Drug and Alcohol Research (UK CDAR) in collaboration with KY-Moms MATR program administrators. Baseline information is collected during face-to-face client interviews with case managers when the client enters the program and interview responses are electronically submitted to UK CDAR. At the end of the baseline interview, clients are told about the opportunity to participate in a follow-up telephone interview that is conducted independently from the program by the UK CDAR Behavioral Health Outcome Studies (BHOS) staff approximately 6 months after the birth of their baby. 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 postnatal follow-up interview. Overall, a total of 73 baselines were completed between June 2019 and November 2020 with women who had due dates that would result in target months for a follow-up interview between July 2020 and June 2021. Overall, women completed a KY-Moms MATR case management baseline when they were an average of 24 weeks into their pregnancy (minimum = 7 weeks, maximum = 39 weeks).¹⁴³

Method of Determining Follow-up Sample

Follow-up Assessment. KY-Moms MATR pre-birth clients are eligible for the follow-up assessment if: (1) the client consents to be contacted by UK CDAR BHOS staff, (2) the prenatal baseline is submitted to UK CDAR within 30 days of completion, (3) the client is in the program at least 30 days before the birth of the baby, and (4) adequate contact information is provided for follow-up staff to use to attempt to locate and contact them for the follow-up interview. These individuals are then included in the sample of women to be followed up. The target month for a follow-up assessment is computed by adding 6 months (180 days) to the self-reported due date the client provides at prenatal baseline. In reality, there was an average of 5.9 months between the due date and the date of the follow-up assessment (with a mode of 5 months).

For clients who have given birth to their baby prior to entering the KY-Moms MATR program, eligibility is similar to the pre-birth clients with exception of being in the program at least 30 days. The target month for a post-birth follow-up assessment is computed by adding 6 months (180 days) to the completion date of the post-birth baseline.

Follow-up interviews are conducted on the telephone by the UK CDAR BHOS research team and are independent of KY-Moms MATR case management services in order to confidentially examine changes in

¹⁴³ The average number of days between when clients were admitted to the KY-Moms MATR program and when their baseline surveys were completed was 15.6 days, with a minimum of 0 days and a maximum of 154 days.

clients' behavior and risks. In addition, UK CDAR BHOS obtained a Federal Certificate of Confidentiality from the National Institute of Health, which states that BHOS researchers cannot be forced to disclose any information which may identify the client, even by court subpoena, in any federal, state, or local civil, criminal, administrative, legislative, or other proceedings.¹⁴⁴ The follow-up interviews examine program satisfaction, current substance use, intimate partner abuse, physical and mental health status, employment, and recovery supports.

The UK CDAR BHOS team begins their efforts to locate and conduct follow-up interviews with women pulled into the follow-up sample one month before the target month for their follow-up interview and continue their efforts until the women have completed the follow-up interview or for two months after the target month, whichever comes first. For example, if a woman has a targeted follow-up interview in August, the research team will begin their attempts to locate and contact her in July (i.e., one month before the targeted month for her follow-up interview). If the team is unable to locate this woman, they will continue their efforts until the end of October (i.e., two months after her target month for the follow-up interview).

When the follow-up team contacts women, they must determine additional eligibility criteria before completing the pre-birth follow-up interview such that women who are living in a controlled environment (e.g., jail, prison, residential treatment) are not eligible for completing the follow-up interview. As mentioned previously, 73 baseline surveys were completed between June 2019 and November 2020 and had a targeted month for follow-up in FY 2021 (July 2020 – June 2021). Of these clients who were in the targeted window to complete a postnatal follow-up, 12 did not agree to be contacted for the follow-up survey, and 20 clients were ineligible for follow-up staff to begin locating as a result of prenatal baseline data: 4 clients were in the program less than 30 days, 1 client had their baseline assessment submitted more than 30 days after it was completed, and 15 clients had invalid contact data (see Table AA.1).

Of the remaining eligible clients (n = 41), 15 clients (36.6%) had a final follow-up status of expired because interviewers were not able to complete a follow-up survey with them during the follow-up period. Overall, UK CDAR staff completed follow-up interviews with 26 clients, representing a follow-up rate of 63.4%.

Completing follow-up surveys was a challenge in this fiscal year for three main reasons. First, although scam-related or robocalls decreased at the beginning of the pandemic they are back up. In fact, so far in 2021, approximately 38.7 billion robocalls were placed which is about 117.9 calls per person.¹⁴⁵ This means people are less likely to answer the phone and more skeptical of providing us with information to confirm their identity. Third, there has been some staff turnover and it is more time consuming to hire and train new staff during the COVID-19 pandemic. UK CDAR senior leadership have implemented several key changes and monitor the follow-up rates regularly to maintain improvements or to initiate changes to overcome challenges.

¹⁴⁴ The exception to this is if harm to the client, harm to others, or child abuse is disclosed to the researchers.

¹⁴⁵ <https://robocallindex.com/history/time>

TABLE AA.1. FOLLOW-UP SAMPLE AND EFFORTS

	Number of baselines (n = 73)
Did not consent to follow-up.....	12
	n = 61
Not eligible for follow-up sample ^a	20
Other reasons based upon prenatal baseline (i.e., invalid locator data, client not in program long enough, baseline submission more than 30 days after completion).....	20
In jail or controlled environment (i.e, residential treatment).....	0
Baby is deceased.....	0
Total number of baseline surveys eligible for follow-up.....	41
Expired cases (i.e., never contacted, did not complete the survey during the follow-up period).....	15
Expired rate ((the number of expired cases/eligible cases) * 100).....	36.6%
Declined.....	0
Declined rate ((the number of refusal cases/eligible cases) * 100).....	0.0%
Completed follow-up interviews.....	26
Follow-up rate.....	63.4%

a- In May 2020, it was decided that women who were unsure or not keeping their baby, or babies who were no longer living with their mothers were going to remain eligible for the follow-up sample. In addition, clients who already had their babies upon entering the program have a separate baseline and follow-up interview.

Obtaining the Birth Event Data. Before any analysis of the Vital Statistics birth data is conducted, a series of steps is performed to ensure data quality and integrity. Each step is described in the following paragraphs.

Kentucky Vital Statistics automatically moves each year of updated birth index text files to UK CDAR using the CHFS MoveIT Central FTP process. The data is then opened in Microsoft Access to create variables based upon a file layout codebook provided by Kentucky Vital Statistics. From Access, the data are transferred into SPSS and given variable names, values, and labels corresponding to the codebook. Births occurring within the time frame of the annual report are then saved to a separate file where they are cleaned. Because there were so few follow-ups in FY21, the usual comparison analysis with mothers who were not in the KY-Moms MATR program was not completed. Instead, birth event data was analyzed for only KY-Moms MATR clients.

Analysis. Once the data set was cleaned and internally certified according to UK CDAR BHOS quality standards, data analysis began. This included using the statistical software SPSS to complete Chi-square tests of independence, one-way ANOVAS, and McNemar tests. The statistical results were then placed in tables for review by the research team.

Birth Data Sample. As described in the section regarding obtaining the birth event data, based upon the range of dates that the KY-Moms MATR clients gave birth, which were from January 2020 to December 2020. Using mothers’ social security numbers, KY-Moms MATR clients were matched to their respective birth outcome data. Out of the 26 clients who completed a follow-up, six client did not give permission to access their birth data. None of the mothers had more than one child in the dataset in FY21.

Appendix B. Client Characteristics at Baseline for Those with Completed Follow-Up Interviews and Those without Completed Follow-Up Interviews

Between June 2019 and November 2020, 73 pregnant mothers completed a prenatal baseline and were eligible for a six-month postnatal follow-up between July 2020 and June 2021. Individuals who completed a postnatal follow-up assessment during this time (n = 26) are compared in this section with 47 individuals who did not complete a postnatal follow-up interview but were in their 6-month follow-up window in FY 2021.

As mentioned in Appendix A, 47 clients did not complete a postnatal follow-up interview for a variety of reasons:

TABLE AB.1. REASONS WHY CLIENTS DID NOT COMPLETE A FOLLOW-UP ASSESSMENT

	n
Ineligible as a result of prenatal baseline criteria:	
Client was not in the program long enough	4
More than 30 days between when the baseline was completed and when it was submitted.....	1
Insufficient locator information.....	15
Did not agree to follow-up.....	12
Ineligible as a result of postnatal follow-up criteria:	
Baby deceased.....	0
Client was not located within the targeted window	15
TOTAL.....	47

Demographic Characteristics

There were no significant differences between clients who were followed up and clients who were not followed up on demographic characteristics (see Table AB.2). The average client age was around 27 to 28 years old for both groups. Clients who were not followed up were an average of 25.7 weeks into their pregnancies and clients who were followed up were an average of 21.3 weeks. There was no significant differences between the two groups for average age or for the average number of weeks pregnant. The majority of clients in both groups were married or cohabiting. Of those who were married or cohabiting, 100.0% of clients who completed a follow-up reported that the partner is the father of the baby compared to clients who were not followed up (87.5%). In addition, the majority of clients in both groups were White.

TABLE AB.2. COMPARISON OF DEMOGRAPHICS FOR CLIENTS WHO WERE INCLUDED IN THE FOLLOW-UP SAMPLE AND CLIENTS WHO WERE NOT INCLUDED IN THE FOLLOW-UP SAMPLE

	FOLLOWED UP	
	NO n = 47	YES n = 26
Average age ¹⁴⁶	28.7	27.2
Average weeks pregnant	25.7	21.3
Relationship status		
Married.....	12.8%	23.1%
Cohabiting.....	38.3%	34.6%
Separated, divorced, or widowed	14.9%	11.5%
Never married.....	34.0%	30.8%
Of those married or cohabiting, percent that reported the partner is the father	(n = 24) 87.5%	(n = 15) 100.0%
Race		
White.....	87.2%	96.2%
Black	6.4%	0.0%
Hispanic.....	0.0%	0.0%
Other or multiracial.....	6.4%	3.8%

There were no significant differences for employment status between clients who were followed up and clients who were not followed up. Of those who completed a postnatal follow-up, 61.5% were currently unemployed compared to 63.8% of the clients who did not complete a follow-up. There were no significant differences between clients who were followed up and not followed up on whether they expected to be employed in the next 12 months (see Table AB.3).

TABLE AB.3. CURRENT EMPLOYMENT STATUS AT PRENATAL BASELINE BY FOLLOW-UP STATUS

	FOLLOWED UP	
	NO n = 47	YES n = 26
Employment		
Not currently employed	63.8%	61.5%
Full-time	14.9%	19.2%
Part-time.....	17.0%	3.8%
Occasional, from time-to-time seasonal work.....	0.0%	11.5%
On leave from a job for pregnancy related reasons	4.3%	3.8%
Expect to be employed in the next 12 months.....	87.2%	76.9%

¹⁴⁶ Two clients had an incorrect birthdate; therefore, their age could not be calculated.

There were no significant differences in usual living arrangement between those who completed a follow-up assessment and those who did not. About 77% of clients who were followed up reported that their usual living arrangement in the past 30 days at prenatal baseline was in a private residence (i.e., their own home or apartment or someone else’s home or apartment; see Table AB.4) compared to clients who were not followed up (74.5%). About 23% of clients who did not complete a follow-up and who did complete a follow-up were living in a residential facility, hospital, recovery center, or sober living home.

At baseline, there was no significant difference between the groups of clients who considered themselves to be homeless. About 13% of clients who did not complete a follow-up and none of the clients who did complete a follow-up considered themselves homeless (see Table AB.4).

TABLE AB.4 LIVING SITUATION OF CLIENTS BEFORE ENTERING THE KY-MOMS MATR PROGRAM BY FOLLOW-UP STATUS

	FOLLOWED UP	
	NO n = 47	YES n = 26
Usual living arrangement in the past 30 days		
Own or someone else’s home or apartment	74.5%	76.9%
Jail or prison	0.0%	0.0%
Residential program, hospital, recovery center, or sober living home	23.4%	23.1%
Shelter or on the street	0.0%	0.0%
Other.....	2.1%	0.0%
Considers self to be currently homeless	12.8%	0.0%
Why the individual considers himself/herself to be homeless	(n = 6)	---
Staying in a shelter.....	0.0%	---
Staying temporarily with friends or family	50.0%	---
Staying on the street or living in a car	0.0%	---
Other.....	50.0%	---

Physical Health

On a scale of 1 - 5, clients who completed a follow-up rated their health an average of 3.0 and clients who did not complete a follow-up rated their health an average of 3.1. Significantly more clients who were followed up reported they had no health problems compared to clients who were not followed up (65.4% vs. 34.0%, respectively). There were no significant differences between the groups on having chronic pain in the 6 months before pregnancy. The average number of doctor visits reported by clients was not significantly different with 6.4 visits for clients not followed up and 5.1 visits for clients who completed a follow-up.

TABLE AB.5. PHYSICAL HEALTH ISSUES OF CLIENTS BEFORE ENTERING THE KY-MOMS MATR PROGRAM BY FOLLOW-UP STATUS

	FOLLOWED UP	
	NO n = 47	YES n = 26
Number of health problems*		
None.....	34.0%	65.4%
One health problem	31.9%	19.2%
Two or more health problems	34.0%	15.4%
Overall health rating (1 – Poor, 5 – Excellent).....	3.1	3.0
Chronic pain in the 6 months before pregnancy.....	12.8%	7.7%
Average number of doctor visits about pregnancy..	6.4	5.1

*p < .05.

Targeted Risk Factors

Substance Use

There were few significant differences for substance use at prenatal baseline between clients who did and clients who did not complete a postnatal follow-up and were not incarcerated all 180 days before they knew they were pregnant. While the majority of clients in both groups reported illegal drugs and/or alcohol use, more clients who were followed up reported illegal drug use in the past 30 days when compared to clients who did not complete a follow-up interview.

TABLE AB.6 SUBSTANCE USE OF CLIENTS AT PRENATAL BASELINE BY FOLLOW-UP STATUS AMONG CLIENTS NOT INCARCERATED ALL 180 DAYS BEFORE PREGNANCY

	FOLLOWED UP	
	NO n = 47	YES n = 26
Substance use in the 6 months prior to pregnancy		
Illegal drugs and/or alcohol.....	79.5%	76.9%
Illegal drugs	77.3%	73.1%
Alcohol	25.0%	38.5%
Cigarettes	90.9%	80.8%
Substance use in the 30 days prior to pregnancy		
Illegal drugs and/or alcohol.....	61.4%	61.5%
Illegal drugs	59.1%	57.7%
Alcohol	13.6%	15.4%
Cigarettes	88.6%	73.1%
Of clients who smoked	(n = 39)	(n = 19)
Average number of cigarettes per day.....	16.9	17.2
Substance use in the past 30 days		
Illegal drugs and/or alcohol.....	6.8%	23.1%
Illegal drugs*	4.5%	23.1%
Alcohol	2.3%	3.8%
Cigarettes	81.8%	73.1%
Of clients who smoked	(n = 36)	(n = 19)
Average number of cigarettes per day.....	11.2	11.7
Participant was treated for substance use before pregnancy	68.2%	65.4%

*p< .05

Mental Health

There was no significant difference between the two groups in the percent of clients who met study criteria for depression or anxiety in the 6 months before pregnancy or the 30 days before prenatal baseline (see Table AB.7). Over half of clients who did not complete a follow-up interview (55.3%) and 46.2% of clients who did complete a follow-up interview met study criteria for depression in the 6 months before pregnancy. About 51% of clients who were not followed up and 57.7% of clients who were followed up met study criteria for generalized anxiety in the 6 months before pregnancy.

TABLE AB.7 SELF-REPORTED MENTAL HEALTH SYMPTOMS OF CLIENTS AT PRENATAL BASELINE BY FOLLOW-UP STATUS

	FOLLOWED UP	
	NO n = 47	YES n = 26
Experienced symptoms of depression in the past 6 months before pregnancy	55.3%	46.2%
Average number of symptoms	(n = 26) 7.1	(n = 12) 7.0
Experienced symptoms of depression in the past 30 days at prenatal baseline.....	23.4%	15.4%
Average number of symptoms	(n = 11) 6.3	(n = 4) 6.8
Experienced symptoms of anxiety in the past 6 months before pregnancy	51.1%	57.7%
Average number of symptoms	(n = 24) 5.3	(n = 15) 4.9
Experienced symptoms of anxiety in the past 30 days at prenatal baseline.....	38.3%	46.2%
Average number of symptoms	(n = 18)	(n = 12)

Intimate Partner Abuse

There were no significant differences between clients who completed a postnatal follow-up and clients that did not on intimate partner abuse and violence measures. About 32% of clients who did not complete a follow-up and 42.3% of clients that completed a follow-up assessment reported some type of partner abuse or violence in the 6 months before pregnancy (see Table AB.8).

TABLE AB.8 INTIMATE PARTNER VIOLENCE AND SEXUAL VIOLENCE BY ANY TYPE OF PERPETRATOR REPORTED BY CLIENTS AT PRENATAL BASELINE BY FOLLOW-UP STATUS

	FOLLOWED UP	
	NO n = 47	YES n = 26
Any partner abuse		
6 Months before pregnancy	31.9%	42.3%
Past 30 days.....	14.9%	7.7%
Verbal abuse		
6 Months before pregnancy	27.7%	30.8%
Past 30 days.....	10.6%	7.7%
Coercive control		
6 Months before pregnancy	25.5%	38.5%
Past 30 days.....	8.5%	7.7%
Physical abuse		
6 Months before pregnancy	8.5%	23.1%
Past 30 days.....	0.0%	3.8%
Sexual abuse		
6 Months before pregnancy	4.3%	0.0%
Past 30 days.....	0.0%	0.0%