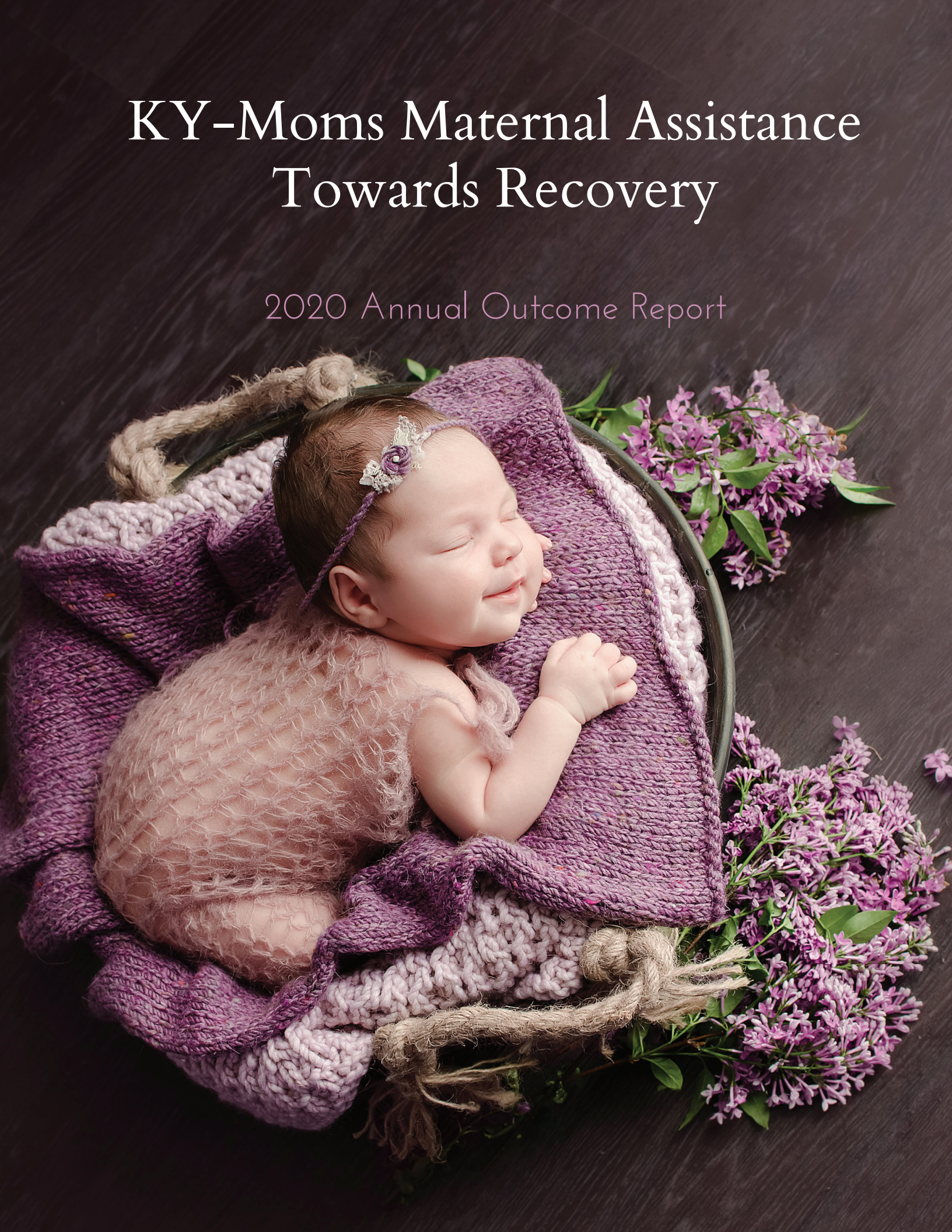
KY-Moms Maternal Assistance Towards Recovery

2020 Annual Outcome Report



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Postnatal assessments completed between July 2018 and June 2019 for women who gave birth between December 2016 and January 2019.

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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 summarizes the KY-Moms MATR program evaluation results by examining: (1) pregnant mothers when they enter the program, (2) birth and infant outcomes, (3) changes in targeted risk factors such as substance use, mental health, intimate partner abuse, and quality of life, and (4) client satisfaction with their program experience. Specifically, this report describes pregnant clients who participated in the KY-Moms MATR program, completed a face-to-face evidence-based baseline interview with program staff, and were eligible for a postnatal follow-up interview between July 2018 and June 2019 after the birth of their baby.

[1] For more information, see: Scrivner, A., Logan, T., Cole, J., & Miller, J. (2016). ***Evidence Base for the KY-Moms MATR Evaluation Assessment and Methods***. Lexington, KY: University of Kentucky, Center on Drug and Alcohol Research.

Who Does the KY-Moms MATR Program Serve?

Overall, 158 pregnant women participated in the KY-Moms MATR program and completed a baseline assessment.[2] The majority of clients coming into the program were White, about 26 years old, and either married or cohabiting with a partner. Of the clients who were married or cohabiting, the majority (88%) reported that their current partner was the father of the baby. About 20% of clients had less than a high school diploma/GED and the vast majority were unemployed.

Around 30% of clients were referred to the KY-Moms MATR program through the KY-Moms MATR prevention program. Half of clients were referred to KY-Moms MATR through an outside agency such as a CHMC, health care provider, or Health Access Nurturing Development Services (HANDS). The remaining clients were referred by the client herself (5.7%), the justice system (5.1%), and friends or family (3.8%). Overall, clients were an average of 23 weeks pregnant when they completed a prenatal baseline assessment and over two-thirds reported that

[2] Clients who completed a prenatal baseline (n = 158) entered the KY-Moms MATR program between May 2017 and December 2018 and were eligible for follow-up between July 2018 and June 2019. There was an average of 17 days between when the client entered the program and when the baseline assessment was completed.

they had been pregnant before. Clients' scores on maternal-fetal attachment indicated that the mothers had a high level of attachment to their babies. At baseline, clients reported an average of 6 prenatal visits with a health care professional. Over half of clients 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 including high rates of smoking, alcohol use, illegal drug use, depression or anxiety, criminal justice system involvement, economic hardship, and intimate partner abuse. In the six months before pregnancy, 65.8% of clients reported illegal drug use, 42.4% reported alcohol use, and 79.7% reported smoking tobacco. In the past 30 days at baseline (while pregnant), 19.0% of clients reported illegal drug use, 2.1% reported alcohol use, and 60.6% reported smoking tobacco. Clients were asked, at baseline, how old they were when they first began to use illegal drugs, when they had their first alcoholic drink (more than just a sip), and when they began smoking cigarettes regularly. Trend data show, of those clients who used substances regularly, the age for having their first alcoholic drink, first illegal drug use, and first tobacco use was between 15 and 16 years old.

At baseline, clients were asked ten items regarding adverse childhood experiences from the Adverse Childhood Experiences Study (ACES). Results indicated that 4.4% of clients reported no maltreatment or household dysfunction experiences and the greatest percent was the 34% who reported experiencing 1-3 ACE. Specifically, over half reported emotional abuse and/or neglect, 39% reported physical abuse and 44% reported sexual abuse. The vast majority (77%) reported that their parents were divorced or separated and 63% reported that they had a household member with a substance abuse problem.

At prenatal 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 half of clients reported they had ever been attacked or assaulted, half had ever been abused by a dating or intimate partner, and 48% reported they had been sexually assaulted/raped or had been the victim of partner violence by a dating or intimate partner.

In the six months before pregnancy, 69% of clients met study criteria for depression and/or anxiety and 36% met study criteria for co-morbid depression and anxiety. In addition, among clients who reported any crime or interpersonal victimization in their lifetime or in the 6 months before pregnancy, 30% had post-traumatic stress disorder (PTSD) scores that met study criteria for risk of PTSD in the 6 months before the birth of the baby. Further, 39% of clients reported in the 6 months before pregnancy and 18% 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.

> *"I felt like if I needed anything they were always there."*
>
> - KY-Moms MATR follow-up client

Birth Events and Outcomes of KY-Moms MATR Clients Compared to the General Population of Mothers in Kentucky

Even with increased risk factors for negative birth outcomes, the KY-Moms MATR mothers had before participating in the program, their birth outcomes were very positive overall, and were nearly identical to the overall general population of mothers and babies. After controlling for factors such as mother's age, education, marital status, area of residence, and smoking status at birth, the two groups of mothers had similar birth outcomes for the percent of babies born premature, babies' average birth weight, average APGAR scores, percent of mothers experiencing birthing problems, percent of babies taken to the neonatal intensive care unit, percent of women breastfeeding, and the number of prenatal visits with a health care provider.

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, they must determine additional eligibility criteria before completing the follow-up interview: (1) the baby must be living with the client; and (2) the client must not be in a jail or controlled environment. During FY19, 69 postnatal follow-up assessments were completed (a 71.1% follow-up rate).[3]

Clients were asked how their baby was doing at postnatal follow-up and all the mothers indicated the baby was "great" or "good." In addition, scores in maternal attachment increased significantly from baseline to follow-up indicating the mothers are emotionally engaged with their babies. Of the women

[3] Clients who completed a postnatal follow-up assessment (n = 69) were admitted to the KY-Moms MATR program and completed baseline assessments between May 2017 and October 2018.

No significant differences in birth outcomes for KY-Moms MATR clients compared to the general population of mothers[a]

GESTATIONAL AGE

38.1 Average weeks | **38.2** Average weeks

BIRTH WEIGHT

7lbs, 5oz Average birth weight | **7lbs, 3oz** Average birth weight

APGAR SCORE

8.7 Average score | **8.8** Average score

PRENATAL VISITS

11.7 Average number of visits | **11.8** Average number of visits

[a] Each birth outcome was entered as the dependent variable in a separate binary logistic regression model with KIDS NOW Plus participation as the predictor variable and the covariates of mother's age, education (i.e., high school diploma or higher), area of residence (metropolitan vs. micropolitan county), marital status, and smoking at the time of the birth. The alpha level was set at $p < .01$.

who reported planning on breastfeeding at baseline, over three-quarters reporting 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 decided yet, almost one-quarter reported having breastfed at follow-up and one was still breastfeeding.

Substance Use

Fewer pregnant mothers reported substance use while in the program compared to before being pregnant. These reductions were sustained six months after the birth of their baby. A trend analysis from report year 2015 to the present appears to show a steady increase in clients reporting illegal drug use at prenatal baseline. While the percent of clients reporting illegal drug use decreased significantly at follow-up compared to baseline for each year, over the years the percent of clients reporting illegal drug use at follow-up appears to have increased slightly.

Smoking rates also decreased (from 75.0% of clients in the 6 months prior to pregnancy to 63.2% of clients in the past 6 months at follow-up) as was smoking frequency among those who did smoke. Specifically, clients who reported smoking prior to pregnancy reported an average of 6.6 cigarettes in the 30 days before their baby was born compared to 17.2 cigarettes the 30 days before their pregnancy.

Mental Health

Among mothers with any mental health symptoms, there was a reduction in the number of reported depression and anxiety symptoms after participation in the KY-Moms MATR program. These improvements in mental health problems were sustained after

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 PAST-6-MONTH ILLEGAL DRUG USE

64% at baseline | **7%** at follow-up

MET STUDY CRITERIA FOR PAST-6-MONTH DEPRESSION AND/OR ANXIETY

70% at baseline | **32%** at follow-up

REPORTED ANY INTIMATE PARTNER ABUSE***

36% at baseline | **13%** at follow-up

REPORTED DIFFICULTY MEETING BASIC LIVING NEEDS

52% at baseline | **26%** at follow-up

the birth of the baby. A trend analysis shows that rates of depression and/or anxiety at baseline were fairly consistent over 4 years, but appears to have increased since 2018.

Intimate Partner Abuse

The number of mothers who reported intimate partner abuse significantly decreased after becoming involved in the KY-Moms MATR program. The percent of clients who reported any partner abuse at prenatal baseline was fairly consistent over the previous 5 years. This year, however, the percent of clients who reported any partner abuse appeared to be higher compared to report year 2019. Around one-quarter to over one-third of clients reported any form of intimate partner abuse in the six months before pregnancy. Overall, the number of clients who reported intimate partner abuse at follow-up was also fairly consistent with 11% to 15% of clients reporting intimate partner abuse in the 6 months since the birth of the baby.

Physical Health

Over one-third of clients reported they had no chronic health problems and 5.7% had three health problems or more at prenatal baseline. Less than one-quarter of clients reported experiencing chronic pain at baseline compared to 10.1% at follow-up. In addition, the average number of days clients reported their physical health was not good in the past 30 days decreased from 5.4 days to 3.0 days. The number of days clients reported their mental health was not good decreased from 11.6 days at prenatal baseline to 5.6 days at postnatal follow-up.

Stress and Quality of Life

About 10% of clients at prenatal baseline and postnatal follow-up reported substance use to manage stress. Clients reported a significantly higher quality of life after the program and an overall greater satisfaction with life at postnatal follow-up compared to prenatal baseline.

Economic Hardship, Living Situation, and Criminal Justice Involvement

Women in the KY-Moms MATR program reported improved economic conditions with significantly fewer clients reporting they had difficulty meeting basic living needs (such as food, shelter, utilities, and telephone) in the past 6 months at follow-up compared to the 6 months before pregnancy. While there was no significant change in living situation at follow-up, the majority of clients at prenatal baseline (88%) and postnatal follow-up (100%) reported living in a private residence (i.e., their own or someone else's home or apartment). Though relatively few clients reported involvement with the criminal justice system, there was a significant decrease in the number of clients both reporting an arrest and clients who reported being incarcerated in the past 6 months at follow-up compared to baseline.

Deficits in Recovery Capital Resources

The recovery capital resources deficit is based on individuals' reports of recovery capital such as illegal drug use, unemployment, homelessness, criminal justice system involvement, comorbid depression and anxiety, partner violence, self-rating of overall poor health, no recovery supports, and rating of low quality of life. The presence of any of the resource deficits means a client is classified

as having a deficit in recovery capital resources. This measure is used to better capture overall recovery capital at follow-up. At baseline, the majority of the followed-up sample (88%) was classified as having deficits in recovery capital resources. At follow-up, 31% had a deficit in recovery capital resources—a significant decrease of 57%.

Client Satisfaction with Program Experience

The vast majority of program clients were satisfied with the KY-Moms MATR case management services they received. In particular, clients reported that program staff believed in them and that treatment would work for them, they talked about things that were most important to them, and the client felt the program staff cared about them and their treatment progress. In addition, clients felt listened to, had a connection with the counselor or program staff, and had input into treatment goals, plans and how they were progressing over time. Overall, the majority of clients (93%) reported that the KY-Moms MATR program worked pretty well or extremely well for them. Ninety-nine percent of clients in the postnatal follow-up sample indicated they would recommend KY-Moms MATR case management to a friend.

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, partner abuse, and economic hardship at follow-up. Specifically, 45% of clients were still smoking in the 30 days before the baby was born and 63% were smoking during the 6 months after the baby was born. In addition, almost one-third of KY-Moms MATR clients reported meeting study criteria for depression or anxiety (or both) in the six months after the baby was born. At follow-up, 10.1% of KY-Moms MATR clients reported experiencing intimate partner abuse in the 30 days before their baby was born and 13.0% 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. Finally, with 61% of KY-Moms MATR women reporting being currently unemployed and about 26% of women reporting difficulty meeting basic needs because of financial reasons at follow-up, economic hardship is a continuing problem for many of these new mothers.

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 (UKCDAR) at the request of 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? Description of KY-Moms MATR Program Clients at Baseline. This section describes the KY-Moms MATR client characteristics for 158 women who participated in the KY-Moms MATR program, completed a baseline assessment between May 2017 and December 2018, and were eligible for follow-up in FY 2019. 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, and (8) intimate partner abuse.

Part III: Birth Events and Outcomes: KY-Moms MATR Case Management Clients Compared to the General Population of Mothers. This section uses the Kentucky Vital Statistics birth data to examine (1) general risk factors, (2) targeted risk factors available from the Vital Statistics data set, and (3) birth events and outcomes of 66 KY-Moms MATR case management clients and their babies (a total of 67 babies) compared to mothers in the state who had babies during the same period (between December 2017 and January 2019) but who did not participate in the KY-Moms MATR Case Management study (n = 61,064, and a total of 62,361 babies)).[4]

Part IV: Change in Targeted Factors from Baseline to Follow-up for Clients in the Postnatal Follow-up Sample. This section examines change in: (1) information about the baby, (2) substance use, (3) mental health, (4) intimate partner abuse and victimization experiences, (5) economic and living circumstances, economic hardship, and criminal justice involvement, (6) physical health, (7) stress, quality of life, and emotional support, and (8) deficits in recovery capital resources. Past-30-day and past-6-month measures are examined separately where applicable.

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

[4] Section 4 compares birth events and outcomes of KY-Moms MATR mothers to the general population of mothers who also gave birth during the same time period. Appendix D compares birth events and outcomes for three mutually exclusive groups including: (1) mothers involved in KY-Moms MATR case management services, (2) a comparison group of mothers matched on selected characteristics (race, age, education, metropolitan/micropolitan residence, marital status, and smoking status), and (3) a randomly selected group of mothers from the general population.

program satisfaction rating.

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

Part I: Introduction and Evaluation Method

This section briefly describes the KY-Moms MATR program and how clients were selected into the outcome evaluation.

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.[5, 6, 7, 8, 9] In addition, substance use is often related to mental health problems and an increased risk of partner abuse and sexual assault.[10, 11] All three of these interrelated risk factors increase the likelihood of negative birth outcomes.[12, 13] Additionally, risks of negative birth outcomes are increased when women using alcohol and illegal drugs avoid obtaining prenatal care due to access, fear of losing custody of their babies, or fear of being arrested.[14]

The overall goal of the KY-Moms MATR program is to increase positive birth outcomes for pregnant women in Kentucky who are at risk for negative birth outcomes by reducing risk of substance use, poor mental health status, and victimization that impact the health of the pregnant mother, fetal development, and birth outcomes. The program is administered by the Division of Behavioral Health in the Department for Behavioral Health, Developmental and Intellectual Disabilities.[15] 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

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[14] 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.

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

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) based on a client-centered format. This intervention focuses on meeting clients' needs as they evolve over time, as different risks manifest, and needs change as the pregnancy progresses.[16] By focusing on clients' needs, client-centered intensive case management encourages continued engagement in clinical services and helps with a variety of practical needs.[17, 18] 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.[19, 20]

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.

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.[21] Overall, a total of 158 baselines were completed between May 2017 and December 2018 with women who had due dates that would result in target

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[21] For more information, see: Scrivner, A., Logan, T., Cole, J., & Miller, J. (2016). ***Evidence Base for the KY-Moms MATR Evaluation Assessment and Methods.*** Lexington, KY: University of Kentucky, Center on Drug and Alcohol Research.

months for a follow-up interview between July 2018 and June 2019 (see appendix A for details on these clients at prenatal baseline).

At prenatal baseline, clients are offered the opportunity to be contacted for a postnatal follow-up interview. If the client gives consent to be contacted for a follow-up, 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). In addition to consent, KY-Moms MATR clients are eligible to be included in the sample to be followed up if: (1) the prenatal baseline is submitted to UK CDAR within 30 days of completion, (2) the client does not plan to put the baby up for adoption or in alternate care following birth, (3) the client is in the program at least 30 days before the birth of the baby, and (4) the minimal acceptable amount of contact information is provided so that the follow-up staff can locate the client to conduct the interview. If any of these criteria were not met, the client was not included in the sample to be followed up.[22]

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, they must determine additional eligibility criteria before completing the follow-up interview: (1) the baby must be living with the client, and (2) the client must not be in a jail or controlled environment.[23] 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 FY19, 69 postnatal follow-up assessments were completed (a 71.1% follow-up rate).[24] See Appendix B for more details about follow-up methods and eligibility.

To be included in the analysis for the birth event outcome section of this report, clients had to have given permission 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 69 clients completed a postnatal follow-up assessment, one client did not give permission to use their birth data, one client had a missing response to the birth data permission question, and one client did not have a match in the birth event data set which could be due to an incorrect social security number, name, birth date, or out of state birth. This left a final sample for the birth event data of 66 women who met analysis criteria, gave birth between December 2017 and January 2019, and completed a postnatal follow-up assessment between July 2018 and June 2019 (an average of 6.7 months after giving birth).

[22] As a result of the prenatal baseline criteria, 20 clients were not eligible for the follow-up sample. See Appendix C for information on each category of ineligibility.

[23] 13 clients were not eligible for the follow-up sample based upon the postnatal follow-up criteria.

[24] Clients who completed a postnatal follow-up assessment (n = 69) were admitted to the KY-Moms MATR program and completed baseline assessments between May 2017 and December 2018.

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

When those with a postnatal follow-up interview (n = 69) were compared with those who did not have a postnatal follow-up interview (n = 89)[25] on a variety of prenatal baseline variables, clients who completed a follow-up reported a significantly higher average overall health rating compared to clients who were not followed up. More clients who were followed up reported alcohol use in the 6 months before pregnancy and in the 30 days prior to pregnancy. Among those clients who met criteria for depression in the 6 months before pregnancy, clients who were not followed up reported significantly more depression symptoms. However, more clients who completed a follow-up reported symptoms of depression in the past 30 days at prenatal baseline (see Appendix C).

	Followed up (n = 69)	Not followed up (n = 89)
Demographics	No difference	
Living situation	No difference	
Employment	No difference	
Physical health	Higher average overall health rating	
Illegal drug use	No difference	
Alcohol use	More alcohol use in the 6 months before pregnancy and the 30 days before pregnancy	
Mental health	More clients reported symptoms of depression in the past 30 days at prenatal baseline	Of those who met study criteria for depression, clients reported more depression symptoms in the 6 months before pregnancy
Intimate partner abuse	No difference	

[25] 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 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 May 2017 and December 2018, 158 pregnant women completed a prenatal baseline interview and were eligible for a six-month postnatal follow-up within FY 19.[26, 27]

Demographics

Table II.1 shows that the majority of clients were White (87.3%) and were an average of 25.6 years old. In addition, the majority (53.8%) were married or cohabiting at baseline. Of those clients who were living with an intimate partner (n = 85), 88.2% reported this partner was the father of the baby. About 11% of the KY-Moms MATR mothers reported at prenatal baseline they were currently homeless. Of those who indicated they were homeless (n = 18), 58.8% were staying temporarily with friends/family, 23.5% reported they perceived themselves to be homeless because they were staying in a shelter, and 17.6% considered themselves homeless for other reasons.

TABLE II.1. DEMOGRAPHICS FOR ALL KY-MOMS MATR CLIENTS AT BASELINE (N = 158)[28]

Age	25.6 years (range of 16-43)
Race	
White	87.3%
African American	6.4%
Mexican	2.5%
Puerto Rican	0.6%
Other or multiracial	3.2%
Marital Status	
Married or cohabiting	53.8%
Never married	35.4%
Separated or divorced	10.8%
Widowed	0.0%
Homeless	11.4%

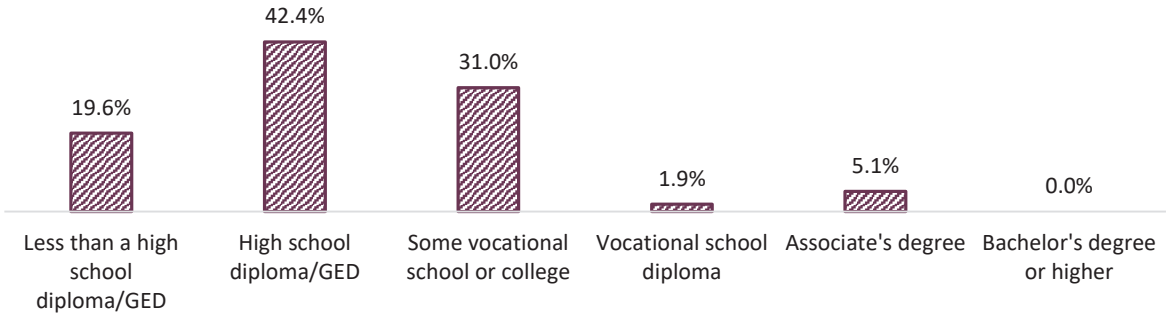
[26] Clients who completed a prenatal baseline (n = 158) entered the KY-Moms MATR program between May 2017 and November 2018 and were eligible for follow-up between July 2018 and June 2019. There was an average of 17 days between when the client entered the program and when the baseline assessment was completed.

[27] 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.

[28] Five clients had incorrect birthdates; therefore, age could not be calculated. In addition, one client preferred not to answer the question about race.

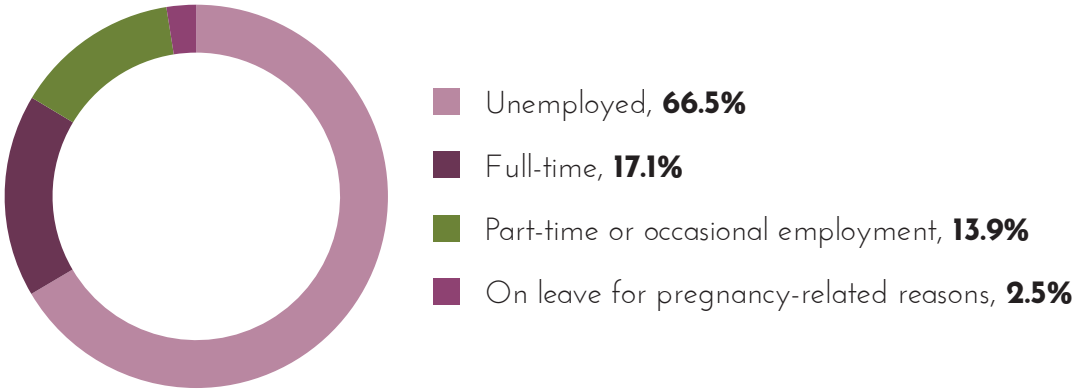
One in 5 clients had less than a high school diploma or GED at baseline (see Figure II.1). About 42% of clients reported their highest level of education was a high school diploma or GED. Thirty-one percent of clients had completed some vocational/technical school or college. Only a small minority of clients had completed vocational/technical school (1.9%) or an associate's degree (5.1%).

FIGURE II.1. HIGHEST LEVEL OF EDUCATION COMPLETED AT BASELINE (N = 158)



The majority of women in KY-Moms MATR case management were unemployed (66.5%) at the time of the baseline interview. About 17% were employed full-time and 13.9% either worked part-time or had occasional/seasonal work. Close to 3% reported they were currently on leave from their job due to pregnancy-related reasons.

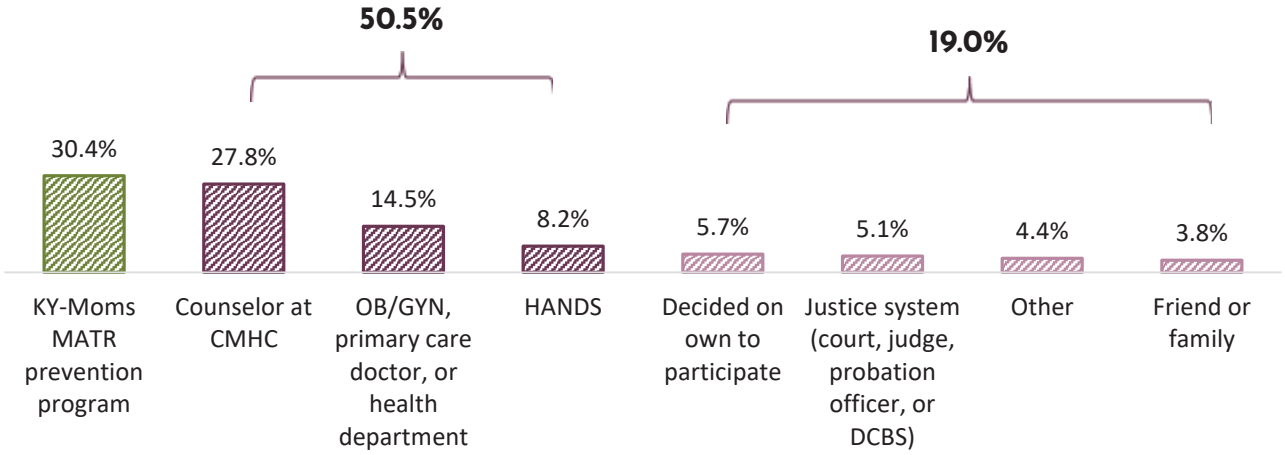
FIGURE II.2. CURRENT EMPLOYMENT STATUS AT BASELINE (N = 158)



Self-reported Referral Status

Figure II.3 shows the self-reported referral source for all KY-Moms MATR clients at baseline. About 30% of clients reported that they were referred to the KY-Moms MATR program by the prevention program. Around half of clients (50.5%) were referred by outside agencies such as a counselor at one of the community mental health centers (27.8%), a health care provider (14.5%), or Health Access Nurturing Development Services (HANDS; 8.2%). Nineteen percent of clients were referred to the program in other ways such as deciding on their own to participate (5.7%), the justice system (e.g., judge, court, probation officer, or DCBS; 5.1%), and a family member or friend (3.8%).

FIGURE II.3. SELF-REPORTED REFERRAL SOURCE FOR ALL KY-MOMS MATR CLIENTS AT BASELINE (N = 158)



Information About the Pregnancy

Overall, at the time clients completed the prenatal baseline, they were an average of 23 weeks pregnant (ranging from women who were 5 weeks pregnant to women who were 39 weeks pregnant). Only 1.9% reported they were not sure about maintaining custody of the baby.

At the time of prenatal baseline, clients had been to an average of 6.0 visits (range of 0-34 visits) with their prenatal health care provider and 55.8% reported they were planning on breastfeeding. Overall, 68.4% of clients reported they had been pregnant before.

TABLE II.2. PREGNANCY STATUS FOR ALL KY-MOMS MATR CLIENTS AT BASELINE (N = 158)

Average weeks pregnant	22.9 weeks (range of 5-39)
Plan to keep the baby	98.1%
Average number of visits with a healthcare professional	6.0 (range 0-34)
Plan to breastfeed	55.8%
Previously been pregnant	68.4%

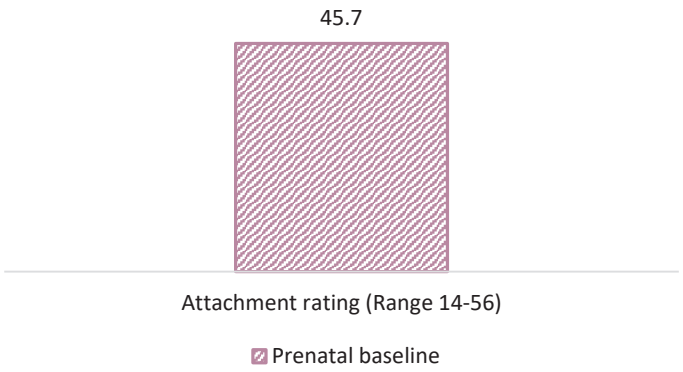
My case manager was really understanding, informative, and reassuring.

- KY-Moms MATR follow-up client

Maternal-fetal Attachment/Maternal-infant Attachment

Each client was asked 14 items about the extent to which she is emotionally engaged in her pregnancy[29] (e.g., "I wonder what the baby looks like now", "I imagine calling the baby by name", and "I imagine what part of the baby I'm touching") at baseline. Items are scored on a 4-point Likert scale from 1 = 'Almost never' to 4 = 'Almost always'. Total scores range from 14 to 56 with higher scores indicative of a higher level of attachment. Clients' average fetal attachment score was 45.7 at baseline indicating a relatively high attachment to their unborn baby.

FIGURE II.4. LEVEL OF MATERNAL-FETAL ATTACHMENT (N = 158)

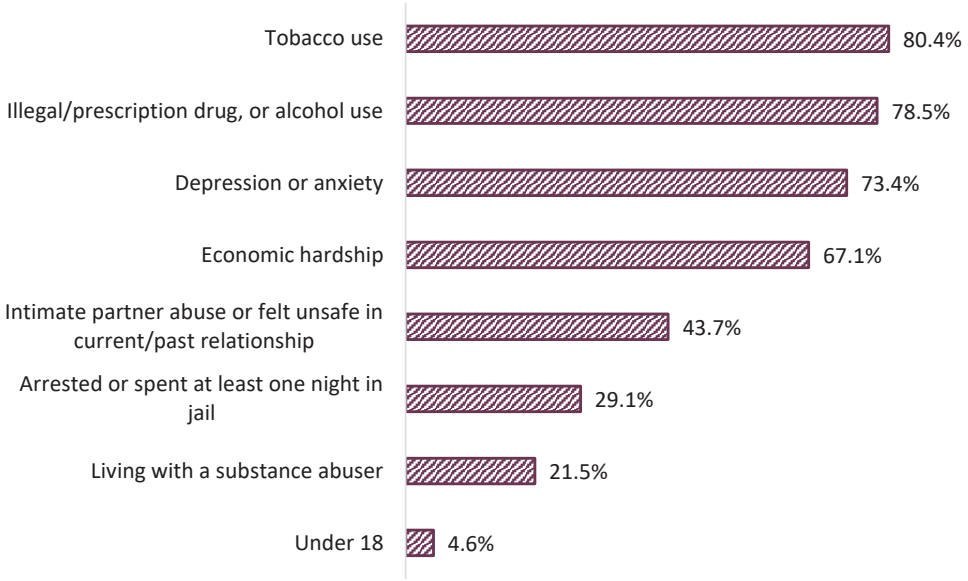


Risk Status

Figure II.5 shows that of the 158 clients who completed a KY-Moms MATR prenatal baseline, 98.7% (n = 156 clients) fit into at least one of the major risk factor categories assessed in the baseline interview. Overall, 80.4% of clients reported tobacco use (cigarettes, e-cigarettes, or smokeless tobacco), 78.5% reported drug or alcohol use at baseline, 73.4% met study criteria for depression or anxiety, 67.1% reported difficulty meeting basic living and/or health care needs, 43.7% reported intimate partner abuse and/or feeling unsafe in either their current relationship or because of a partner from a previous relationship, 29.1% reported having been arrested and/or incarcerated, 21.5% of clients reported currently living with someone who had drug or alcohol problems, and 4.6% were under the age of 18.

[29] To measure maternal-fetal attachment, the KY-Moms MATR assessment uses an adapted version of the Prenatal Attachment Inventory (PAI; Müller, 1993) in which consists of 21 items. For the purposes of KY-Moms MATR and to reduce the time burden on program staff, the PAI was reduced to 14 items.

FIGURE II.5. PERCENT OF CLIENTS FALLING INTO EACH TARGETED RISK FACTOR (N = 158)



Substance Use

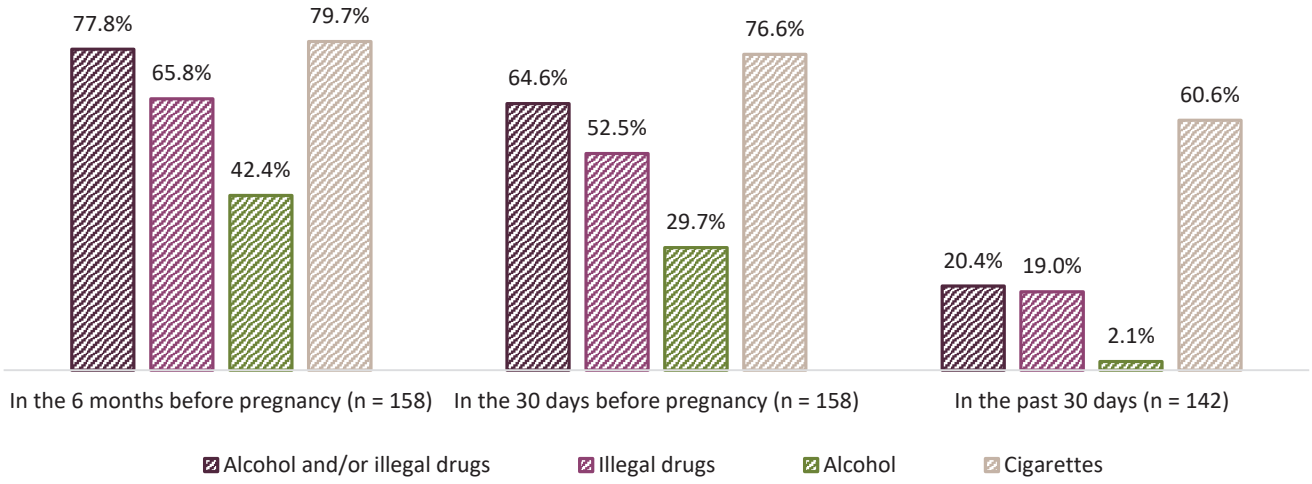
The majority of clients who completed a baseline assessment reported using alcohol and/or illegal drugs (77.8%) in the 6 months before pregnancy. Overall, a higher percentage of individuals reported using illegal drugs (65.8%) compared to the percent of individuals who reported using alcohol (42.4%) in the 6 months before pregnancy. The majority of clients reported smoking tobacco (79.7%) in the 6 months before pregnancy. In the 30 days before pregnancy, 64.6% of clients reported using alcohol and/or illegal drugs, 52.5% reported illegal drug use, 29.7% reported alcohol use, and 76.6% of clients reported smoking tobacco.

Of the 142 clients who were not in a controlled environment all 30 days before baseline,[30] 20.4% reported using alcohol and/or illegal drugs.[31] Specifically, 19.0% reported illegal drug use and 2.1% reported alcohol use. Also, 60.6% reported smoking tobacco in the 30 days before baseline (see Figure II.6).

[30] Because being in a controlled environment decreases opportunities for substance use, individuals who were in a controlled environment all 30 days before entering the program (n = 16) are not included in the analysis of substance use in the 30 days before entering treatment.

[31] This period of time includes while they were pregnant, but may not have known they were pregnant yet.

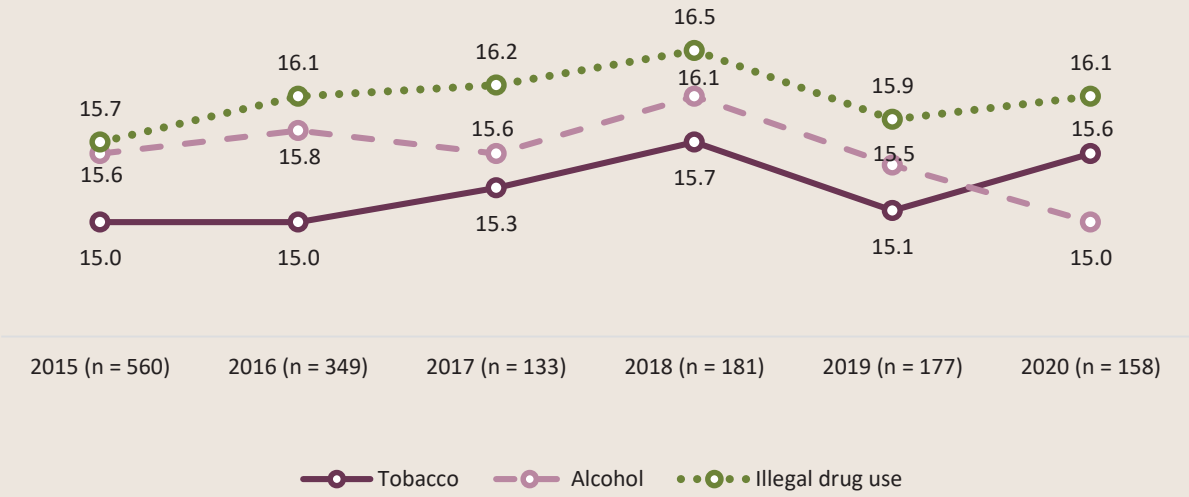
FIGURE II.6. PERCENT OF CLIENTS REPORTING ILLEGAL DRUGS, ALCOHOL, AND SMOKING TOBACCO AT BASELINE



Trends in Age of First Use

Clients were asked at baseline how old they were when they first began to use illegal drugs, when they had their first alcoholic drink (more than just a sip), and when they began smoking cigarettes regularly (see Figure II.7). The age at which KY-Moms MATR clients reported regular illegal drug use has stayed between around 16-17 years old. Clients generally reported having their first alcohol drink around 15 years old. The age of first tobacco use was slightly older than the age of first alcoholic drink (about 16 years old).

FIGURE II.7. TRENDS IN AGE OF FIRST USE REPORTED AT BASELINE, 2015-2020[32, 33]



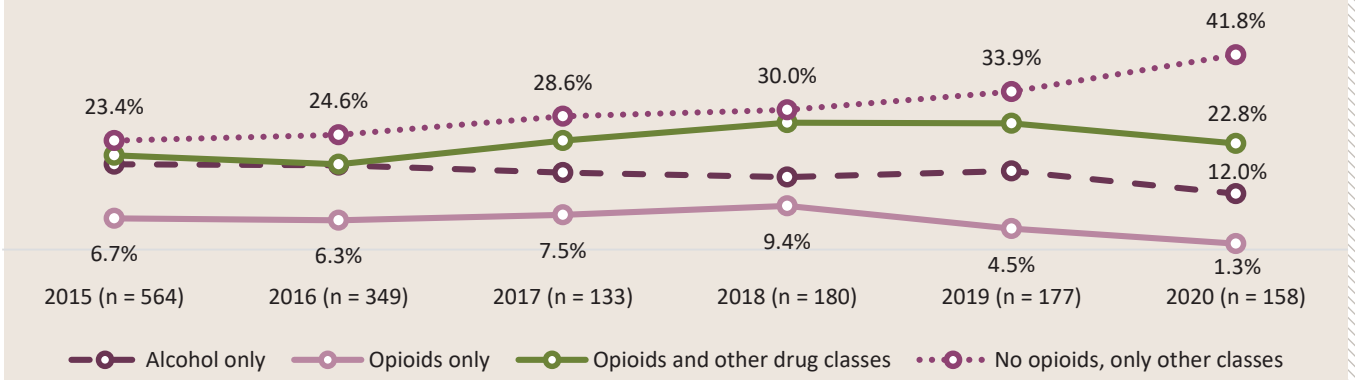
[32] Because age of use for each substance each year was so similar, the axis reflects ages 14-18 so all of the ages can easily be viewed.

[33] For each trend report presented, the years correspond to years in which the annual reports were published. In addition, all trend analyses present only annual report data at baseline and follow-up and do not include between-year statistical analysis.

Trends in Alcohol and Drug Use Classes[34] in the 6 Months Before Pregnancy at Baseline

In each report year, more clients with a baseline reported not using opioids, but other classes of drugs in the 6 months before pregnancy. The percent of clients reporting using other classes of drugs in the 6 months before pregnancy has almost doubled from 23.4% in the 2015 report to 41.8% in the current report year.

FIGURE II.8. TRENDS IN CLASSES OF SUBSTANCES USED IN THE SIX MONTHS BEFORE PREGNANCY, 2015-2020



In 2020, of those clients who reported only using other classes of drugs and no opioids (n = 66), 78.8% reported marijuana use, 42.4% reported amphetamine use, and 12.1% reported tranquilizer use.

Adverse Childhood Experiences and Victimization

At baseline, clients were asked ten items regarding adverse childhood experiences from the Adverse Childhood Experiences Study (ACE).[35, 36, 37] 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 items clients answered affirmatively to were added to create a score equivalent to the ACE score. A score of

[34] 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).

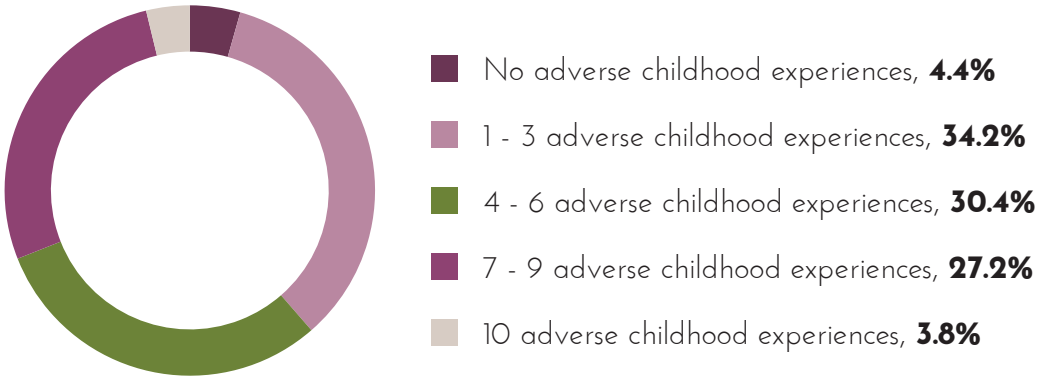
[35] Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. ***American Journal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

[36] 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.

[37] 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) fives 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).

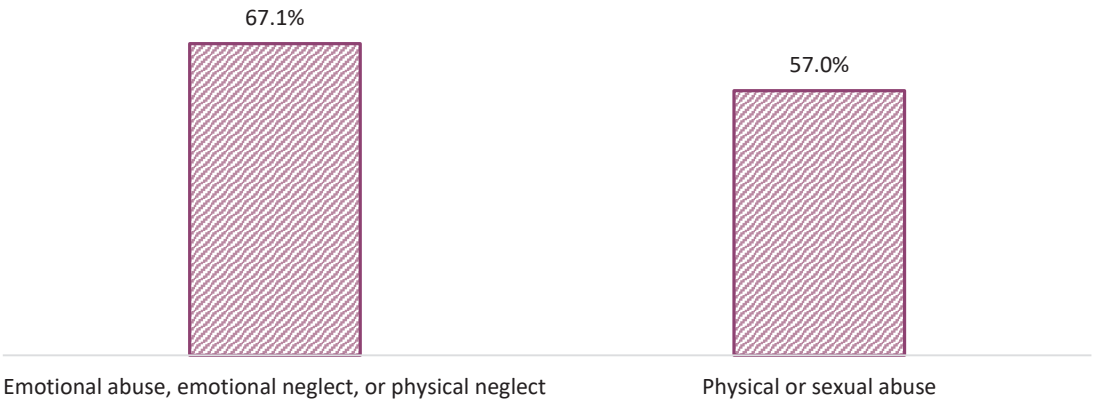
0 means the client answered "No" to the five abuse and neglect items and the five household dysfunction items in the baseline interview. A score of 10 means the client reported all five forms of child maltreatment and neglect, and all 5 types of household dysfunction before the age of 18. Figure 11.9 shows that only 4.4% reported they did not experience any of the ACE included in the assessment which means 95.6% of clients reported at least one type of ACE. Specifically, 34.2% reported experiencing 1 to 3 ACE, 30.4% reported experiencing 4 – 6 ACE, and 27.2% reported experiencing 7 – 9 ACE. Only 3.8% of clients reported experiencing all 10 types of adverse childhood experiences.

FIGURE 11.9. NUMBER OF TYPES OF ADVERSE CHILDHOOD EXPERIENCES REPORTED AT BASELINE (N = 158)



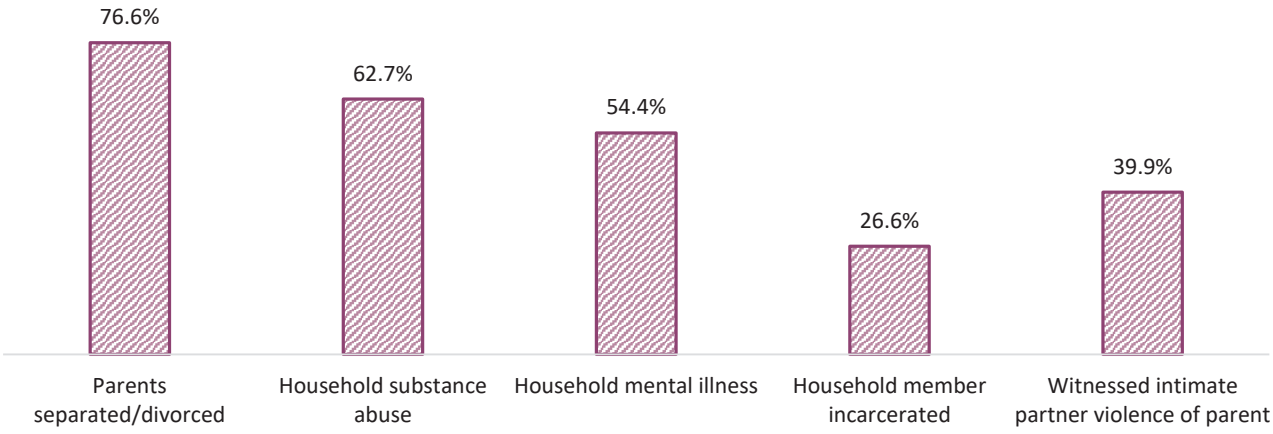
Over two-thirds of KY-Moms MATR clients (67.1%) reported that they had experienced emotional abuse (e.g., insults, put down, humiliation, parent acted in a way that made the child believe they would be physically hurt), emotional neglect (e.g., felt that no one in the family loved them, or they weren't special/important, or did not feel close to each other or supported), or 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 60% of clients reported experiencing physical abuse (e.g., being pushed/grabbed/slapped, or being hit so hard that it left marks) or 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 11.10. SPECIFIC MALTREATMENT AND ABUSE EXPERIENCES IN CHILDHOOD (N = 158)



Over three-quarters of clients (76.6%) reported their parents were divorced or lived separately and 62.7% had a household member with a substance abuse problem (see Figure 11.11). Over half of clients (54.4%) reported they had a household member with a mental illness or had committed suicide, 26.6% reported a household member had been incarcerated, and 39.9% witnessed intimate partner abuse of a parent before the age of 18.

FIGURE 11.11. HOUSEHOLD RISKS IN CHILDHOOD (N = 158)

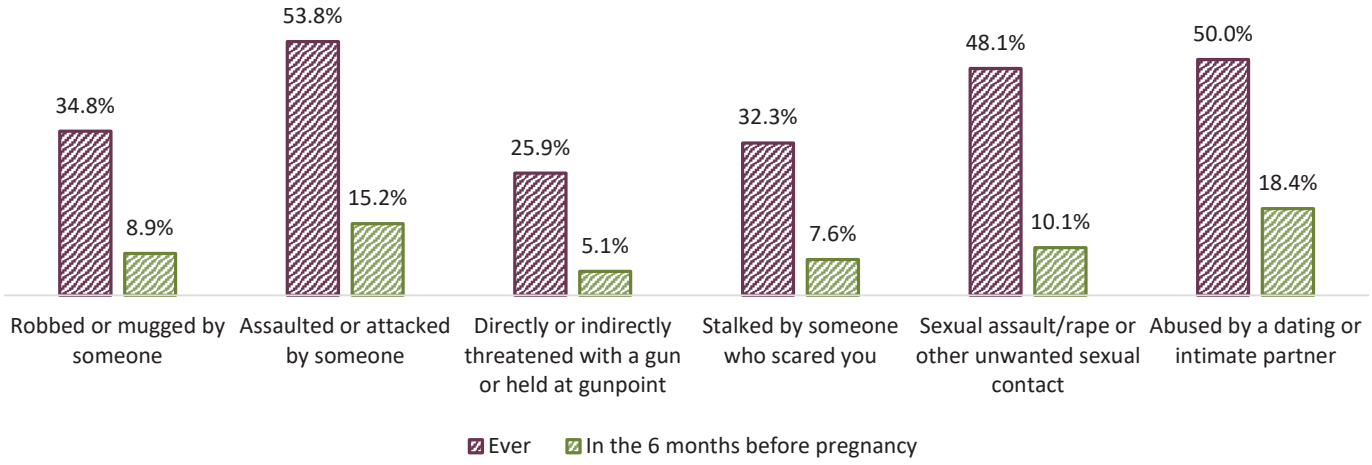


Adult Victimization Experiences

At prenatal baseline, clients were also 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 other than a parent or guardian in their lifetime. Overall, 72.8% of clients reported ever experiencing any type of adult victimization. Figure 11.12 shows that, specifically, 34.8% of clients reported having ever been robbed or mugged. Over half of clients (53.8%) reported having ever been assaulted or attacked by someone and 25.9% of clients reported they had been directly or indirectly threatened with a gun or held at gunpoint. Almost one-third of clients reported having ever been stalked by someone who scared them. About 48% reported having ever been a victim of sexual assault, rape, or other unwanted sexual contact and half reported having ever been abused by a dating or intimate partner (partner physically assaulted, controlled, or emotionally abused the client).

In the 6 months before pregnancy, 29.7% reported any adult victimization. Specifically, 18.4% of clients reported being abused by a dating or intimate partner and 15.2% reported being assaulted or attacked by someone.

FIGURE II.12. PERCENT OF CLIENTS HAVING EVER EXPERIENCED VICTIMIZATION (N = 158)

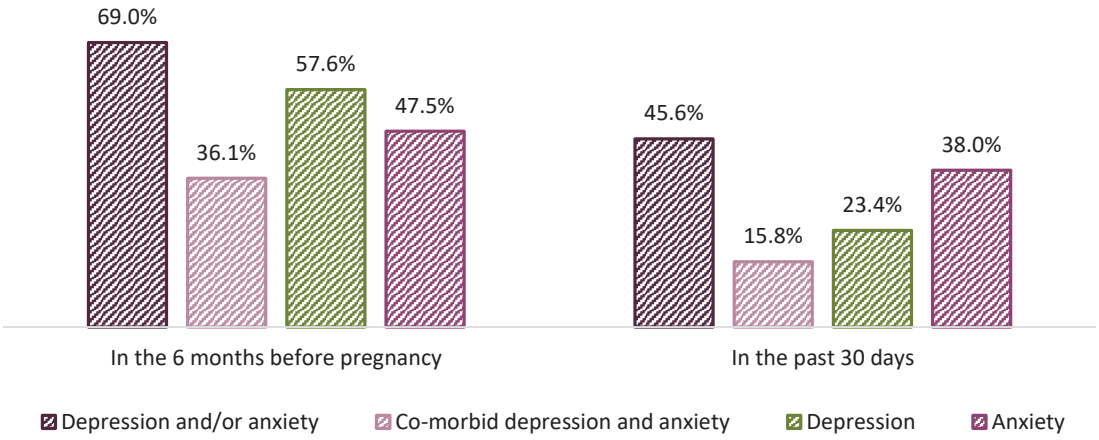


Mental Health

In the 6 months before pregnancy, 69.0% of clients met study criteria for depression and/or anxiety and 36.1% of clients met criteria for co-morbid depression and anxiety. About 58% of clients met study criteria for depression and 47.5% met criteria for anxiety (see Figure II.13).

In the past 30 days at baseline, almost half of clients met criteria for depression and/or anxiety and 15.8% met criteria for both depression and anxiety.

FIGURE II.13. PERCENT OF CLIENTS MEETING STUDY CRITERIA FOR DEPRESSION AND/OR ANXIETY AT BASELINE (N = 158)



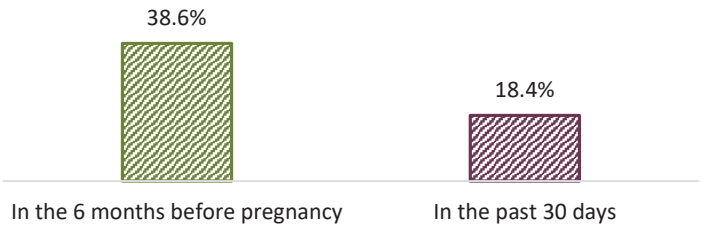
Less than one-third of clients (30.1%) met study criteria which would indicate a risk for post-traumatic stress disorder (PTSD) in the 6 months before the birth of the baby (not represented in a figure).[38]

[38] Previous version of the assessments included instructions to ask PTSD questions only if they had been a victim of a crime as an adult; therefore, not all 158 clients answered this question.

Any Intimate Partner Abuse

Figure II.14 shows that in the 6 months before pregnancy, 38.6% of clients reported experiencing any type of abuse (including psychological abuse, control, physical abuse, and sexual abuse)[39] perpetrated by a current or ex-partner and 18.4% of clients reported experiencing abuse in the past 30 days.

FIGURE II.14. ANY TYPE OF ABUSE IN THE 6 MONTHS BEFORE PREGNANCY AND IN THE PAST 30 DAYS (N = 158)



Summary

Most clients reported they were referred to the KY-Moms MATR program by either the KY-Moms MATR prevention program or from a counselor at a community mental health agency. The majority of clients coming into the program were White, about 26 years old, and either married or cohabiting with a partner. Of the clients who were married or cohabiting, a majority (88%) reported that their current partner was the father of the baby. Less than one-quarter of clients had less than a high school diploma/GED and the vast majority were unemployed.

Overall, clients were an average of 23 weeks pregnant when they completed a prenatal baseline assessment and over two-thirds reported that they had been pregnant before. Clients' scores on maternal-fetal attachment indicated that the mothers had a high level of attachment to their babies. At baseline, clients reported an average of 6 prenatal visits with a health care professional. Over half of clients 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 including high rates of smoking, alcohol and illegal drug use, depression or anxiety, and intimate partner abuse. In addition, the majority of clients reported at least one adverse childhood experience and among the clients who reported any crime or interpersonal victimization, almost one-third had PTSD scores that indicated risk of PTSD in the 6 months before they became pregnant.

[39] 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.

Part III. Birth Events and Outcomes: KY-Moms MATR Program Clients Compared to the General Population of Mothers

This section uses the Kentucky Vital Statistics birth data[40] to examine (1) general risk factors, (2) targeted risk factors available from the Vital Statistics data set, and (3) birth events and outcomes of 66[41] KY-Moms MATR case management clients and their babies compared to others in the state who had babies during the same time period (between December 2018 and January 2019) but who did not participate in the KY-Moms MATR Case Management study (n = 61,064).[42, 43]

In the data set 1,297 mothers from the general population and one mother in KY-Moms MATR had more than one baby (i.e., twins, triplets, quadruplets, or siblings born in the same year of analysis). As a result, there were 67 babies born to 66 women in the KY-Moms MATR sample and 62,361 babies born to the 61,064 women in the general population sample.[44] The information in this section is limited to data from the Kentucky Vital Statistics data set for both groups and describes demographic information (age, race, and metropolitan/micropolitan area of residence), socio-economic status indicators (education and source of payment for birth of the baby), physical health status (average weight gained during pregnancy and maternal health problems), patterns of cigarette smoking, and birth outcomes.

General Risk Factors

Demographics

Table III.1 shows the demographic differences between KY-Moms MATR mothers and mothers from the general population of Kentucky at the time of the baby's birth.

Compared to the general population of mothers, KY-Moms MATR clients were younger on average

[40] In the Kentucky Vital Statistics birth event data set, each case is one baby paired with the mother's information collected at the time of the birth. There could potentially be multiple babies (cases) attached to one mother in the instance of multiple births or multiparous births in the same year. For that reason, the number of cases in the file does not equal the number of mothers in the file.

[41] Out of the 69 follow-ups, one client did not give permission to use their birth data, one client had a missing response, and one client could not be matched to the birth event data file.

[42] Out of the 64,633 cases in the Vital Statistics data set from December 2018 to January 2019, after cleaning, 2,114 cases had the mother's residence as out-of-state or not entered, 2 cases were removed because they corresponded to KY-Moms MATR clients who either did not give permission to use the birth event data or the consent response was missing, 33 cases were removed because they matched last year's outcome report, 16 cases were removed because they were duplicates, and 40 cases were removed because they corresponded to women in KY-Moms MATR that did not have a follow-up. A total of 62,428 cases, therefore, remained in the analysis.

[43] See Appendix B for further birth data comparisons between KY-Moms MATR clients and a sample of mothers with matching characteristics.

[44] More detailed description of the birth data methods can be found in Appendix B.

(25.8) and were more likely to be White (92.4%). In addition, KY-Moms MATR clients were less likely to be married (30.3%).

TABLE III.1. DEMOGRAPHIC INFORMATION OF BIRTH DATA GROUPS[a]

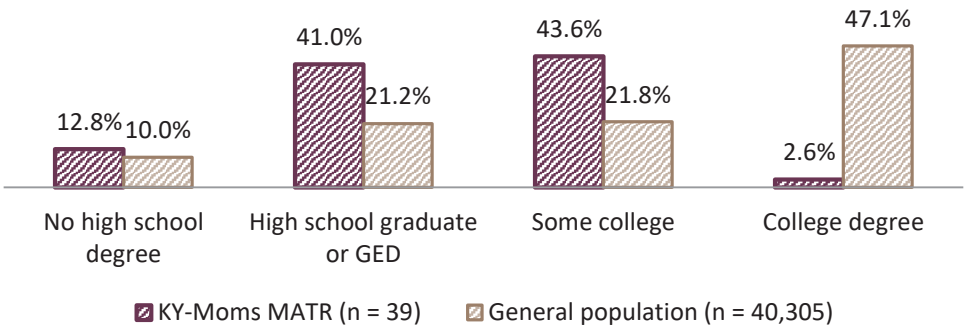
	KY-Moms MATR (n = 66)	General Population (n = 61,064)
Average age*	25.8	27.4
Race*		
White	92.4%	83.1%
Non-white	7.6%	16.9%
Type of community		
Metropolitan	54.5%	61.0%
Micropolitan	30.3%	31.0%
Very rural	15.2%	8.0%
Married***	30.3%	57.9%

*p < .05, *** p < .001.
a—Race was unknown for 229 women in the general population; type of community was missing for 4 women in the general population; marital status was missing for 44 women in the general population; and age was missing for 3 women in the general population.

Socioeconomic Status Indicators

It is important to compare education rates only for those who had sufficient time to finish high school or a GED. The 2013-2017 Census estimates that of Kentuckians ages 25 and older, 87.3% had high school degrees.[45] Overall, among women 25 years of age and older, education differed significantly between the two groups. Close to 13% of KY-Moms MATR mothers and 10.0% of mothers in the general population had less than a high school degree. In addition, 47.1% of mothers in the general population, which was slightly older than the KY-Moms MATR mothers, received a college degree compared to 2.6% of mothers in KY-Moms MATR (see Figure III.1).

FIGURE III.1. LEVEL OF EDUCATION ACROSS GROUPS, AMONG WOMEN 25 YEARS OLD OR OLDER***

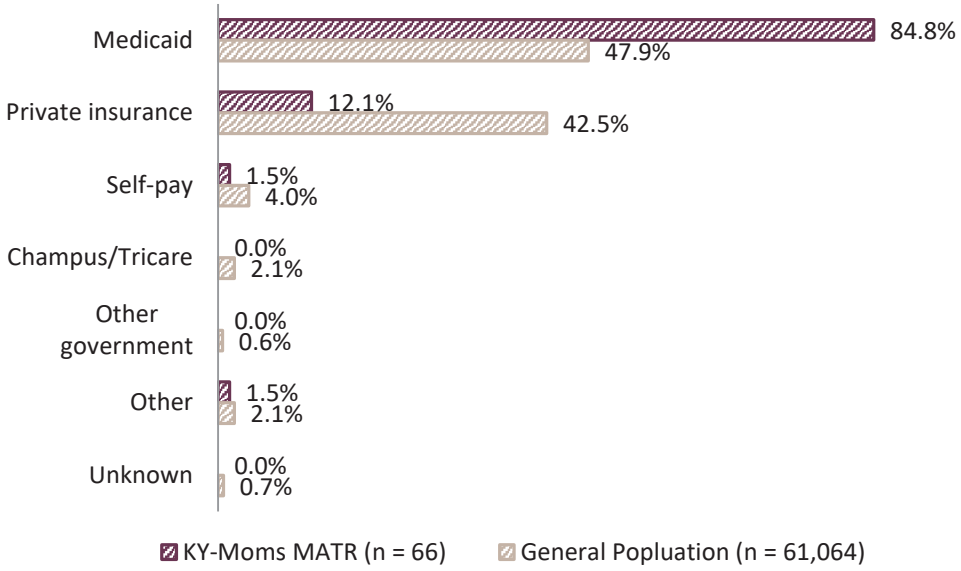


***p < .001

[45] https://www.census.gov/quickfacts/fact/table/US/PST045218?

Figure III.2 shows that KY-Moms MATR clients were significantly more likely to have Medicaid as their source of payment for the birth of the baby (84.8%) whereas the general population was more likely to have private insurance (42.5%) compared to the KY-Moms MATR clients (12.1%).

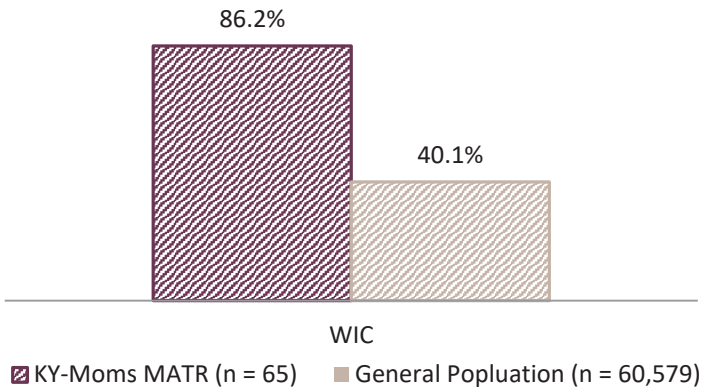
FIGURE III.2. SOURCE OF PAYMENT FOR DELIVERY COSTS ACROSS GROUPS***



Significance tested with Chi-square test; ***p < .001.

WIC provides nutrition education, breastfeeding promotion and education, a monthly food allotment to use toward nutritious foods, and access to maternal, prenatal and pediatric health-care services for high-risk women. The majority of KY-Moms MATR clients (86.2%) received support from WIC compared to 40.1% of mothers who were not in KY-Moms MATR, which may suggest lower incomes and/or greater effort by KY-Moms MATR caseworkers to connect women with this service (see Figure III.3).

FIGURE III.3. PERCENT OF WOMEN ENROLLED IN WIC PROGRAM COMPARED TO THE GENERAL POPULATION OF MOTHERS[a]***

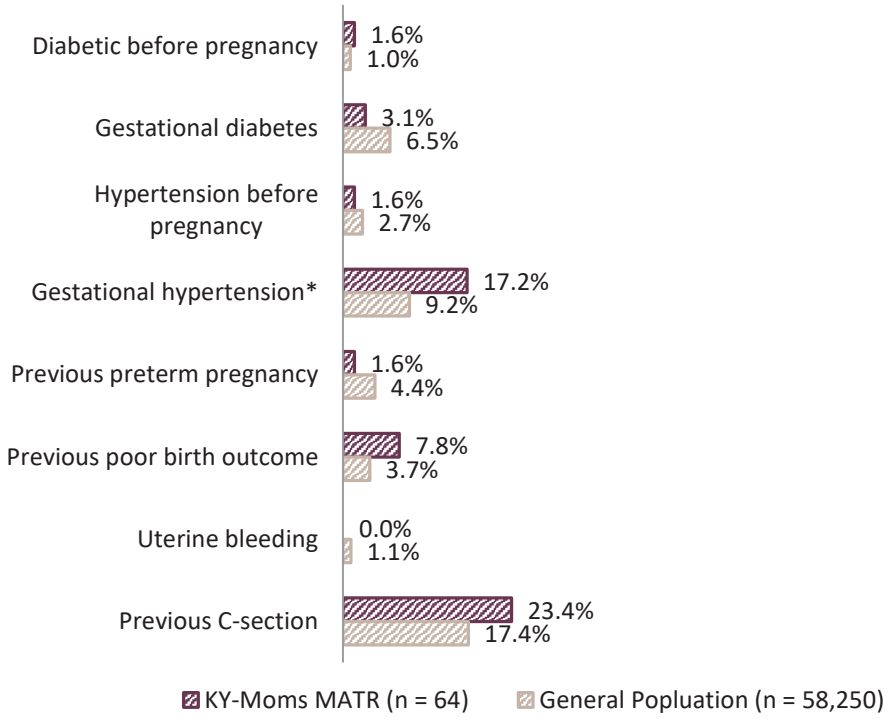


a – Information on WIC was labeled "unknown" for 485 mothers in the general population and for one person in the KY-Moms sample.
Significance tested with Chi-square test; *** p < .001

Physical Health Status

General health conditions of pregnancy that could cause harm to the baby or the mother were collected from the Kentucky Vital Statistics data set. KY-Moms MATR mothers were not significantly more or less likely than the general population of mothers to experience most of the maternal health conditions such as diabetes, gestational diabetes, hypertension, uterine bleeding, or a previous C-section (see Figure III.4). Significantly more KY-Moms MATR clients, however, reported gestational hypertension (17.2%) compared to the general population (9.2%).

FIGURE III.4. OTHER MATERNAL HEALTH FACTORS ACROSS GROUPS[a]



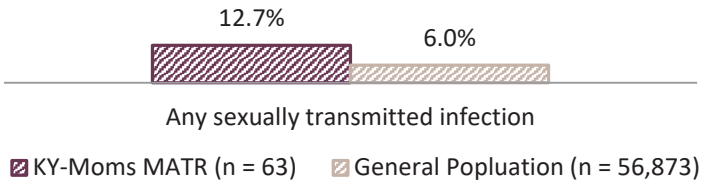
a—2 KY-Moms clients and 2,878 mothers in the general population had missing information on maternal health questions.

KY-Moms MATR clients were significantly more likely to have sexually transmitted infections such as gonorrhea, syphilis, herpes, or chlamydia compared to the general population (12.7% vs. 6.0%, respectively).

I learned a lot in the program and it helped me to reach goals. My case manager was very involved.

- KY-Moms MATR follow-up client

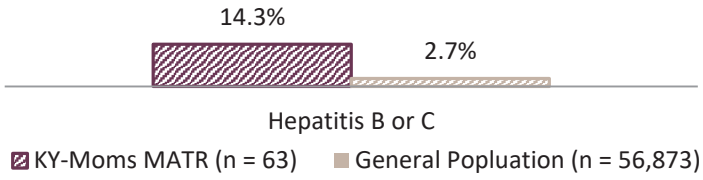
FIGURE III.5. PERCENT OF WOMEN REPORTING A SEXUALLY TRANSMITTED INFECTION[46]*



*p < .05.

KY-Moms MATR clients were also significantly more likely to have Hepatitis B or C (14.3%) compared to the general population of mothers (2.7%; see Figure III.6).

FIGURE III.6. PERCENT OF WOMEN REPORTING HEPATITIS B OR C INFECTION[47]***



***p < .001.

Targeted Risk Factors

Smoking Patterns

A significantly greater percentage of KY-Moms MATR mothers (55.4%) reported smoking compared to the general population of mothers (25.9%; not depicted in a figure).[48, 49] Among mothers who reported they smoked, KY-Moms MATR mothers reported, on average, smoking more cigarettes before pregnancy and in each trimester compared to women in the general population (see Figure III.7).

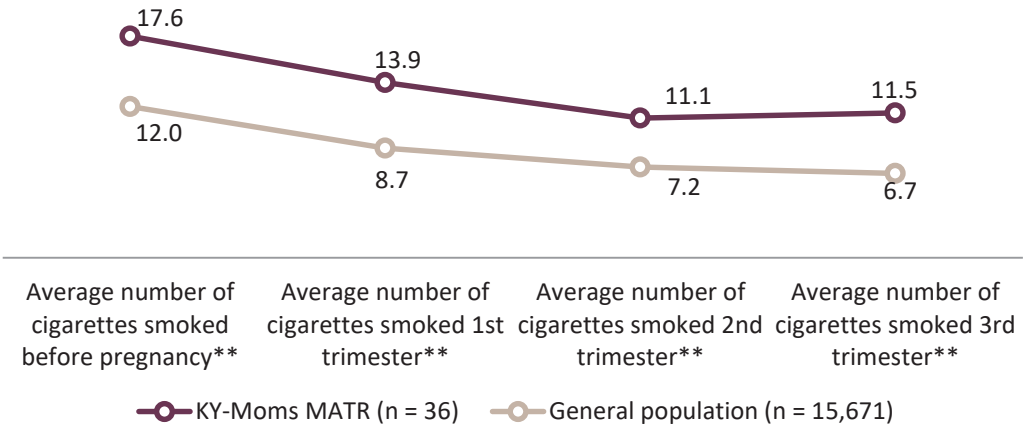
[46] 4,191 mothers in the general population and three women in KY-Moms MATR were missing data on sexually transmitted infections.

[47] 4,191 mothers in the general population and three women in KY-Moms MATR were missing data on sexually transmitted infections.

[48] 509 mothers in the general population and one mother in the KY-Moms sample were missing data about whether or not she was a smoker.

[49] In the Vital Statistics data set, the timeframe for when the mother smoked is not identified.

FIGURE III.7. AVERAGE NUMBER OF CIGARETTES SMOKED PER TRIMESTER, AMONG WOMEN WHO SMOKE

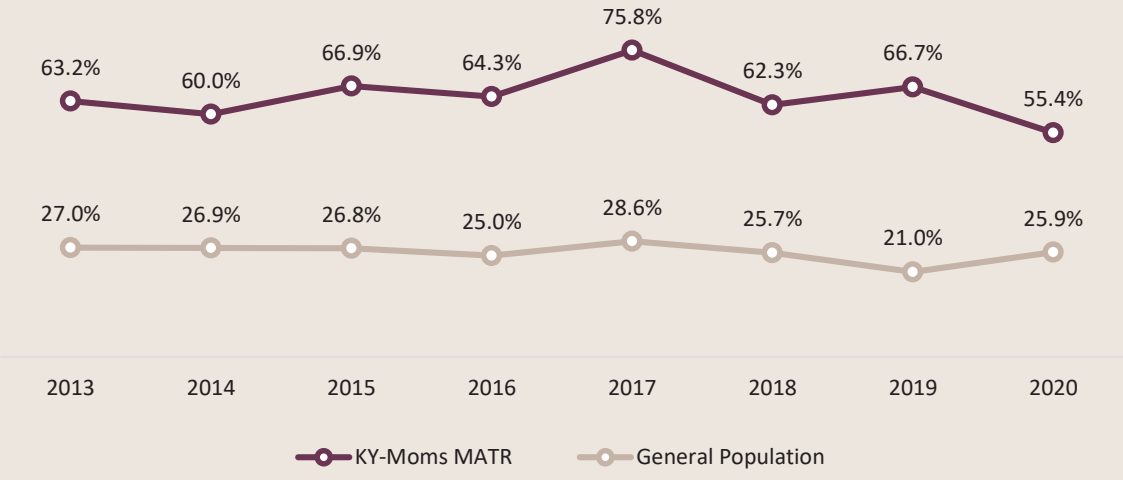


a—From the general population, 50 mothers were missing information on the number of cigarettes before pregnancy, 39 were missing the number of cigarettes in the first trimester, 29 were missing the number of cigarettes in the second trimester and 21 were missing the number of cigarettes in the last trimester.
**p< .01.

Trends in Smoking for KY-Moms MATR Clients Compared to the General Population of Mothers

Over the each of last 8 years, 2 to 3 times as many KY-Moms MATR clients have reported smoking compared to the general population of mothers. In general, between 55% and 76% of KY-Moms MATR clients reported smoking compared to around one-quarter of mothers in the general population.

FIGURE III.8. TRENDS IN MOTHERS REPORTING SMOKING FOR REPORT YEARS 2013-2020



Alcohol Use

KY-Moms MATR clients were not more or less likely to report alcohol use (0.0%) compared to the general population of mothers (0.3%; not depicted in a figure).

Birth Events and Outcomes

Multivariate Analysis of Birth Outcomes

Using the Kentucky Vital Statistics data, the birth outcomes of children born to mothers who participated in KY-Moms MATR program (n = 67) were compared to the outcomes of children born to mothers who did not participate in the KY-Moms MATR program (n = 62,361). Logistic regression models were used to examine the association between KY-Moms MATR participation and birth outcomes while adjusting for key factors.[50]

Each birth outcome in Table III.2 was entered as the dependent variable in a separate binary logistic regression model with KY-Moms MATR participation as the predictor variable and the covariates of mother's age, education (i.e., less than high school diploma vs. high school diploma or higher), area of residence (metropolitan vs. micropolitan county), marital status (married vs. not married), and smoking at the time of the birth (Yes/No).[51]

Results of the analysis show that KY-Moms MATR clients had similar birth outcomes compared to the general population for: (1) giving birth to a baby prematurely (the adjusted average[52] weeks gestation of 38.1 to 38.2, respectively), (2) having a child with low birth weight (the adjusted average of 7lbs, 5oz and 7lbs, 3oz, respectively), (3) having birthing problems (16.4% and 13.9%, respectively), (4) having their baby taken to the neonatal intensive care unit (NICU; 18.2% and 10.6%, respectively), or (5) breastfeeding (55.4% and 71.8%, respectively).

[50] The alpha level was set at $p < .01$.

[51] Because race was highly associated with metropolitan vs. micropolitan residence for KY-Moms MATR clients, such that only 10 non-White KY-Moms MATR clients lived in a micropolitan community, to avoid the problem of multicollinearity in the models, race was excluded as a covariate while mother's residence in a metropolitan vs. micropolitan community was included.

[52] An ANCOVA was used to estimate adjusted means using the same covariates used in the multivariate models and included mother's age, education (i.e., high school diploma or higher), area of residence (metropolitan vs. micropolitan county), marital status, and smoking at the time of the birth.

TABLE III.2. EFFECT OF KY-MOMS PARTICIPATION ON BIRTH OUTCOMES[a]

	b	Adj. Odds ratio	99% Confidence Intervals
Premature	-.157	.855	.304-2.400
Low birth weight	-.472	.624	.164-2.368
Any birthing problems (other than the baby being taken to the NICU)	.072	1.074	.456-2.529
Baby taken to NICU	.402	1.494	.632-3.533
Breastfeeding	-.174	.840	.426-1.657

Note: Categorical variables were coded in the following ways: KY-Moms MATR participation (0 = General population, 1 = KY-Moms MATR client); Type of community in which mother resided (0 = Micropolitan, 1 = Metropolitan); Mother's education (0= Less than a high school diploma/GED, 1 = High school diploma/GED or higher); Mother reported being a smoker (0=No, 1=Yes); Mother's marital status (0 = Not married, 1 = Married); Premature (0 = Fullterm, 1 = Premature); Any birthing problems other than the baby being taken to the NICU (0 = No, 1 = Yes); Baby taken to NICU (0 = No, 1 = Yes); Breastfeeding (0 = No, 1 = Yes).

a—The number of cases with missing values on at least one of the covariates or dependent variable for the 5 logistic models were: premature (n = 43), low birth weight (n = 24), any birth problems (n = 323), baby taken to NICU (n = 3,926), and breastfeeding (n = 342).

The highest APGAR score[53] was entered as the dependent variable in a linear regression model with KY-Moms MATR participation as the predictor variable and the covariates of mother's age, education, area of residence, marital status, and smoking status at birth. As shown in Table III.3, average highest APGAR scores were similar for KY-Moms MATR (adjusted average score of 8.7) and the general population (adjusted average score of 8.8), after adjusting for the selected covariates.

TABLE III.3. EFFECT OF PARTICIPATION IN KY-MOMS ON BABY'S HIGHEST APGAR SCORE (N = 59,253)[a]

	β	t	df	p
Highest APGAR score	-.001	-.267	6	.790

$R2 = .001$, $R2adj. = .001$, $F(6, 59246) = 12.746$, $p < .001$.

Note: Categorical variables were coded in the following ways: KY-Moms participation (0 = General population, 1 = KY-Moms client); Type of community in which mother resided (0=Micropolitan, 1=Metropolitan); Mother's education (0=Less than a high school diploma/GED, 1=High school diploma or higher); Mother reported being a smoker (0=No, 1=Yes); Mother's marital status (0 = Not married, 1 = Married).

a— 198 cases had missing values for the highest APGAR score and 2,977 cases had missing values on at least one of the covariates.

[53] Most babies had one APGAR (5-minute) recorded in the file, but for a smaller number of babies a 10-minute APGAR was recorded. A new variable was computed that took the highest value APGAR (if 2 scores were recorded) or the only score.

The number of prenatal visits was also entered as the dependent variable in a linear regression model with KY-Moms MATR participation as the predictor variable and the covariates of mother's age, education, area of residence, marital status, and smoking status at birth (see Table III.4). There was no significant difference in the number of prenatal visits for KY-Moms MATR mothers (adjusted average of 11.7 visits) compared to mothers in the general population (adjusted average of 11.8 visits), after adjusting for the selected covariates.

TABLE III.4. EFFECT OF PARTICIPATION IN KY-MOMS ON THE NUMBER OF PRENATAL VISITS (N = 56,389)[a]

	β	t	df	p
Average number of prenatal visits.....	-.001	-.267	6	.790

R2 = .034, R2adj. = .034, F(6, 56,382) = 328.492, p < .001.

Note: Categorical variables were coded in the following ways: KY-Moms participation (0 = General population, 1 = KY-Moms client); Type of community in which mother resided (0 = Micropolitan, 1 = Metropolitan); Mother's education (0 = Less than a high school diploma/GED, 1 = High school diploma or higher); Mother reported being a smoker (0 = No, 1 = Yes); Mother's marital status (0 = Not married, 1 = Married).

a—3,194 cases had missing values for the number of prenatal visits and 2,845 cases had missing values on at least one of the covariates.

Summary

Compared to the general population of mothers in Kentucky who gave birth during the same period of time as KY-Moms MATR clients, KY-Moms MATR clients were younger, were more likely to be White, were less likely to be married, and had less education. In addition, KY-Moms MATR mothers were more likely to have Medicaid as their source of payment for the birth of the baby and receive support from WIC compared to the general population of mothers. While they were more likely to have gestational hypertension, they were not more likely to have maternal health problems such as diabetes prior to pregnancy, gestational diabetes, hypertension prior to pregnancy, or previous poor birth outcomes. They were more likely to have sexually transmitted infections such as gonorrhea, syphilis, herpes, or chlamydia as well as Hepatitis B and/or C. Significantly more KY-Moms MATR mothers were also smokers compared to the general population of mothers. Of those that were smokers, KY-Moms MATR clients smoked, on average, more cigarettes before pregnancy and in each trimester compared to women in the general population. Despite these characteristics, multivariate analysis showed that birth events and outcomes were very similar between groups.

A Closer Look at Birth Event Outcomes

Further analysis of birth data outcomes can be found in Appendix C in which KY-Moms MATR clients were compared to a sample of mothers matched on selected factors (i.e., age, race, education, marital status, metropolitan/micropolitan residence, and smoking status) along with a randomly selected comparison group from the general population. Overall, results of the comparison analysis parallel the results of the multivariate analysis with KY-Moms MATR birth events and outcomes being similar to the general population.

I liked that it was more than just the e-class. [The program] focused on baby development, the incentives were great, and the case manager was wonderful.

- 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: (1) information about the baby, (2) substance use, (3) mental health, (4) intimate partner abuse, (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.

A. Information on the Pregnancy/Baby

When followed-up clients completed a prenatal baseline they were an average of 22.2 weeks pregnant (Min. = 5 weeks, Max. = 37 weeks).[54] Followed-up clients were in the program an average of 17.7 weeks (Min. = 4 weeks, Max. = 33 weeks). After the baby was born, clients reported remaining in the KY-Moms MATR program an average of 8.0 weeks (Min. = 0 weeks, Max. = 48 weeks).[55]

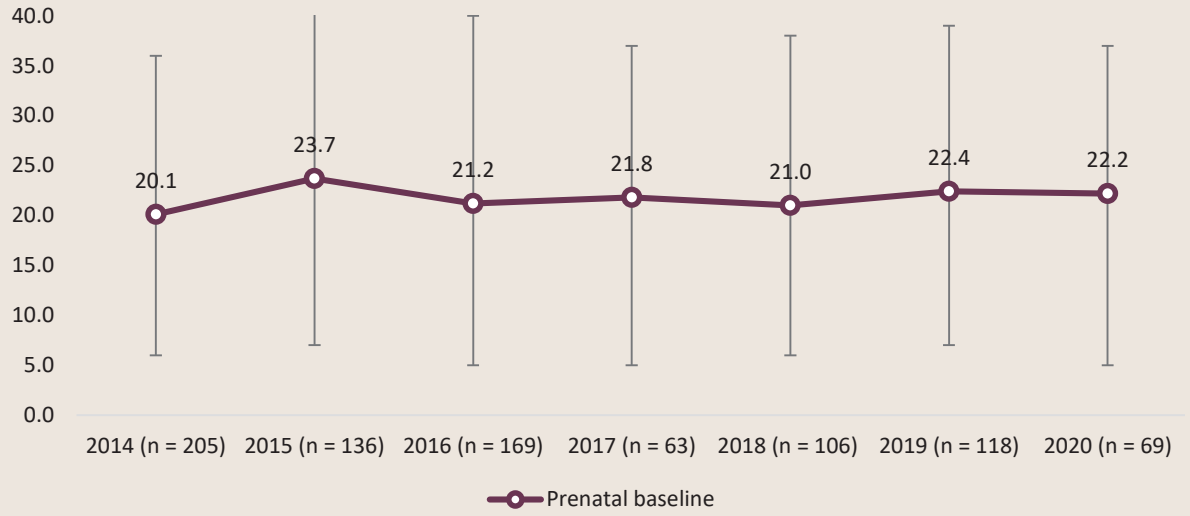
[54] In order to be included in the analysis, there must be at least 30 days between the date of program entry and the birth of the baby. The average number of days between program entry and baseline completion was 19 (Min. = 0 and Max. = 112). Therefore, even though a client was at 39 weeks in her pregnancy when the baseline was completed, she entered the program more than 30 days before the due date.

[55] The number of weeks clients remained in KY-Moms MATR after the birth of the baby was missing for one client.

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 7 years. In report year 2014, clients were an average of 20.1 weeks into their pregnancies and in 2020 clients were an average of 22.2 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 2014-2020



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 6.5 doctor visits about the pregnancy and at postnatal follow-up clients reported an average of 8.6 visits to the pediatrician or nurse since giving birth. Less than one-third of clients (29.0%) 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, 20.3% (14 clients) reported their doctor told them their baby had special health care needs. More specifically, 5 clients reported their babies had minor health care needs such as allergies or acid reflux. However, 9 mothers (or 13.0% of the postnatal follow-up sample) reported various and potentially serious problems such as heart problems, birth defects, and potential developmental delays. 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,

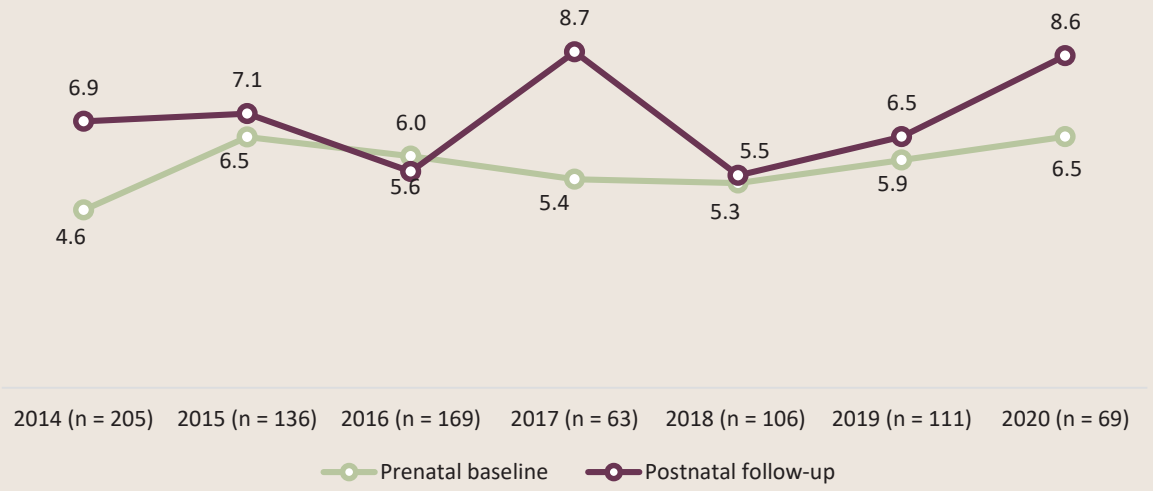
[56] Two clients indicated they had not seen a doctor yet.

or neural tube defects)[57] and about 1.0% of babies are born with a congenital heart defect.[58] In addition, 19% of children in the United States and 24% of children in Kentucky are considered to have special health care needs as defined by the federal Maternal and Child Health Bureau's definition.[59]

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 2020, clients reported 6.5 doctor visits at prenatal baseline and 8.6 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 2014-2020



Emergency Room Visits for the Baby at Postnatal

At postnatal follow-up, 47.8% of clients reported they had taken their baby to the emergency room since giving birth (not depicted in a figure). Of those clients (n = 33), they reported taking their baby to the emergency room an average of 2.6 times (range of 1 to 20 times).

[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] http://www.marchofdimes.com/baby/congenital-heart-defects.aspx#

[59] KIDS COUNT Data Center. (2013). Children with special health care needs in the United States 2016-2017. Retrieved from https://datacenter.kidscount.org/data/tables/9703-children-with-special-health-care-needs#detailed/2/2-52/false/1603/any/18949,18950 on September 20, 2019.

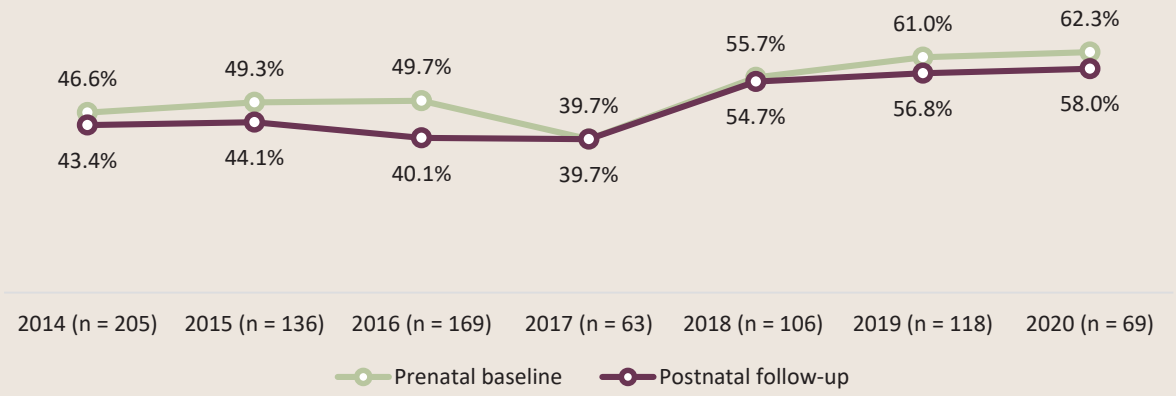
Breastfeeding

Sixty-two percent of clients reported at prenatal baseline that they planned on breastfeeding their baby and at postnatal follow-up, 58.0% of clients reported having breastfed their baby for any period. Of the 43 women who reported planning on breastfeeding at prenatal baseline, 79.1% (n = 34) reported having breastfed their baby at postnatal follow-up and of those, 9 reported still breastfeeding.[60] Of the 26 clients who reported at prenatal baseline they were not planning on breastfeeding or had not decided yet, 23.1% (or 6 clients) reported having breastfed at follow-up and one was still breastfeeding.

Trends in Breastfeeding at Prenatal Baseline and Postnatal Follow-up

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 2020, 62.3% of clients planned at baseline on breastfeeding their babies and 58.0% of clients reported breastfeeding their babies at follow-up.

FIGURE IV.A.3. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING BREASTFEEDING AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2014-2020

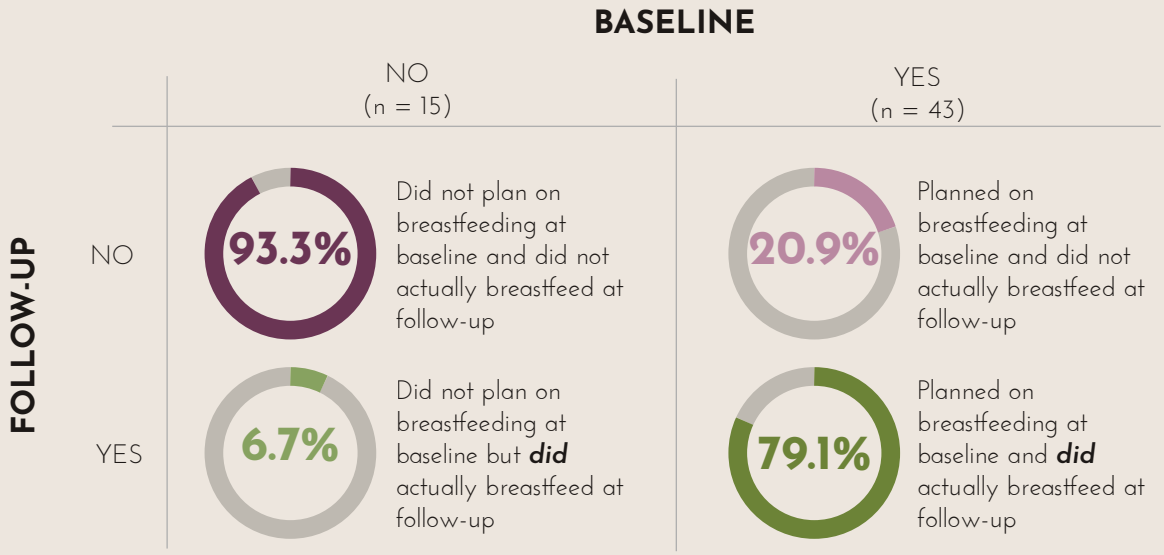


[60] Two clients were missing information on if they were still breastfeeding at follow-up.

Taking a Closer Looking Breastfeeding: Breastfeeding Plans at Prenatal Baseline Compared to Follow-up

In general, clients followed through with their prenatal plans to breastfeed or not to breastfeed once the baby arrived. A little more than 60% of clients reported they were planning to breastfeed their babies at baseline (62.3%, n = 43). Of these clients who planned on breastfeeding at prenatal baseline, 79.1% reported breastfeeding at follow-up. Of clients who indicated they were not planning on breastfeeding at baseline (21.7%, n = 15), 6.7% indicated they had breastfed at follow-up.

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



Additional analysis showed that there were no significant differences 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.

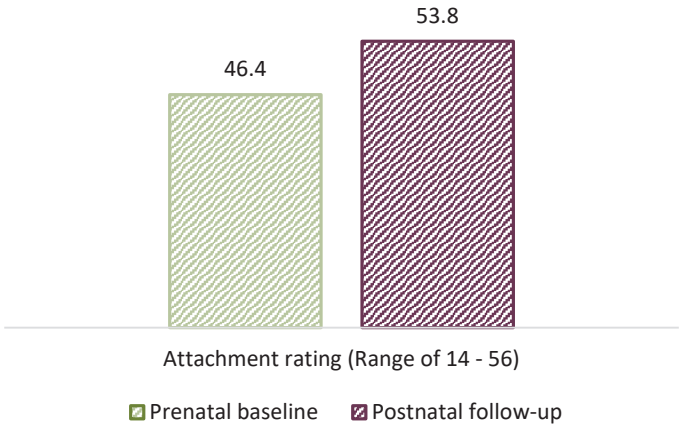
Maternal–Fetal Attachment/Maternal–Infant Attachment

Clients were asked 14 items measuring the extent to which the KY-Moms MATR client was emotionally engaged in her pregnancy[61] (e.g., "I wonder what the baby looks like now", "I imagine

[61] To measure maternal-fetal attachment, the KY-Moms MATR assessment uses an adapted version of the Prenatal Attachment Inventory (PAI; Müller, 1993) which consists of 21 items. For the purposes of KY-Moms MATR and to reduce the time burden on program staff, the PAI was reduced to 14 items.

calling the baby by name", and "I imagine what part of the baby I'm touching") at baseline. At follow-up, clients were asked 14 items measuring the extent to which the KY-Moms MATR client was emotionally engaged with her infant[62] (e.g., "I know my baby needs me", "It's fun being with my baby"). Items are scored on a 4-point Likert scale from 1 = 'Almost never' to 4 = 'Almost always'. Total scores range from 14 to 56 with higher scores indicative of a higher level of attachment. Scores in attachment increased significantly from 46.4 at baseline to 53.8 at follow-up.

FIGURE IV.A.5. LEVEL OF MATERNAL-FETAL ATTACHMENT/MATERNAL-INFANT ATTACHMENT (N = 69)***



Summary

Clients were a little over halfway through their pregnancies when they completed a prenatal baseline interview and reported at follow-up they had spent about 18 weeks in the program. Clients remained in the program, on average, almost 8 weeks 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 8.6 times since the baby had been born, which is an average of a little over once per month. In addition, at baseline a little less than two-thirds of mothers reported they were planning on breastfeeding their babies and 58% of mothers reported at postnatal follow-up they had breastfed their babies. Further, clients' level of attachment significantly increased from when their child was a fetus (at baseline) to after their child was born (at follow-up).

[62] Mother-infant attachment is measured in the KY-Moms MATR assessment with the Maternal Attachment Inventory (MAI; Müller, 1994) which consists of 26 items. In order to reduce time burden, the MAI was reduced to 14 items.

B. Substance Use

This subsection examines change in: (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 were examined for two different trends over time:[63]

Six month trends

1. **6 months before pregnancy.** Information collected from the client at prenatal baseline regarding the six months before she found out she was pregnant.
2. **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 trends[64]

1. **30 days before pregnancy.** Information collected from the client at prenatal baseline regarding the 30 days before she found out she was pregnant.
2. **30 days at prenatal baseline.** Information collected from the client at prenatal baseline regarding the past 30 days she has been pregnant.
3. **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.
4. **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

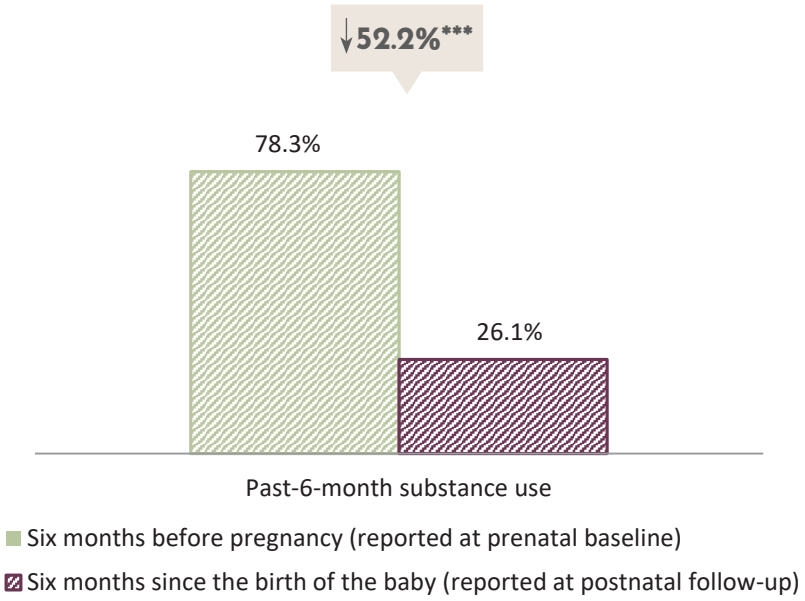
In the 6 months before pregnancy, 78.3% of clients reported using illegal drugs and/or alcohol. In the 6 months before the follow-up interview, over one-quarter (26.1%) of clients reported using illegal drugs and/or alcohol (a significant decrease of 52.2%; see Figure IV.B.1).

---

[63] Significance was determined by McNemar's test for substance use, mental health problems and intimate partner abuse unless otherwise indicated.

[64] 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 = 4) 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. In addition, at follow-up 2 clients were not included because the interviewer skipped the questions.

FIGURE IV.B.1. PAST-6-MONTH SUBSTANCE USE FROM PRENATAL BASELINE TO POSTNATAL FOLLOW-UP (N = 69)



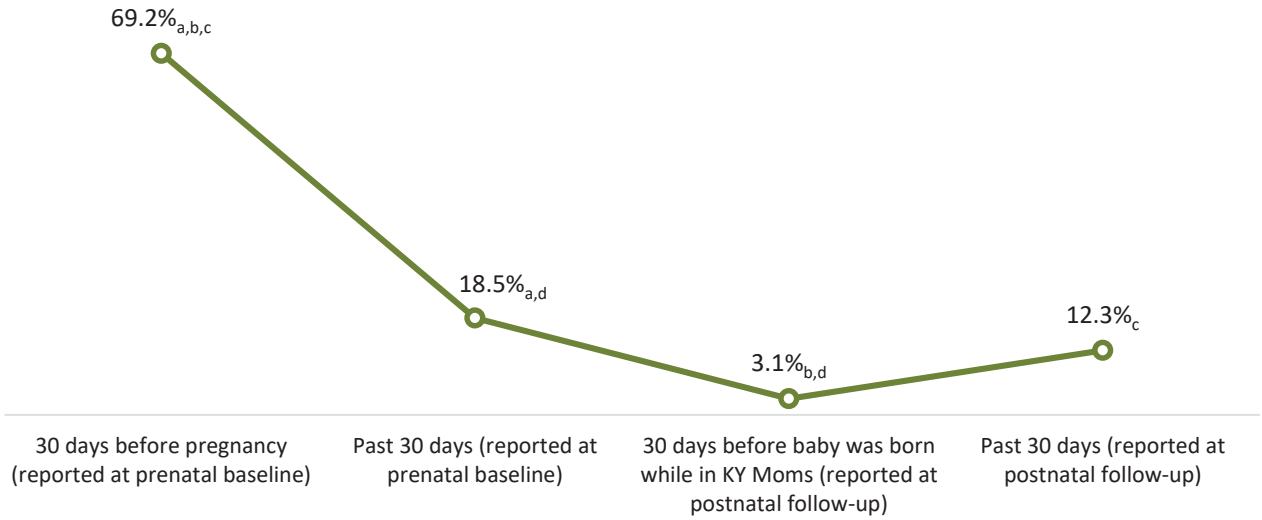
*** p < .001.

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, 69.2% of clients reported using illegal drugs and/or alcohol. In the past 30 days at baseline, 18.5% of clients reported using illegal drugs and/or alcohol.

At postnatal follow-up, 3.1% of clients reported using illegal drugs and/or alcohol in the 30 days before the baby was born compared to 69.2% of clients in the 30 days before pregnancy and 18.5% in the past 30 days at prenatal baseline. Finally, 12.3% 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 = 65)



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

Illegal Drug Use

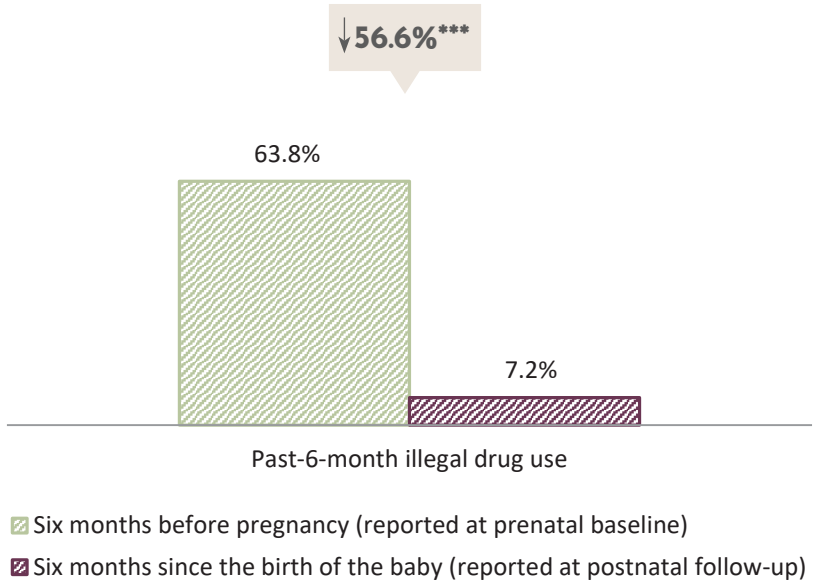
PAST-6-MONTH ILLEGAL DRUG USE

Figure IV.B.3 shows that in the 6 months before pregnancy, 63.8% of clients reported using illegal drugs and in the past 6 months at follow-up 7.2% of clients reported illegal drug use (a significant decrease of 56.6%). Clients reported being an average of 16.0 years of age when they first began using illicit drugs.[65] Of those clients who reported illegal drug use at follow-up (n = 5), 80% reported marijuana use and 20.0% reported opioid use.

64% of clients reported illegal drug use in the 6 months before pregnancy compared to 7% in the past 6 months at postnatal follow-up

[65] Among the clients who reported an age of first use greater than 0, n = 63.

FIGURE IV.B.3. PAST-6-MONTH ILLEGAL DRUG USE FROM PRENATAL BASELINE TO POSTNATAL FOLLOW-UP (N = 69)

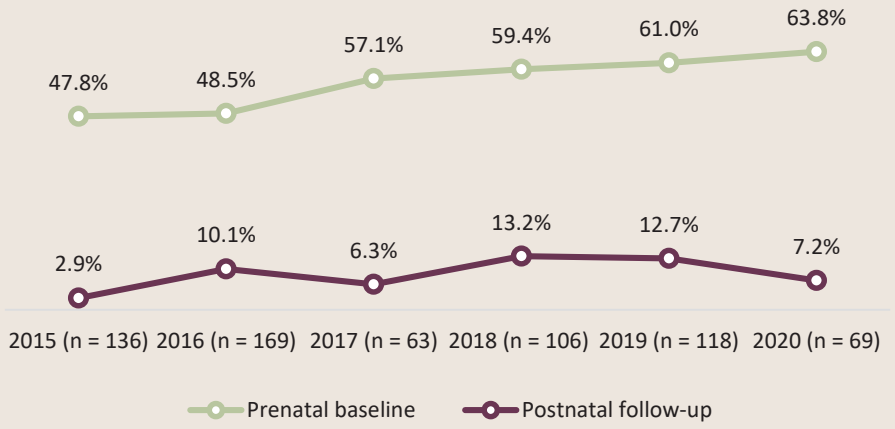


*** p < .001.

Trends in 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 appeared to increase since 2015 from 47.8% to 63.8% in 2020. The percent of women who reported illegal drug use in the past 6 months at postnatal follow-up generally appeared to increase as well from 2.9% in 2015 to 12.7% in 2019 before decreasing to 7.2% in 2020.

FIGURE IV.B.4. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING ILLEGAL DRUG USE AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2020



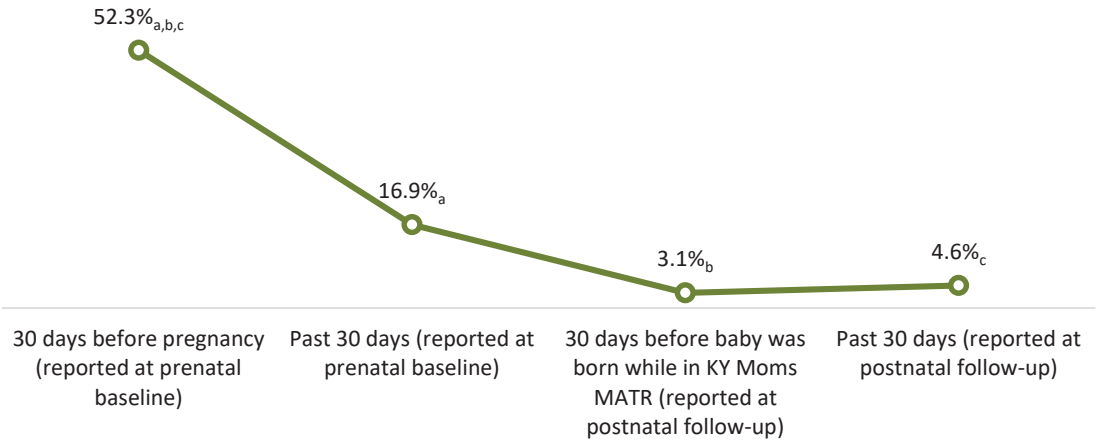
PAST-30-DAY ILLEGAL DRUG USE

Over half of clients (52.3%) reported illegal drug use[66] in the 30 days prior to becoming pregnant (see Figure IV.B.5). A national survey of women indicated that 9.6% of non-pregnant women age 18 and older reported using illegal drugs in the past month.[67] About 17% of clients reported using illegal drugs in the past 30 days at baseline. In comparison, nationally, 8.5% of pregnant women aged 15-44 reported using illegal drugs in the past month.[68]

The number of clients who reported illegal drug use decreased significantly in the past 30 days at prenatal baseline and again in the 30 days before the baby was born

At postnatal follow-up, 3.1% of clients reported using illegal drugs in the 30 days before the baby was born and 4.6% reported using illegal drugs 30 days before the follow-up assessment.

FIGURE IV.B.5. PAST-30-DAY ILLEGAL DRUG USE FROM PRENATAL BASELINE TO POSTNATAL FOLLOW-UP (N = 65)



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

INJECTION DRUG USE

At prenatal baseline, 23.1% of clients reported ever injecting any drugs and 1.5% of clients reported injecting a drug in the past 30 days. At postnatal follow-up, one client reported injecting drugs since they began KY-Moms MATR and none of the clients reported injecting drugs in the past 30 days.

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

[67] 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/NSDUHDetTabsSect1pe2018.htm on September 30, 2019.

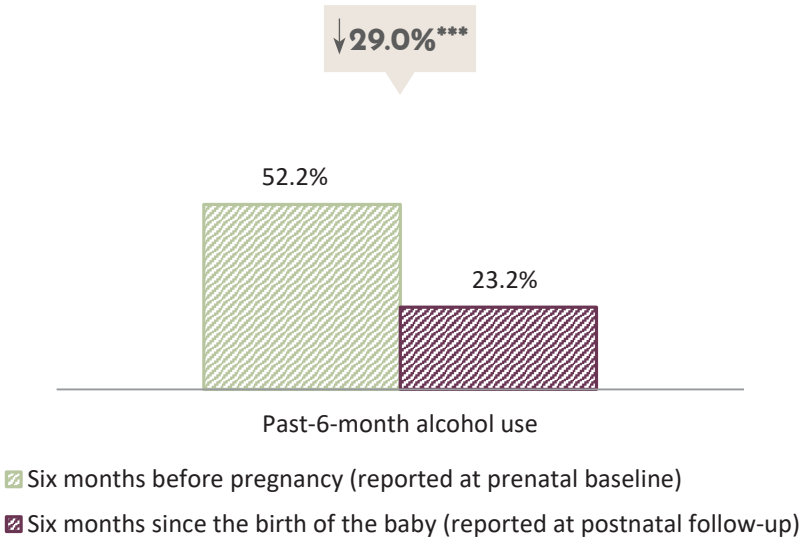
[68] Substance Abuse and Mental Health Services Administration. ***Results from the 2017 National Survey on Drug Use and Health: Summary of National Findings, NSDUH Series H-48, HHS Publication No. (SMA) 14-4863.*** Rockville, MD: Substance Abuse and Mental Health Services Administration. Retrieved from https://www.samhsa.gov/data/sites/default/files/nsduh-ppt-09-2018.pdf on September 30, 2019.

Alcohol Use

PAST-6-MONTH ALCOHOL USE

Figure IV.B.6 shows that in the six months before pregnancy 52.2% of clients reported alcohol use and after the baby was born, 23.2% of clients reported alcohol use in the past 6 months (a significant decrease of 29.0% from the six months before pregnancy). Clients reported being an average of 15.3 years of age when they had their first alcoholic drink (other than a few sips).[69]

FIGURE IV.B.6. PAST-6-MONTH ALCOHOL USE FROM PRENATAL BASELINE TO POSTNATAL FOLLOW-UP (N = 69)



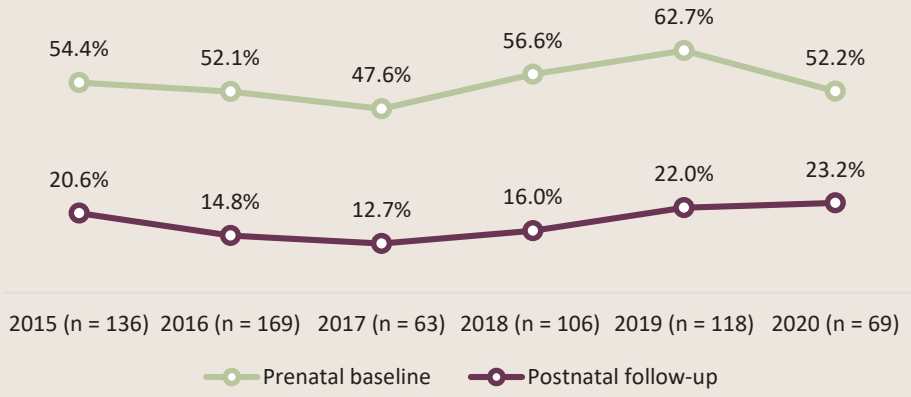
*** p < .001.

[69] Among the clients who reported an age of first use greater than 0, n = 62.

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

With the exception of 2019, around half of clients reported alcohol use in the 6 months before pregnancy. In addition, alcohol use at follow-up generally remained between 15% and 25%.

FIGURE IV.B.7. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING ALCOHOL USE AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2020

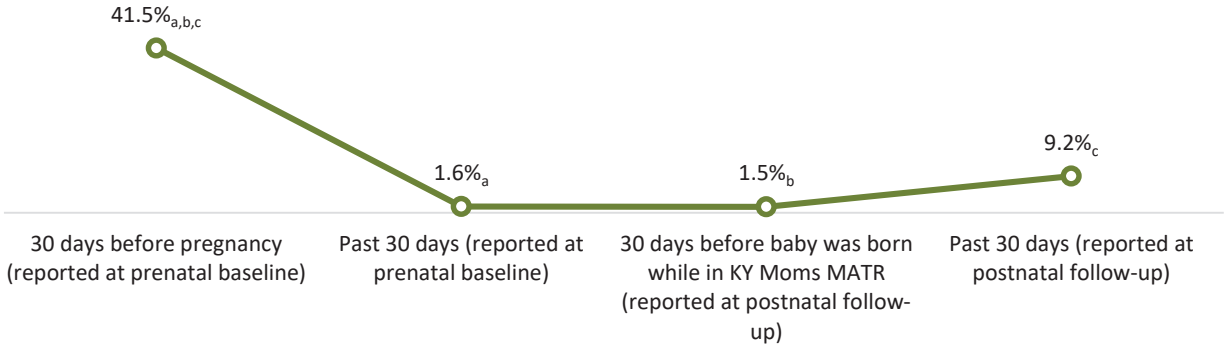


PAST-30-DAY ALCOHOL USE

Figure IV.B.8 shows that 41.5% of clients reported alcohol use in the 30 days prior to becoming pregnant. At the national level, 51.5% of non-pregnant women aged 18 and older reported drinking alcohol in the past 30 days. In the past 30 days at prenatal baseline, 1.6% of clients reported using alcohol. Nationally, 11.2% of women aged 15-44 reported using alcohol during pregnancy.

At postnatal follow-up, 1.5% of the clients (only 1 client) reported using alcohol in the 30 days before the baby was born while they were involved in KY-Moms MATR. Six months after the baby was born, 9.2% 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 = 65)

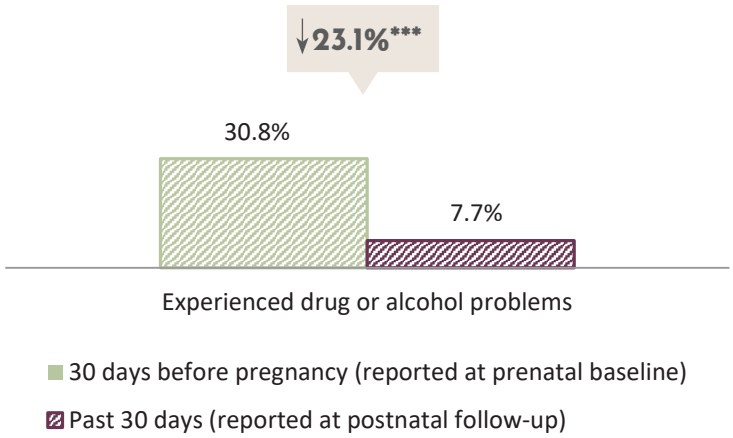


a, b, c– Values sharing the same subscript differ at $p < .01$.

Problems Experienced with Substance Use

In the 30 days before pregnancy, 30.8% 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, 7.7% of clients reported experiencing problems with drugs or alcohol (a significant decrease of 23.1%).

FIGURE IV.B.9. CLIENTS EXPERIENCING PROBLEMS WITH ILLEGAL DRUGS OR ALCOHOL USE AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 65)

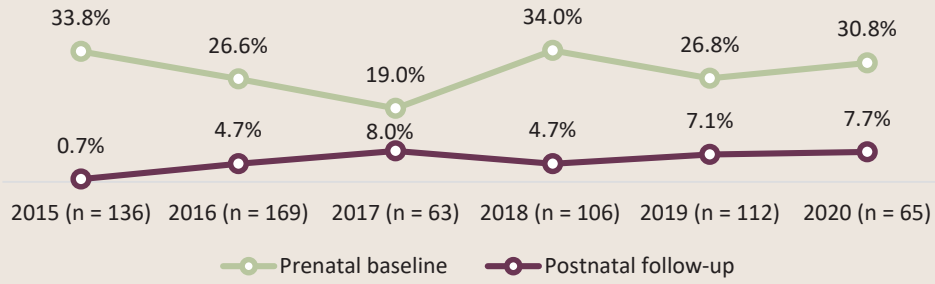


*** p < .001.

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 2020, almost one-third of clients experienced problems with drugs or alcohol in the 30 days before pregnancy compared to 7.7% of clients in the past 30 days at the postnatal follow-up, the highest percentage since 2017.

FIGURE IV.B.10. CLIENTS IN THE FOLLOW-UP SAMPLE EXPERIENCING PROBLEMS WITH SUBSTANCE USE AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2020

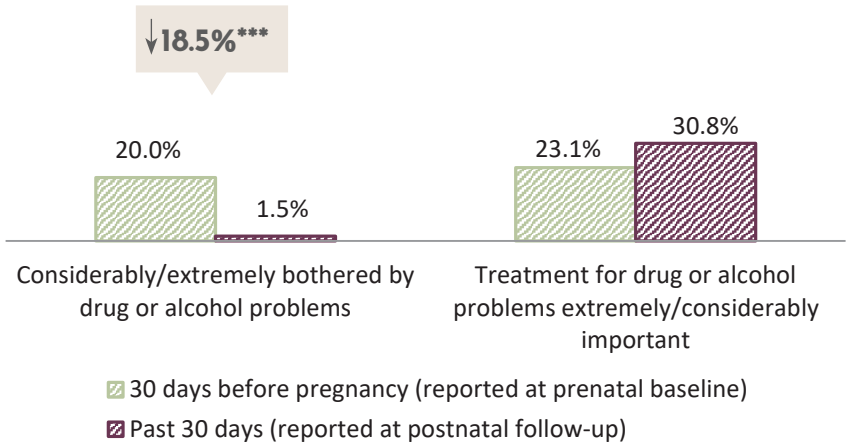


Readiness for Substance Abuse Treatment

Figure IV.B.11 shows that 20.0% 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 1.5% of clients reported that they were considerably or extremely troubled or bothered by drug or alcohol problems, which was a significant decrease of 18.5%.

The figure below also shows that 23.1% of clients in the 30 days before pregnancy and 30.8% 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 AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 65)

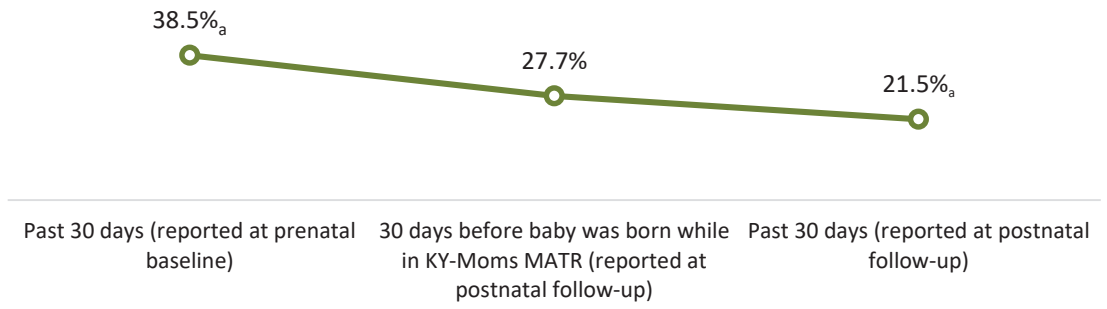


*** p < .001.

Substance Abuse Treatment

At prenatal baseline, 20.3% of clients reported receiving services for substance abuse (including detox, drug court, and recovery programs) in the 6 months before pregnancy (not depicted in a figure). Figure IV.B.12 shows that in the past 30 days at baseline, 38.5% of clients reported participating in treatment for substance abuse. At postnatal follow-up, 27.7% of clients reported participating in treatment for substance abuse in the 30 days before the baby was born and 21.5% of clients reported participating in treatment for substance abuse in the past 30 days.

FIGURE IV.B.12. CLIENTS REPORTING SUBSTANCE ABUSE TREATMENT AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 65)

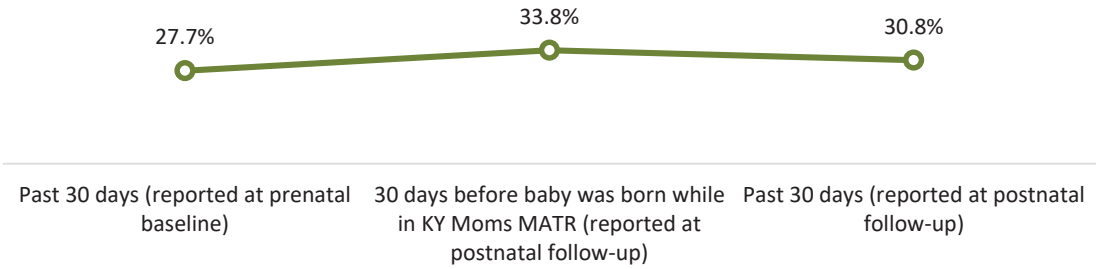


a– Values sharing the same subscript differ at $p < .01$.

Self-help Meetings

At prenatal baseline, 21.7% of clients reported attending a self-help recovery meeting (such as AA, NA, or MA) in the 6 months before pregnancy (not depicted in a figure). The number of clients who reported attending a self-help recovery meeting increased slightly, but not significantly, from the past 30 days at prenatal baseline to the past 30 days at follow-up. In the past 30 days at prenatal baseline, 27.7% of clients reported attending a self-help meeting (see Figure IV.B.13). At follow-up, 33.8% of clients reported attending a self-help meeting in the 30 days before the baby was born and 30.8% of clients reported attending a self-help meeting in the past 30 days at follow-up.

FIGURE IV.B.13. CLIENTS REPORTING ATTENDING A SELF-HELP GROUP AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 65)



Medication-assisted Treatment

At baseline, 10.1% 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 = 7), 71.4% reported receiving Suboxone/Subutex (buprenorphine-naloxone), and 42.9% reported methadone. On average, these clients reported using these medications 4 out of the 6 months before pregnancy, and for 25.7 days in the last 30 days at baseline.[70] All of these clients at baseline reported the MAT helped treat their drug problems.

[70] Only one client reporting not using MAT in the past 30 days at baseline.

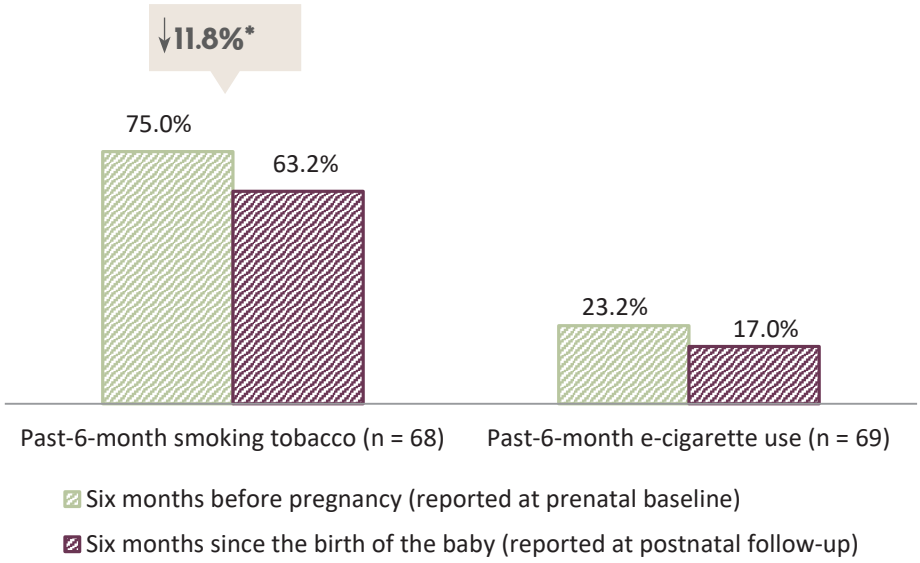
Tobacco Use

PAST-6-MONTH TOBACCO USE

At prenatal baseline, 75.0% of clients reported smoking tobacco in the 6 months prior to pregnancy (Figure IV.B.15). At postnatal follow-up, 63.2% of clients reported smoking tobacco in the past 6 months, which is a significant decrease of 11.8%. Clients reported being an average of 16 years of age when they began smoking regularly (on a daily basis).[71]

About 23% 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 17.0% of clients in the past 6 months at follow-up (which was not a significant decrease).

FIGURE IV.B.15. PAST-6-MONTH SMOKING TOBACCO AND E-CIGARETTE USE AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP[72]



*p<.05.

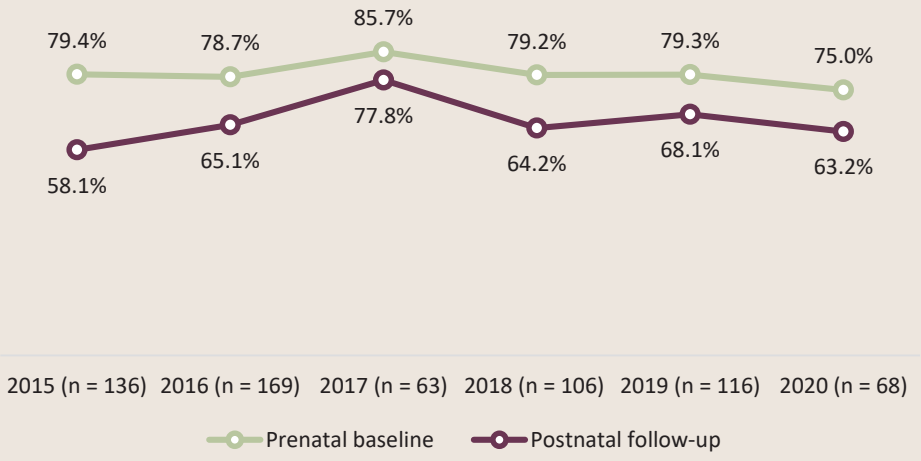
[71] Among the clients who reported an age of first use greater than 0, n = 51.

[72] One client was missing data on past-6-month tobacco use at follow-up.

Trends in 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. 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 appeared to increase overall; however, from 2018 to 2020 the percent of women reporting smoking cigarettes was relatively stable at both baseline and follow-up.

FIGURE IV.B.16. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING CIGARETTE USE AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2020



PAST-30-DAY TOBACCO USE

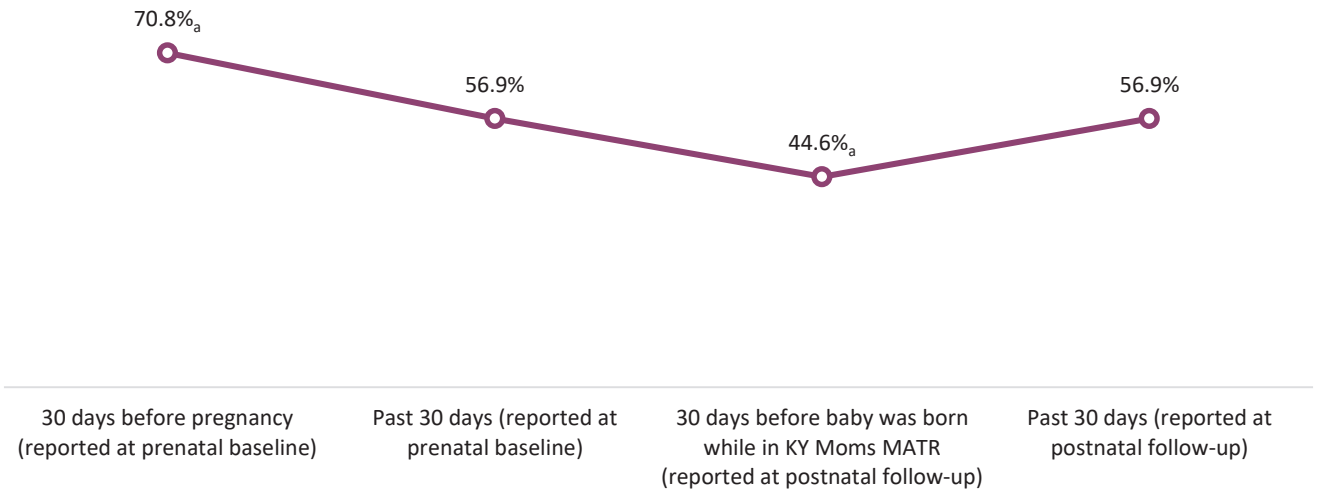
At prenatal baseline, 70.8% of clients reported smoking tobacco products in the 30 days prior to pregnancy (Figure IV.B.17). This percentage is considerably higher than either the national estimate of 15.3% of non-pregnant women aged 18-44 who are self-reported smokers or the estimate of Kentucky women who report smoking (28.3%).[73] Almost 6 in 10 clients (56.9%) also reported smoking tobacco in the past 30 days at prenatal baseline compared to 17.9% of pregnant women in Kentucky who reported smoking cigarettes and 6.9%, nationally.[74]

At postnatal follow-up, in the 30 days before the baby was born, 44.6% 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 56.9% .

[73] America's Health Rankings Health of Women and Children Report found at https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/Smoking_women/state/KY

[74] https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/Smoking_pregnancy/state/KY

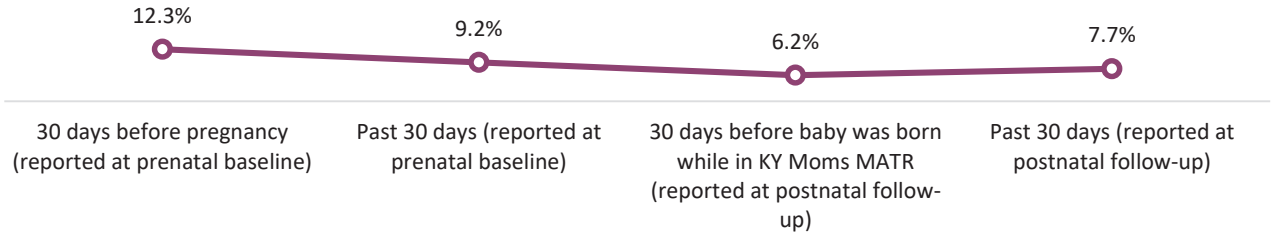
FIGURE IV.B.17. PAST-30-DAY SMOKING TOBACCO AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 65)



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

The percent of women reporting e-cigarette use in the past 30 days did not change significantly from before pregnancy to postnatal follow-up (see Figure IV.B.18).

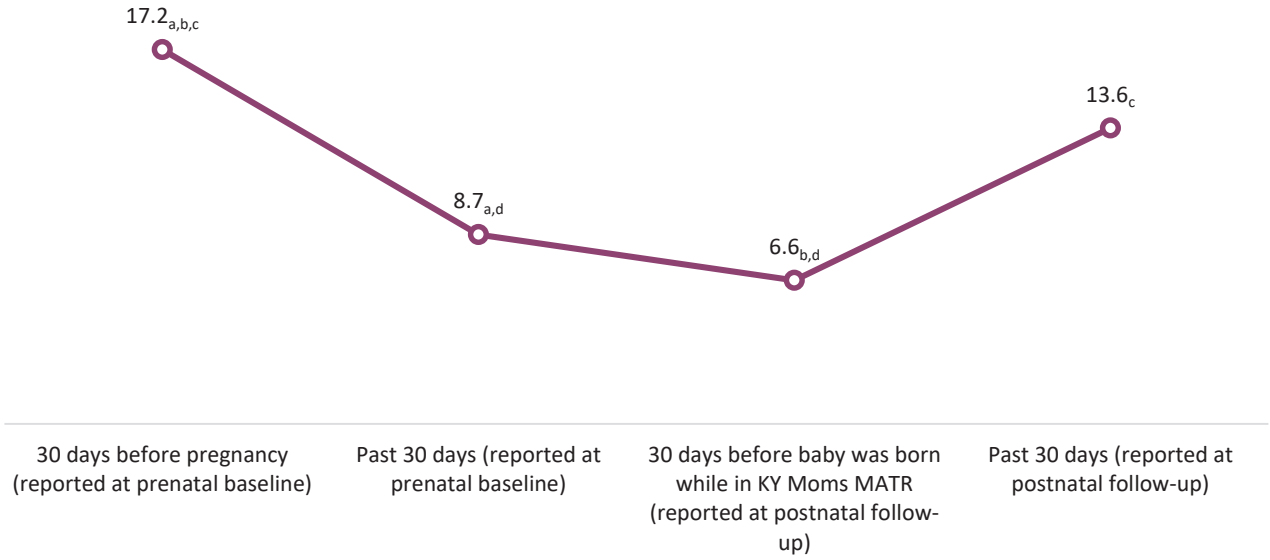
FIGURE IV.B.18. PAST-30-DAY E-CIGARETTE USE AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 65)



AVERAGE NUMBER OF CIGARETTES SMOKED IN THE PAST 30 DAYS

Figure IV.B.19 shows that for women who reported smoking tobacco in the 30 days prior to pregnancy (n = 46), 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 17.2 cigarettes per day (less than one pack) and an average of 8.7 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 6.6. While there was an increase to 13.6 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.19. AVERAGE NUMBER OF CIGARETTES SMOKED AMONG WOMEN REPORTING CIGARETTE USE IN THE 30 DAYS PRIOR TO PREGNANCY (N = 45)[75]



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

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, 52.3% of clients reported illegal drug use in the 30 days before pregnancy compared to 3.1% of clients in the 30 days before the baby was born and 4.6% of clients in the past 30 days at postnatal follow-up. While 41.5% of clients reported alcohol use in the 30 days before pregnancy, only 1.5% of clients 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).

"I loved my case manager, she was great. They were very concerned about my meds. I wish I could have stayed longer.

- KY-Moms MATR follow-up client

The number of women who reported smoking cigarettes in the 30 days before the baby was born decreased significantly compared to the 30 days prior to pregnancy as did the average number of cigarettes clients reported smoking. Compared to pregnant women, nationally, however, more KY-Moms MATR mothers smoked cigarettes before, during and after pregnancy.

[75] One client who reported smoking cigarettes in the 30 days before pregnancy at baseline was missing the number of cigarettes in the past 30 days at follow-up.

C. Mental Health

This section examines changes in self-reported mental health for the following factors: (1) depression, (2) generalized anxiety, (3) comorbid depression and anxiety, and (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, they were then asked seven additional questions about symptoms of depression (e.g., sleep problems, weight loss or gain, feelings of hopelessness or worthlessness).

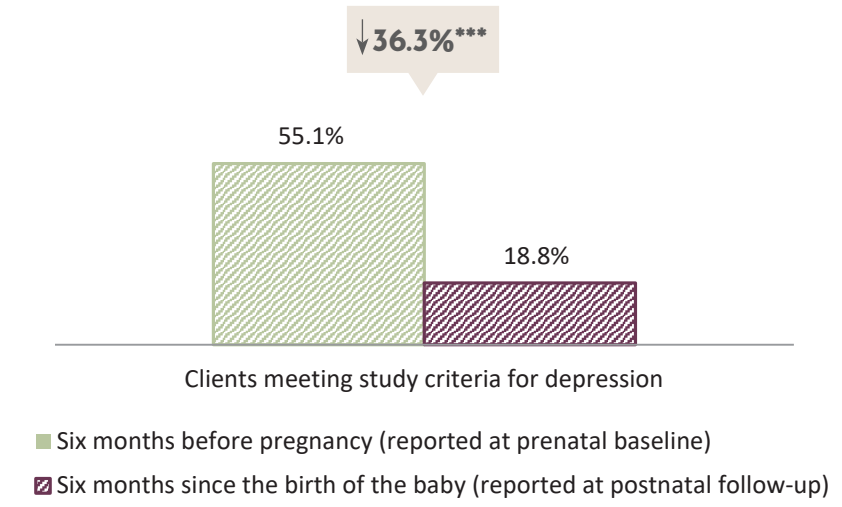
STUDY CRITERIA FOR DEPRESSION

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, 55.1% of the women met study criteria for depression. In the past 6 months at postnatal follow-up, 18.8% of KY-Moms MATR clients met study criteria for depression, which is a 36.3% significant decrease 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 = 69)

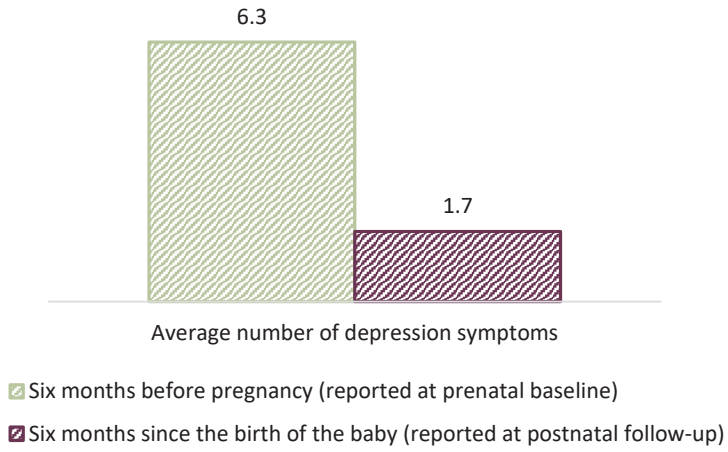


***p < .001.

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 = 38), they reported an average of 6.3 symptoms. In the past 6 months at postnatal follow-up, these same clients reported significantly fewer symptoms (average of 1.7 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 = 38)***

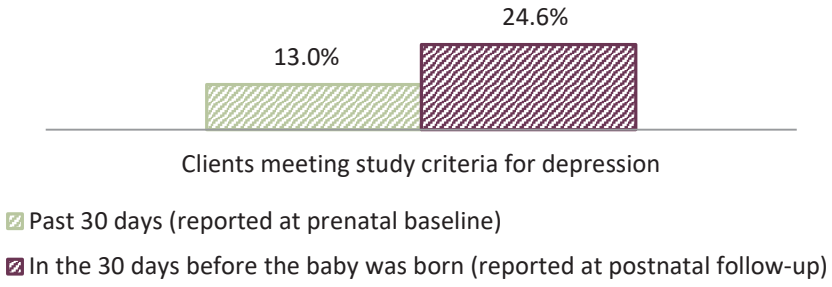


*** p < .001; Significance tested with paired sample t-test.

CLIENTS MEETING STUDY CRITERIA FOR DEPRESSION IN THE PAST 30 DAYS

In the past 30 days at prenatal baseline, 13.0% of the women met study criteria for depression (see Figure IV.C.3). At postnatal follow-up, 24.6% of clients met study criteria for depression in the 30 days before the baby was born which was a non-significant increase.

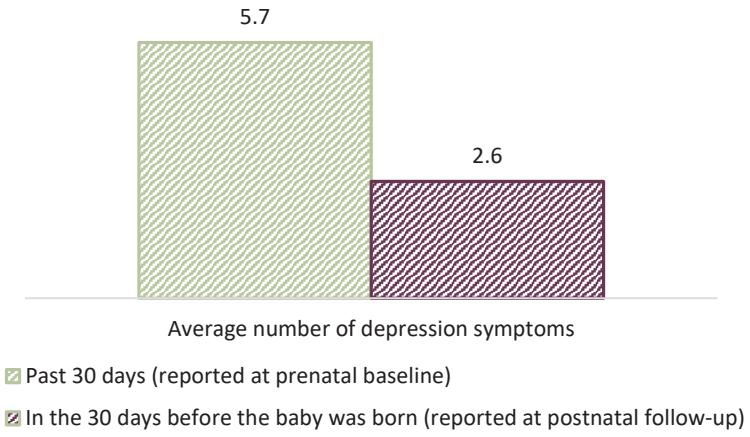
FIGURE IV.C.3. MEETING STUDY CRITERIA FOR DEPRESSION IN THE 30 DAYS BEFORE PRENATAL BASELINE AND 30 DAYS BEFORE THE BABY WAS BORN (N = 69)



AVERAGE NUMBER OF DEPRESSION SYMPTOMS IN THE PAST 30 DAYS

Clients who met study criteria for depression in the past 30 days at baseline (n = 9) reported an average of 5.7 symptoms in the past 30 days at prenatal baseline and an average of 2.6 symptoms in the 30 days before the baby was born (a significant decrease).

FIGURE IV.C.4. AVERAGE NUMBER OF DEPRESSION SYMPTOMS AMONG THOSE CLIENTS WHO MET STUDY CRITERIA FOR DEPRESSION IN THE PAST 30 DAYS AT PRENATAL BASELINE (N = 9)*



* p < .05; Significance tested with paired sample t-test.

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).

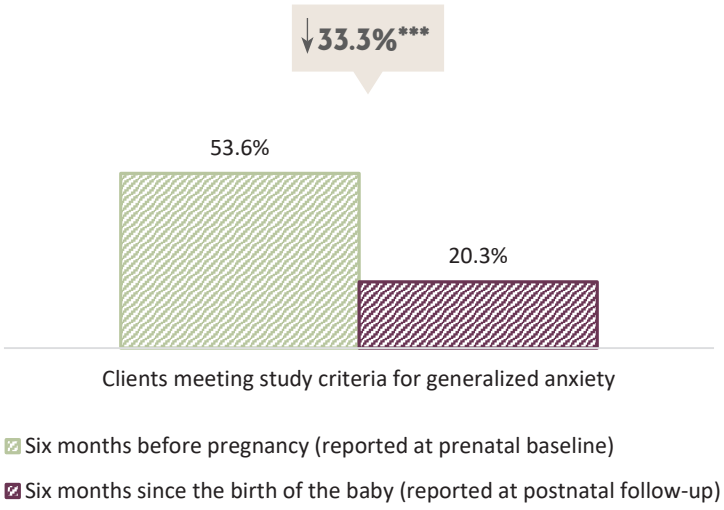
STUDY CRITERIA FOR GENERALIZED ANXIETY

To meet study criteria for depression, 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.

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

In the 6 months before pregnancy, 53.6% of clients reported symptoms that met study criteria for generalized anxiety (see Figure IV.C.5). In the past 6 months at postnatal follow-up, 20.3% of clients met study criteria for generalized anxiety, which is a significant decrease of 33.3% from baseline.

FIGURE IV.C.5. MEETING STUDY CRITERIA FOR GENERALIZED ANXIETY IN 6 MONTHS BEFORE PREGNANCY AND PAST 6 MONTHS AT POSTNATAL FOLLOW-UP (N = 69)

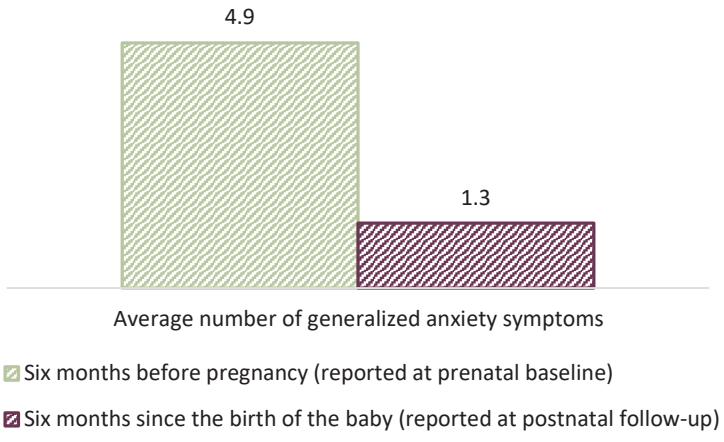


***p < .001.

AVERAGE NUMBER OF GENERALIZED ANXIETY SYMPTOMS IN THE PAST 6 MONTHS

Of the clients who met study criteria for generalized anxiety in the 6 months before pregnancy (n = 37), they reported an average of 4.9 symptoms. In the past 6 months at postnatal follow-up, clients reported an average of 1.3 symptoms, a significant decrease compared to before pregnancy.

FIGURE IV.C.6. AVERAGE NUMBER OF ANXIETY SYMPTOMS AMONG THOSE CLIENTS WHO MET STUDY CRITERIA FOR GENERALIZED ANXIETY IN THE 6 MONTHS BEFORE PREGNANCY AT PRENATAL BASELINE (N = 37)***



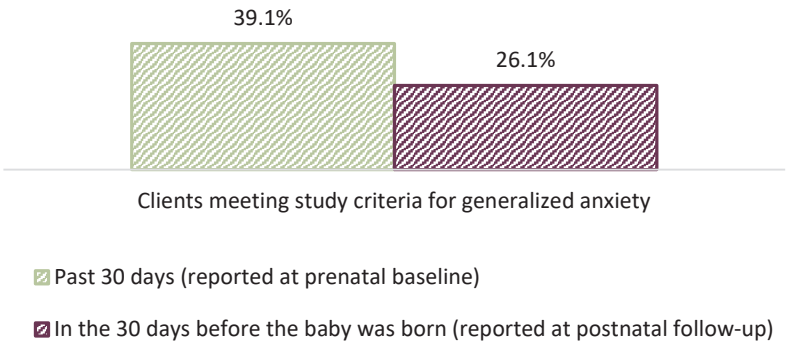
*** p < .001; Significance tested with paired sample t-test.

CLIENTS MEETING STUDY CRITERIA FOR ANXIETY IN THE PAST 30 DAYS

At prenatal baseline, 39.1% of clients reported symptoms that met study criteria for generalized anxiety in the past 30 days (see Figure IV.C.7). In the 30 days before the baby was born, 26.1% of

KY-Moms MATR clients met criteria for generalized anxiety.

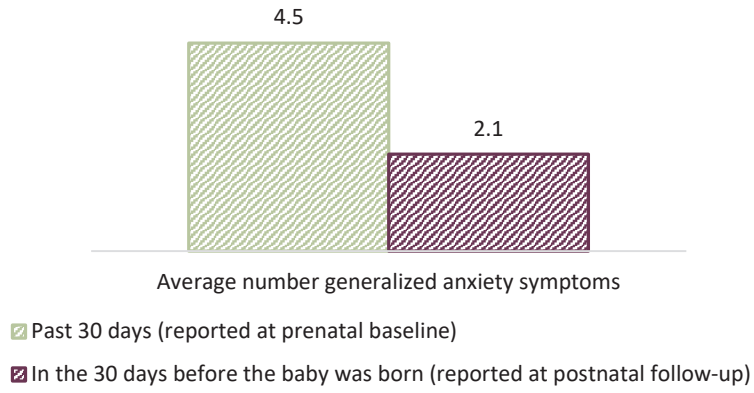
FIGURE IV.C.7. MEETING STUDY CRITERIA FOR GENERALIZED ANXIETY IN THE 30 DAYS BEFORE PRENATAL BASELINE AND 30 DAYS BEFORE THE BABY WAS BORN (N = 69)



AVERAGE NUMBER OF ANXIETY SYMPTOMS IN THE PAST 30 DAYS

Clients who met study criteria for anxiety in the past 30 days at baseline (n = 27) reported an average of 4.5 symptoms in the past 30 days at prenatal baseline and an average of 2.1 symptoms in the 30 days before the baby was born, a significant decrease.

FIGURE IV.C.8. AVERAGE NUMBER OF ANXIETY SYMPTOMS AMONG THOSE CLIENTS WHO MET STUDY CRITERIA FOR GENERALIZED ANXIETY IN THE PAST 30 DAYS AT PRENATAL BASELINE (N = 27)***



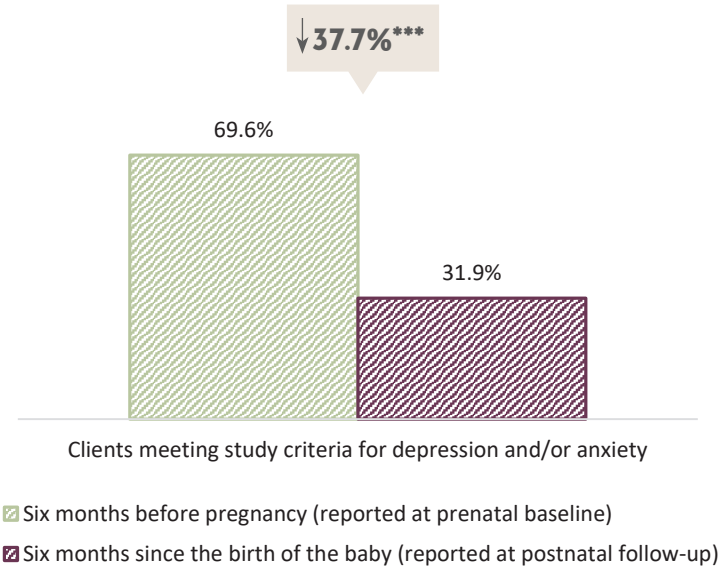
*** p < .001; Significance tested with paired sample t-test.

Depression and Anxiety Symptoms

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

Figure IV.C.9 shows that 69.6% 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, 31.9% of clients met criteria for depression and/or anxiety (a significant decrease of 37.7%).

FIGURE IV.C.9. MEETING STUDY CRITERIA FOR DEPRESSION AND/OR ANXIETY IN THE PAST 6 MONTHS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 69)



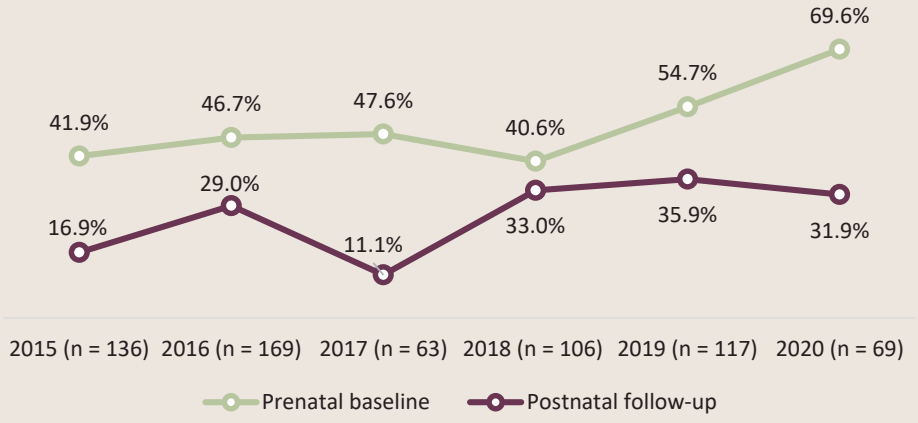
*** $p < .001$.

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 appeared to increase.

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.

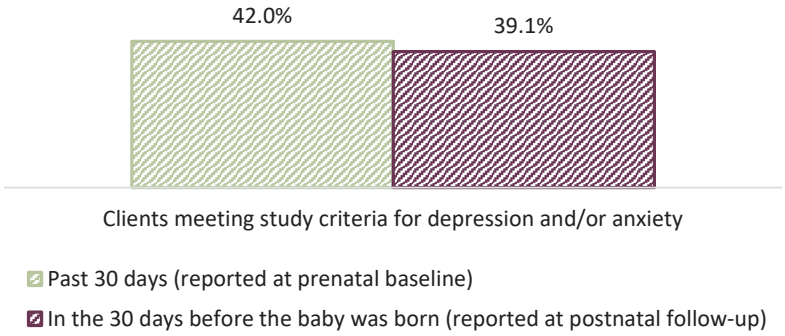
FIGURE IV.C.10. CLIENTS IN THE FOLLOW-UP SAMPLE WHO MET STUDY CRITERIA FOR DEPRESSION AND/OR ANXIETY IN THE PAST 6 MONTHS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2020



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

In the past 30 days at prenatal baseline, 42.0% of clients met study criteria for either depression or anxiety (or both) an d in the 30 days before the baby was born, 39.1% of the women met study criteria for depression and/or anxiety.

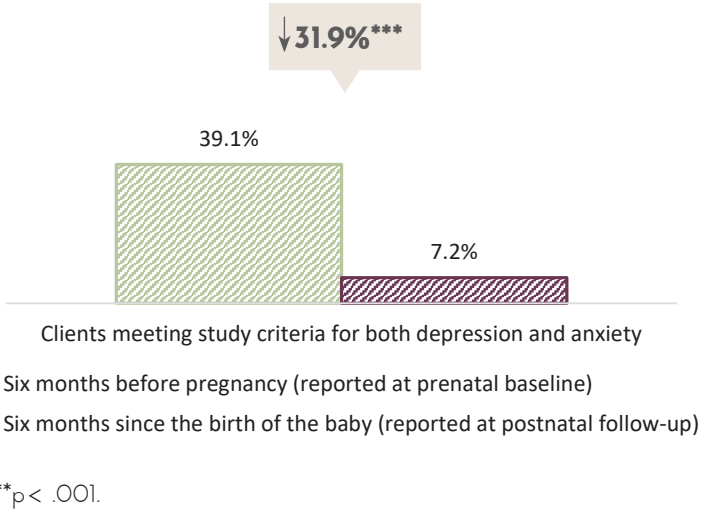
FIGURE IV.C.11. MEETING STUDY CRITERIA FOR DEPRESSION AND/OR ANXIETY IN THE 30 DAYS BEFORE PRENATAL BASELINE AND 30 DAYS BEFORE THE BABY WAS BORN (N = 69)



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

Almost 4 in 10 clients (39.1%) met criteria for comorbid anxiety and depression in the 6 months before they became pregnant and at postnatal follow-up, 7.2% of clients reported comorbid anxiety and depression (a significant decrease of 31.9%; see Figure IV.C.12).

FIGURE IV.C.12. MEETING STUDY CRITERIA FOR COMORBID DEPRESSION AND GENERALIZED ANXIETY IN THE PAST 6 MONTHS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 69)

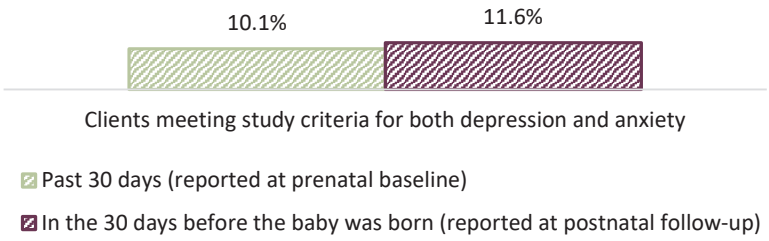


***p< .001.

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

One in ten clients in the past 30 days at prenatal baseline and 11.6% of clients in the 30 days before the baby was born met study criteria for both depression and anxiety (see Figure IV.C.13).

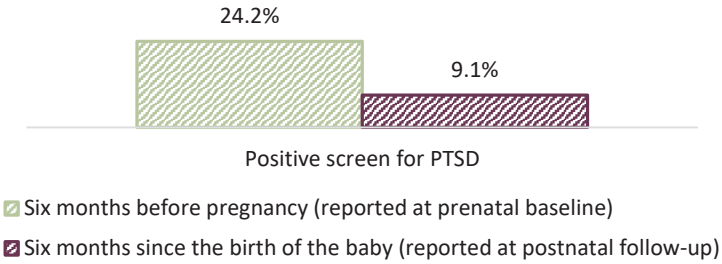
FIGURE IV.C.13. MEETING STUDY CRITERIA FOR COMORBID DEPRESSION AND GENERALIZED ANXIETY IN THE 30 DAYS BEFORE PRENATAL BASELINE AND THE 30 DAYS BEFORE THE BABY WAS BORN (N = 69)



Post-traumatic Stress Symptoms

Almost one-quarter of clients screened positive for symptoms of post-traumatic stress disorder (PTSD)[76] in the six months before pregnancy. At follow-up, 9.1% of clients screen positive for PTSD symptoms.

FIGURE IV.C.14. CLIENTS WHO SCREENED POSITIVE FOR SYMPTOMS OF POST-TRAUMATIC STRESS DISORDER IN THE PAST 6 MONTHS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 33)[77]



Summary

The number of clients who met study criteria for depression and the number of clients who met study criteria for anxiety decreased significantly from prenatal baseline to postnatal follow-up. In addition, the number of depression symptoms and the number of anxiety symptoms clients reported decreased significantly from before pregnancy to 6 months after the birth of the baby and in the past 30 days. In the past 6 months at follow-up, almost one-third of clients still reported depression and/or anxiety and 7% of clients still met criteria for both depression and anxiety in the past 6 months at follow-up.

[76] 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

[77] Previous versions of the baseline and follow-up assessments only asked PTSD measure if the client replied that they had been victimized as an adult; therefore, only 33 clients were asked these questions at both baseline and follow-up.

D. Intimate partner abuse and Victimization Experiences

This section examines changes in intimate partner abuse and victimization 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 in Current or Past Relationship

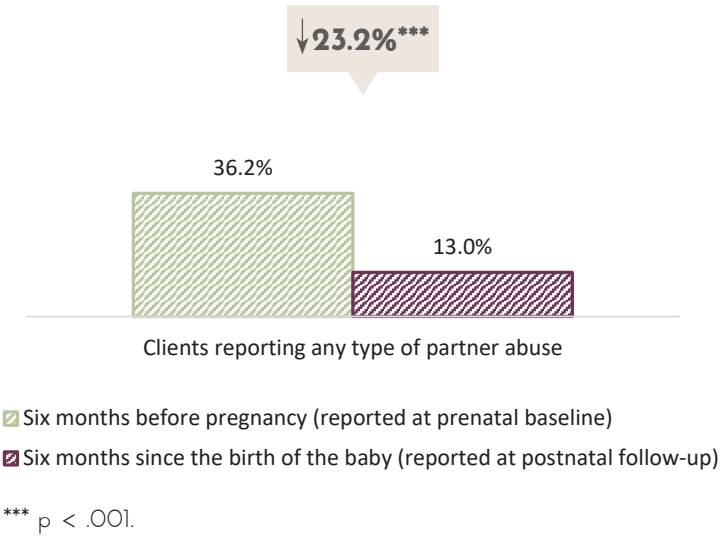
Including fear of a current or ex-partner, 17.4% (n = 12) of clients reported they felt unsafe at baseline and 4.3% reported they felt unsafe at follow-up. Of the 12 clients that reported at prenatal baseline that they felt unsafe, 3 clients also felt unsafe at follow-up.

Intimate partner abuse

ANY FORM OF INTIMATE PARTNER ABUSE IN THE PAST 6 MONTHS

Figure IV.D.1 shows that in the 6 months before pregnancy, 36.2% of clients reported experiencing any form of intimate partner abuse[78] (including psychological abuse, control, physical abuse, and sexual abuse) perpetrated by a current or ex-partner and 13.0% of clients reported experiencing partner violence in the past 6 months at postnatal follow-up (significant decrease of 23.2%).

FIGURE IV.D.1. ANY TYPE OF ABUSE IN THE 6 MONTHS BEFORE PREGNANCY AND THE PAST 6 MONTHS AT POSTNATAL FOLLOW-UP (N = 69)



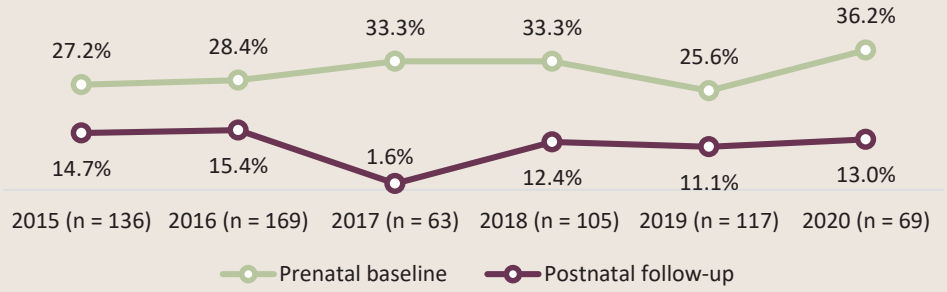
*** p < .001.

[78] 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 Partner Abuse at Prenatal Baseline and Postnatal Follow-up

The number of clients who reported any partner abuse at prenatal baseline was fairly consistent over the previous 6 years. In 2020, however, the number of clients who reported any partner abuse increased compared to 2019. Overall, the number 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 1.5%).

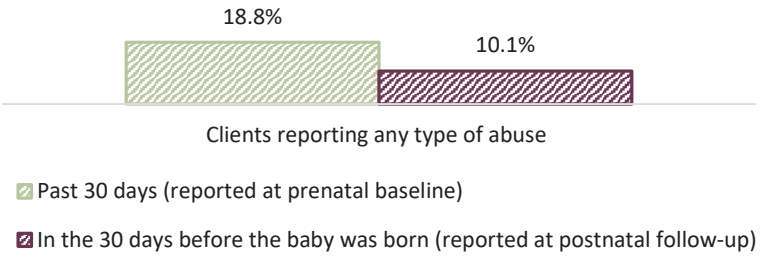
FIGURE IV.D.2. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING ANY PARTNER ABUSE AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2020



ANY FORM OF INTIMATE PARTNER ABUSE IN THE PAST 30 DAYS

In the past 30 days at prenatal baseline, 18.8% of KY-Moms MATR clients reported experiencing any type of abuse. In the 30 days before the baby was born, 10.1% of clients reported any type of partner abuse, which was not a significant decrease (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 = 69)

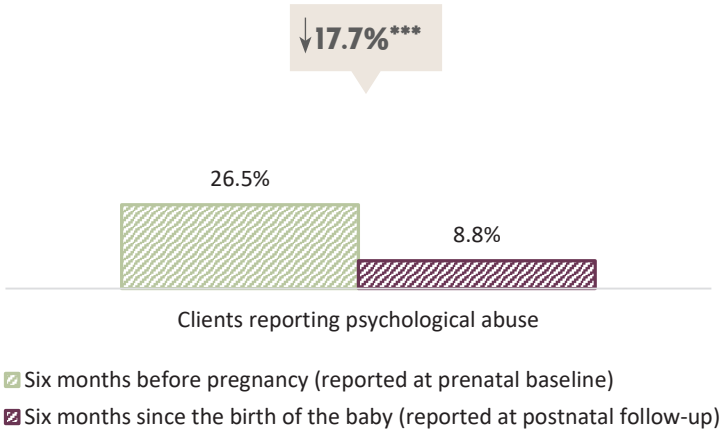


PSYCHOLOGICAL ABUSE

PSYCHOLOGICAL ABUSE IN THE PAST 6 MONTHS

Over one-quarter of clients (26.5%) 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 8.8% 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 17.7% 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 = 68)[79]

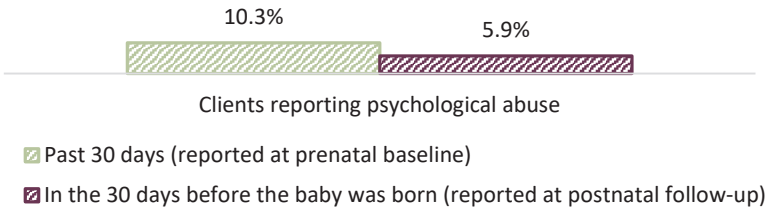


** p > .01.

PSYCHOLOGICAL ABUSE IN THE PAST 30 DAYS

Ten percent of clients in the past 30 days at prenatal baseline and 5.9% of clients 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 = 69)



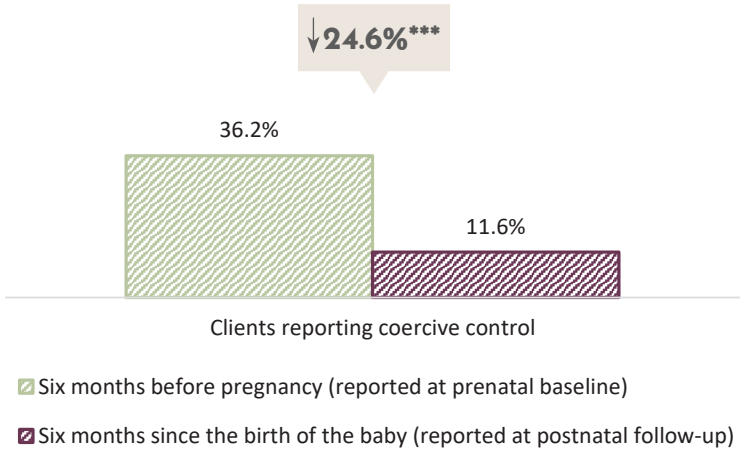
[79] One client was missing data for psychological abuse in the past 6 months at follow-up.

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, 36.2% of clients reported being a victim of coercive control and 11.6% of clients in the past 6 months at postnatal follow-up reported experiencing coercive control from their partner (a significant decrease of 24.6%; 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 = 69)

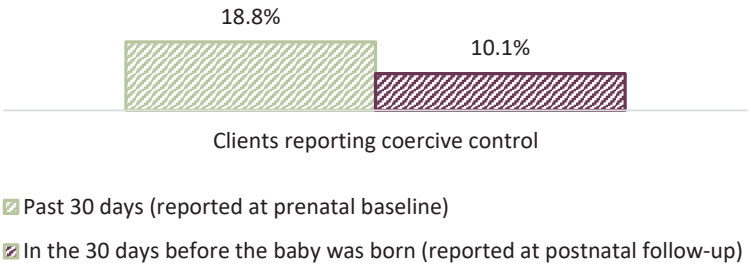


*** p > .001.

COERCIVE CONTROL IN THE PAST 30 DAYS

In the past 30 days at prenatal baseline, 18.8% reported coercive control occurred while they were pregnant. Ten percent reported experiencing coercive control from their partner in the 30 days before the baby was born (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 = 69)

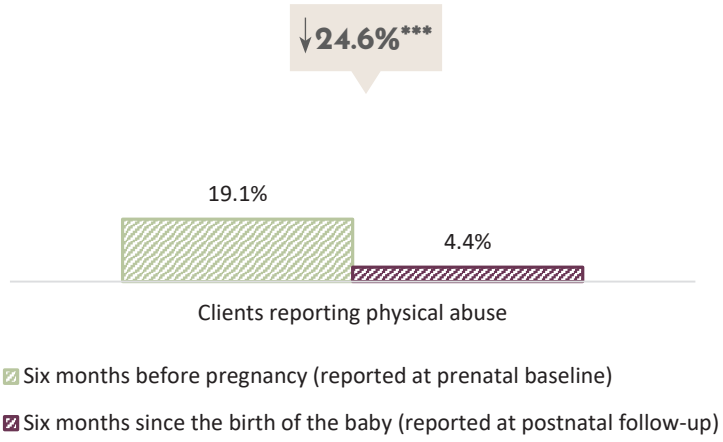


PHYSICAL ABUSE

PHYSICAL ABUSE IN THE PAST 6 MONTHS

Almost 1 in 5 women reported that a partner physically abused them (e.g., pushing, shoving, kicking, beating up, choking, 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, 4.4% of clients reported physical abuse by a partner (a significant decrease of 14.7%).

FIGURE IV.D.8. PHYSICAL ABUSE IN THE 6 MONTHS BEFORE PREGNANCY AND THE PAST 6 MONTHS AT POSTNATAL FOLLOW-UP (N = 68)[80]

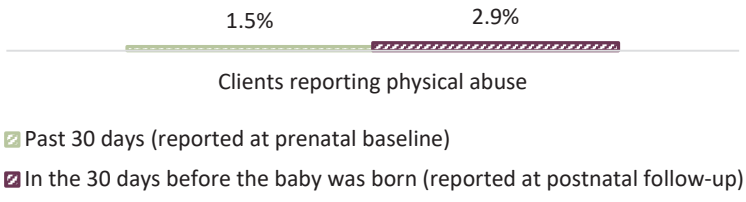


*p < .05.

PHYSICAL ABUSE IN THE PAST 30 DAYS

One client (1.5%) in the past 30 days at prenatal baseline and two clients (2.9%) 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 = 68)[81]



[80] One client was missing data for physical abuse in the past 6 months at follow-up.

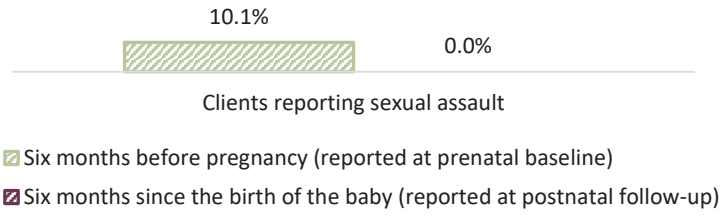
[81] One client was missing data for physical abuse in the 30 days before the baby was born.

SEXUAL ASSAULT

SEXUAL ASSAULT IN THE PAST 6 MONTHS

One in 10 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 = 69)

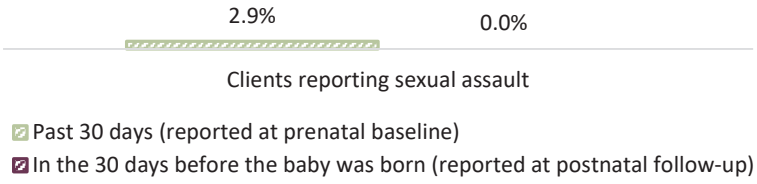


a-No measures of association could be computed for sexual assault because the variable at follow-up was 0.

SEXUAL ASSAULT IN THE PAST 30 DAYS

In the past 30 days at prenatal baseline, 2.9% of clients reported being a victim of sexual assault by a partner and in the 30 days before the baby was born, none of the clients reported being sexually assault by a partner.

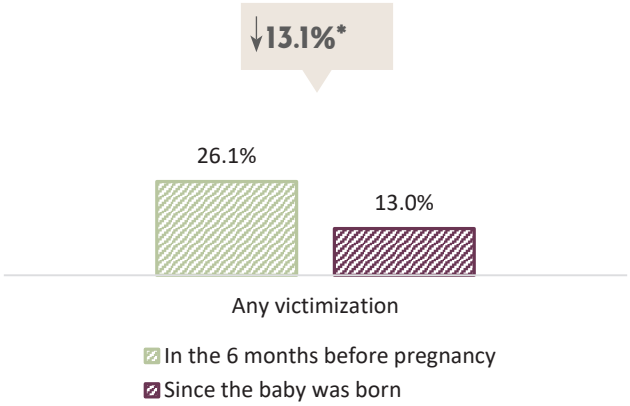
FIGURE IV.D.11. PARTNER SEXUALLY ASSAULTED CLIENT IN THE 30 DAYS BEFORE PREGNANCY AND THE 30 DAYS BEFORE THE BABY WAS BORN (N = 69)



Any Adult 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 other than a parent or guardian in the past 6 months at baseline and follow-up. Because relatively small percentages of clients reported each type of victimization experience in the 6-month periods, the items were collapsed. The percent of clients who reported experiencing any victimization (i.e., any harassment or any assault) in the past 6 months decreased significantly from the 6 months before pregnancy to the past 6 months at follow-up (see Figure IV.D.12).

FIGURE IV.D.12. PERCENT OF CLIENTS WHO EXPERIENCED ANY ADULT VICTIMIZATION (N = 69)



*p < .05.

Summary

Clients' experiences of several forms of partner violence were examined from prenatal baseline to postnatal follow-up. Over one-third of KY-Moms MATR clients reported experiencing some type of abuse in the 6 months before pregnancy. At postnatal follow-up, 13% of clients reported experiencing some type of abuse in the past 6 months since the baby was born. About 19% of clients reported experiencing at least one of the types of abuse asked about on the survey in the past 30 days at prenatal baseline and 10.1% of clients reported some type of abuse from an intimate partner in the 30 days before the baby was born. The number of clients reporting psychological abuse, coercive control, and physical 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 follow-up.

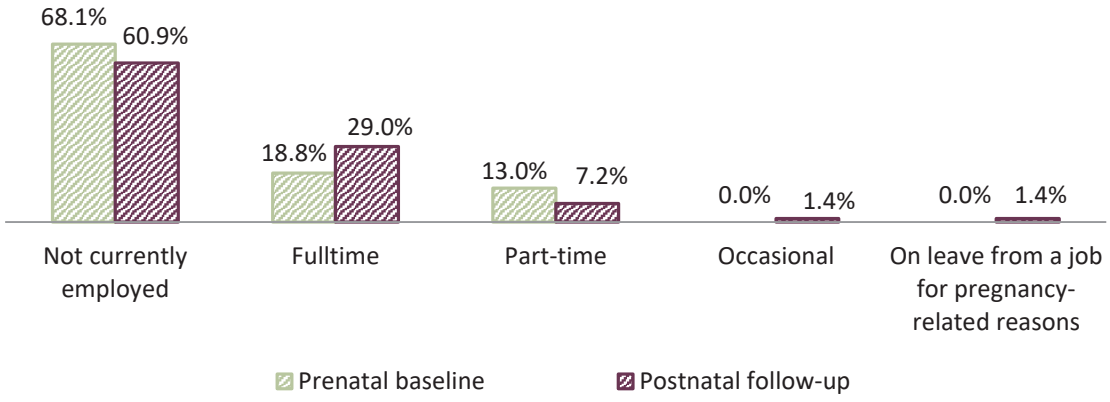
E. Economic and Living Circumstances, Economic Hardship, and Criminal Justice Involvement

This subsection examines changes in employment, economic hardship, living situation, and criminal justice involvement 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

Overall, clients' current employment status did not change significantly from prenatal baseline to postnatal follow-up. Less than one-third of clients were employed in some capacity (full-time, part-time, occasional, or on leave) at prenatal baseline and 39.0% were employed at follow-up (not represented in a figure). At prenatal baseline, 68.1% of clients reported being unemployed and at postnatal follow-up, this percent was 60.9% (see Figure IV.E.1).

FIGURE IV.E.1. CURRENT EMPLOYMENT STATUS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 69)



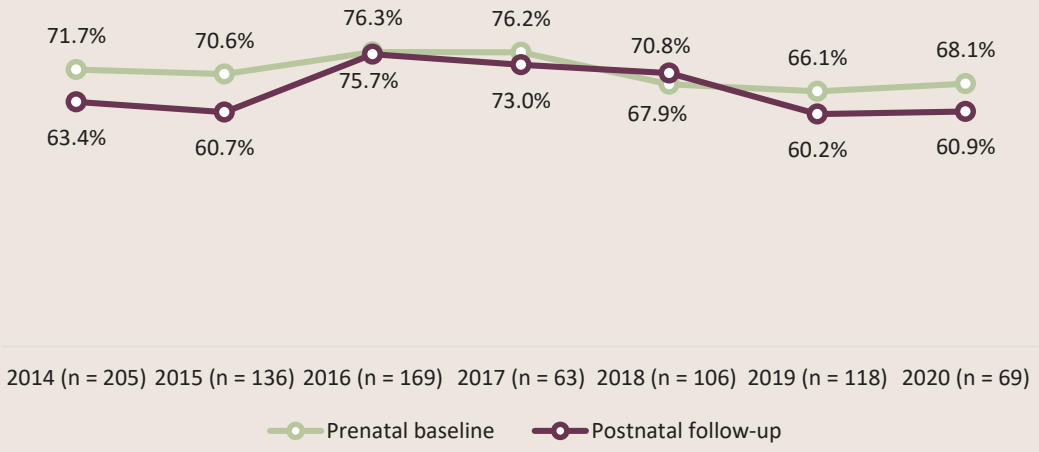
a – Significance tested with the Stuart-Maxwell Test for Marginal Homogeneity.

> *Overall, I liked everything. We didn't get to reach our goals because I had [the baby] early. I was very well prepared.*
>
> - KY-Moms MATR follow-up client

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

The majority of women at both prenatal baseline and postnatal follow-up were unemployed. 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 is 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.

FIGURE IV.E.2. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING CURRENT UNEMPLOYMENT STATUS AT PRENATAL BASELINE, REPORT YEARS 2014-2020



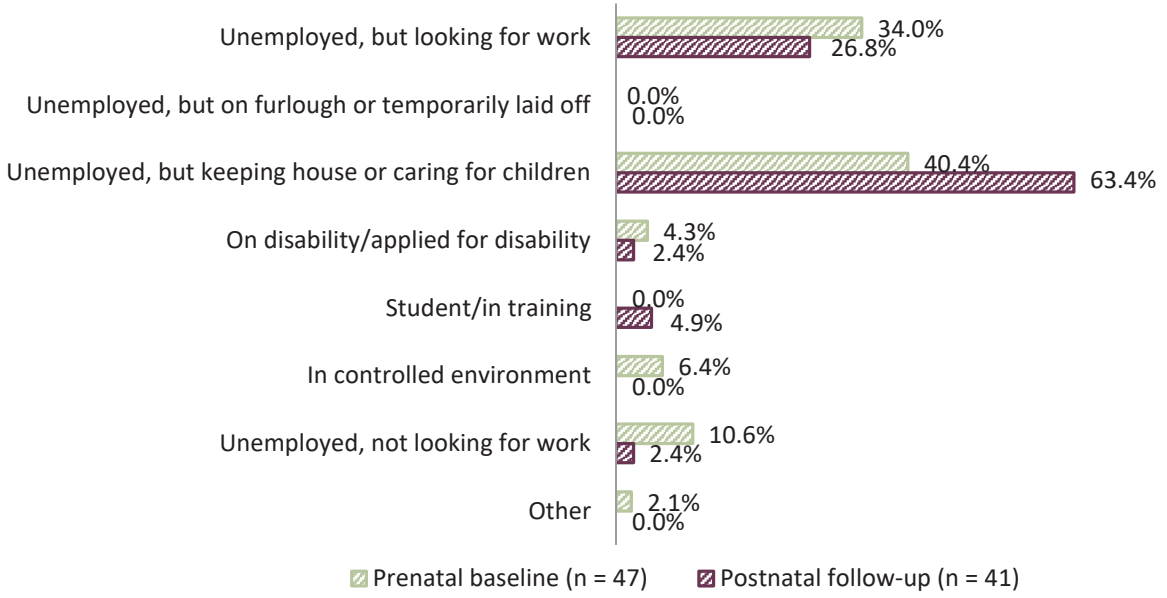
For clients who were employed (full- or part-time) at each point, the average hourly wage clients reported increased slightly from $9.93 at prenatal baseline (n = 22) to $10.39 at postnatal follow-up (n = 23[82]; not depicted in a figure). About 5% of clients who were employed at baseline (including clients on leave for pregnancy-related reasons) and none of the clients who were employed at follow-up[83] reported they were also in school or receiving additional vocational training.

Of the clients who reported they were not currently employed at each point, fewer clients indicated they were looking for work at postnatal follow-up compared to prenatal baseline (see Figure IV.E.3). In addition, the majority of clients (63.4%) who were unemployed at follow-up reported they were keeping house or caring for children full-time compared to 40.4% of clients at prenatal baseline.

[82] One client reported they didn't know what their hourly wage was and data was missing for two clients at follow-up.

[83] Five clients were missing data on school attendance at follow-up.

FIGURE IV.E.3. REASON FOR UNEMPLOYMENT AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP[84]



About 84% of clients at prenatal baseline and 75.0% of clients at postnatal follow-up expected to be employed in the next 12 months.[85]

Public Assistance

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

The vast majority of clients (88.4%) reported receiving public assistance while they were pregnant and involved in KY-Moms MATR and 84.1% reported currently receiving public assistance at postnatal follow-up (not depicted in a figure).

The majority of clients who received public assistance reported receiving Supplement Nutrition Assistance Program (SNAP; 50.7% during pregnancy and 48.3% after the birth of their baby) and Women, Infants and Children (WIC; 81.2% during pregnancy and 74.1% after the birth of their baby).

[84] One client at follow-up were missing information on why they were unemployed.

[85] One client responded that they "didn't know" for employment expectations at follow-up.

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.[86] 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.

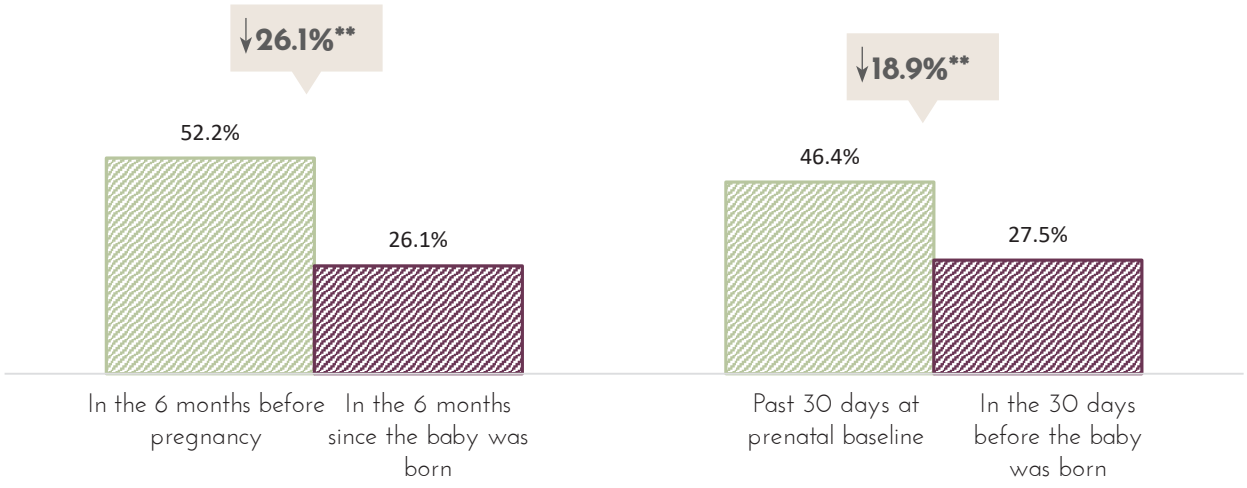
A CLOSER LOOK AT CLIENTS' DIFFICULTY MEETING BASIC NEEDS AT FOLLOW-UP

In the past 6 months at follow-up, 14.5% of KY-Moms MATR clients reported having difficulty paying rent/mortgage, 8.7% of clients reported they were unable to pay their gas/electric bill, and 11.6% were unable to pay their phone bills.

In the 6 months before becoming pregnant, 52.2% of clients reported they had difficulty meeting at least one of the basic living needs for financial reasons and 26.1% of clients reported difficulty meeting basic living needs in the past 6 months at postnatal follow-up (since the baby was born) which was a significant decrease of 26.1% (see Figure IV.E.4).

About 46% of clients reported having difficulty meeting basic living needs in the past 30 days at prenatal baseline. In the 30 days before the baby was born, 27.5% of clients had difficulty meeting basic needs such as food, shelter or utilities (a significant decrease of 18.9%).

FIGURE IV.E.4. DIFFICULTY IN MEETING BASIC LIVING NEEDS FOR FINANCIAL REASONS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 69)



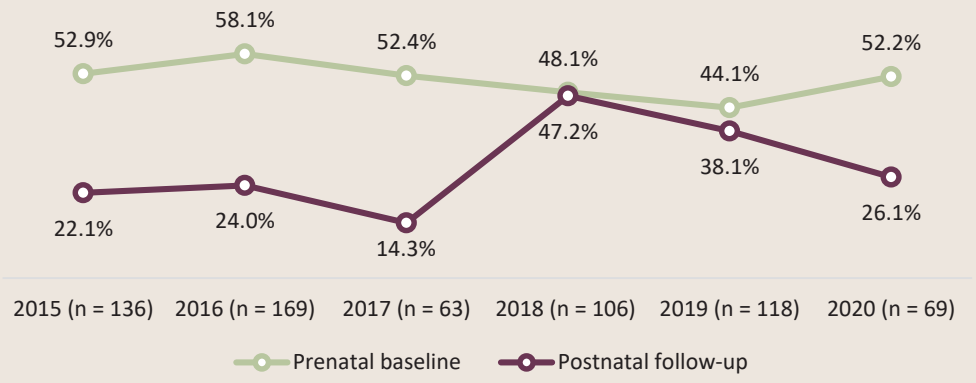
**p < .01.

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

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 fairly consistent over the past 6 years at baseline. From 2015 to 2017, the number of clients who reported difficulty meeting basic living needs at follow-up significantly decreased from baseline. In 2020, there was a larger decrease from baseline to follow-up in clients reporting difficulty meeting basic living needs.

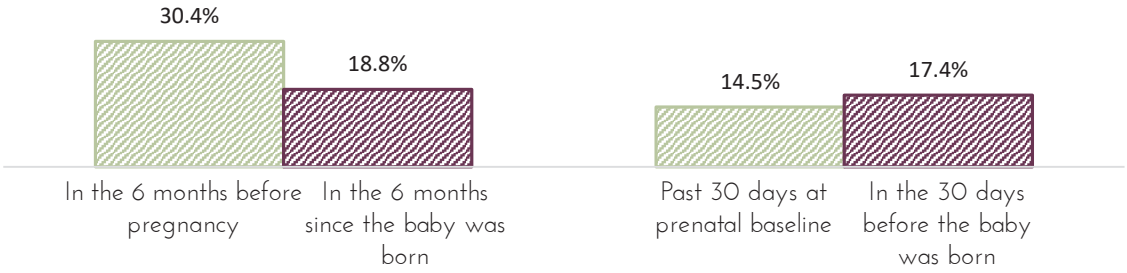
FIGURE IV.E.5. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING DIFFICULTY MEETING BASIC HOUSEHOLD NEEDS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2020



Three in ten 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, almost 2 in 10 clients (18.8%) 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, 14.5% of clients reported their household had difficulty meeting health care needs because of financial reasons. In the 30 days before the baby was born, 17.4% of clients reported difficulty meeting health care needs.

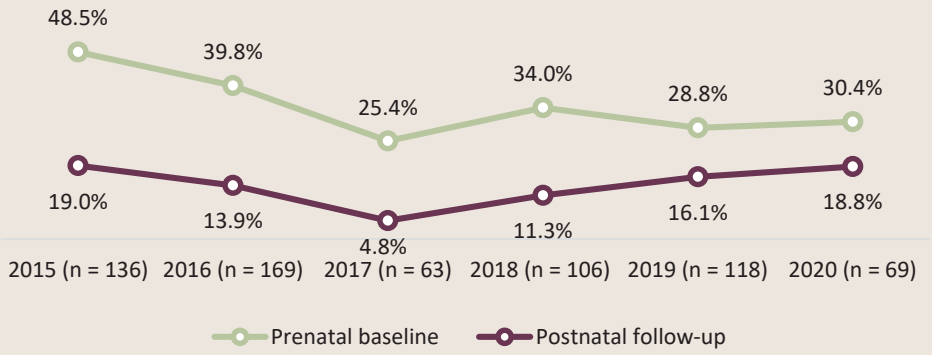
FIGURE IV.E.6. DIFFICULTY IN MEETING HEALTH CARE NEEDS FOR FINANCIAL REASONS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 69)



Trends in Difficulty Meeting 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 has steadily declined. In 2015, almost half of clients reported having difficulty meeting health care needs in the 6 months before pregnancy and in 2020, around 30% of clients reported having difficulty meeting basic health care needs. At postnatal follow-up, on average, less than one-fifth of clients reported struggling to meet health care needs.

FIGURE IV.E.7. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING DIFFICULTY MEETING HEALTH CARE NEEDS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2020



Living Situation

The number of clients reporting being homeless declined from 10.1% at prenatal baseline to 1.4% at postnatal follow-up (not depicted in a figure). Of those clients who considered themselves homeless at baseline (n = 7), 50.0% reported they were staying temporarily with family or friends, 16.7% of clients reported they were staying in a shelter, and 33.3% reported other reasons (staying in a sober living home and staying in a recovery center).[87]

[87] One client was missing data for why the client considered themselves homeless at baseline.

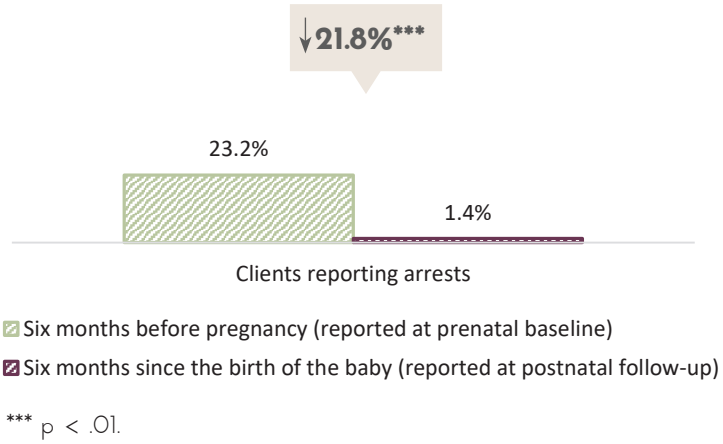
The majority of clients at prenatal baseline (88.4%) and postnatal follow-up (100.0%) reported living in a private residence (i.e., their own or someone else's home or apartment) before the birth of their baby.

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, 23.2% of clients reported an arrest (see Figure IV.E.8). At follow-up, this percent had decreased significantly by 21.8% to 1.4%.

FIGURE IV.E.8. CLIENTS REPORTING ARRESTS IN THE 6 MONTHS BEFORE PREGNANCY AND THE 6 MONTHS BEFORE POSTNATAL FOLLOW-UP (N = 69)



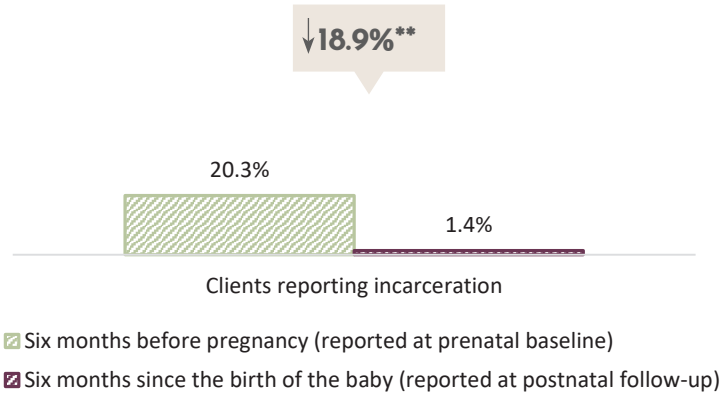
*** p < .01.

Among those clients who reported being arrested in the 6 months before pregnancy (n = 16), the average number of times clients reported being arrested was 1.6. The one client who reported being arrested in the 6 months since the baby was born, reported being arrested one time (not depicted in a figure).

Incarceration

At baseline, 20.3% of clients reported spending at least one night in jail or prison in the 6 months before pregnancy (Figure IV.E.9). At follow-up, 1.4% of clients reported spending at least one night in jail or prison since the baby was born, which is a significant decrease of 18.9%.

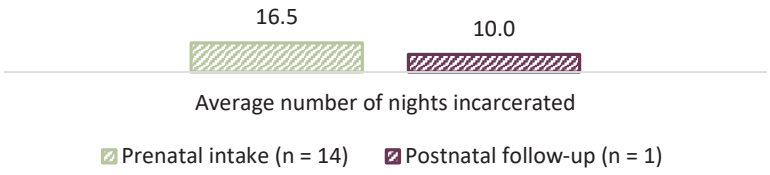
FIGURE IV.E.9. CLIENTS REPORTING BEING INCARCERATED IN THE 6 MONTHS BEFORE PREGNANCY AND THE 6 MONTHS BEFORE POSTNATAL FOLLOW-UP (N = 69)



**p < .01.

Among those clients who reported being incarcerated in the 6 months before pregnancy (n = 14), the average number of nights incarcerated was 16.5 (see Figure IV.E.10). The one client who reported being incarcerated in the 6 months since the baby was born, reported being incarcerated 10 nights.

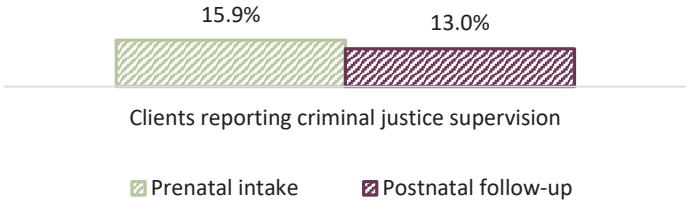
FIGURE IV.E.10. AVERAGE NUMBER OF NIGHTS SPENT INCARCERATED AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP



Criminal Justice Supervision

At prenatal baseline, 15.9% of clients reported they were currently under criminal justice system supervision (e.g., probation, or parole; Figure IV.E.11). At follow-up, 13.0% were currently under criminal justice system supervision.

FIGURE IV.E.11. CLIENTS REPORTING SUPERVISION BY THE CRIMINAL JUSTICE SYSTEM AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 69)



Summary

The percent of clients who reported full-time employment did not increase significantly at postnatal follow-up, but the number of clients who reported being unemployed, but caring for their children at home increased to 63% at follow-up. Most 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 number of clients who reported having difficulty meeting health care needs for financial reasons decreased significantly in the past 6 months at postnatal follow-up compared to prenatal baseline. There were also significant decreases in the number of clients reporting arrests and incarceration from prenatal baseline to postnatal follow-up.

> *I liked the program, just having someone to talk to was amazing. You don't have to put on a happy face for them.*
>
> - KY-Moms MATR follow-up client

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 including: (1) chronic health problems at baseline, (2) current health, (3) chronic pain, and (4) perceptions of poor physical and mental health.

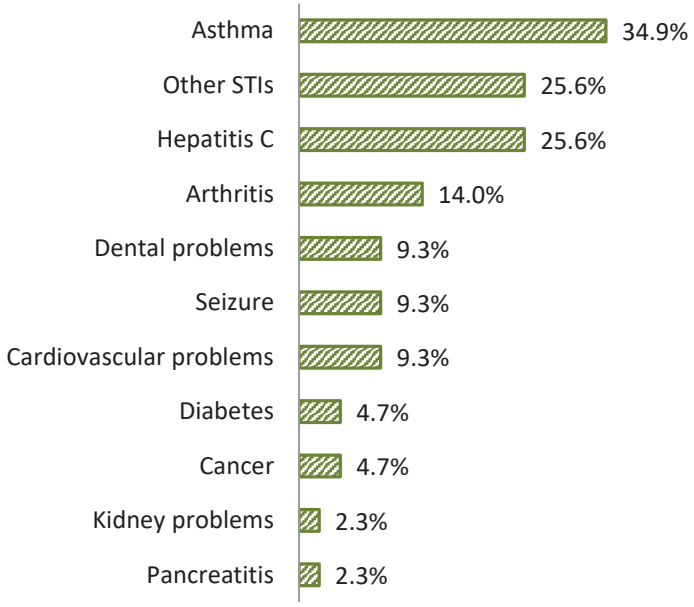
Chronic Health Problems Reported at Prenatal Baseline

At prenatal baseline, 37.7% of clients reported no health problems, 44.9% reported having one chronic health problem, and 17.4% of clients had two or more chronic health problems.

37.7% had no chronic health problems, 44.9% had one chronic health problem, 11.6% had 2 health problems, and 5.7% had 3 health problems or more

As Figure IV.F.1 shows, among the clients who reported at least one physical health problem at prenatal baseline (n = 43), 34.9% of KY-Moms MATR clients reported asthma, 25.6% reported a sexually transmitted infection (STI), 25.6% reported Hepatitis C, and 14.0% reported arthritis. None of the clients reported chronic obstructive pulmonary disorder, tuberculosis, Hepatitis B, cirrhosis, or HIV/AIDS (not included in the figure).

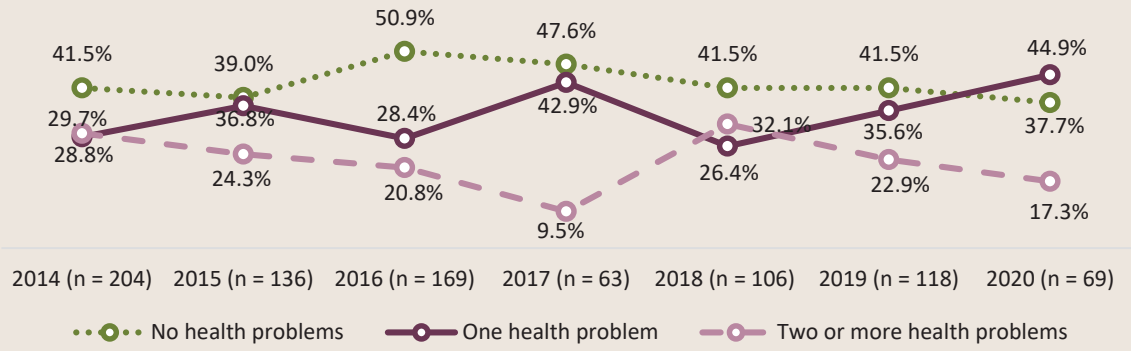
FIGURE IV.F.1. CHRONIC HEALTH PROBLEMS REPORTED BY CLIENTS AT PRENATAL BASELINE (N= 43)



Trends in Chronic Health Problems at Prenatal Baseline and Postnatal Follow-up

In general, for each year, more clients reported no health problems at prenatal baseline, with the exception of 2020. In 2016, for example, a little over half of clients (50.9%) reported they had no health problems. The number of clients who reported one health problem and multiple health problems were similar over the previous 6 years with the exception of 2017 when only 9.5% of clients reported multiple health problems (compared to 42.9% of clients reporting only one health problem). In 2020, more clients appear to have reported just one health problem compared to no health problems or multiple health problems.

FIGURE IV.F.2. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING CHRONIC HEALTH PROBLEMS AT PRENATAL BASELINE, REPORT YEARS 2014-2020

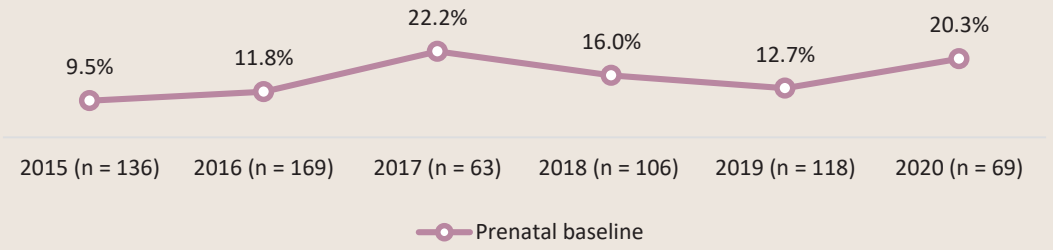


Overall, at prenatal baseline, 20.3% reported they had major health problems that were not currently being treated. Of those clients who indicated they had major health problems that were not being treated (n = 14), 28.6% reported Hepatitis C and the remaining clients mentioned various responses such as back problems, migraines, and arthritis. At postnatal follow-up, 5.8% of clients reported major health problems that were not currently being treated. Of those clients (n = 4), they mentioned back problems, hemorrhoids, and Hepatitis C.

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 in 2017 22.2% of clients reported having a major health problem that was not being treated. After 2017, the number of clients who reported having major health problems that were not currently being treated was 16.0% in 2018 and 12.7% in 2019. In 2020, the percent of clients who reported having a major health problem that was not being treated was 20.3%.

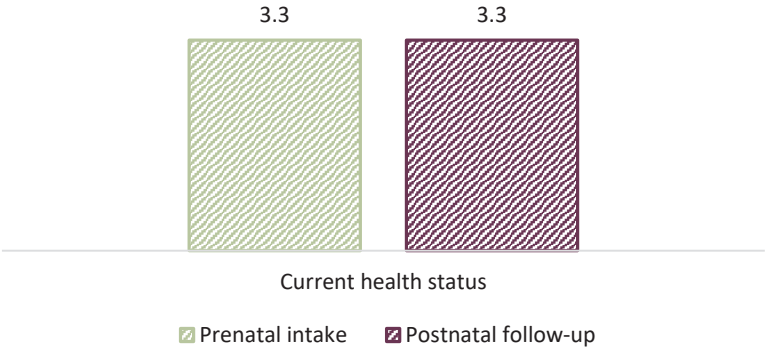
FIGURE IV.F.3. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING HEALTH PROBLEMS THAT WERE NOT BEING TREATED AT PRENATAL BASELINE, REPORT YEARS 2015-2020



Current Health Status

At prenatal baseline, clients reported their current health as an average of 3.3 on a scale of 1 being "poor" and 5 being "excellent." At postnatal follow-up, clients reported that their current health was also an average of 3.3, which did not change compared to prenatal baseline (see Figure IV.F.4).

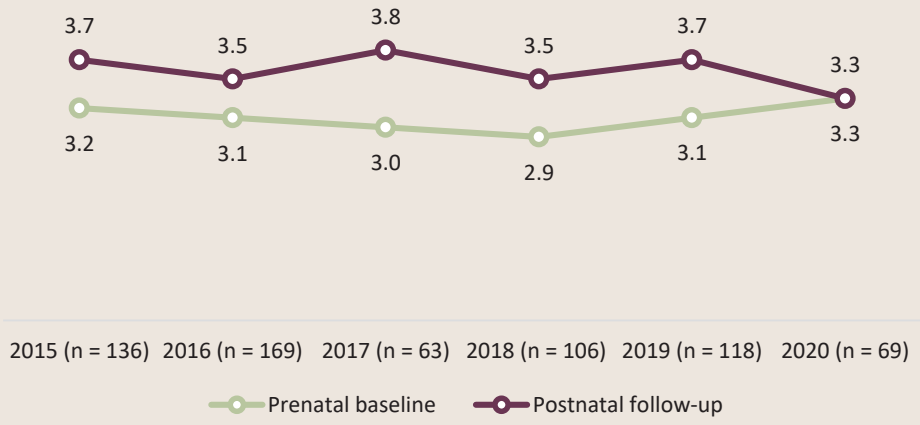
FIGURE IV.F.4. AVERAGE OVERALL HEALTH RATING FROM PRENATAL BASELINE TO POSTNATAL FOLLOW-UP (N = 69)



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.5. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING AVERAGE HEALTH RATING AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2020

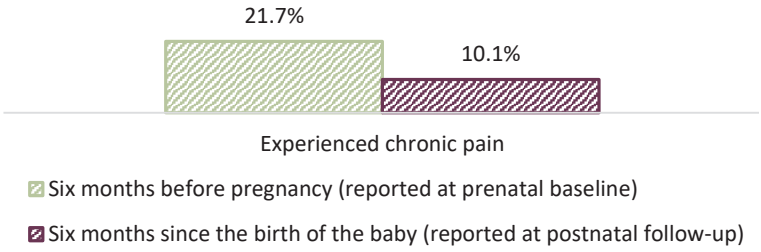


Chronic Pain

At prenatal baseline, 21.7% of women reported experiencing chronic pain in the 6 months before pregnancy and, of those clients (n = 15), they reported experiencing pain an average of 17 days in the 30 days before pregnancy. All of these clients reported that this chronic pain continued into their pregnancy with those clients reporting experiencing an average of 17 days of chronic pain in the past 30 days at prenatal baseline.

Approximately 10% of clients reported experiencing chronic pain in the past 6 months at postnatal follow-up which was not a significant decrease compared to the 6 months before pregnancy. Of those clients (n = 7), they reported an average of 24 days experiencing chronic pain.

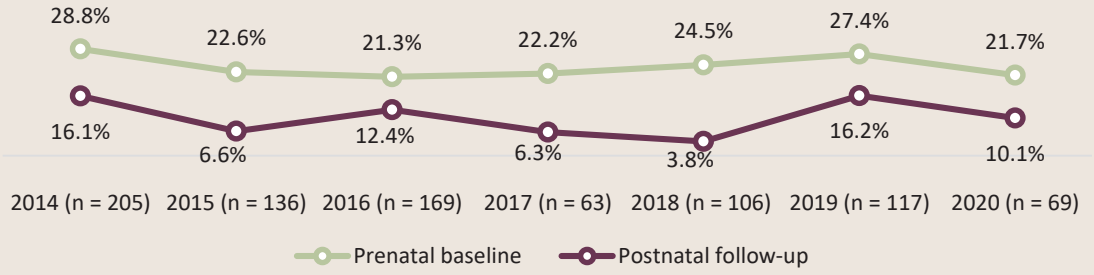
FIGURE IV.F.6. CHRONIC PAIN IN THE 6 MONTHS BEFORE PREGNANCY AND THE 6 MONTHS BEFORE POSTNATAL FOLLOW-UP (N = 69)



Trends in 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 2020, 21.7% of clients reported experiencing chronic pain at baseline and 10.1% of clients reported chronic pain at postnatal follow-up, which was a slight decrease from 16.2% in 2019.

FIGURE IV.F.7. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING CHRONIC PAIN AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2014-2020



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.8). There was a significant decrease from baseline to follow-up in the number of days clients reported their physical health was not good (from 5.4 days to 3.0 days[88]). In comparison, America's Health Rankings indicate people in Kentucky report an average of 5.4 days of poor physical health in the past 30 days. Specifically, Kentucky women reported 5.5 poor physical health days.[89] KY-Moms MATR clients report the same

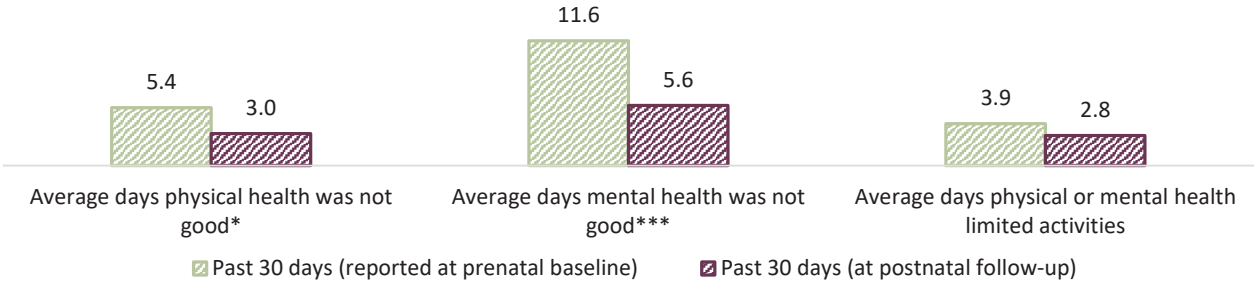
[88] This could possibly be due to no longer being pregnant.

[89] America's Health Rankings: A Call to Action for Individuals and Their Communities. Retrieved from https://www.americashealthrankings.org/explore/annual/measure/PhysicalHealth/state/KY.

number of days of poor physical health as other Kentuckians at prenatal baseline and fewer days at postnatal follow-up compared to both the overall population and women surveyed in Kentucky. The average number of days clients reported their mental health was not good decreased from 11.6 days at prenatal baseline to 5.6 days at postnatal follow-up. America's Health Rankings indicate that, overall, Kentuckians reported an average of 4.9 days of poor mental health in the past 30 days while Kentucky women reported an average of 5.3 days of poor mental health.[90] This indicates KY-Moms MATR clients reported over twice the amount of days their mental health was poor at prenatal baseline compared to the overall population in Kentucky and a similar number of days compared to women surveyed in Kentucky at postnatal follow-up.

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 3.9 days at baseline to 2.8 days at follow-up.

FIGURE IV.F.8. PERCEPTIONS OF POOR PHYSICAL HEALTH AND MENTAL HEALTH LIMITING ACTIVITIES IN THE PAST 30 DAYS AT BASELINE AND FOLLOW-UP



*p < .05, ***p < .001.
Significance tested with paired sample t-test.

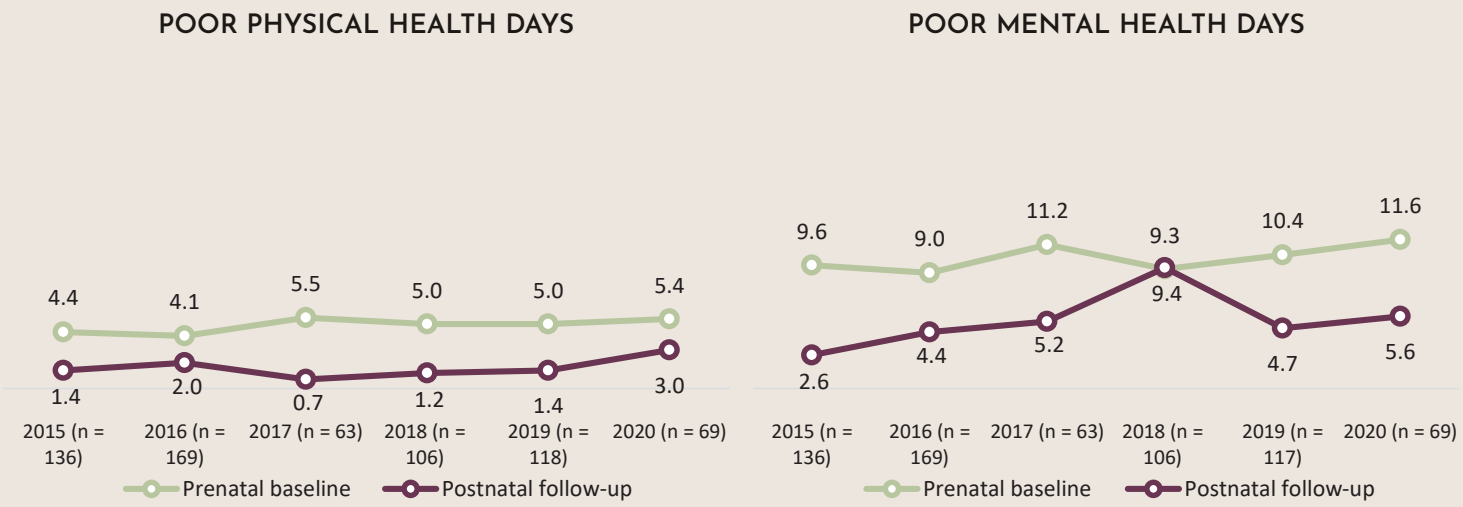
[90] Retrieved from https://www.americashealthrankings.org/explore/annual/measure/MentalHealth/state/KY.

Trends in Average Number of Days Physical and Mental Health Were Poor 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 been poor. Each year, the number of days clients report poor physical health has significantly decreased from baseline to follow-up. In 2020 clients reported an average of 5.4 days their physical health was poor compared to 3.0 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 been poor. In 2015, the average number of poor mental health days reported at baseline was 2.6 days and in 2020, the average number of poor mental health days was 5.6.

FIGURE IV.F.9. AVERAGE NUMBER OF DAYS CLIENTS' PHYSICAL AND MENTAL HEALTH WERE POOR AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2020



Summary

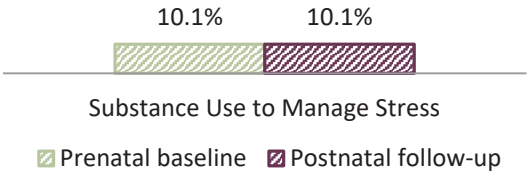
At prenatal baseline, over 60% of clients reported having at least one chronic health problem such as asthma, other STIs, Hepatitis C, and arthritis. About 20% of clients at prenatal baseline reported they had health problems that were not currently being treated. Clients' overall current health status rating did not change from prenatal baseline to postnatal follow-up. Almost one-quarter of clients reported experiencing chronic pain in the 6 months before pregnancy, which decreased (but not significantly) to 10.1% in the past 6 months at postnatal follow-up. Clients also reported a significant decrease in the average number of days their physical health and mental health were not good.

G. Stress, Quality of Life, and Emotional Support

This subsection examines changes in stress, quality of life, and emotional support including the following factors: (1) substance use to reduce or manage stress, (2) quality of life ratings, (3) satisfaction with life, (4) the number of people clients said they could count on for emotional support, and (5) their satisfaction with the level of emotional support from others.

Clients were asked if they used alcohol, prescription drugs, or illegal drugs in the past 7 days to reduce or manage stress at prenatal baseline and postnatal follow-up. Figure IV.G.1 shows that 10.1% of clients reported they used at least one type of substance to reduce or manage their stress in the 7 days entering the KY-Moms MATR program and in the 7 days before follow-up.

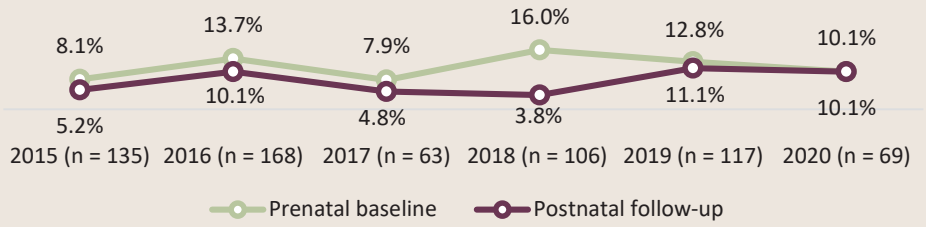
FIGURE IV.G.1. CLIENTS REPORTING SUBSTANCE USE TO REDUCE OR MANAGE STRESS AT BASELINE AND FOLLOW-UP (N = 69)



Trends in Substance Use to Manage Stress at Prenatal Baseline and Postnatal Follow-up

The percent of clients who reported using substances to manage stress at baseline and follow-up remained fairly consistent from 2015 to 2017. In 2018, however, 16.0% of clients reported using alcohol or drugs to manage their stress at baseline compared to 3.8% of clients at follow-up. In 2020 there was no difference between baseline and follow-up for the percent of clients who reported using substances to manage stress.

FIGURE IV.G.2. CLIENTS IN THE FOLLOW-UP SAMPLE REPORTING SUBSTANCE USE TO MANAGE STRESS AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2020

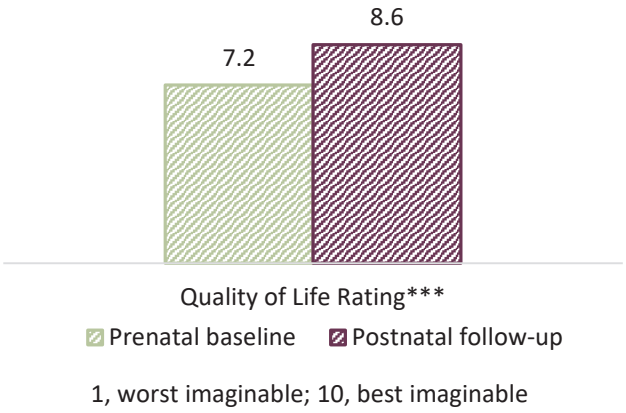


Quality of Life

There were two measures of life satisfaction indexes used including: (1) quality of life rating, and (2) satisfaction with 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 7.2, on average (see Figure IV.G.3). The average rating of quality of life increased significantly to 8.6 at postnatal follow-up.

FIGURE IV.G.3. PERCEPTION OF QUALITY OF LIFE AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (n = 68)[91]



*** p < .001.

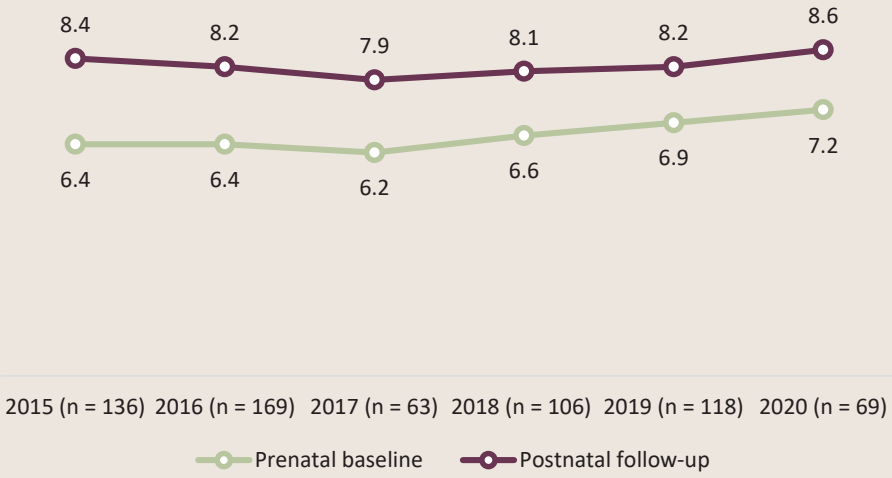
> *I was young when I got pregnant and it was really nice to be able to talk to somebody and know what to do.*
>
> - KY-Moms MATR follow-up client

[91] One client responded "don't know" on the quality of life measure.

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.4. CLIENTS IN THE FOLLOW-UP SAMPLE RANKING THEIR QUALITY OF LIFE AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2020

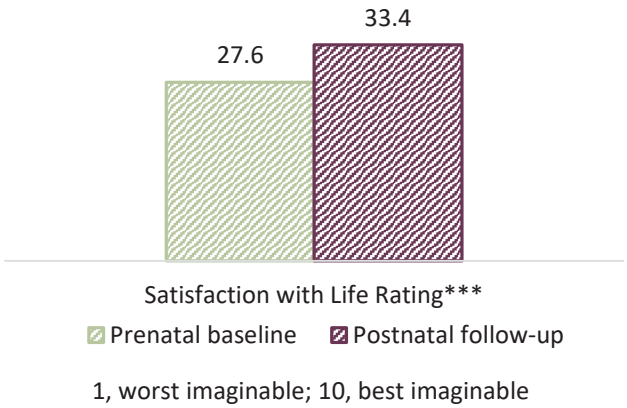


Satisfaction with Life

In order to measure the clients' overall satisfaction with their life, clients were asked 5 questions on the Satisfaction With Life Scale (SWLS)[92] at both prenatal baseline and postnatal follow-up, and clients responded to each item with 0 'Not good at all' to 10 'Extremely good' (see Figure IV.G.5). Scale scores were a sum of the four items and ranged from 0, which indicates the client is extremely dissatisfied with her current life, to 40 which indicates the client is highly satisfied with her life. At prenatal baseline, clients reported an average score of 27.6 and this significantly increased to 33.4 at postnatal follow-up, indicating that clients were generally happy with their lives at follow-up.

[92] A modified version of the Satisfaction With Life Scale. Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. Journal of Personality Assessment, 49, 71-75.

FIGURE IV.G.5. AVERAGE SATISFACTION WITH LIFE RATING AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 32)[93]

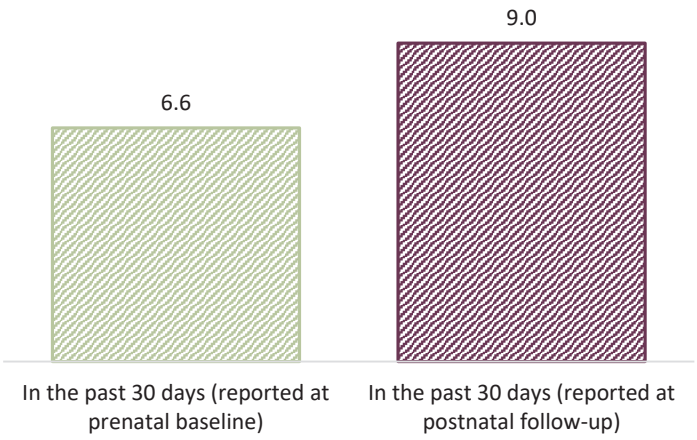


*p<.05.

Emotional Support

In the past 30 days at baseline, clients reported they could count on an average of 6.6 people for emotional support. In the past 30 days at postnatal follow-up, clients reported that they could count on an average of 9.0 people for emotional support which was a significant increase (see Figure IV.G.6).

FIGURE IV.G.6. AVERAGE NUMBER OF PEOPLE CLIENT COULD COUNT ON FOR EMOTIONAL SUPPORT AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP (N = 68)*[94]



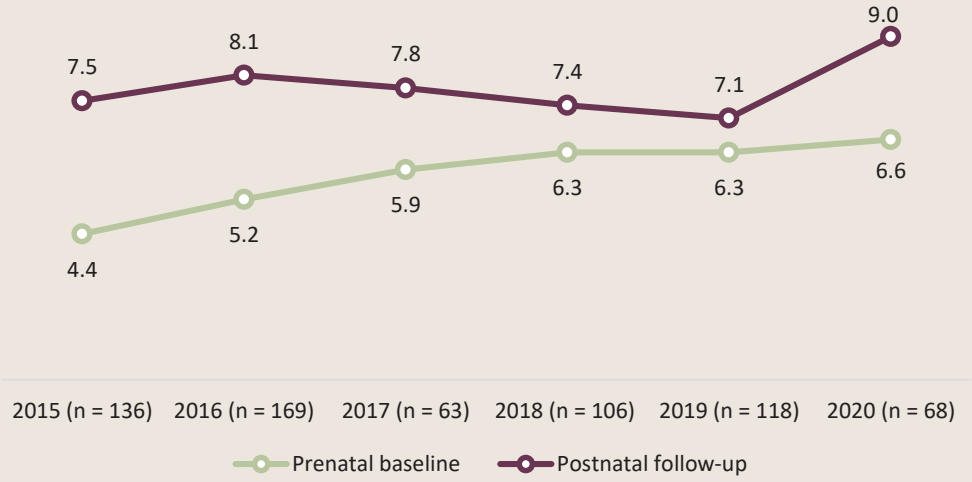
[93] Satisfaction with life measures were changed in a later version of the instrument; therefore, only 32 clients who completed a follow-up answered these questions at baseline.

[94] One client was missing data on the number of people the client could count on for emotional support.

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

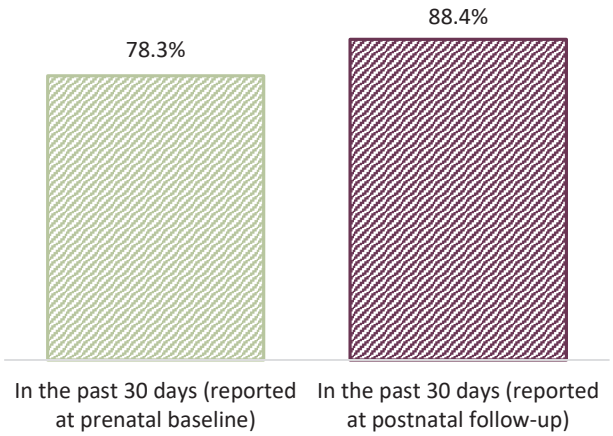
The average number of people clients reported they could count on for emotional support in the past 30 days appears to have steadily increased over time. In 2015 clients reported they could count on 4.4 people and in 2020 clients reported an average of 6.6 people they could count on for emotional support. At follow-up, the average number of people appeared to decrease from 2016 to 2019, but increase in 2020 to 9.0.

FIGURE IV.G.7. CLIENTS IN THE FOLLOW-UP SAMPLE ON THE AVERAGE NUMBER OF PEOPLE CLIENTS CAN COUNT ON FOR EMOTIONAL SUPPORT AT PRENATAL BASELINE AND POSTNATAL FOLLOW-UP, REPORT YEARS 2015-2020



In general, the majority of clients were satisfied with the level of emotional support they received from others in the past 30 days. About 78% of clients at prenatal baseline and 88.4% of clients at postnatal follow-up reported they were extremely or fairly satisfied with the level of emotional support they received from others (see Figure IV.G.8).

FIGURE IV.G.8. SATISFACTION WITH THE OVERALL LEVEL OF SUPPORT IN LIFE (N = 69)



H. Deficit in Recovery Capital Resources

This subsection examines change in deficits in recovery capital resource from the period before becoming pregnant to postnatal follow-up.

Recovery success is more than just abstinence from substance use. There are other internal and external resources, or recovery capital, that factor into a client's success in recovery. Clients who have deficits in one or more of these resources may find it more difficult to participate in a recovery program or maintain recovery after the treatment program.[95] For this project, deficits in recovery capital resources is based on individuals' reports of illegal drug use, unemployment, homelessness, criminal justice system involvement, comorbid depression and anxiety, partner violence, self-rating of poor overall health, lack of recovery supports, and rating of poor quality of life. Table IV.H.1 describes the factors that compose the scale. This measure is used to better capture deficits in recovery capital resources at postnatal follow-up. The presence of a deficit in any of the recovery resources means an individual is classified as a having deficits in recovery capital resources.

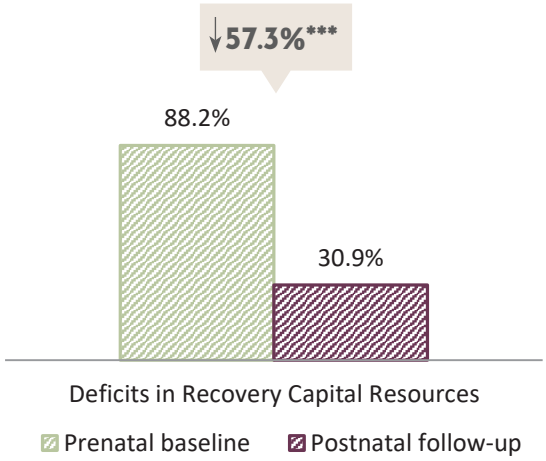
TABLE IV.H.1. RECOVERY CAPITAL RESOURCES

INDICATOR	RECOVERY CAPITAL RESOURCE	DEFICITS
Illicit drug use	No illicit drug use	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 of quality of life	Low-level quality of life

At prenatal baseline, the majority of individuals (88.2%) were classified as having a deficit in recovery capital resources (see Figure IV.H.1). At postnatal follow-up, only 30.9% had a deficit in recovery capital resources —a significant decrease of 57.3%.

[95] Logan, T.K., Cole, J., & Walker, R. (2019, in process). ***Examining recovery capital resources, program completion, and relapse among women and men who entered a statewide residential, peer-led recovery program.***

FIGURE IV.H.1. DEFICITS IN RECOVERY CAPITAL RESOURCES AT BASELINE AND FOLLOW-UP (N = 68) [96]



***p < .001.

Table IV.H.2 presents the frequency of clients who reported each deficit in recovery capital resource at follow-up. Individuals who were in the "yes" column in Table IV.H.2 were classified as having a deficit in recovery capital resources at follow-up. The factors with the highest percent of clients answering "yes" to those indicators were reporting partner violence, meeting study criteria for comorbid depression and generalized anxiety in the past 6 months, and usual employment was not employed in the past 6 months.

TABLE IV.H.2. PERCENT OF CLIENTS WITH INDICATORS OF RECOVERY CAPITAL RESOURCES DEFICIT AT POSTNATAL FOLLOW-UP (N = 68)[97]

Factor	No	Yes
Reported illicit drug use in the past 6 months at postnatal follow-up	94.1%	5.9%
Usual employment was not employed in the past 6 months at postnatal follow-up	92.6%	7.4%
Homeless at any point in the past 6 months at postnatal follow-up	98.5%	1.5%
Arrested and/or incarcerated in the past 6 months at postnatal follow-up	97.1%	2.9%
Met study criteria for depression and/or generalized anxiety in the past 6 months at postnatal follow-up	92.6%	7.4%
Reported any partner violence in the past 6 months at postnatal follow-up	88.2%	11.8%
Self-rating of overall health in the past 6 months at postnatal follow-up was poor	98.5%	1.5%
Reported have no one she could count on for recovery support in the past 6 months at postnatal follow-up	100.0%	0.0%
Reported a low-level quality of life	98.5%	1.5%

[96] One client had missing data for at least one of the variables that was used to compute the recovery capital resources deficit at follow-up.

[97] One client had missing data for at least one of the variables that was used to compute the recovery capital resources deficit at follow-up; therefore, percentages may be slightly different from previous sections of the report.

Summary

Clients reported a significantly greater quality of life at postnatal follow-up compared to prenatal baseline. Furthermore, clients reported a significant increase in their satisfaction with their lives at postnatal follow-up. About 88% of KY-Moms MATR clients at postnatal follow-up were satisfied with the level of support they received from others. The average number of people clients felt they could count on for support also increased significantly from before pregnancy to postnatal follow-up. An analysis of deficits in recovery capital resources that takes into account illicit drug use, unemployment, homelessness, criminal justice system involvement, comorbid depression and anxiety, partner violence, poor overall health, no recovery support, and poor quality of life was computed for clients at prenatal baseline and postnatal follow-up. The vast majority of clients (88.2%) were classified as having a deficit in recovery capital resources at baseline, whereas only 31% had a deficit in recovery capital resources at follow-up.

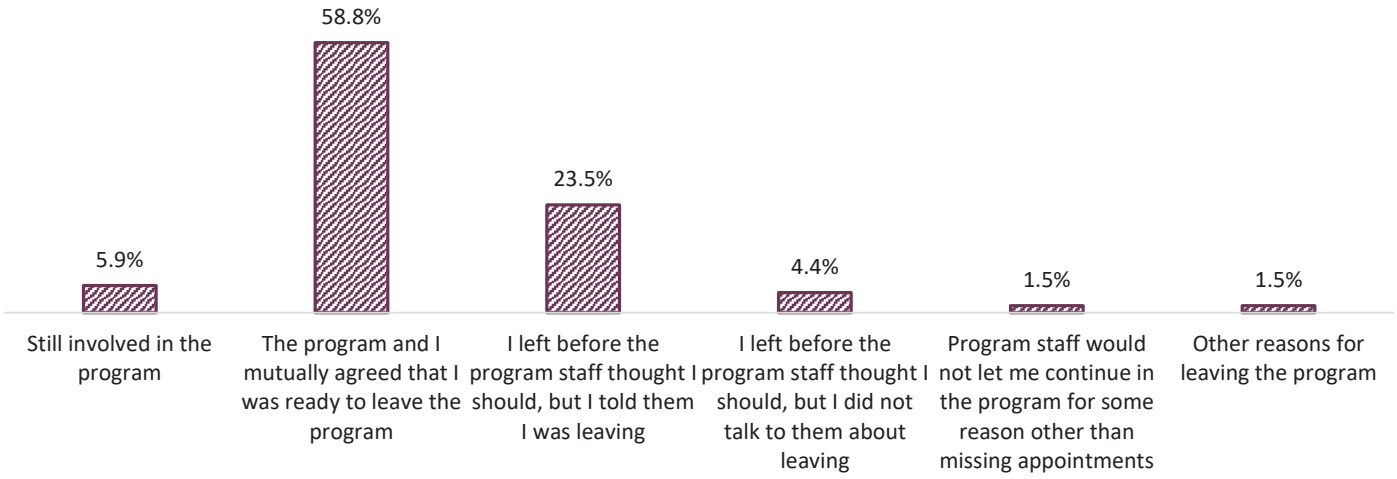
Part V. Client Satisfaction with KY-Moms MATR Case Management

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

Manner in Which the Client Left the Program

Clients reported they were involved in the KY-Moms program an average of 7.2 months (a range of 1 to 24 months). Almost 6% of clients were still involved in the KY-Moms program at follow-up (see Figure V.1). The majority of clients (58.8%) reported that the program and the client mutually agreed that the client was ready to leave the program. Almost one-quarter of clients (23.5%) left before the program staff thought they should, but told they staff they were leaving and 4.4% of clients reported they left before the program staff thought they should, but did not talk to the staff about leaving. Only 1.5% reported that program staff would not let them continue in the program for some reason other than missing appointments and 1.5% reported other reasons for leaving the KY-Moms program.

FIGURE V.1. HOW DID THE CLIENT LEAVE THE KY-MOMS PROGRAM (N = 68)[98]



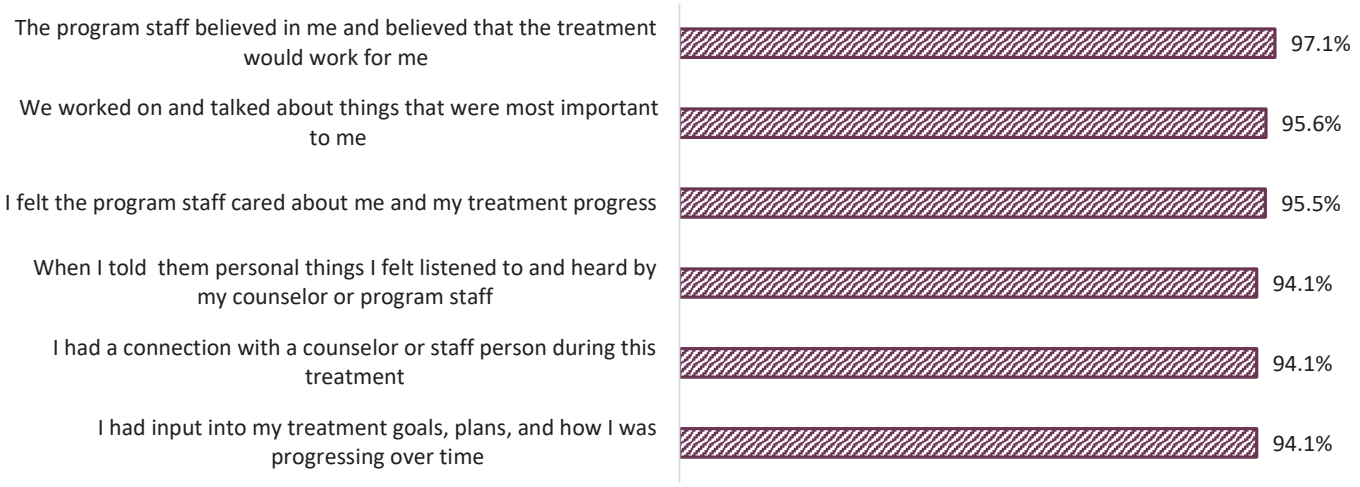
KY-Moms MATR Case Management Program Satisfaction Rating

Clients were asked questions about their satisfaction with the KY-Moms MATR case management services where 0 represented "not at all" and 10 represented the best experience. Figure V.2 shows the following experiences that clients gave a rating between 8 and 10 as well as the average rating. The majority of clients (97.1%; and average rating of 9.7) agreed that the program staff believed in

[98] One client was missing responses to treatment satisfaction questions.

them and that the treatment would work. Close to 96% of clients (an average rating of 9.5) reported that they worked on things that were most important to them the whole time and felt the program staff cared about them and their treatment progress (an average rating of 9.6). Around 94% of clients reported they felt completely heard by their case manager when they told them about personal things (an average rating of 9.6), had a very strong connection with a counselor or staff person during treatment (an average rating of 9.4), and had a lot of input into treatment goals, plans, and how they were progressing over time (an average rating of 9.5).

FIGURE V.2. RATINGS OF PROGRAM EXPERIENCES WITH KY-MOMS (N = 68)

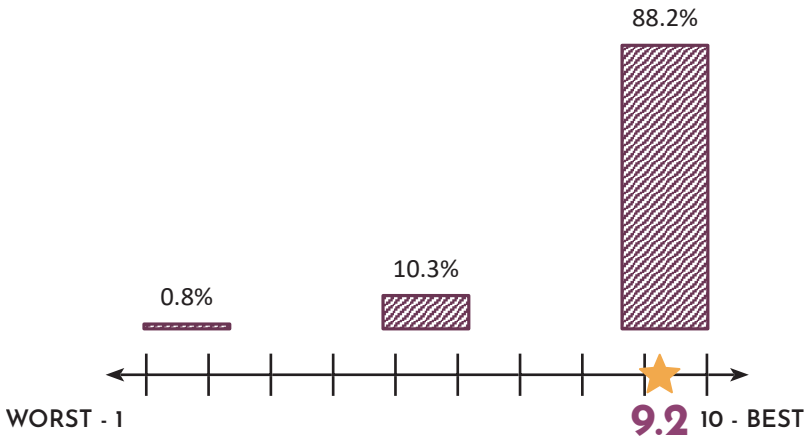


About 91% of clients reported that their expectations and hopes for the program were perfectly met (average rating of 9.4) and 89.7% of clients agreed that the program approach and method were a perfect fit (average rating of 9.4). Three-quarters of clients reported that they discussed everything with their case manager and held nothing back (average rating of 8.3). Finally, two-thirds of clients reported that the length of the KY-Moms program was just right (an average rating of 7.9).

FIGURE V.3. RATINGS OF PROGRAM EXPERIENCES WITH KY-MOMS (N = 68)

Clients rated their overall KY-Moms MATR experience, on average, as 9.2 (see Figure V.4). Overall, 88.2% gave a rating between 8 and 10 and 69.1% of clients gave the highest possible rating, 10.

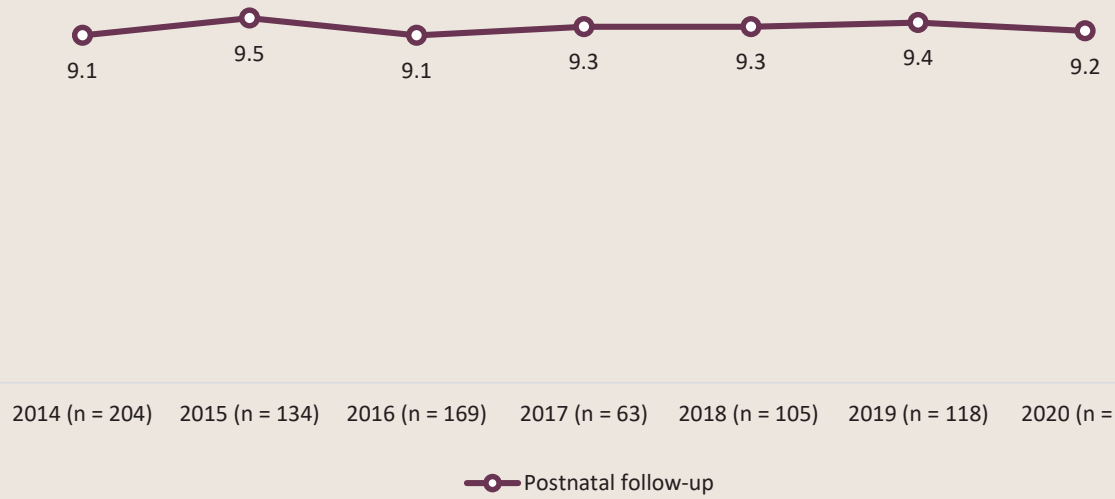
FIGURE V.4. RATING OF EXPERIENCE WITH KY-MOMS (N = 68)



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

On a scale of 1 to 10 with 1 being the worst possible experience and 10 being the best possible experience, KY-Moms MATR clients have consistently ranked their experience with the program as an average of 9.1 or higher over the past 7 years.

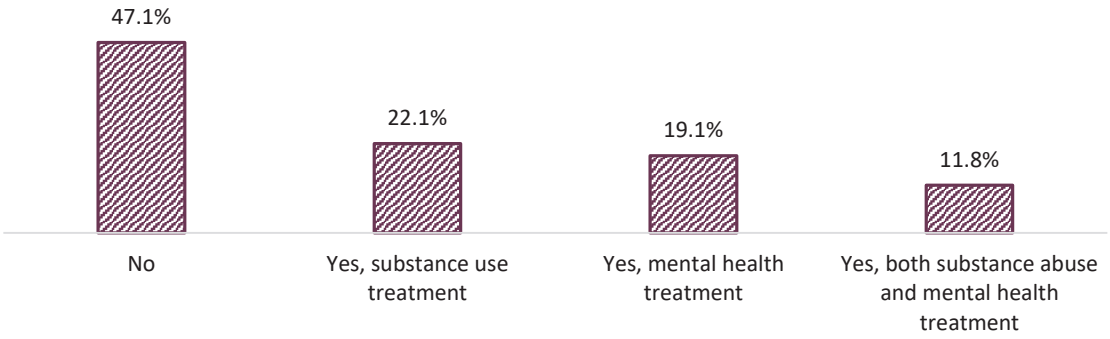
FIGURE V.5. AVERAGE SATISFACTION RATING OF THE KY-MOMS MATR PROGRAM AT POSTNATAL FOLLOW-UP, REPORT YEARS 2014-2020



Overall, the majority of clients (92.6%) reported that the KY-Moms program worked pretty well or extremely well for them. Almost all clients (98.5%) in the postnatal follow-up sample indicated they would recommend KY-Moms MATR case management to a friend. Of the clients who reported they would refer a close friend or family member to the program (n = 67), 29.9% reported they would warn their friend or family member about certain things or tell them who to work with or who to avoid.

Less than half of clients (47.1%) reported they did not receive either substance abuse or mental health treatment while in the KY-Moms program (see Figure V.6). Over half (53.0%) of clients reported they had received either substance use or mental health treatment. Overall, 22.1% of clients reported they went to substance abuse treatment, 19.1% went to mental health treatment, and 11.8% went to both substance use and mental health treatment.

FIGURE V.6. SUBSTANCE ABUSE TREATMENT OR MENTAL HEALTH COUNSELING WHILE IN KY-MOMS (N = 68)



A little less than one-quarter (22.1%) reported they had been in other treatment programs since they left this treatment episode. Of those clients (n = 15), clients reported they had been involved in an average of 1.6 (range of 1 to 10) other treatment programs or episodes.

> *I liked that the case manager came to my house (2-3 home visits). She was just like my friend. I've never had help like that before. A good and honest person who cared.*
>
> - 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), the KY-Moms MATR mothers had positive birth outcomes that were similar to the general population of mothers in Kentucky who had babies during the same period. The two groups of mothers had similar birth outcomes, such as babies' average number of gestational weeks, the percent of babies who were born premature, birth weight, highest APGAR, the percent of babies with birthing problems, the percent of babies being taken to the neonatal intensive care unit, their decision to breastfeed, and the number of prenatal care visits with a health care provider. In addition, improvements were seen in the targeted risk factors from baseline to follow-up.

Substance Use

Over half of clients reported illegal drug use in the 30 days before becoming pregnant, compared to 9.6% of non-pregnant women reporting illegal drug use in the past month in a national survey.[99] In the past 30 days at prenatal baseline, 16.9% of clients reported illegal drug use and in the 30 days before the baby was born, 3.1% of clients reported illegal drug use. Illegal drug use decreased significantly at postnatal follow-up compared to the period before clients found out about the pregnancy.

A similar pattern was seen with reduction in alcohol use with clients reporting significantly less use while pregnant and in KY-Moms MATR with a sustained decrease after the birth of the baby. Not quite half of clients reported using alcohol in the 30 days before pregnancy. Further, 1.6% of KY-Moms MATR clients reported any alcohol use in the past 30 days at prenatal baseline and 1.5% of clients reported alcohol use in the 30 days before the baby was born. Although there was an increase in the number of clients who reported any alcohol use in the past 30 days at postnatal follow-up compared to during pregnancy, there were still significantly fewer clients reporting alcohol use compared to the 30 days before pregnancy.

In addition, the number of clients who reported smoking decreased significantly from the 30 days before the client became pregnant to the 30 days before the baby was born. In addition, the average number of cigarettes clients smoked decreased from before the client found out about their pregnancy (17.2) to the past 30 days at prenatal baseline (8.7). The number of cigarettes decreased further in the 30 days before the baby was born (6.6).

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[99] 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/NSDUHDetTabsSect1pe2018.htm on September 30, 2019.

Mental Health

Clients' mental health also showed significant improvements. Specifically, there were significant reductions in the number of women in the number of women meeting criteria for depression and generalized anxiety from the 6 months before pregnancy to the 6 months before postnatal follow-up. Similar results were found for past 30 day measures. In addition, of the clients who met criteria for depression or for anxiety, there were significant reductions in the average number of symptoms clients reported from baseline to follow-up.

Victimization and Trauma

Reported incidences of any intimate partner abuse, such as psychological abuse and coercive control, decreased from the period before clients found out they were pregnant (36.2%) to postnatal follow-up (13.0%). In general, relatively few clients who completed a follow-up reported having been the victim of harassment or assault as an adult. In addition, significantly fewer client reported symptoms of PTSD at postnatal follow-up compared to the six months before pregnancy.

Deficits in Recovery Capital Resources

The measure of deficits in recovery capital resources is based on individuals' reports of recovery capital such as illegal drug use, unemployment, homelessness, criminal justice system involvement, comorbid depression and anxiety, partner violence, self-rating of poor overall health, lack of recovery supports, and rating of low quality of life. The presence of any of the resource deficits means a client is classified as having deficits in recovery capital resources. At baseline, the majority of the followed-up sample (88%) was classified as having deficits in recovery capital resources. At follow-up, 31% had deficits in recovery capital resources—a significant decrease of 57%.

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 a reduction in chronic pain. Moreover, individuals reported significantly fewer days in the past 30 days their physical and mental health was not good at follow-up compared to baseline. Women reported significantly greater emotional attachment to their babies 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.

Clients reported significantly higher quality of life after the program and an overall greater satisfaction with life at postnatal follow-up compared to prenatal baseline. The vast majority of clients were satisfied with KY-Moms MATR case management services and reported that the program worked pretty well or extremely well for them. Specifically, the majority of clients reported that the program staff believed in them and that the treatment would work for them, and that they worked on things that were most important to them. In addition, almost all clients indicated they

would recommend the KY-Moms MATR program to a friend. A little less than one-quarter reported they had been in other treatment programs since they left this 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, partner abuse, and economic hardship at follow-up.

Smoking

The majority of clients smoked during pregnancy (56.9% in the past 30 days at prenatal baseline and 44.6% in the 30 days before the baby was born) and during the 6 months after the baby was born (63.2%). This is considerably higher than the number of both pregnant and non-pregnant women who smoke in the U.S. and higher than mothers in Kentucky who did not participate in KY-Moms MATR. While it is well known that smoking can cause negative birth outcomes, many mothers may not consider the impact that cigarette smoke has on a baby's health once the baby has been born. In fact, several studies have shown that childhood exposure to cigarette smoke contributes to the incidence of sudden infant death syndrome,[100, 101] respiratory infections,[102] middle ear disease and adenotonsillectomy,[103], poor lung function and asthma[,104, 105, 106] neurodevelopmental and behavioral problems,[107] and childhood cancer.[108, 109, 110] As a result, there may be a need to increase postpartum support services for substance use and smoking cessation in the KY-Moms MATR program.

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

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

[102] 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.

[103] 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.

[104] 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.

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

[106] 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.

[107] 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.

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

[109] Svasco, 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.

[110] 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.

Mental Health

Almost one-third of KY-Moms MATR clients reported meeting study criteria for depression or anxiety (or both) in the six 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,[111] it can continue for as long as 14 months.[112] While it is mostly caused by the swing of hormones that occur after birth, a study by the Centers for Disease Control 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).[113, 114] 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.[115, 116] For these women who have experienced mental health problems, targeted or adapted mental health services may be critical.

Adverse Childhood Experiences, Victimization, and PTSD

At baseline, 95.6% of clients reported at least one adverse childhood experience such as neglect or abuse before the age of 18. Of particular importance, prior research shows the risk of alcohol or drug use increases as the number of adverse childhood experiences increases.[117, 118, 119, 120] Higher ACE

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

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

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

[114] 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.

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

[116] 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.

[117] 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.

[118] 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.

[119] 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.

[120] 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.

scores are associated with initiating alcohol abuse and smoking in adolescence.[121, 122] Additionally, experiencing more types of childhood abuse is associated with greater likelihood of experiencing an unintended first pregnancy among women.[123] 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.[124] Poor sleep, severe obesity, and multiple somatic symptoms were increased for those with ACE scores over 4.[113] 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.[120, 125]

Among all clients completing a baseline, about 30% of clients had PTSD scores that met study criteria for risk of PTSD in the 6 months before the birth of the baby. 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%).[126] Individuals with PTSD have a high rate of alcohol/drug abuse or dependence in their lifetime[127, 128] and the overall prevalence of PTSD is high among individuals with substance use disorders.[129, 130]

Intimate partner abuse

At baseline, 36.2% of clients reported any form of intimate partner abuse in the 6 months before they found out they were pregnant. At follow-up, 10.1% of KY-Moms MATR clients reported experiencing intimate partner abuse in the 30 days before their baby was born and 13.0% 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

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[121] 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.

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relationship.[131] 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.[132] 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 60.9% of KY-Moms MATR women reporting being currently unemployed and about 26% of women reporting difficulty meeting basic needs because of financial reasons 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 suggests that financial stress has an adverse effect on parents' emotions and behaviors which, in turn, may impact their parenting.[133] 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).[134] 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.

Deficits in Recovery Capital Resources

Even though there were significantly fewer clients who had a recovery capital resources deficit at follow-up when compared to baseline, almost one-third of KY-Moms MATR clients still had a deficit in recovery capital resources. The greatest contributors to individuals being classified as having a deficit in recovery capital resources were unemployment, depression or anxiety, and partner violence in the follow-up period.

Program Issues

About one-quarter of clients reported that they left the program before the staff thought they should, but told the staff they were leaving. While clients were largely satisfied with their program experience, one-quarter of clients reported that there were things they did not fully discuss with their counselor/program staff. In addition, one in three 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.

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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 an area which may need further attention in the KY-Moms MATR program. Trend analysis of substance use appears to show a 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 appeared to increase slightly before decreasing again in 2020. In addition, a six-year trend analysis shows that rates of depression and/or anxiety remained stable at prenatal baseline but have appeared to increase since 2018. Rates of depression and/or anxiety at follow-up have fluctuated at postnatal follow-up in the past; however, this year appears stable when compared to 2018. Further, with trend analysis, findings show that the number of clients who have reported any partner abuse at prenatal baseline had been fairly consistent from 2015 to 2019, but increased this year.

The percent of clients reporting difficulty meeting basic household needs appeared to increase briefly in 2018, but has decreased since. In addition, for the percent of clients who reported being currently unemployed, the difference between prenatal baseline and postnatal follow-up has been stable over seven years. 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. Finally, the difference between baseline and follow-up on the average number of people clients can count on for emotional support appeared to narrow briefly, but this year the gap appeared to widen.

Clients reporting their current health rating has remained fairly consistent at both baseline and follow-up over the past 6 years. The number of clients who have reported chronic pain in the 6 months before pregnancy also remained relatively constant at baseline. 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 over the past 6 years. Further, clients' ranking of their quality of life was relatively consistent through the years for baseline and has appeared to increase slightly at follow-up. 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 9.1 or higher over the past 7 years.

Limitations

There are several limitations to this outcome study including the lack 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 with which to compare KY-Moms MATR clients. While the matched comparison

group matches mothers on several key factors (age, race, education, marital status, community residence, and smoking status), there is no information on drug use, mental health problems or intimate partner abuse for the comparison group. However, given the small number of cases that had negative birth outcomes against significant odds (i.e., multiple risk factors), it is reasonable to assume that the services provided by KY-Moms MATR play an important role in the health and safety of these mothers and their children. Further, in order to better understand the results of the KY-Moms MATR program, the analysis was conducted in several ways. As presented in this report, a multivariate analysis of birth outcomes was conducted to control for several key factors that may be associated with birth outcomes. Additionally, a group of mothers matched on selected factors[135] along with a randomly selected comparison group from the general population were compared to the KY-Moms MATR case management group on birth outcomes (see Appendix B). Results were similar to findings of the multivariate analysis on birth outcomes. Specifically, compared to the general population, babies born to mothers in KY-Moms MATR had a similar average number of gestational weeks, highest APGAR score, birth weight, and prenatal visits. In addition, like the multivariate regression analysis, the matched comparison analysis showed that KY-Moms MATR mothers were similar to the general population and comparison in terms of birthing problems.

Second, most of the data for this report is self-reported by KY-Moms MATR clients. Recent research has supported findings about the reliability and accuracy of individuals' reports of their substance use.[136, 137, 138, 139] 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.[140, 141, 142, 143] In several studies, when there were discrepant results, the majority were self-reported substance use that was not detected with urinalysis

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[135] Mothers were matched on age, education, metropolitan/micropolitan residence, marital status and smoking status.

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[143] 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.

or blood serum analysis.[144, 145, 146] 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.[147] 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.[148, 149]

Third, 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 have a problem, fear having the child removed from their custody, or fear being prosecuted.[150] 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,

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148 Christmas, J., Nislely, 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.

149 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.

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

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. Those mothers who persist in or return to drug-using lifestyles are at great risk for child neglect and other forms of child maltreatment,[151, 152] as well as for setting the stage for their children to use and misuse alcohol and illegal drug as adolescents and adults.[153, 154] 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 utilization 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.

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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, (2) comparisons of KY-Moms MATR clients and general population birth outcome information from the Vital Statistics birth outcome data set, and (3) comparison of KY-Moms MATR clients matched to mothers in the general population who did not receive KY-Moms MATR case management services based upon age, race, education, marital status, smoking status and metropolitan/micropolitan residence.

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 158 baselines were completed between May 2017 and December 2018 with women who had due dates that would result in target months for a follow-up interview between July 2018 and June 2019. Overall, women completed a KY-Moms MATR case management baseline when they were an average of 23 weeks pregnant (minimum = 5 weeks, maximum = 39 weeks).[155]

Method of Determining Follow-up Sample

Follow-up Assessment. KY-Moms MATR 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 plans on keeping the baby, (4) the client is in the program at least 30 days before the birth of the baby, and (5) 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

[155] The average number of days between when the client was admitted to the KY-Moms MATR program and when the baseline was completed was 17.4 days with a minimum of 0 days and a maximum of 112 days. Five cases were not included in the average days because the baseline date was entered as being after the submit date.

due date the client provides at prenatal baseline. In reality, there was an average of 6.6 months between the time the baby was born and the date of the follow-up assessment (with a mode of 6 months).

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 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.[156] 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 follow-up interview: (1) women who have not given birth to their babies or who do not have the baby living with them are not eligible for the follow-up interview, and (2) 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, 158 baselines were completed between May 2017 and December 2018 and had a targeted month for follow-up in FY 2019 (July 2018 – June 2019). Of these clients who were in the targeted window to complete a postnatal follow-up, 37 clients were ineligible for follow-up staff to begin locating as a result of prenatal baseline data (6 clients were in the program less than 30 days, 1 client had their baseline assessment submitted more than 30 days after it was completed, 2 clients indicated at prenatal baseline that they may not keep their baby, 7 already had their baby, 10 did not agree to follow-up, 15 had a missing follow-up response, 4 clients had invalid contact data, and 2 had baselines submitted after the follow-up sample was already pulled; see Table AA.1).

In addition, 14 were not eligible because they were in jail or another controlled environment (n = 5), or because their baby was not living with them (n = 9).

Of the remaining eligible clients (n = 97), 28 clients (28.9%) 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 69 clients, representing a

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

follow-up rate of 71.1%.

TABLE AA.1. FOLLOW-UP SAMPLE AND EFFORTS

	Number of baselines (n = 158)
Did not consent to follow-up	**10**
	n = 148
Not eligible for follow-up	**51**
Other reasons based upon prenatal baseline ***(i.e., invalid locator data, client was not sure if she was keeping the baby, client not in program long enough, baseline submission more than 30 days after completion)***	37
In jail or controlled environment (i.e, residential treatment)	5
Baby not living with client	9
Total number of baseline surveys eligible for follow-up	**97**
Expired cases (i.e., never contacted, did not complete the survey during the follow-up period)	28
Expired rate ((the number of expired cases/eligible cases)*100)	28.9%
Refused	0
Refusal rate ((the number of refusal cases/eligible cases)*100)	0.0%
Completed follow-up interviews	69
Follow-up rate	71.1%

Obtaining the Birth Event Data. The Vital Statistics birth data is used to compare mothers in KY-Moms MATR case management and their babies to mothers who had babies during the same period but who did not participate in KY-Moms MATR Case Management. 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.

As a first step in merging Vital Statistics data with KY-Moms MATR baseline data, birth event data for babies during the same time period as KY-Moms MATR clients were combined (December 2017-January 2019); thus, 4,347 cases (December 2017) were combined with 55,774 cases (January 2018 through December 2018) and 4,512 cases (January 2019) for an initial sample of 64,633. Next, KY-Moms MATR clients in the birth event data set were identified based upon social security number. Two cases were then removed because they matched KY-Moms MATR clients who either did not give permission for their birth data to be used, or the response for consent to use their birth

data was missing. In addition, 40 cases were removed from the whole birth event data set because they matched mothers involved in KY-Moms MATR but who were not involved in the current follow-up sample analysis and, therefore, should not be included in the general population of mothers. Also, 33 cases were removed because they matched individuals in last year's outcome report. Finally, 16 cases were removed because they were duplicates.

The next step to preparing the data was that all cases in which the mother was not a Kentucky resident were eliminated (n=2,114) which was 3.3% of the birth data sample and left a sample of 62,428 cases in Kentucky.

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 December 2017 to January 2019, the final sample for the general population of mothers is 61,064 mothers and 62,361 babies who were not involved in KY-Moms MATR (66 mothers and 67 babies were involved in the KY-Moms MATR program).

The KY-Moms MATR Case Management study focuses on two units of analysis depending on the outcome being examined: (1) some outcomes use the mother as the unit of analysis and in those cases the mother will be represented only one time in the data set to avoid violating the assumption of independence; and (2) some outcomes use the birth and baby characteristics as the unit of analysis and those outcomes can include all of the babies in the Vital Statistics data set.

While the Vital Statistics data set has a variable which identified those mothers who had multiple births at one birth event (e.g., twins, triplets or quadruplets), it does not capture mothers who may have had two pregnancies and deliveries within the period analyzed (i.e., December 2017 – January 2019). In addition, the Vital Statistics data set counts each child as a multiple. For example, Child A will have a value indicating he or she is a twin and Child B will also have a value indicating he or she is a twin. When the unit of analysis is the baby (or births), all children should be included in the analysis. When the unit of analysis is the mother, only one child (the one with the first child identification number) will be included in the analysis to avoid violating the assumption of independence of cases. Thus, a variable is created in the data set which identifies whether the baby is a twin, triplet or quadruplet, or if there is a sibling in the file that was born in the approximate 12 months that were analyzed for this report.

Table AA.2 displays the number of children born at the same birth event as well as the number of children with a sibling in the data set. For the entire data set (62,428 babies) there were 2,082 twins, 30 triplets (totaling 2,112 multiple births, or 3.4% of the sample), and 237 children that had siblings born during the time frame but the child was not a twin or triplet. Thus, when analyzing outcomes of the birth and baby characteristics the total sample size is 62,428 in order to include all

babies.

TABLE AA.2. MULTIPLE BIRTH EVENTS AT ONE BIRTH EVENT OR SIBLINGS BORN AT SEPARATE BIRTH EVENTS BETWEEN DECEMBER 2017 AND JANUARY 2019

Out of a total of 62,428 babies:	
Twins	2,082
Triplets	30
Quadruplets	0
Quintuplets	0
Total multiple births	***2,112 or 3.4%***
Siblings born in separate deliveries within the time frame	237

Note. 5 mothers had single children first and then twins. Since they were born second, the twins were counted as siblings.

Using mothers' social security numbers and children's dates of birth, mothers with multiple and multiparous births were identified as shown in Table AB.3. This shows there were 61,130 mothers total and 1,298 events with the same mother that were excluded from the analysis (see note). The mother data that remained for analysis was based upon the first child identification number (as determined by the birth data set), or in the case of multiparous births, the child with the earlier birth date. A total of 1,041 mothers had twins, 10 had triplets, and 237 had children in separate deliveries but within the selected time frame. When analyzing characteristics of the mother the sample size will be 61,130 so that these mothers are not counted more than once.

TABLE AA.3. MOTHERS WITH MORE THAN ONE BABY IN THE BIRTH DATA SET BETWEEN DECEMBER 2017 AND JANUARY 2019

Out of a total of 61,130 mothers:	
Mothers who had twins	1,041
Mothers who had triplets	10
Mothers who had quadruplets	0
Mothers who had quintuplets	0
Total mothers with multiple births	***1,051***
Mothers with two separate single deliveries within the selected timeframe (siblings)	237
Total mothers with more than one child in the data set	1,288 or 2.1%

Note. 5 mothers had single children first and then twins. Since they were born second, the twins were counted as siblings born to the mother.

Analysis. Using the statistical software IBM SPSS, analysis included Chi-square tests and one-way ANOVAS comparing clients that were in KY-Moms MATR to the general population of mothers. Demographics, socio-economic indicators, physical health status, smoking, prenatal visits, and birth outcomes (i.e., average weeks gestation, prematurity, birth weight and birthing problems) were included in the analysis. All analyses were done using a $p < .01$ alpha level based on power

analysis, including the multivariate analysis and the comparison group analysis. For example, with the comparison group analysis using a Chi-square test, to detect a moderate effect size (0.3) with 8 degrees of freedom (3 groups X 3 category levels) on an overall sample size of 798, the alpha would be set at .00000001 when power is 0.95 using GPower to calculate the power analysis. Thus, alpha was set at < .01 because having a larger alpha would increase the risk of a Type I error. And for the multivariate analysis the sample size was so large GPower could not calculate the required alpha due to extreme parameters. Even reducing the sample size by an order of magnitude to 3,400 would require an alpha of .000000001 to detect a small effect size of .15 with a power of .95 and 7 degrees of freedom. Thus, to control for Type I error alpha was set at .01.

Multivariate regression models were used to examine the association between KY-Moms MATR participation and birth outcomes while adjusting for key factors. Each birth outcome was entered as the dependent variable in a separate binary logistic regression model with KY-Moms MATR participation as the predictor variable and the covariates of mother's age, education (i.e., less than a high school diploma or GED vs. high school diploma or higher), area of residence (metropolitan vs. micropolitan county), and smoking at the time of the birth (No/Yes).

Matched Comparison Sample. In order to create a similar sample to which the KY-Moms MATR birth outcomes can be compared, clients were matched to mothers in the general population who did not receive KY-Moms MATR case management services based upon age, race, education, marital status, smoking status and metropolitan/micropolitan residence.

To create these samples, a random number was assigned to the general population of mothers in Excel. Then, the KY-Moms MATR and general population mothers were placed in separate data files within Access. A query was created from the KY-Moms MATR file which contained the fields upon which we wanted to base the comparison group. In addition, a count was created to determine how many clients had a certain set of characteristics that needed to be matched.

Next, a table was created in which the comparison characteristics in the above query were linked to the variables in the general population birth data set in order to create a table with only cases that had characteristics matching KY-Moms MATR clients. A structure only copy of this table was then created and the six fields being matched were set as the primary keys.

Another query was created which included the query from KY-Moms MATR with the data from the six fields we wanted to match and the birth data table with matching characteristics. The query and the table were linked on the six variables and appended to the table which had the six fields set to primary keys. This created the first sample in which one individual from the general birth data matched on the six characteristics to one case in the KY-Moms MATR birth event data.

Next, a table of birth event data with characteristics matching KY-Moms MATR was created, but without cases that were chosen for the first sample in order to pull cases for additional matches. Based upon the count that was created to determine how many clients from KY-Moms MATR possess each of the six characteristics, the next step was to pull the remaining number of cases from the birth data set that matched KY-Moms MATR.

If there were KY-Moms MATR clients that did not have a match to the birth event data set on all characteristics for comparison, the clients were excluded from the analysis because the remaining cases would not result in a complete matched comparison.

Once a matched comparison sample was generated, the remaining birth event data was sorted by the random number assigned and the top cases were chosen for the general population file based upon the sample size of the KY-Moms MATR client file. This resulted in a sample size of n = 60 mothers for each group. Because some mothers had multiple births, there were 61 babies in the KY-Moms MATR sample, 61 babies in the comparison group and 61 babies in the general population sample.

The three groups were analyzed using Chi-square tests and one-way ANOVAs with Tukey's HSD (honestly significant difference) test in order to determine which groups in the sample differ on birth characteristics and outcomes (see Appendix B).

Appendix B. KY-Moms MATR Birth Outcome Data Comparison

This section compares (a) general risk factors, (b) targeted risk factors, and (c) birth events and outcomes from the Kentucky Vital Statistics data for three mutually exclusive groups including: (1) high risk pregnant mothers involved in KY-Moms MATR case management services who gave birth between December 2017 and January 2019 (n = 60)[157], (2) a comparison group of mothers (n = 60) matched on selected characteristics (race, age, education, metropolitan/micropolitan residence, marital status and smoking status), and (3) a randomly selected group of mothers (n = 60) from the general population. Only mothers who reside in regions served by KY-Moms MATR were analyzed.

There are two units of analysis depending on the outcome being examined: (1) some outcomes use the mother as the unit of analysis and in those cases the mother will only be represented one time in the data set (although the Vital Statistics data set can include the mother multiple times if she has had multiple births [e.g., twins or siblings] during the time frame examined); and (2) some outcomes use the birth and baby characteristics as the unit of analysis and those outcomes can include all of the babies in the Vital Statistics data set.

One mother in KY-Moms MATR, one mother from the comparison group, and one mother in the general population have more than one child in the sample. This means there were 61 babies in the KY-Moms MATR sample, 61 babies in the comparison group and 61 babies in the general population sample.

General Risk Factors

The general risk factors compared in this section are from the Kentucky Vital Statistics data set. This section describes demographic information (e.g., age, race, and type of community in which the mother resided), socioeconomic status indicators (e.g., education and source of payment for birth of the baby), and physical health status (e.g., maternal health problems).

Demographics

Table AB.1 shows that there are a few significant demographic differences between the KY-Moms MATR clients and matched comparison sample compared to the general population of mothers in the KY-Moms MATR regions. There was no difference in race or type of community in which women resided across the groups. A significantly greater percentage of clients in the general population (51.7%) were married compared to the KY-Moms MATR and comparison group (30.0%). In addition, mothers in the KY-Moms MATR and comparison group were significantly younger (24.8) compared to the general population (28.2)

[157] While analysis on postnatal follow-up data includes 66 pregnant women involved in KY-Moms MATR, a match on all characteristics for 6 KY-Moms MATR clients could not be found in the sample of other mothers in the KY-Moms MATR regions. Thus, clients who did not have a matched comparison were excluded from the sample leaving a sample size of 60.

TABLE AB.1. DEMOGRAPHIC DIFFERENCES BETWEEN BIRTH EVENT DATA GROUPS

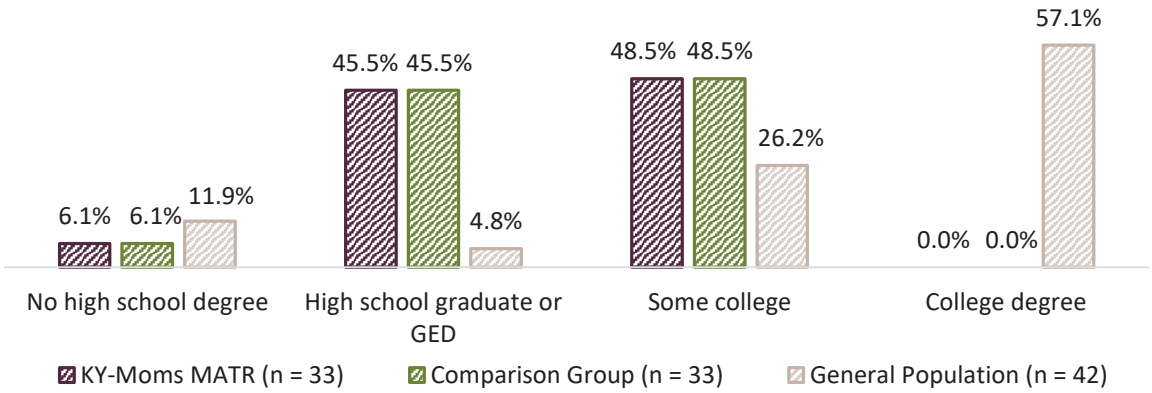
	KY-Moms MATR (n = 66)	Matched Comparison Sample (n = 66)	General Population (n = 61,064)
Average age**	24.8	24.8	28.2
Race			
White	93.3%	93.3%	83.3%
Non-white	6.7%	6.7%	16.7%
Type of community			
Metropolitan	53.3%	53.3%	68.3%
Micropolitan	30.0%	30.0%	25.0%
Very rural	16.7%	16.7%	6.7%
Married***	30.0%	30.0%	51.7%

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

Socioeconomic Status Indicators

It is important to compare education rates only for those who had sufficient time to finish high school. The 2013-2017 Census estimates that of Kentuckians ages 25 and older, 87.3% had high school degrees.[158] When groups of women ages 25 and older are compared, 94.0% of KY-Moms MATR mothers and 88.1% of mothers in the general population have at least a high school diploma or GED (see Figure AB.1). About 6% of KY-Moms MATR and the matched comparison group mothers and 11.9% of mothers in the general population had less than a high school degree. Further, 57.1% of mothers in the general population received a college degree compared to none of mothers in KY-Moms MATR and the matched comparison sample.

FIGURE AB.1. LEVEL OF EDUCATION BETWEEN BIRTH EVENT DATA GROUPS***

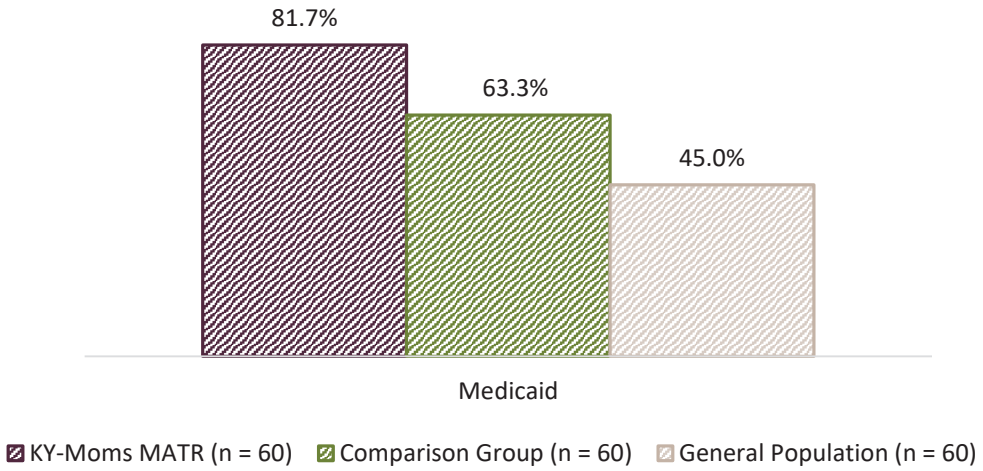


***p < .001.

[158] https://www.census.gov/quickfacts/fact/table/US/PST045218?

KY-Moms MATR women were more likely to use Medicaid as their source of payment for the birth of the baby compared to either the matched comparison sample or the general population as Figure AB.2 shows.

FIGURE AB.2. MOTHERS WITH MEDICAID AS THE SOURCE OF PAYMENT BETWEEN BIRTH DATA GROUPS***

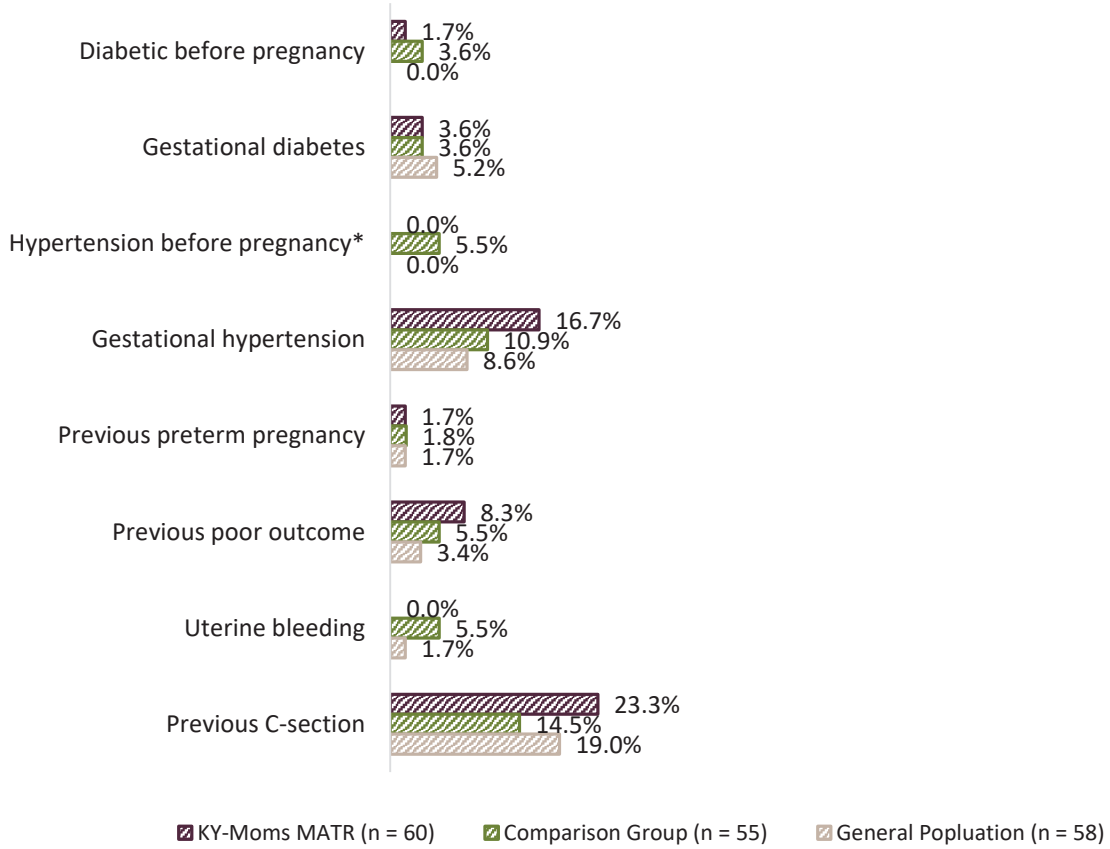


***p < .001.

Physical Health Status

General health conditions of pregnancy were examined from the Vital Statistics data set as well (see Figure AB.3). There were no significant differences between the groups on most health conditions such as gestational diabetes, gestational hypertension or previous poor birth outcomes. The comparison group mothers were, however, more likely to have hypertension before pregnancy compared to the KY-Moms MATR group or general population.

FIGURE AB.3. OTHER MATERNAL RISK FACTORS BETWEEN BIRTH DATA GROUPS[a]



a- Maternal health risk factors were unknown for 5 mothers in the comparison group and 2 women in the general population.

KY-Moms MATR women were not significantly more likely to have a sexually transmitted infection such as gonorrhea, syphilis, herpes, or chlamydia (11.9%) compared to the matched comparison group (7.3%) or the general population sample (19.0%; not depicted in a figure).

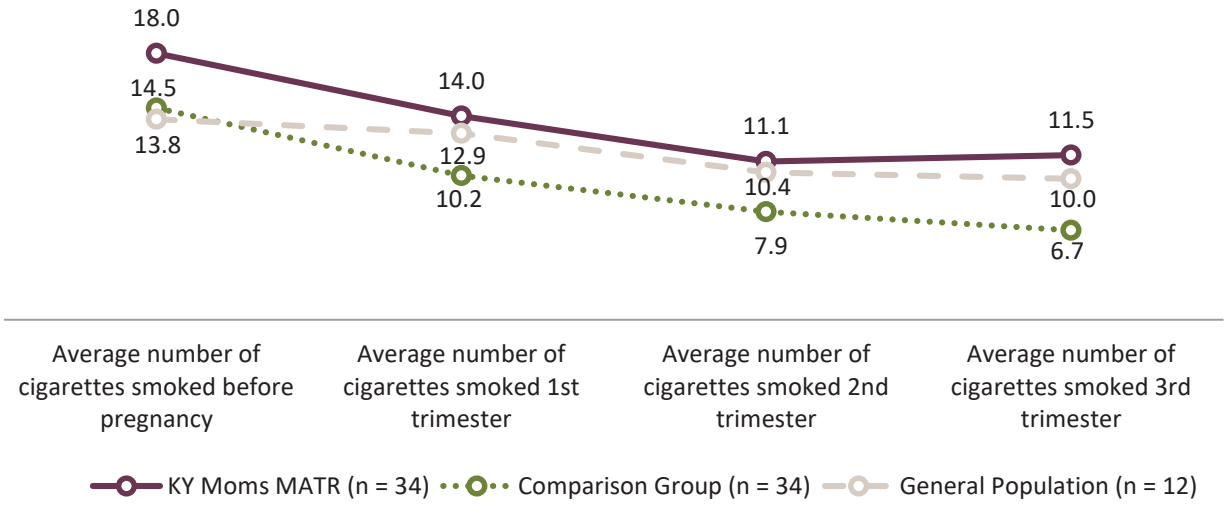
When only hepatitis B and C are examined, significantly more KY-Moms MATR mothers were infected (15.3%) compared to the matched comparison group (5.5%) and the general population sample (3.4%).

Targeted Risk Factors

Smoking Patterns

Significantly more KY-Moms MATR clients and the matched comparison mothers reported being a smoker (56.7%) compared to the general population (20.0%; not depicted in a figure). However, of those who smoked, KY-Moms MATR clients did not report smoking significantly more cigarettes in any trimester compared to mothers in the matched comparison sample or general population.

FIGURE AB.4. AVERAGE NUMBER OF CIGARETTES SMOKED PER TRIMESTER

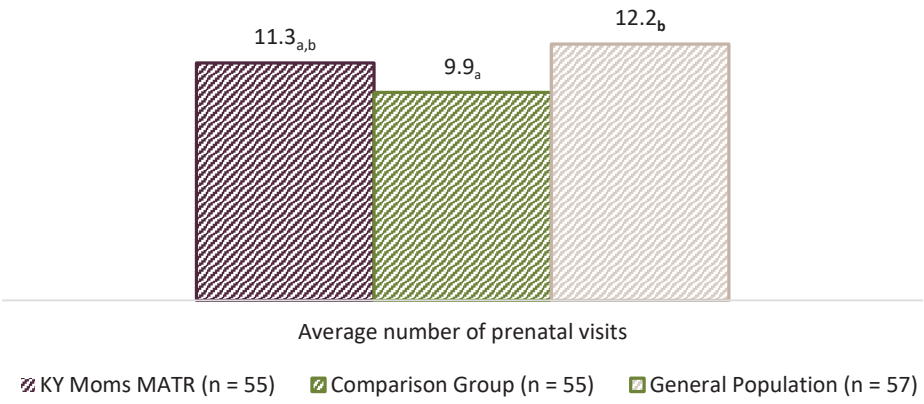


Birth Events and Outcomes

Prenatal Visits

Mothers in the matched comparison group had significantly fewer prenatal care visits compared to the general population of mothers (see Figure AB.5). KY-Moms MATR women had an average of 11.3 prenatal visits, the matched comparison group had an average of 9.9 prenatal visits, and the general population had an average of 12.2 prenatal visits.

FIGURE AB.5. AVERAGE NUMBER OF PRENATAL CARE VISITS WITH A HEALTH CARE PROVIDER ACROSS GROUPS[c]*

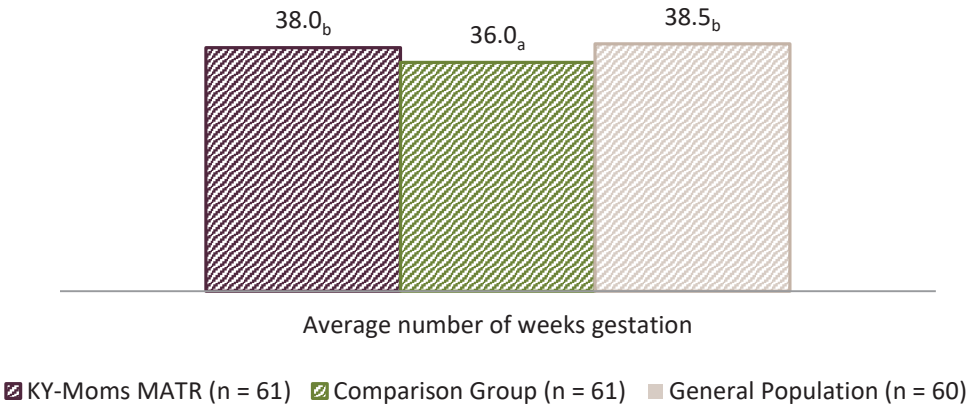


a, b- denote groups with different subscripts are significantly different.
c - 5 KY-Moms mothers, 5 mothers in the comparison group and 3 mothers in the general population were missing information on the number of prenatal visits.
*p < .05.

Weeks Gestation

There were significant differences between the three groups for average weeks of gestation as Figure AB.6 shows. Babies born to mothers in the matched comparison group had significantly fewer average weeks of gestation (36.0 weeks) compared to the KY-Moms MATR babies (38.0 weeks) and babies born to mothers in the general population (38.5 weeks).

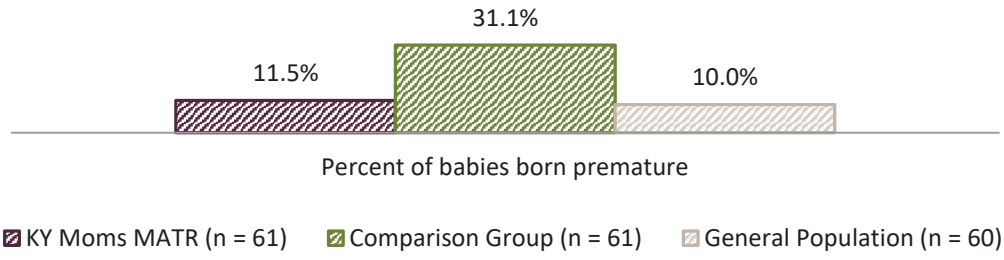
FIGURE AB.6. AVERAGE NUMBER OF GESTATIONAL WEEKS ACROSS GROUPS c***



***p < .001.
a, b- denote groups with different subscripts are significantly different.
c- One case was missing the number of weeks gestation for mothers in the general population.

Similarly, comparing all three groups, more babies born to mothers in the comparison group were born prematurely (i.e., before 37 weeks gestation; see Figure AB.7) compared to KY-Moms MATR and the general population.

FIGURE AB.7. BABIES BORN PREMATURELY ACROSS BIRTH DATA GROUPS**



**p < .01.

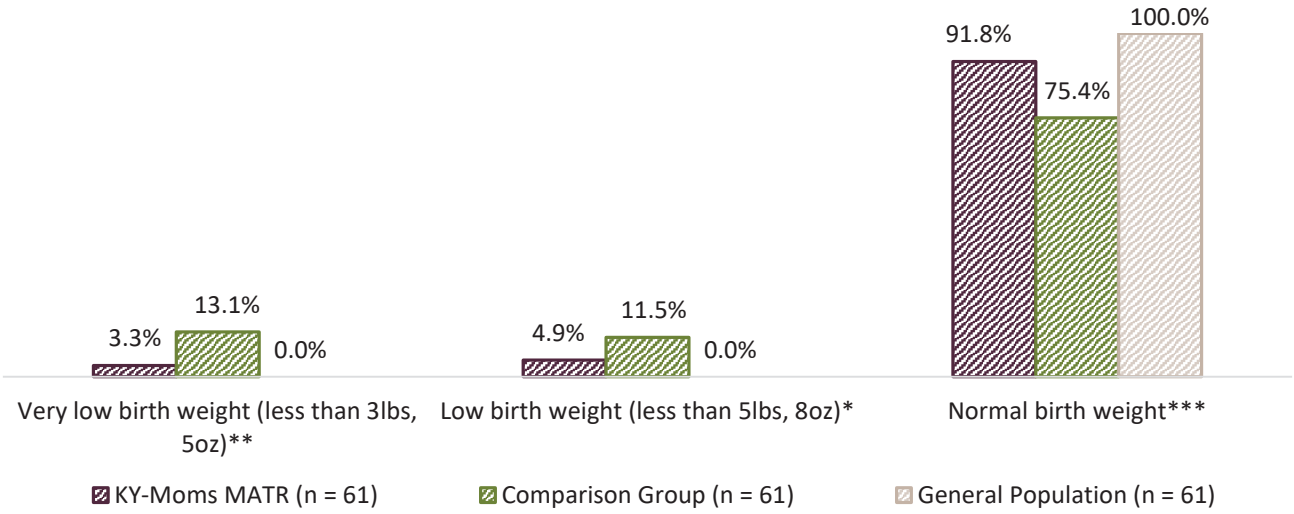
Birth Weight

Based upon the number of weeks of gestation, not surprisingly there was a significant difference between the groups for average birth weight. Babies born to mothers in the matched comparison group (average of 6lbs, 4oz) weighed significantly less than babies born to KY-Moms MATR clients (average of 7lbs, 2oz), and babies born to mothers in the general population (average of 7lbs, 6oz;

not depicted in a figure).

Similarly, there were significant differences in rates of low birth weight babies between the three groups. Figure AB.8 shows that among KY-Moms MATR babies, 4.9% were considered low birth weight and 3.3% of babies were under 3lbs, 5oz, which is considered "very low birth weight" (therefore, a total of 8.2% of babies weighed less than 5lbs, 8oz). For the matched comparison group, 11.5% were considered low birth weight and 13.1% were very low birth weight (a total of 24.6% of babies weighed less than 5lbs, 8oz). Among babies born in the general population, none were considered either low birth weight or very low birthweight.

FIGURE AB.8. BIRTH WEIGHT STATUS ACROSS GROUPS

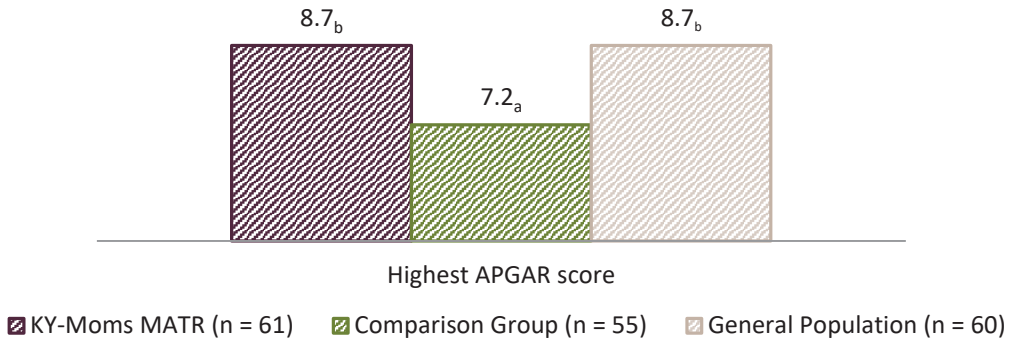


*p < .05, **p < .01, ***p < .001.

APGAR

The final APGAR scores recorded may be taken at either five minutes or ten minutes after the birth. The highest average score of the 5-minute and 10-minute APGARs for each group is displayed in Figure AB.9 and shows significantly lower scores for babies born to mothers in the comparison group (an average of 7.2) compared to KY-Moms MATR mothers and the general population (both an average of 8.7).

FIGURE AB.9. AVERAGE HIGHEST APGAR SCORES ACROSS GROUPS***



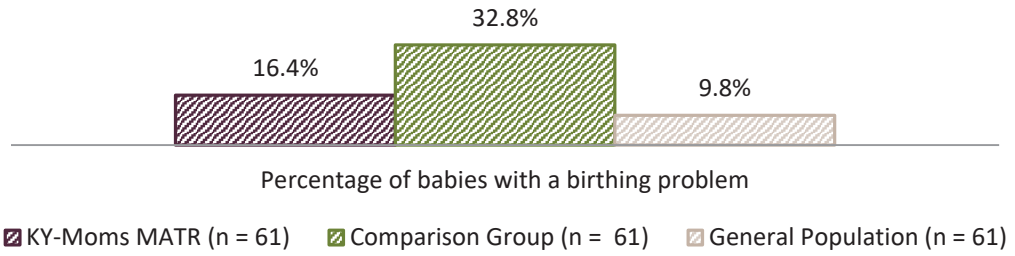
a, b- denote groups with different subscripts are significantly different.
***p < .001.

Birth Problems

There were no significant differences between the groups (one baby in KY-Moms MATR, and none in the comparison group or the general population sample) for birth defects or anomalies (such as Down's syndrome, cleft palates, anencephaly, congenital heart failure, spina bifida, etc.).

There was a significant difference in the percent of babies born with a birthing problem during labor and delivery as Figure AB.10 shows (not including being admitted to the neonatal intensive care unit). Close to 16% of babies born to KY-Moms MATR mothers and 9.8% of babies born to the general population of mothers were born with a birthing problem compared to 32.8% of babies in the matched comparison sample. Among those babies with birthing problems, there were no differences in the average number of birthing problems between babies in the KY-Moms MATR group (an average of 2.3 problems) and the babies in the matched comparison sample (an average of 1.8 problems) or the general population (an average of 2.0 problems).

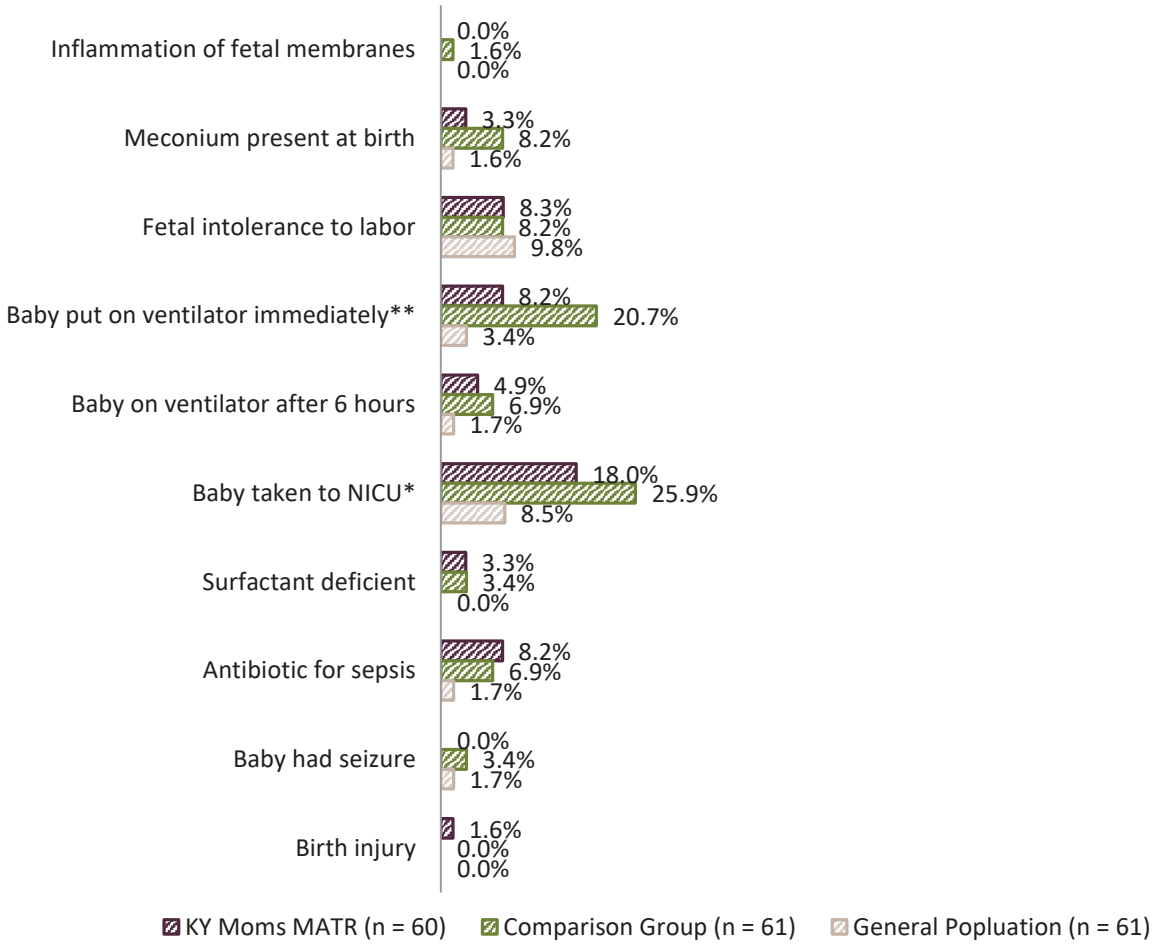
FIGURE AB.10. BABIES BORN WITH BIRTHING PROBLEMS (NOT INCLUDING NICU) ACROSS BIRTH DATA GROUPS**



**p < .01.

KY-Moms MATR babies were not significantly more likely to have particular birthing problems such as inflammation of fetal membranes, intolerance to labor, or being placed on a ventilator (see Figure AB.11). However, babies born to mothers in the matched comparison group were significantly more likely to have been put on a ventilator immediately after birth as well as the baby being taken to NICU compared to the other groups.

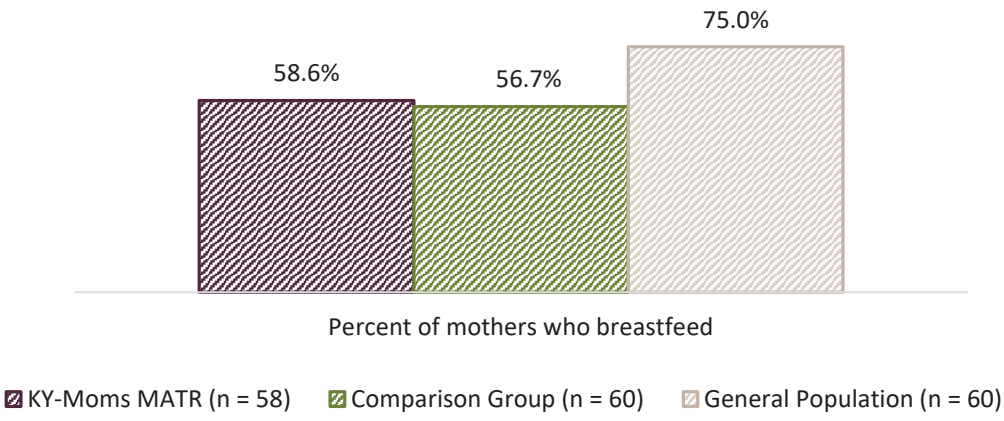
FIGURE AB.11. BABIES WITH A BIRTHING PROBLEM ACROSS GROUPS[a]



a- One client in the KY-Moms MATR group, three babies in the comparison group, and two babies in the general population were missing information on birthing problems.

There were no significant differences between the number of mothers who planned to breastfeed in each group (as shown in Figure AB.12).

FIGURE AB.12. PERCENT OF CLIENTS WHO PLANNED TO BREASTFEED[a]



a- Breastfeeding information was missing for two mothers in the KY-Moms MATR group.

Conclusion

In general, results of this analysis parallel the results of the multivariate analysis on birth events and outcomes. Compared to the general population of mothers, KY-Moms MATR clients and mothers in the matched comparison sample were less likely to have a college degree, and more likely to have Medicaid as their source of payment for the birth of the baby. More KY-Moms MATR mothers smoked cigarettes before becoming pregnant than mothers in the general population. At the same time, babies born to mothers in KY-Moms MATR had a similar average number of prenatal visits, gestational weeks, highest APGAR score, birth weight, and percent of babies with birthing problems compared to the general population and better outcomes than the matched comparison sample.

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

Between May 2017 and December 2018, 158 pregnant mothers completed a prenatal baseline and were eligible for a six-month postnatal follow-up between July 2018 and June 2019. Individuals who completed a postnatal follow-up assessment during this time (n = 69) are compared in this section with 89 individuals who did not complete a postnatal follow-up interview but were in their 6-month follow-up window in FY 2019.

As mentioned in Appendix A, 89 clients did not complete a postnatal follow-up interview for a variety of reasons:

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

Reason for not completing follow-up assessment	n
Ineligible as a result of prenatal baseline criteria:	
Client was unsure or not keeping the baby	2
Client was not in the program long enough	6
More than 30 days between when the baseline was completed and when it was submitted	1
Insufficient locator information	4
Baseline submitted after the follow-up sample was already pulled	2
Already had the baby	7
Did not agree to follow-up	10
Follow-up response was missing	15
Ineligible as a result of postnatal follow-up criteria:	
Baby was not living with the mother	9
Client was living in a controlled environment	5
Client was not located within the targeted window	28
TOTAL	**89**

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 AC.2). The average client age was around 26 years old for both groups. Clients who were not followed up were an average of 23.3 weeks into their pregnancies and clients who were followed up were an average of 22.2 weeks. While the difference is not significant, it is expected given clients must be in the program at least 30 days in order to be eligible for follow-up and women who are further along in their pregnancies might not have spent enough time in the program. Though not significant, about one-quarter of clients who were followed up were married compared to 12.4% of clients who were not followed up. Of those who were married or cohabiting, 90.2% 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 (86.4%). In addition, the majority of clients in both groups were White.

TABLE AC.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 = 89	YES n = 69
Average age	25.5	25.7
Average weeks pregnant	23.3	22.2
Relationship status		
Married	12.4%	24.6%
Cohabiting	37.1%	34.8%
Separated, divorced, or widowed	11.2%	10.1%
Never married	39.3%	30.4%
Of those married or cohabiting, percent that reported the partner is the father	86.4%	90.2%
Race		
White	87.6%	86.8%
Black	6.7%	5.9%
Hispanic	2.2%	4.4%
Other or multiracial	3.4%	2.9%

Of those who completed a postnatal follow-up, 68.1% were currently unemployed compared to 65.2% 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 AC.3).

TABLE AC.3. CURRENT EMPLOYMENT STATUS AT PRENATAL BASELINE

	FOLLOWED UP	
	NO n = 89	YES n = 69
Employment		
Not currently employed	65.2%	68.1%
Full-time	15.7%	18.8%
Part-time	13.5%	13.0%
Occasional, from time to time seasonal work	1.1%	0.0%
On leave from a job for pregnancy related reasons	4.5%	0.0%
Expect to be employed in the next 12 months	76.4%	84.1%

There were no significant differences in usual living arrangement between those who completed a follow-up assessment and those who did not. Almost 90% 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 AC.4) compared to clients who were not followed up (77.5%). About 19% of clients who did not complete a follow-up and 8.8% of clients who did complete a follow-up were living in a residential facility, hospital, recovery center, or sober living home. A small number of individuals reported their usual living arrangement had been in a shelter or on the street.

At baseline, there was no significant difference between the groups of clients who considered themselves to be homeless. About 12% of clients who did not complete a follow-up and 10.1% of clients who did complete a follow-up considered themselves homeless. The majority of clients who considered themselves homeless in either group stated that they were temporarily staying with friends or family (see Table AC.4).

TABLE AC.4 LIVING SITUATION OF CLIENTS BEFORE ENTERING THE KY-MOMS MATR PROGRAM[159]

	FOLLOWED UP	
	NO n = 89	YES n = 69
Usual living arrangement in the past 30 days		
Own or someone else's home or apartment	77.5%	89.7%
Jail or prison	0.0%	0.0%
Residential program, hospital, recovery center, or sober living home	19.1%	8.8%
Shelter or on the street	1.1%	1.5%
Other	2.2%	0.0%
Considers self to be currently homeless	12.4%	10.1%
Why the individual considers himself/herself to be homeless	(n = 11)	(n = 7)
Staying in a shelter	27.3%	16.7%
Staying temporarily with friends or family	63.6%	50.0%
Other	9.1%	33.3%

Physical Health

On a scale of 1 - 5, clients who completed a follow-up rated their health an average of 3.1 compared to clients who did not complete a follow-up (2.9) which was significantly different. Around 35% of clients who were not followed up and 37.7% of clients who were followed up reported they had no health problems. Twenty-seven percent of clients who did not complete a follow-up and 17.4% of clients who did complete a follow-up reported two or more health problems. There were no significant differences between the groups on chronic pain in the 6 months before pregnancy. The average number of doctor visits reported by clients was similar with 5.7 visits for clients not followed up and 6.5 visits for clients who completed a follow-up.

[159] Data was missing for one client who completed a follow-up for usual living arrangement and reason for homeless.

TABLE AC.5. PHYSICAL HEALTH ISSUES OF CLIENTS BEFORE ENTERING THE KY-MOMS MATR PROGRAM

	FOLLOWED UP	
	NO n = 89	YES n = 69
Number of health problems		
None	34.8%	37.7%
One health problem	38.2%	44.9%
Two or more health problems	27.0%	17.4%
Overall health rating (1 – poor, 5 – excellent)*	2.9	3.3
Chronic pain in the 6 months before pregnancy	24.7%	21.7%
Of those experiencing chronic pain	(n = 22)	(n = 15)
Average level of pain over the past 30 days	5.8	4.9
Pain continued into pregnancy	95.5%	100.0%
Average number of doctor visits about pregnancy	5.7	6.5

*p < .05.

Targeted Risk Factors

Substance Use

There were a few significant differences for substance use at prenatal baseline between clients who did and clients who did not complete a postnatal follow-up. While the majority of clients in both groups reported illegal drugs and/or alcohol use, more clients who were followed up reported alcohol use in the 6 months before pregnancy (52.2%) and in the 30 days prior to pregnancy (42.0%) when compared to clients who did not complete a follow-up interview.

TABLE AC.6 SUBSTANCE USE OF CLIENTS AT PRENATAL BASELINE

	FOLLOWED UP	
	NO n = 89	YES n = 69
Substance use in the 6 month prior to pregnancy		
Illegal drugs and/or alcohol	77.5%	78.3%
Illegal drugs	67.4%	63.8%
Alcohol*	34.8%	52.2%
Cigarettes	83.1%	75.4%
Substance use in the 30 days prior to pregnancy		
Illegal drugs and/or alcohol	59.6%	71.0%
Illegal drugs	50.6%	55.1%
Alcohol**	20.2%	42.0%
Cigarettes	79.8%	72.5%
Of clients who smoked	(n = 71)	(n = 50)
Average number of cigarettes per day	16.7	17.4
Substance use in the past 30 days at prenatal baseline		
Illegal drugs and/or alcohol	19.1%	17.4%
Illegal drugs	18.0%	15.9%
Alcohol	2.2%	1.4%
Cigarettes	64.0%	59.4%
Of clients who smoked	(n = 57)	(n = 41)
Average number of cigarettes per day	10.3	10.8

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

Mental Health

There was no significant difference between the two groups in the percent of clients who met study criteria for depression in the 6 months before pregnancy or anxiety in the 6 months before pregnancy or the 30 days before prenatal baseline. However, among those clients who met criteria for depression in the 6 months before pregnancy, clients who were not followed up reported significantly more depression symptoms (see Table AC.7). In addition, significantly more clients who were not followed up reported experiencing symptoms of depression in the past 30 days at prenatal baseline (31.5%) compared to clients who were followed up (13.0%).

TABLE AC.7 SELF-REPORTED MENTAL HEALTH SYMPTOMS OF CLIENTS AT PRENATAL BASELINE

	FOLLOWED UP	
	NO n = 89	YES n = 69
Experienced symptoms of depression in the past 6 months before pregnancy	59.6%	55.1%
	(n = 53)	(n = 38)
Average number of symptoms*	7.1	6.3
	31.5%	13.0%
Experienced symptoms of depression in the past 30 days at prenatal baseline**	(n = 28)	(n = 9)
	6.5	5.7
Average number of symptoms	42.7%	53.6%
	(n = 38)	(n = 37)
Experienced symptoms of anxiety in the past 6 months before pregnancy	5.2	4.9
	37.1%	39.1%
Average number of symptoms	(n = 33)	(n = 27)
	4.6	4.5
Experienced symptoms of anxiety in the past 30 days at prenatal baseline	35.6%	39.8%
	(n = 21)	(n = 47)
Average number of symptoms	4.8	4.7

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

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. Around 40% of clients who did not complete a follow-up and 36.2% of clients that completed a follow-up assessment reported some type of partner abuse or violence in the 6 months before pregnancy (see Table AC.8).

TABLE AC.8 Intimate partner abuse AND SEXUAL VIOLENCE BY ANY TYPE OF PERPETRATOR REPORTED BY CLIENTS AT PRENATAL BASELINE

	FOLLOWED UP	
	NO n = 89	YES n = 69
Any partner abuse		
6 Months before pregnancy	40.4%	36.2%
Past 30 days	18.0%	18.8%
Verbal abuse		
6 Months before pregnancy	27.0%	26.1%
Past 30 days	12.4%	10.1%
Coercive control		
6 Months before pregnancy	37.1%	36.2%
Past 30 days	11.2%	18.8%
Physical abuse		
6 Months before pregnancy	18.0%	18.8%
Past 30 days	3.4%	1.4%
Sexual abuse		
6 Months before pregnancy	11.2%	10.1%
Past 30 days	4.5%	2.9%