

KIDS NOW Plus

2015 Annual Outcome Report



Reductions in substance use

95%

The number of clients reporting illegal drug use decreased from 44% in the 30 days before pregnancy to 2% in the 30 days before the baby was born

100%

The number of clients reporting alcohol use decreased from 37% in the 30 days before pregnancy to 0% in the 30 days before the baby was born

67%

The average number of cigarettes clients reported smoking decreased 67% from 19 in the 30 days before pregnancy to 6 in the 30 days before the baby was born

EXECUTIVE SUMMARY

The KIDS NOW Plus case management program was implemented in eight sites across the state to increase positive birth outcomes for pregnant women in Kentucky who are at risk for negative birth outcomes.

This report summarizes outcome study findings for the KIDS NOW Plus case management program by examining birth and infant outcomes as well as: (1) substance use; (2) mental health; (3) intimate partner violence; and (4) quality of life. Specifically, this report describes outcomes for 136 pregnant KIDS NOW Plus program clients who participated in the KIDS NOW Plus case management program, completed a face-to-face intake interview with program staff between January 2013 and June 2014, completed a 6-month follow-up after the birth of their baby, were served in a KNP region, and who had a match to the vital statistics data set.

KIDS NOW Plus clients reported behavioral health risks associated

with negative birth outcomes including high rates of smoking, alcohol and illegal drug use, depression or anxiety, and intimate partner abuse. Overall, clients were an average of 24 weeks pregnant when they entered the program and were in the program an average of 18 weeks. Clients were about 25 years old (4% of which were 18 and under) and almost one quarter had less than a high school diploma or GED. The majority of clients (71%) were unemployed at prenatal intake and about half of clients had difficulty meeting basic or healthcare needs for financial reasons in the 6 months before they found out they were pregnant.

Compared to a matched comparison group of women who gave birth during the same timeframe, clients in the program used more clinical services such as individual substance abuse or mental health therapy, intensive outpatient, and group therapy. Besides the additional clinical services received by pregnant women in KIDS NOW Plus case management, significantly more clients were enrolled in Women Infants and Children (WIC).

In spite of the risk factors the KIDS NOW Plus mothers had before participating in the program, their birth outcomes were very positive overall, and were nearly identical to the general population of mothers and babies. After controlling for factors such as mother's age, education, area of residence, and

Despite significant risk factors, **KIDS NOW Plus mothers had birth outcomes that were very positive overall and were similar to the general population of mothers and babies.**

Reductions in mental health symptoms

63%

The number of women who met study criteria for depression decreased 63% from 18% in the 6 months before pregnancy to 7% in the past 6 months at postnatal follow-up

55%

The number of women who met study criteria for generalized anxiety decreased 55% from 32% in the 6 months before pregnancy to 15% in the past 6 months at postnatal follow-up

73%

The average number of days in the past 30 days clients reported their mental health was not good decreased 73% from 9.6 days at prenatal intake to 2.6 days at postnatal follow-up

smoking status at birth, the two groups of mothers had similar birth outcomes for the percentage of babies born premature, babies' average birth weight, percentage of mothers experiencing birthing problems, percentage of babies taken to the neonatal intensive care unit, percentage of women breastfeeding and the average highest APGAR score.

All the mothers in the follow-up sample reported their babies were doing "good" or "great" and both the mother and the baby's father were very excited about the baby. The majority of clients felt confident about being the mother of an infant and felt that life with a new baby was very manageable. Also, the majority of clients had someone to turn to for emotional support both during pregnancy and after the birth of the baby.

Furthermore, fewer pregnant mothers reported substance use while in the program compared to before being pregnant. And, these reductions were sustained six months after the birth of their baby. In addition, significantly fewer

clients reported smoking after becoming involved in KIDS NOW Plus, and those who did smoke, smoked fewer cigarettes compared to before pregnancy. Specifically, there was a 33% reduction in the number of clients who reported smoking which is notably different from previous years which found stable rates of smoking throughout pregnancy and at postnatal follow-up.

There was also a reduction in depression, anxiety, and co-occurring depression and anxiety from intake to follow-up. Clients who did experience mental health problems reported significantly fewer symptoms after becoming involved in KIDS NOW Plus. These improvements in mental health problems were sustained after the birth of the baby.

In addition, clients' reported physiological symptoms associated with stress decreased significantly from prenatal intake to postnatal follow-up.

The safety of the women involved in KIDS NOW Plus also improved. The number of clients who reported any intimate partner abuse significantly decreased after becoming involved in the KIDS NOW Plus case management program.

In addition to these targeted risk factors, there were improvements in other general areas of the mothers' lives after becoming involved in the KIDS NOW Plus program including a reduction in chronic pain and improved overall health. Women also reported improved economic conditions with significantly fewer clients reporting having difficulty meeting basic living or health care needs as a result of financial problems.

Clients reported significantly higher

There was a **33% reduction in the number of pregnant clients who reported smoking** which is notably different from previous years which found stable rates of smoking.

Increase in safety

46%

The number of clients who reported experiencing any type of intimate partner abuse decreased 46% from 27% in the 6 months before pregnancy to 15% in the past 6 months at postnatal follow-up

67%

Compared to the six months before pregnancy, the percentage of clients reporting being a victim of psychological abuse decreased 67% in the 6 months after the baby was born (from 22% to 7%, respectively)

78%

The number of clients who reported being a victim of physical abuse decreased 78% from 13% in the 6 months before pregnancy to 3% in the past 6 months at postnatal follow-up

quality of life after the program, having significantly more positive feelings and significantly less negative feelings, and an overall greater satisfaction with life at postnatal follow-up compared to prenatal intake.

Further, program clients were overwhelmingly satisfied with KIDS NOW Plus case management services they received. In particular, clients reported they learned about the risks of tobacco, alcohol and drugs during pregnancy, had improvements in their mental health, felt safer from intimate partner violence, believed they had

a healthier pregnancy, and felt better about themselves as direct results of their participation in the KIDS NOW Plus program. Also, the majority of clients indicated they would recommend the program to a friend.

Overall, evaluation results indicate that the KIDS NOW Plus case management 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 violence. 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 KIDS NOW Plus program to serve more high-risk pregnant women across the state.

Clients reported they **learned about the risks of tobacco, alcohol and drugs during pregnancy**, had **improvements in their mental health, felt safer from intimate partner violence**, believed they **had a healthier pregnancy, and felt better about themselves** as direct results of their participation in the KIDS NOW Plus program



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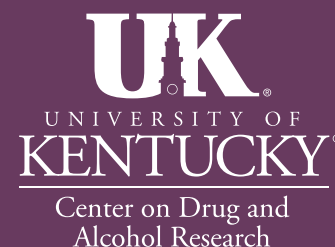
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Prenatal assessments for the entire period examined were completed between January 2013 and June 2014. Postnatal assessments completed between August 2013 and August 2014 for women who women gave birth between January 2013 and January 2014.

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OVERVIEW OF THE REPORT

This report presents the results of an outcome evaluation of the KIDS NOW Plus case management program. This outcome evaluation was conducted by the Behavioral Health Outcome Study team at the University of Kentucky Center on Drug and Alcohol Research (UK CDAR) 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 13 main sections as outlined below.

Section 1: Introduction and Evaluation Method. This section briefly describes the KIDS NOW Plus case management program and how clients are selected into the outcome evaluation.

Section 2: Description of KIDS NOW Plus Case Management Program Clients Who Were Followed-Up. Section 2 describes the KIDS NOW Plus client characteristics for the 136 clients who completed a prenatal intake between January 2013 and June 2014 and completed a six month postnatal follow-up assessment between August 2013 and August 2014. Characteristics examined include risk status, age, race, marital status, metropolitan/non-metropolitan status, socioeconomic status (i.e., education, employment, public assistance and socioeconomic hardships), and living situation.

Section 3: Clinical Services. This section examines case management services received by KIDS NOW Plus clients while in the program as well as mental health diagnosis. In addition, it compares services received by KIDS NOW Plus clients to those received by women with similar socioeconomic characteristics who gave birth during the same time period but who were not part of the program.

Section 4: Pregnancy Status. Section 4 describes the clients' pregnancy status at prenatal intake as well general feelings and attitudes towards their pregnancies including: (1) expectations and feelings about the baby; (2) general information regarding the pregnancy/baby; and (3) planned method of birth control. Comparisons are made from prenatal intake to postnatal follow-up where applicable.

Section 5: Birth Events and Outcomes: KIDS NOW Plus Case Management Clients Compared to the General Population of Mothers within the Regions Served by KIDS NOW Plus. 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 136 KIDS NOW Plus case management clients and their babies compared to others in the state who had babies during the same period (between January 2013 and January 2014) but who did not participate in the KIDS NOW Plus Case Management study (n = 34,888).¹

Section 6: Substance Use. This section of targeted risk factors 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; and (5) substance abuse treatment and self-help meetings. Past 30-day and past-6-month substance use are examined separately where applicable.

Section 7: Mental Health. This section examines changes in self-reported mental health for the following factors: (1) depression; (2) generalized anxiety; (3) exposure to traumatic events; and, (4) number of days physical and mental health were poor. Past 30-day and past-6-month mental health symptoms are examined separately where applicable.

Section 8: Partner Abuse and Sexual Assault. This section examines changes in intimate partner abuse and violence such as: (1) psychological abuse, (2) coercive control, (3) physical abuse, and (4) sexual violence by any type

¹ Section 5 compares birth events and outcomes of KIDS NOW Plus mothers to the general population of mothers who resided in regions served by KIDS NOW Plus and 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 KIDS NOW Plus case management services; (2) a comparison group of mothers matched on selected characteristics (race, age, education, metropolitan/non-metropolitan residence, marital status and smoking status); and (3) a randomly selected group of mothers from the general population.

of perpetrator, from prenatal intake to postnatal follow-up. Past 30-day and past-6-month partner abuse measures are examined separately where applicable.

Section 9: Physical Health. Section 9 describes chronic health problems reported at prenatal intake and change in physical health status of clients from prenatal intake to postnatal follow-up including: (1) current health; (2) chronic pain; and (3) emergency room usage.

Section 10: Emotional Support. This section focuses on two main changes in emotional support: (1) the number of people the individual said they could count on for emotional support; and (2) client satisfaction with the level of emotional support from others.

Section 11: Stress and Quality of Life. This section examines changes in stress and quality of life including the following factors: (1) health consequences of stress; (2) quality of life ratings; (3) positive and negative experiences; and (4) satisfaction with life.

Section 12: Client Satisfaction with KIDS NOW Plus Case Management. This section describes four aspects of client satisfaction assessed by clients who completed a postnatal follow-up: (1) overall program satisfaction; (2) ratings of program experiences; (3) if the client would recommend the program to a friend; and (4) what clients found most useful from the program.

Section 13: Conclusion and Study Limitations. This section summarizes the report findings, discusses limitations, and describes implications of the main findings.

SECTION 1: INTRODUCTION AND EVALUATION METHOD

This section briefly describes the KIDS NOW Plus case management program and how clients were selected into the outcome evaluation.

KIDS NOW Plus is a state-funded prevention, outreach, and case management program aimed at reducing substance use 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.^{2,3,4,5,6} In addition, substance use is often related to mental health problems and an increased risk of partner abuse and sexual assault.^{7,8} All three of these interrelated risk factors increase the likelihood of negative birth outcomes.^{9,10} Additionally, risks of negative birth outcomes are increased when women using alcohol and illegal drugs avoid obtaining prenatal care due to fear of losing custody of their babies or fear of being arrested.¹¹

The overall goal of the KIDS NOW Plus case management program is to increase positive birth outcomes for pregnant women in Kentucky who are at risk for negative birth outcomes by reducing these three targeted risk factors that impact the health of the pregnant mother, fetal development, and birth outcomes. The program has two components including providing: 1) substance abuse prevention education to pregnant women at all risk levels, and 2) client-centered intensive case management services to women at risk for substance abuse during pregnancy (referred to in this report as KIDS NOW Plus program).

The KIDS NOW Plus 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.¹² By focusing on clients' needs, client-centered intensive case management encourages continued engagement in clinical services and helps with a

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

³ Gouin, K., Murphy, K., & Shah, P. S. (2011). Effects of cocaine use during pregnancy on low birth weight and preterm birth: systematic review and metaanalyses. *American Journal of Obstetrics and Gynecology*, *204*(4), 340-e1-12.

⁴ Behnke, M., Smith, V. C., Levy, S., Ammerman, S. D., Gonzalez, P. K., Ryan, S. A., ... & Watterberg, K. L. (2013). Prenatal substance abuse: short-and long-term effects on the exposed fetus. *Pediatrics*, *131*(3), e1009-e1024.

⁵ Pinto, S. M., Dodd, S., Walkinshaw, S. A., Siney, C., Kakkar, P., & Mousa, H. A. (2010). Substance abuse during pregnancy: effect on pregnancy outcomes. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *150*(2), 137-141.

⁶ Young, N.K., Gardner, S., Otero, C., Dennis, K., Chang, R., Earle, K., & Amatetti, S. (2007). *Substance-Exposed Infants: State Responses to the Problem*. National Center on Substance Abuse and Child Welfare.

⁷ Logan, T., Walker, R., Jordan, C. & Leukefeld, C. (2006). *Women and victimization: contributing factors, interventions, and implications*. Washington, DC: American Psychological Association Press.

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

⁹ Shah, P. S., & Shah, J. (2010). Maternal exposure to domestic violence and pregnancy and birth outcomes: a systematic review and meta-analyses. *Journal of Women's Health*, *19*(11), 2017-2031.

¹⁰ Schetter, C. D., & Tanner, L. (2012). Anxiety, depression and stress in pregnancy: implications for mothers, children, research, and practice. *Current Opinion in Psychiatry*, *25*(2), 141-148.

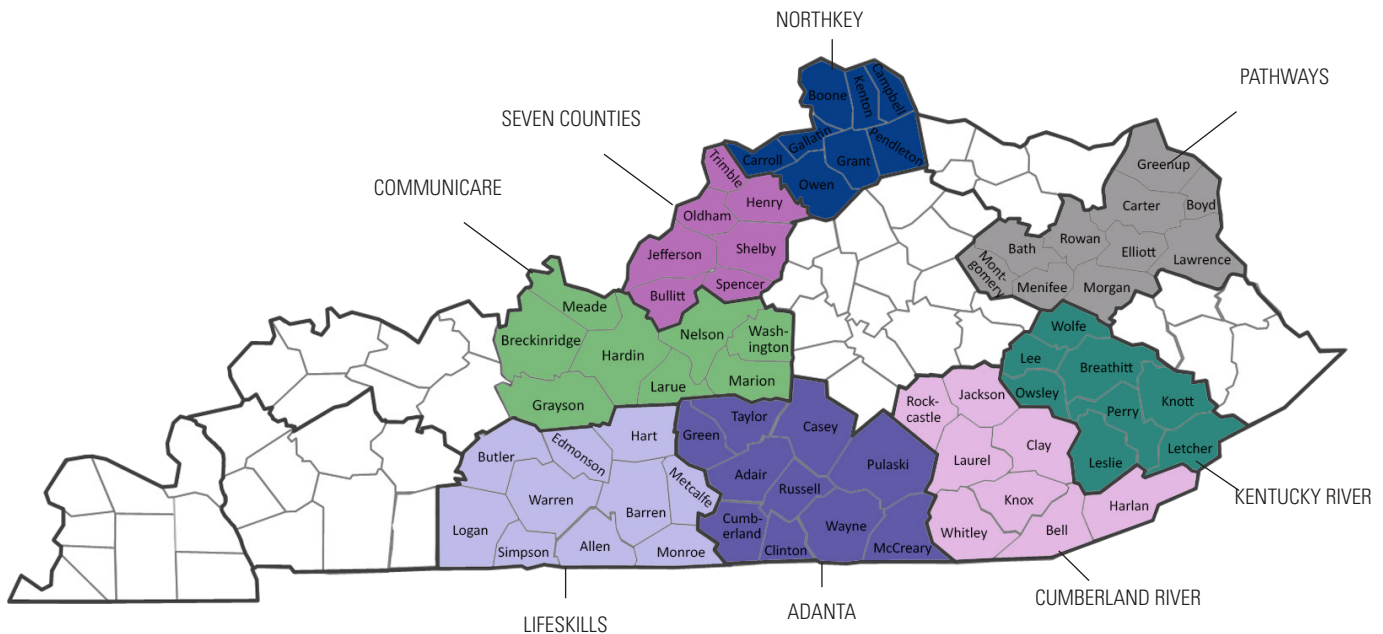
¹¹ Roberts, S.C & Nuru-Jeter, A. (2010). Women's perspectives on screening for alcohol and drug use in prenatal care. *Women's Health Issues*, *3*, 193-200.

¹² Austin, L. (2013). Treatment Planning and Case Management in Community. *The Praeger Handbook of Community Mental Health Practice: Working in the local community*, *1*, 83.

variety of practical needs.^{13,14} KIDS NOW Plus case managers use evidence-based practices, including Motivational Interviewing, to promote engagement in vital services such as substance abuse and mental health treatment and partner violence services, and to encourage consistent prenatal care.^{15,16}

The KIDS NOW Plus case management program is part of the Governor's Office of Early Childhood's Kentucky Invests in Developing Success NOW (KIDS NOW) program supported by Tobacco Settlement funds. The KIDS NOW Plus program is administered by the Division of Behavioral Health in the Department for Behavioral Health, Developmental and Intellectual Disabilities. Eight of Kentucky's regional community mental health centers (see Figure 1) are provided Tobacco Settlement funds along with Substance Abuse Prevention and Treatment Block Grant funding to manage the KIDS NOW Plus program for total program funding of about \$1.1 million dollars annually.

FIGURE 1. MAP OF KENTUCKY COMMUNITY MENTAL HEALTH REGIONS PROVIDING KIDS NOW PLUS SERVICES



Pregnant women who are referred to the KIDS NOW Plus case management 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 KIDS NOW Plus referral sources is the "Substance Use During Pregnancy Questionnaire" which assesses a variety of risks including substance use, mental health, and intimate partner violence, any of which make a woman eligible for case management services. Adolescents (under age 18) are also eligible regardless of other risk factors.

EVALUATION METHOD

The KIDS NOW Plus outcome evaluation includes a face-to-face intake interview by program staff from the eight sites

¹³ Center for Substance Abuse Treatment. Comprehensive Case Management for Substance Abuse Treatment. Rockville (MD): Substance Abuse and McLaughlin, C. P., & Kaluzny, A. D. (2000). Building client centered systems of care: choosing a process direction for the next century. *Health Care Management Review, 25*(1), 73-82.

¹⁴ Sheedy C. K., and Whitter M. (2009). *Guiding Principles and Elements of Recovery-Oriented Systems of Care: What Do We Know From the Research?* HHS Publication No. (SMA) 09-4439. Rockville, MD: Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration.

¹⁵ Ingersoll, K. S., Ceperich, S. D., Hettema, J. E., Farrell-Carnahan, L., & Penberthy, J. K. (2013). Preconceptional motivational interviewing interventions to reduce alcohol-exposed pregnancy risk. *Journal of Substance Abuse Treatment, 44*(4), 407-416.

¹⁶ May, P. A., Marais, A. S., Gossage, J. P., Barnard, R., Joubert, B., Cloete, M., et al. (2013). Case management reduces drinking during pregnancy among high-risk women. *The International Journal of Alcohol and Drug Research, 2*(3), 61-70.

shown above to assess targeted factors such as substance use, mental health symptoms, intimate partner violence, and other factors such as education, employment status, and living situation prior to pregnancy and while involved in the program. Between January 2013 and June 2014, 560 pregnant women completed a prenatal intake interview that was submitted electronically within 90 days of the assessment.^{17,18} Characteristics for all women who had completed intakes are presented in Appendix A.

At prenatal intake, clients are offered the opportunity to be contacted for a postnatal follow-up interview. If consent to be contacted for a follow-up is given by the client, an interviewer at UK CDAR contacts that client about 6 months after the birth of their baby (based upon estimated due date reported by the client at prenatal intake). UK CDAR obtains verbal consent to complete the follow-up survey. Client responses to the follow-up interviews are kept confidential to facilitate accurate reporting of client outcomes and satisfaction with program services. The UK CDAR team begins their efforts to locate and conduct follow-up interviews with women who agreed to be contacted for the follow-up one month before their target month (six months after the birth of their baby) for the follow-up interview and continues their efforts until the women have completed the follow-up interview or for two months after the target month, whichever comes first.

Out of the 560 prenatal intakes that were completed between January 2013 and June 2014, 276 clients were not yet in the targeted follow-up date range (that is, they had either not yet reached their estimated due date or it had not been 6 months from their estimated due date by the end of the fiscal year) and were, therefore, automatically ineligible to be in this follow-up sample. Of the remaining 284 clients who were in the targeted date range to complete a postnatal follow-up, 46 did not consent to be contacted by follow-up staff, 44 were not eligible at the time of the follow-up because they were in jail or another controlled environment ($n = 6$), because their baby was not living with them ($n = 15$), or other reasons such as invalid contact data ($n = 23$). Of the remaining 194 clients, postnatal follow-up assessments were completed with 162 clients (an 83.5% follow-up rate). See Appendix B for more details about follow-up methods and eligibility.

The clients who completed a follow-up ($n = 162$) were compared to clients who did not complete a follow-up for a variety of reasons ($n = 122$ ¹⁹) on selected factors. Results showed very few differences in demographics, substance use, mental health or intimate partner violence victimization (see Appendix C). A greater number clients who completed a follow-up had two or more chronic health problems, reported experiencing a serious fall while pregnant, and more of them reported alcohol use in the 6 months before pregnancy compared to clients who did not complete a follow-up survey.

To be included in the analysis for this outcome report, there were also four additional criteria: (1) clients had to have been in the program for 30 days or longer before the birth of their baby²⁰; (2) clients had to have matching information from the Kentucky Vital Statistics birth event data set in order to compare birth outcomes; (3) clients had to report living in the regions served by the KIDS NOW Plus program²¹; and, (4) the client had to give permission for UK CDAR to access their birth event data. If any of these criteria were not met, the client was not included in the outcome analysis. With this criteria in mind, although 162 clients had postnatal follow-up assessments, 10 cases were not included in

¹⁷ 564 pregnant women entered the program and completed a prenatal intake during these time periods; however, for 4 clients, the date between when the intake assessment was completed and when it was submitted to UK CDAR was greater than 90 days and, therefore, these clients were not included in this analysis.

¹⁸ The intake and postnatal assessment were changed in January 2013; therefore, this analysis includes clients who completed the latest version of the assessment to the end of fiscal year 2014.

¹⁹ Of the 122 who were within the targeted follow-up window but did not complete a follow-up assessment, 46 did not consent to participate in the follow-up and 44 were not eligible for follow-up because they were in jail or a controlled environment, the baby was not living with them, or the client had invalid contact data. In addition, 32 cases expired and could not be completed within the follow-up window.

²⁰ Clients who completed a postnatal follow-up assessment ($n = 162$) entered the KIDS NOW Plus case management program between November 2012 and December 2013.

²¹ Regions were restricted to account for access to community based resources.

the analysis because the number of days between when the client entered the program and the date they gave birth was less than 30 days. In addition, 9 clients did not reside in regions served by KIDS NOW Plus and 5 clients did not have a match in the birth event data set which could be due to an incorrect social security number, name or birthdate. Finally, 2 clients did not give permission to access their birth event data. This left a follow-up sample of 136 women who gave birth between January 2013 and January 2014, and completed a postnatal follow-up assessment between August 2013 and August 2014²² (an average of 6.4 months after giving birth).

²² Because the client needed to have their baby and have a six month postnatal follow-up, prenatal intakes for the postnatal follow-up sample fell between January 2013 and November 2013.

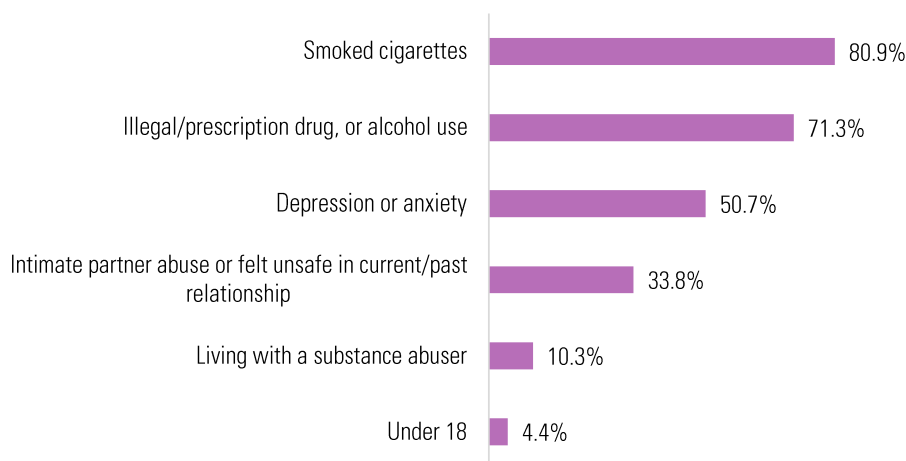
SECTION 2: DESCRIPTION OF KIDS NOW PLUS CASE MANAGEMENT PROGRAM CLIENTS WHO WERE INCLUDED IN THE POSTNATAL FOLLOW-UP ANALYSIS

Section 2 describes the KIDS NOW Plus client characteristics for the 136 clients who completed a six month postnatal follow-up assessment between August 2013 and August 2014 and met the criteria to be included in the analysis for this report. Characteristics examined include race, metropolitan/non-metropolitan status, marital status, socioeconomic status (i.e., education, employment, public assistance and socioeconomic hardships), living situation, and physical health.

RISK STATUS

Figure 2.1 shows that of the 136 clients who completed a six month postnatal follow-up assessment and met criteria to be included in this report, 97.1% (n = 132 clients), fit into at least one of the major risk factor categories assessed in the intake interview.²³ Overall, 80.9% of clients reported cigarette use, 71.3% reported drug or alcohol use at intake, 50.7% reported depression or anxiety, 33.8% reported intimate partner abuse and/or feeling unsafe in either their current relationship or because of a partner from a previous relationship, 10.3% of clients reported currently living with someone who has drug or alcohol problems, and 4.4% were under the age of 18.

FIGURE 2.1. PERCENTAGE OF CLIENTS FALLING INTO AT LEAST ONE TARGETED RISK FACTORS ASSESSED (N = 136)



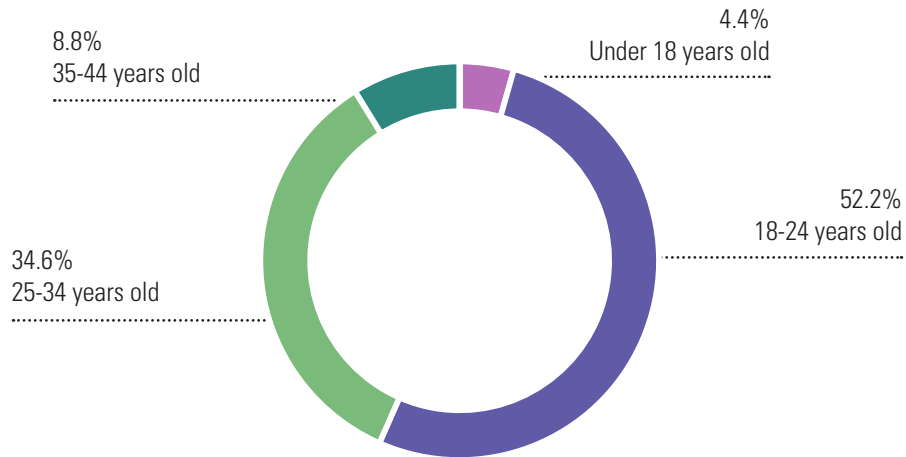
CLIENT CHARACTERISTICS

AGE

At intake, the average age of clients who were included in the 6-month postnatal follow-up sample was about 25 years old. Most clients were between the ages of 18 and 24 (52.2%) or between 25 and 34 years old (34.6%). A little over 4% of clients were under the age of 18 and 8.8% were between 35 and 44 years old (see Figure 2.2).

²³ Calculation includes 6 months before pregnancy, 30 days before pregnancy and past 30 days at prenatal intake.

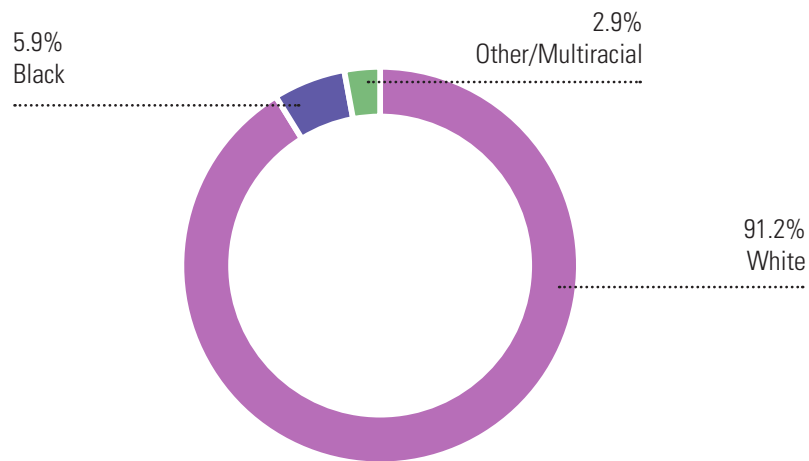
FIGURE 2.2. AGE CATEGORIES (N = 136)



RACE

The vast majority of the follow-up sample was White (91.2%), with a minority 5.9% reporting Black as their race (see Figure 2.3).

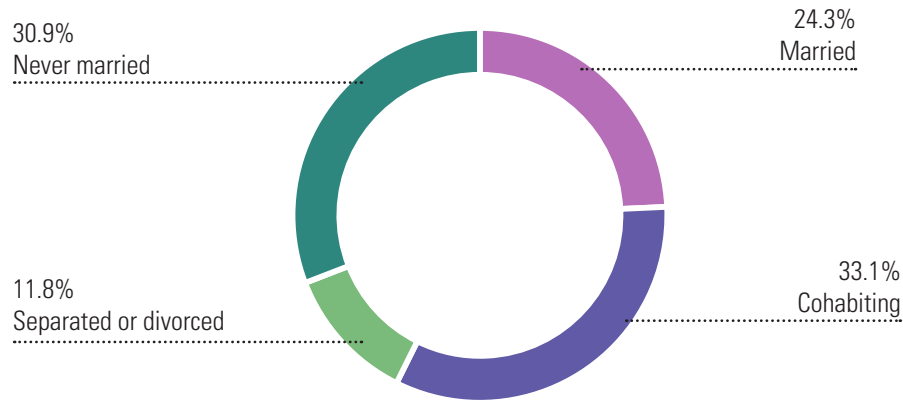
FIGURE 2.3. RACIAL MAKE-UP OF CLIENTS (N = 136)



MARITAL STATUS

Over half of clients were either married (24.3%) or cohabiting (33.1%). Of these clients (n = 78), 89.7% reported their partner was the father of the baby with whom they were pregnant. Less than one-third of clients (30.9%) were never married and 11.8% were either divorced or separated (see Figure 2.4).

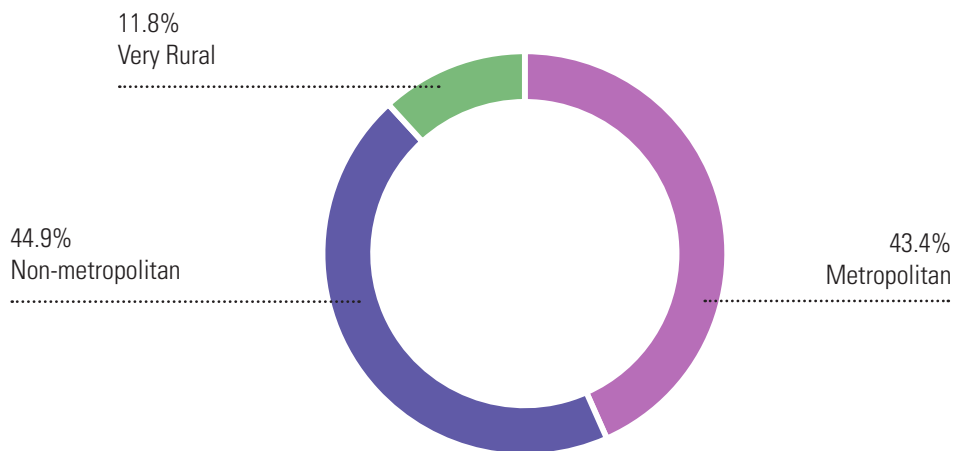
FIGURE 2.4. MARITAL STATUS AT PRENATAL INTAKE (N = 136)



METROPOLITAN/NON-METROPOLITAN STATUS

Rural-Urban Continuum Codes (or Beale codes) for the county in which the mother lived when she gave birth are obtained from the U.S. Department of Agriculture.²⁴ Counties are classified based upon population, socioeconomic indicators, commuting flow and adjacency to a metro area as derived from the U.S. Census Bureau. Figure 2.5 shows similar proportions of women were from metropolitan (43.4%) and non-metropolitan areas (44.9%) while 11.8% were from very rural areas.

FIGURE 2.5. TYPE OF COMMUNITY CLIENTS LIVED IN (N = 136)



Note: Metropolitan/non-metropolitan status was based upon Beale codes assigned to the county in which the mother reported residing in the birth event data set

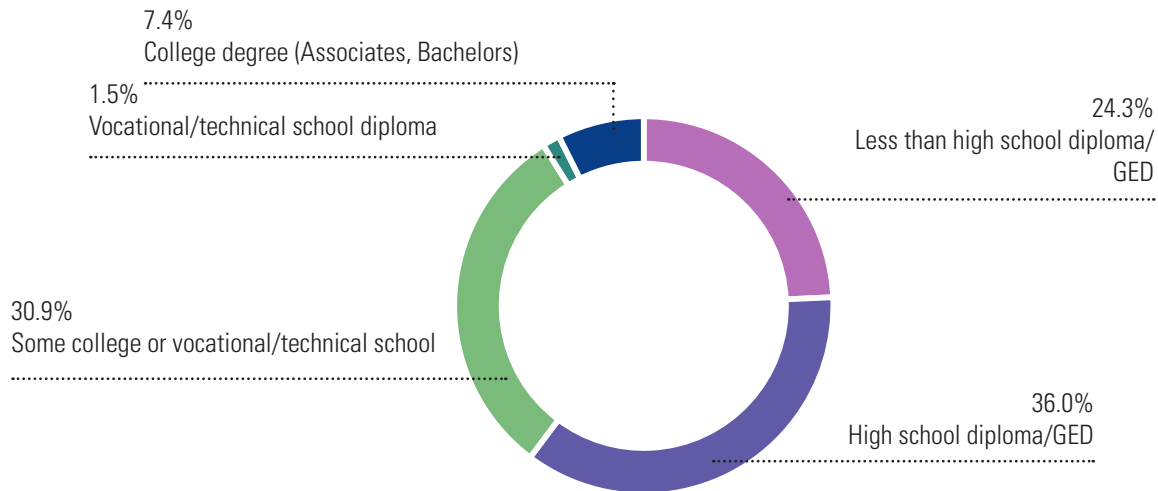
SOCIOECONOMIC STATUS INDICATORS

EDUCATION

Figure 2.6 shows that less than one-quarter (24.3%) of clients had less than a high school education or GED and another 36.0% had a high school diploma or GED. About 3 in 10 clients had some college or vocational/technical school.

²⁴ Rural-Urban Continuum Codes used to classify counties are obtained from the USDA found at <http://www.ers.usda.gov/data-products/rural-urban-continuum-codes.aspx#.UxoE4YWwV8H>.

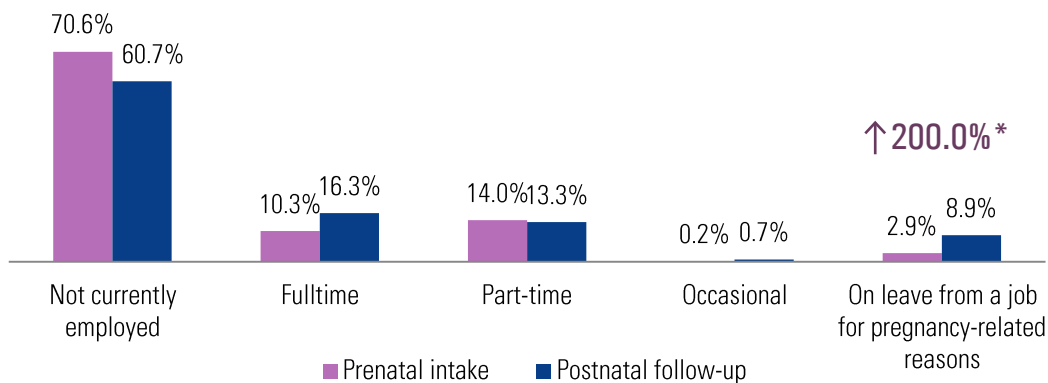
FIGURE 2.6. LEVEL OF EDUCATION OF POSTNATAL FOLLOW-UP SAMPLE (N = 136)



EMPLOYMENT STATUS

The number of clients reporting their current employment status did not change significantly from prenatal intake to postnatal follow-up. At prenatal intake, 70.6% of clients reported being unemployed and at postnatal follow-up, this percentage decreased to 60.7% (see Figure 2.7). In addition, the percentage of women who reported being employed (full-time or part-time) increased from 10.3% at prenatal intake to 16.3% at postnatal follow-up. There was a significant increase in the number of clients reporting they were on leave from their job for pregnancy-related reasons.

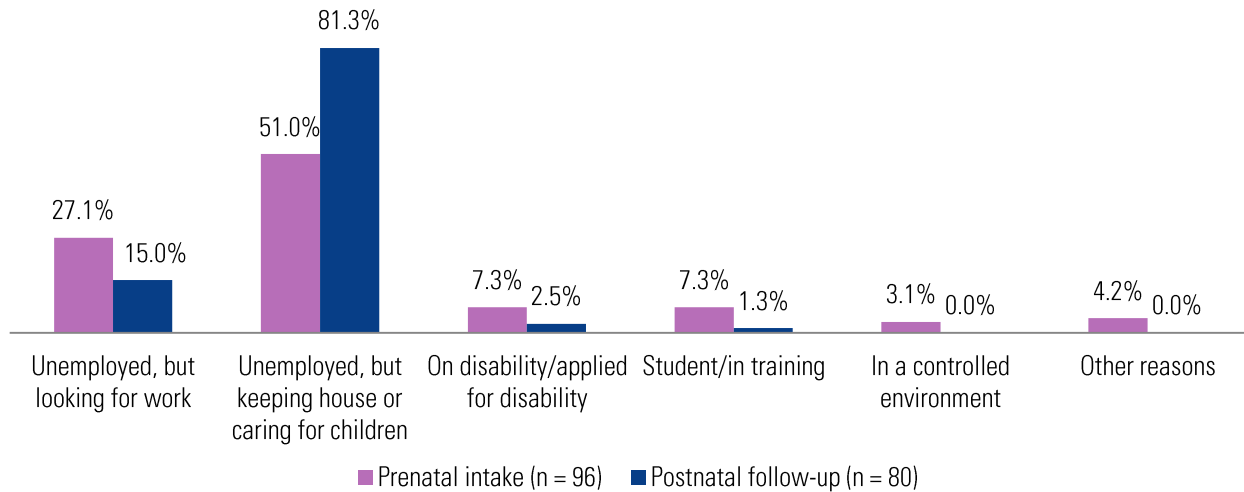
FIGURE 2.7. CURRENT EMPLOYMENT STATUS AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)^a



a—Question skipped for one client at follow-up.

Of the clients who were employed full-time, the average hourly wage clients reported increased only slightly from \$7.85 at prenatal intake to \$8.54 at postnatal follow-up.

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 intake. In addition, 81.3% reported they were keeping house or caring for children full-time compared to 51.0% of clients at prenatal intake.

FIGURE 2.8. REASON FOR UNEMPLOYMENT AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP^a

a—Question skipped for 3 clients at follow-up.

Over 77% of clients at prenatal intake and 80.0% of clients at postnatal follow-up expected to be employed in the next 12 months.

PUBLIC ASSISTANCE AND MEDICAL INSURANCE

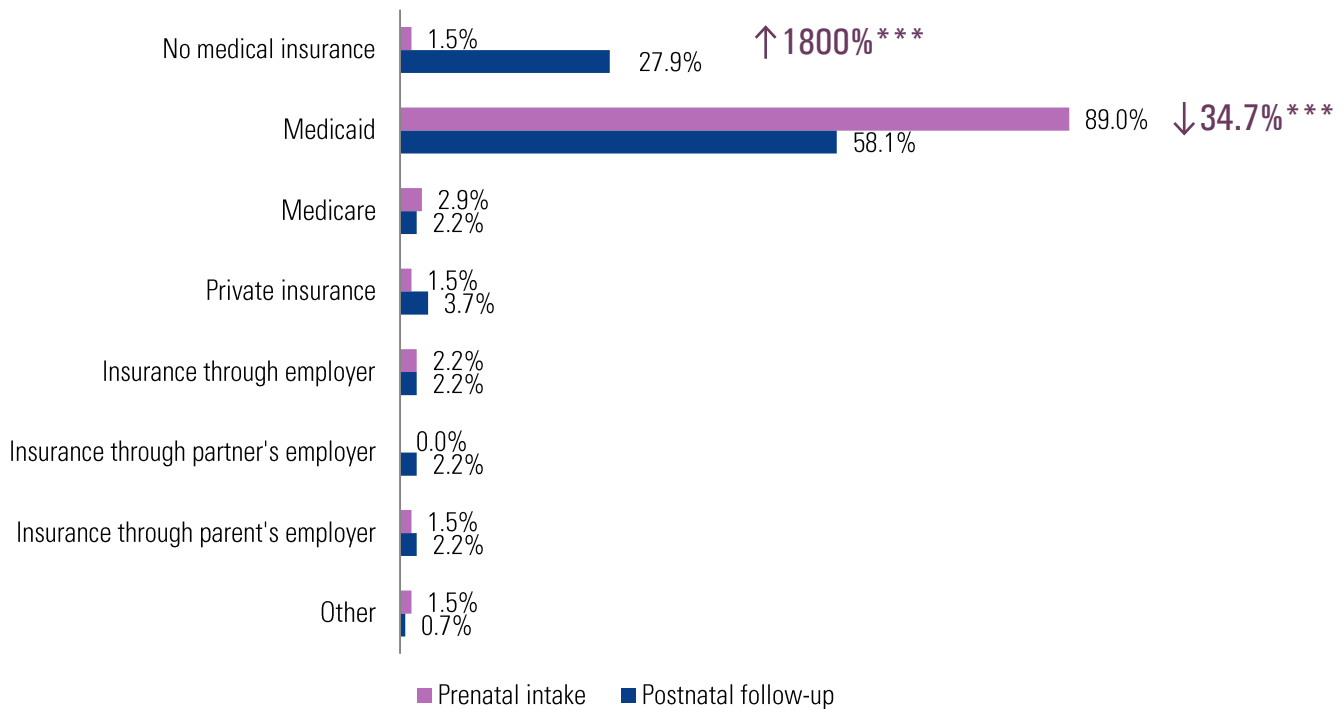
Clients were asked at postnatal follow-up what type of public assistance they received during their pregnancy and what type of medical insurance they had.

The vast majority of clients (97.1%) reported receiving public assistance while they were pregnant and involved in KIDS NOW Plus and 89.0% 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) (78.3% during pregnancy and 79.2% at postnatal).

At prenatal intake, only 1.5% of clients reported having no medical insurance compared to 27.9% at postnatal follow-up (a significant increase of 1800.0%; see Figure 2.9). In addition, 89.0% of clients reported having Medicaid, but at postnatal follow-up, 58.1% of clients reported having Medicaid (a 34.7% significant decrease).



FIGURE 2.9. REPORTED MEDICAL INSURANCE AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)^a

***p <.001

a—Question skipped for one client at follow-up.

DIFFICULTY MEETING BASIC LIVING AND HEALTH CARE NEEDS

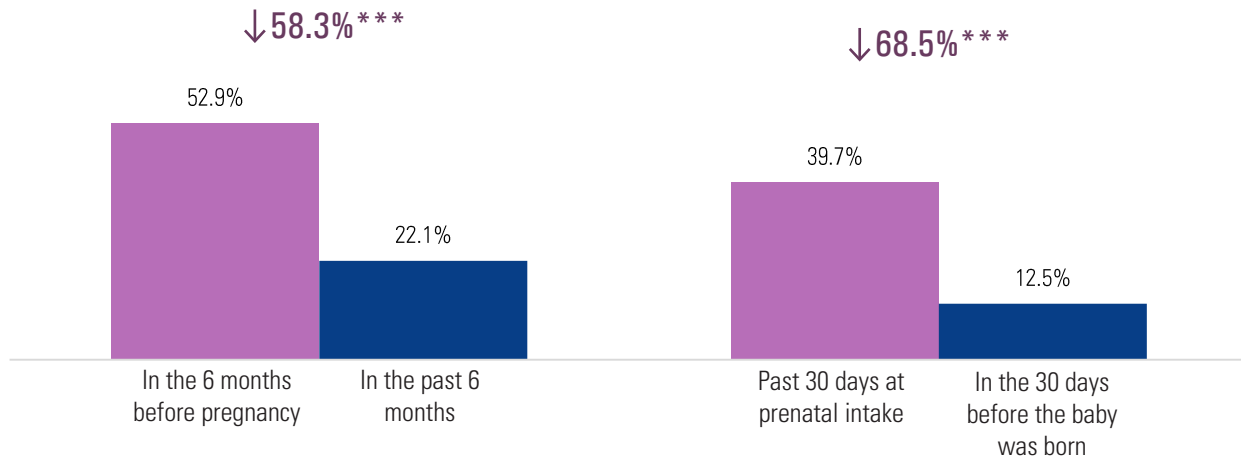
Economic hardship may be a better indicator of the actual day-to-day stressors clients face than a measure of income. Therefore, the prenatal intake and postnatal follow-up surveys included several questions about clients' ability to meet expenses for basic needs and food insecurity.²⁵ Clients were asked eight items, five of which asked about inability to meet basic living needs such as food, shelter, utilities, and telephone, and three items asked about inability to receive medical care for financial reasons. Overall, fewer clients report difficulty meeting any of their basic needs while they were involved in the KIDS NOW Plus case management program and after the birth of the baby.

In general, the number of clients who reported having difficulty meeting basic needs such as food, shelter, telephone, and utilities decreased significantly from prenatal intake to postnatal follow-up (see Figure 2.10). In the 6 months before becoming pregnant, a little more than half (52.9%) of clients reported they were unable to meet at least one of the basic living needs for financial reasons and 22.1% of clients reported difficulty meeting basic needs in the past 6 months at postnatal follow-up (a significant decrease of 58.3%).

Almost 40% of clients reported having difficulty in the past 30 days at prenatal intake. In the 30 days before the baby was born, 12.5% of clients had difficulty meeting basic needs such as food, shelter or utilities (a significant decrease of 68.5% compared to the past 30 days at intake).

²⁵ (SIPP; She, P., & Livermore, G. (2007). Material hardship, poverty, and disability among working-age adults. *Social Science Quarterly*, 88(4), 970-989.

FIGURE 2.10. DIFFICULTY IN MEETING BASIC NEEDS FOR FINANCIAL REASONS AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)^a



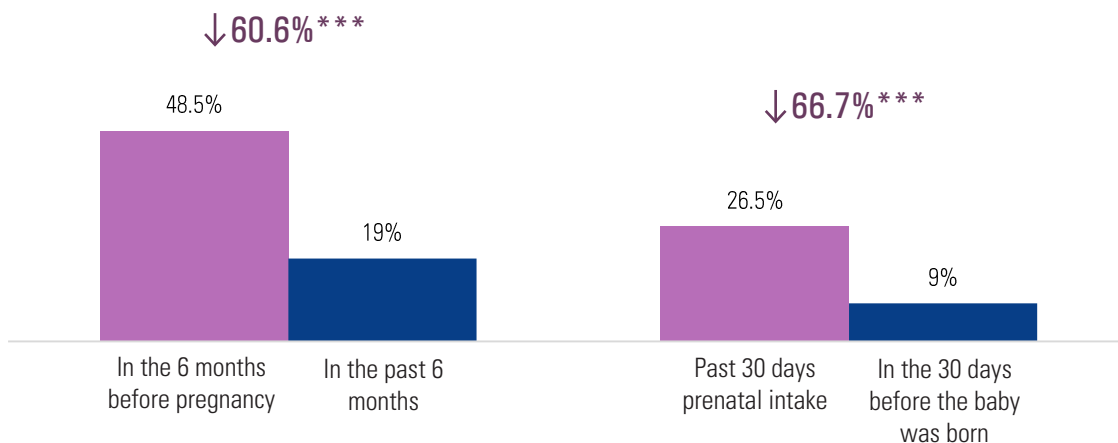
*** p < .001
 Significance tested with z-test for proportions
 a—Question skipped for one client at follow-up.

Similarly, 48.5% of clients reported their household had difficulty meeting health care needs (such as not going to the doctor, not having a prescription filled, or not going to the dentist because of financial reasons) in the 6 months before pregnancy (see Figure 2.11). Less than 20% of clients reported they had difficulty meeting health care needs in the past 6 months at follow-up (a 60.6% significant decrease compared to the 6 months before the client was pregnant).

In the past 30 days at prenatal intake, 26.5% of clients reported their household had difficulty meeting health care needs because of financial reasons (see Figure 2.11). In the 30 days before the baby was born, 8.8% of clients reported difficulty which is a 66.7% significant decrease compared to the past 30 days at prenatal intake.

FEWER CLIENTS REPORTED DIFFICULTY MEETING ANY BASIC OR HEALTH CARE NEEDS WHILE PREGNANT AND INVOLVED IN THE KIDS NOW PLUS PROGRAM

FIGURE 2.11. DIFFICULTY IN MEETING HEALTH CARE NEEDS FOR FINANCIAL REASONS AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)^a



*** p < .01
 Significance tested with z-test for proportions
 a—Question skipped for two clients at follow-up.

LIVING SITUATION

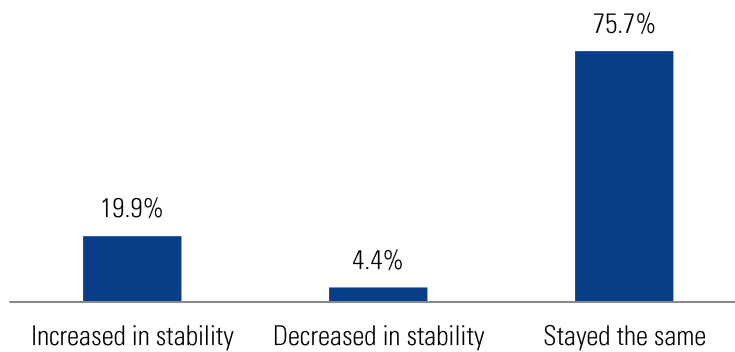
Overall, the number of clients reporting being homeless decreased, but not significantly, from 8.1% at prenatal intake, to 5.9% while pregnant and in KIDS NOW Plus, to 2.2% of clients at follow-up.

There were no significant changes in the type of situation clients reported living with the majority of clients (well over 90% at each point) living in a private residence (i.e., their own or someone else's home or apartment) before the birth of their baby and after.

At follow-up clients were asked about the stability of their living situation during their pregnancy while in KIDS NOW Plus case management services (see Figure 2.12). Overall, less than one-quarter of clients (19.9%) felt they experienced increased stability in their living situation, 75.7% indicated their living situation stayed the same, and only 4.4% of clients reported they experienced a decrease in stability.



FIGURE 2.12. LIVING SITUATION STABILITY WHILE PREGNANT AND IN KIDS NOW PLUS PROGRAM (N = 136)



SUMMARY

Clients who completed a prenatal intake between January 2013 and June 2014, gave birth to their baby and completed a six month postnatal follow-up assessment were included in this outcome report. Based upon these criteria, 136 pregnant women at high risk for substance use completed a prenatal intake and a six month postnatal follow-up assessment between August 2013 and August 2014. These clients were mostly White with an average age of about 25 years old. About one-quarter of clients were married and less than one-third were never married.

While the percentage of clients who reported employment did not increase at postnatal follow-up, the majority were caring for their children at home and the majority of clients were able to receive public assistance (mainly SNAP) while pregnant and in KIDS NOW Plus and after the birth of the baby. The number of clients who reported not having any medical insurance increased at postnatal follow-up with over one-quarter reporting no medical insurance. The number of clients who reported having difficulty meeting basic needs or health care needs decreased while pregnant and involved in KIDS NOW plus, but increased slightly at postnatal follow-up. About 2 in 10 clients also reported the stability of their living situation increased while they were pregnant and in the case management program while the majority of client reported their living situation stayed the same.

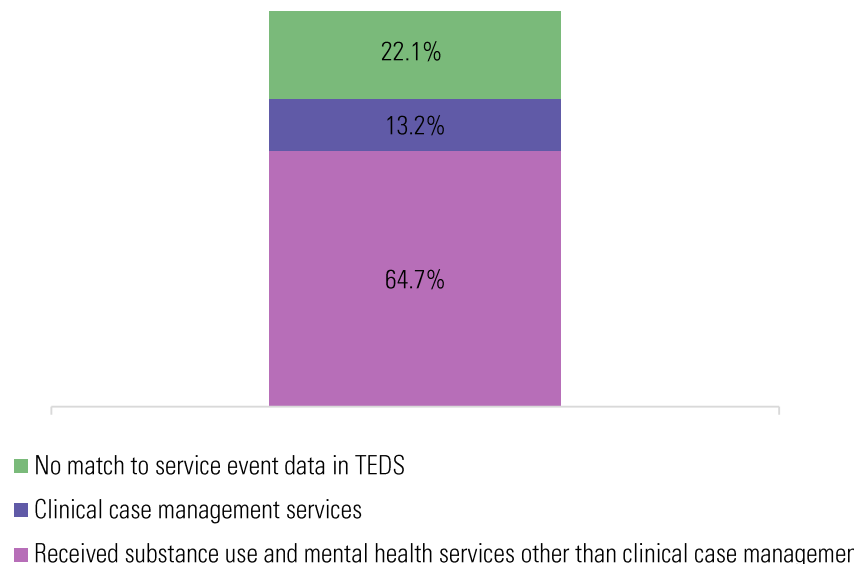
SECTION 3: CLINICAL SERVICES

This section examines case management services received by KIDS NOW Plus clients while in the program as well as mental health diagnosis. In addition, it compares services received by KIDS NOW Plus clients to those received by women with similar socioeconomic characteristics who gave birth during the same time period but who were not part of the program.

Information on clinical service events for KIDS NOW Plus clients receiving case management at community mental health centers (CMHCs) is submitted into the Treatment Event Dataset (TEDS) and is managed by the University of Kentucky Institute for Pharmaceutical Outcomes and Policy (IPOP). Clinical services include outpatient counseling, residential treatment and other services as reported monthly by the CMHCs to the Department of Behavioral Health, Development and Intellectual Disabilities as service event data in TEDS. Service events were matched to clients in the KIDS NOW Plus postnatal follow-up sample using encrypted social security numbers. In order to collect service events during the time the client was active in KIDS NOW Plus, service events were requested for the date the client was admitted to the KIDS NOW Plus case management program to two months after the date the baby was born. The timeframe varied for each client (average days 187; Minimum = 91, Maximum = 303 days) but could range from November 2012 (the earliest date which a client in the follow-up sample entered the program) to March 2014 (two months after the latest date a baby in the follow-up sample was born).

Out of the 136 KIDS NOW Plus clients in the postnatal follow-up sample, 22.1% were not found in the clinical services database. There are many reasons that an individual may not be found in the database including mistakes in identifying information, classification errors, and potentially no clinical services were rendered during this time period.²⁶ Further, as Figure 3.1 shows, 88 (64.7%) received clinical services other than clinical case management services during the timeframe analyzed.

FIGURE 3.1. PERCENTAGE OF CLIENTS IN EACH SERVICE CATEGORY BETWEEN DATE THE CLIENT ENTERED THE KIDS NOW PLUS CASE MANAGEMENT PROGRAM AND TWO MONTHS AFTER THE DATE THE BABY WAS BORN (N = 136)

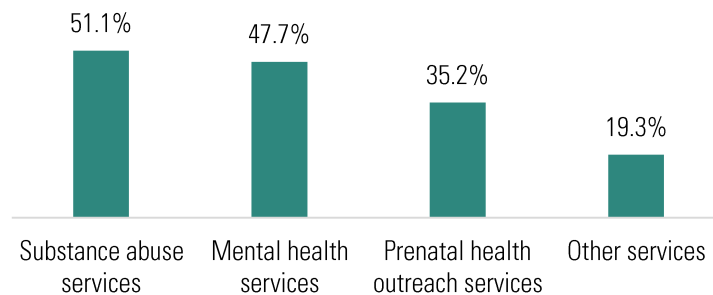


According to the clinical services database, among clients receiving clinical services other than clinical case management (n = 88), 51.1% of these clients received substance abuse treatment services including DUI assessment,

²⁶ Across all of the outcome studies at UK CDAR conducted on publicly funded treatment programs there is a similar proportion of individuals that are not found in the clinical services database.

individual substance abuse therapy, day hospital programs, residential substance abuse treatment, family residential, and intensive outpatient (see Figure 3.2). In addition, 47.7% of these clients received mental health treatment services such as individual mental health therapy, group therapy, and psychosocial and other assessment/evaluation services, and residential crisis stabilization. Also, 35.2% of these clients received prenatal health outreach services and 19.3% of these clients received other services such as medical evaluations, respite care, and outreach and education.

FIGURE 3.2. OF THOSE WHO RECEIVED CLINICAL SERVICES OTHER THAN CASE MANAGEMENT (N = 88), PERCENTAGE OF CLIENTS RECEIVING SUBSTANCE ABUSE TREATMENT SERVICES AND OTHER SERVICES



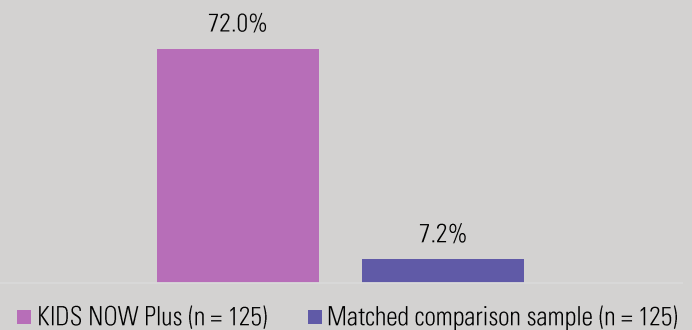
Among the clients who received clinical services other than case management (n = 88), clients received an average of 32.7 services (Min. = 2, Max. = 489 services).

KIDS NOW PLUS SERVICES COMPARED TO SERVICES FOR OTHER MOTHERS FROM THE BIRTH OF THE CHILD TO ONE YEAR PRIOR

In order to evaluate if pregnant women in KIDS NOW Plus receive more services than pregnant women who are not in the program, service utilization for KIDS NOW Plus clients was compared with other mothers who are not part of the program (see Figure 3.3). KIDS NOW Plus clients were matched to other mothers in the Kentucky Vital Statistic birth event data set who gave birth during the same period, resided in the regions served by KIDS NOW Plus, and had similar socioeconomic characteristics.^{27, 28, 29} If there were KIDS NOW Plus clients that did not have a match in 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. Therefore, out of the 136 KIDS NOW Plus clients who were included in the follow-up sample, a matched comparison sample was generated for 125 clients. Because the comparison sample was not in KIDS NOW Plus and, therefore, did not have a program start date, services were requested for KIDS NOW Plus clients and the comparison group during the

time between the birth of the child and one year prior. Out of the 125 clients in the KIDS NOW Plus sample and the 125³⁰ matched comparison sample, significantly more KIDS NOW Plus clients (72.0%) received clinical services other than case management than the matched comparison sample (7.2%) one year prior to the birth of the child.³¹ More information about the matched comparison sample and other comparisons with KIDS NOW Plus clients can be found in Appendix D.

FIGURE 3.3. PERCENTAGE OF MOTHERS WHO RECEIVED CLINICAL SERVICES OTHER THAN CASE MANAGEMENT DURING THE TIME BETWEEN THE BIRTH OF THE CHILD AND ONE YEAR PRIOR***



***p < .001

²⁷ KIDS NOW Plus regions include Lifeskills, Communicare, Seven Counties, NorthKey, Pathways, Kentucky River, Cumberland River, and Adanta.

²⁸ Clients were matched on age, race, education, marital status, smoking status and metropolitan/non-metropolitan status.

²⁹ More detailed information about the study method can be found in Appendix B.

³⁰ Ten cases in the comparison group had an invalid social security number and therefore, could not be matched to services.

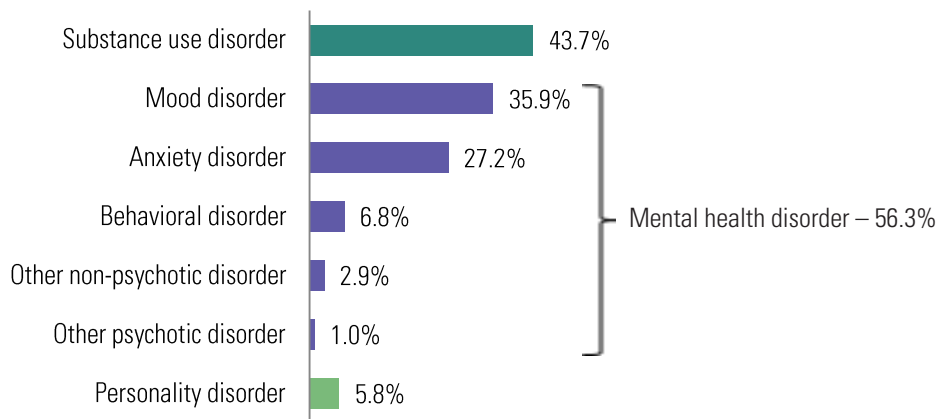
³¹ 12 additional KIDS NOW Plus clients received only additional case management services (substance abuse or mental health) but were not included in this analysis.

DSM-IV DIAGNOSIS

Using mental health diagnosis codes reported by Community Mental Health Center (CMHC) providers to the Department for Behavioral Health, Developmental and Intellectual Disabilities, DSM-IV diagnoses were obtained for KIDS NOW Plus case management services clients between the date the client was admitted to the KIDS NOW Plus case management program and two months after the date the baby was born. Out of 136 clients who were included in the postnatal follow-up sample, 75.7% had a mental health diagnosis (n = 103).

Figure 3.4 shows of those clients who received a DSM-IV mental health diagnosis, 43.7% of clients were diagnosed with a substance use disorder and 56.3% were diagnosed with a mental health disorder. Specifically, 35.9% were diagnosed with mood disorder (depression or non-psychotic bipolar disorder), 27.2% were diagnosed with anxiety disorder (generalized anxiety, panic disorder, or obsessive-compulsive disorder), and 6.8% were diagnosed with a behavioral disorder (such as attention-deficit/hyperactivity disorder). In addition, 5.8% were diagnosed with a personality disorder (such as antisocial, narcissistic, borderline). These diagnoses are not mutually exclusive, thus a person could have multiple DSM-IV diagnoses.³²

FIGURE 3.4. DSM-IV DIAGNOSES FOR CLIENTS WITH MENTAL HEALTH DIAGNOSIS (N = 103)



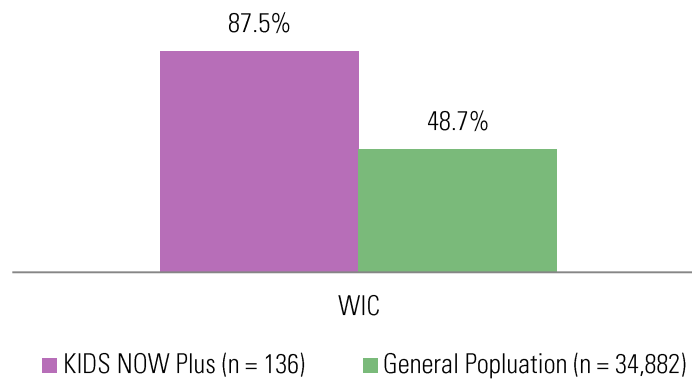
WIC

Besides the additional clinical services received from KIDS NOW Plus case management, caseworkers make an effort to connect women with support services like the Women, Infants and Children (WIC) program. 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. In fact, according to the vital statistics data, 87.5% of KIDS NOW Plus clients received support from WIC compared to 48.7% of mothers who were not in KIDS NOW Plus³³ which may suggest lower incomes and/or greater effort by KIDS NOW Plus caseworkers to connect women with this service (see Figure 3.5).

³² Clients who receive a diagnosis do not necessarily receive clinical services. Eighteen clients received a DSM-IV mental health diagnosis, but did not receive clinical services and 3 clients received services, but did not receive a DSM-IV mental health diagnosis.

³³ For more comparisons between the KIDS NOW Plus clients and mothers in the general population, see birth events and outcomes in section 5.

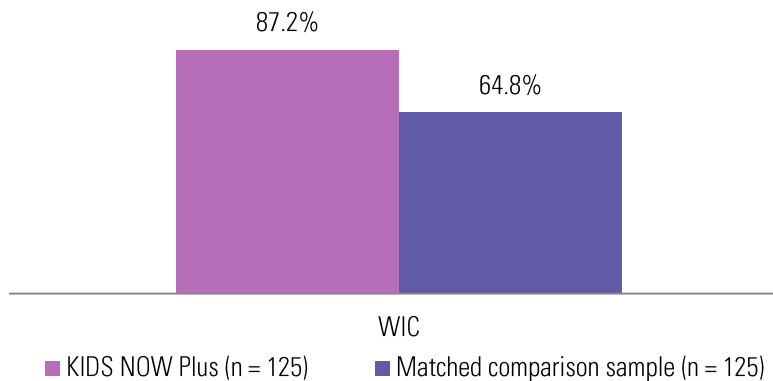
FIGURE 3.5. PERCENTAGE OF WOMEN ENROLLED IN WIC PROGRAM COMPARED TO THE GENERAL POPULATION OF MOTHERS IN KIDS NOW PLUS REGIONS^{a***}



a – Information on WIC was unknown for 11 mothers in the general population
 Significance tested with Chi-square test; *** p < .01

When the KIDS NOW Plus mothers were compared to the matched comparison sample of women who gave birth during the same timeframe,³⁴ a significantly greater percentage of KIDS NOW Plus case management clients were enrolled in WIC at the time of the birth (87.4%) compared to the matched comparison group (65.4%; see Figure 3.6).

FIGURE 3.6. PERCENTAGE OF WOMEN ENROLLED IN WIC PROGRAM AMONG KIDS NOW PLUS CLIENTS AND A MATCHED COMPARISON SAMPLE^{***}



SUMMARY

Almost two-thirds of clients who participated in case management services and completed a postnatal follow-up assessment received clinical services other than case management. Of those clients who received clinical services other than clinical case management, 51.1% received substance abuse services such as individual therapy, and day hospital programs, residential substance abuse treatment, family residential, and intensive outpatient. Almost half (48%) of clients received mental health services such as individual mental health therapy, group therapy, and psychosocial and other assessment/evaluation services. In addition, 32.5% of clients received prenatal health outreach services. Compared to mothers of similar socioeconomic status who also gave birth during the same timeframe but were not part of the KIDS NOW Plus program, KIDS NOW Plus clients were significantly more likely to receive services in the year prior to the birth of their child. Additionally, KIDS NOW Plus mothers were more likely to receive support services such as WIC.

³⁴ More detailed information about service methods can be found in Appendix B, and other comparisons with the matched sample can be found in Appendix D.

SECTION 4: PREGNANCY STATUS

This section describes the clients' pregnancy status at prenatal intake as well general feelings and attitudes towards their pregnancies including: (1) expectations and feelings about the baby; (2) general information regarding the pregnancy/baby; and (3) planned method of birth control. Comparisons are made from prenatal intake to postnatal follow-up where applicable.

PREGNANCY STATUS

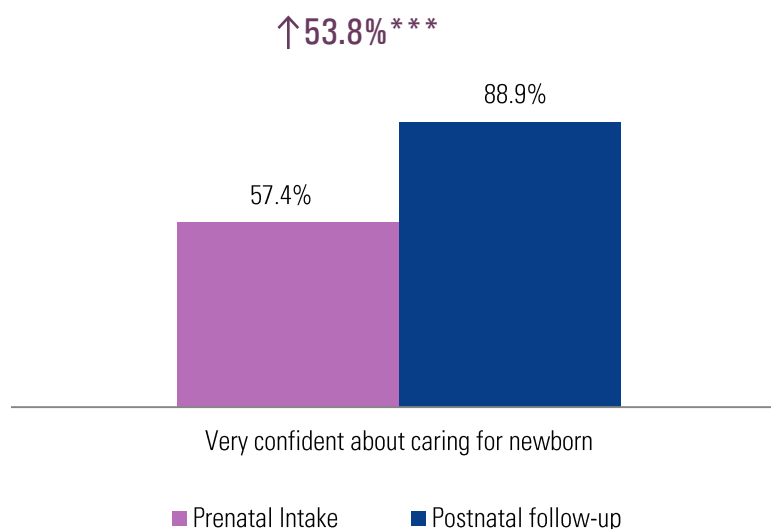
When clients completed a prenatal intake they were an average of 23.7 weeks pregnant (Min. = 7 weeks, Max. = 41 weeks) and were in the program an average of 18 weeks (Min. = 4 weeks, Max. = 35 weeks). After the baby was born, clients reported remaining in KIDS NOW Plus case management an average of 7.8 weeks (Min. = 0 weeks, Max. = 28 weeks).

EXPECTATIONS AND FEELINGS ABOUT THE BABY

At prenatal intake and postnatal follow-up, clients were asked, on a scale of 1 being 'not confident at all' to 5 being 'very confident about it', how confident they were in taking care of a newborn baby (see Figure 4.1). At prenatal intake, 57.4% of clients reported they felt very confident (an average score of 4.3) and at postnatal follow-up, 88.9% felt confident (an average score of 4.9), which is a 53.8% increase in the number of clients reporting they felt very confident in taking care of a newborn.



FIGURE 4.1. LEVEL OF CONFIDENCE WITH TAKING CARE OF NEWBORN BABY AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)^a

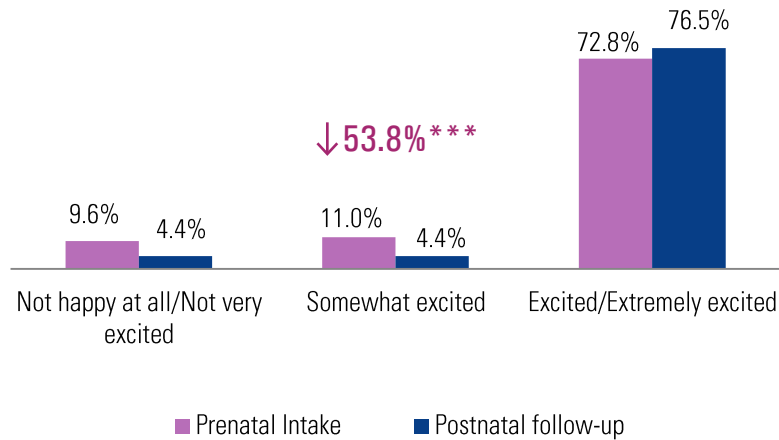


***p < .001.

a—Question skipped for one client at follow-up

The majority of clients reported the baby’s father was excited or extremely excited about the pregnancy at prenatal intake (72.8%) as well as at postnatal follow-up (76.5%).

FIGURE 4.2. FATHER’S FEELINGS ABOUT THE PREGNANCY AT PRENATAL INTAKE AND THE BABY AT POSTNATAL FOLLOW-UP (N = 136)^a

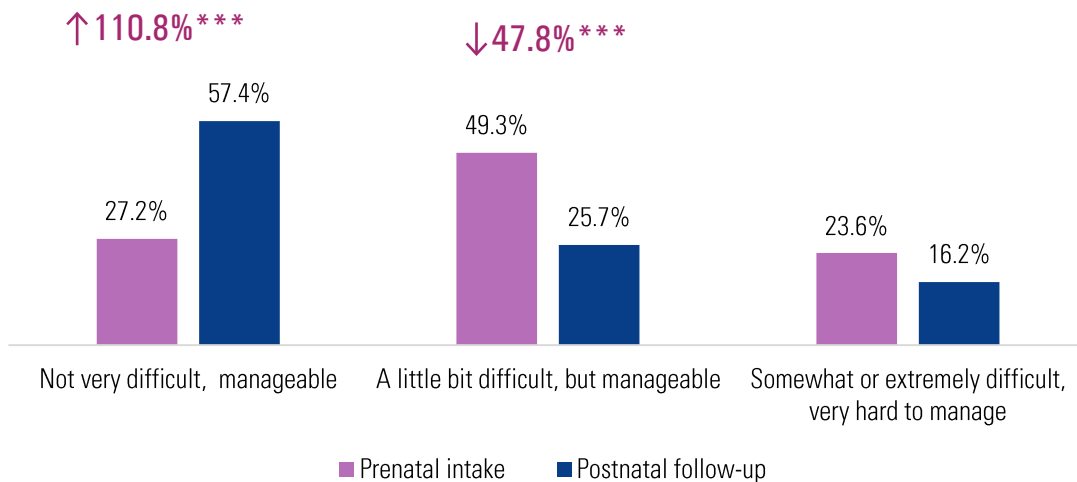


* p < .05.

a—9 clients at prenatal intake and 1 client at postnatal follow-up reported that the father of the pregnancy/baby did not know about the child and 18 clients reported at follow-up that they didn’t know what the father thought about the baby.

Perceptions about how difficult life would be/is with the baby also changed from prenatal intake to postnatal follow-up (see Figure 4.3). In general, at prenatal intake, clients felt life with a new baby would be more difficult: 23.6% reporting things would be somewhat difficult to extremely difficult and almost half of clients feeling that life would be a little bit difficult, but manageable. At postnatal follow-up, over half of clients (57.4%) reported that life with the baby was not very difficult and very/fairly manageable (a significant increase of 110.8% compared to prenatal intake).

FIGURE 4.3. CLIENT PERCEPTIONS OF LIFE WITH THE BABY AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)^a



*** p < .001

Significance tested with z-test for proportions

a—Question skipped for one client at follow-up

GENERAL INFORMATION REGARDING THE PREGNANCY/BABY

Clients reported they were in labor an average of 11 hours with the majority of clients reporting between a half an hour and 14 hours.

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 intake, clients reported an average of 6.5 doctor visits about the pregnancy and at postnatal follow-up clients reported an average of 7.1 visits to the pediatrician or nurse since giving birth. About one-quarter of clients (24.4%) indicated they had been told by a doctor at prenatal intake that their baby had special health care needs and at postnatal follow-up, 20.6% (28 clients) reported their doctor has told them their baby has special health care needs. More specifically, 22 clients reported their babies had minor health care needs such as allergies, acid reflux, or a heart murmur. However, 16 mothers³⁵ (or 11.8%) reported various and potentially serious problems such as developmental issues, bilateral cleft foot and blindness in one eye. In comparison, for all babies born in the United States, approximately 3.0% of babies are born with a birth defect (such as cleft palate, spina bifida, or neural tube defects)³⁶ and about 1.0% of babies will be born with a congenital heart defect.³⁷ In addition, 20% of children in the United States and 26% of children in Kentucky are considered to have special health care needs as defined by the federal Maternal and Child Health Bureau’s definition.³⁸



Almost half of clients (49.3%) reported at prenatal intake that they planned on breastfeeding their baby. At postnatal follow-up, 44.1% of clients reported having breastfed their baby and, of those clients (n = 60), 18.3% were still breastfeeding.

PLANNED METHOD OF BIRTH CONTROL

At prenatal intake, clients were asked what method of birth control they planned on using and at postnatal follow-up were asked what birth control they actually had been using in the past 6 months (see Figure 5.4). At prenatal intake, a little over one-quarter of clients reported they were planning on getting a tubal ligation while at postnatal follow-up, 8.8% reported tubal ligation was the birth control they used in the past 6 months. About 13% of clients at prenatal intake reported they planned on using the patch (Ortho Evra), shot (Depo-Provera) or implant (Implanon, Nexplanon). At postnatal, however, 29.3% reported they had been using the patch, shot or implant in the past 6 months. In addition, at prenatal intake, only 8.8% of clients were not planning on using any type of form of birth control; however, at postnatal follow-up, 33.1% of client reported they were not using any form of birth control in the past 6 months.³⁹

³⁵ Mothers could report more than one special health care need.

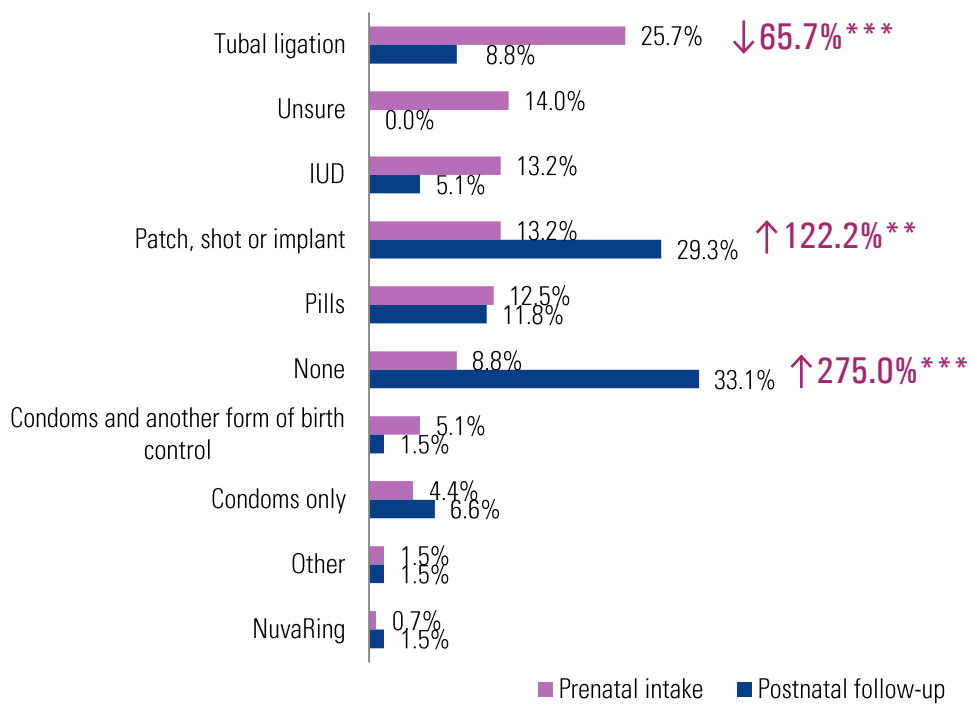
³⁶ Centers for Disease Control and Prevention. Update on Overall Prevalence of Major Birth Defects --- Atlanta, Georgia, 1978--2005]. *MMWR* 2008; 62(57):1-5.

³⁷ <http://www.marchofdimes.com/baby/congenital-heart-defects.aspx#>

³⁸ KIDS COUNT Data Center (2013). Children with special health care needs 2011-2012. Retrieved from <http://datacenter.kidscount.org/data/tables/29-children-with-special-health-care-needs?loc=19&loc=2#detailed/2/19/false/1021,18,19,12/any/298,299> and <http://datacenter.kidscount.org/data/tables/29-children-with-special-health-care-needs?loc=1&loc=1#detailed/1/any/false/1021,18,19,12/any/298,299> on September 8, 2014.

³⁹ Though 57.4% of clients at intake and 61.8% of clients at follow-up were either married or cohabiting, we do not have information on the number of clients who were sexually active at each point; therefore, not all women were necessarily sexually active.

FIGURE 4.4. PLANNED METHOD OF BIRTH CONTROL AT PRENATAL INTAKE COMPARED TO ACTUAL BIRTH CONTROL METHOD AT POSTNATAL FOLLOW-UP (N = 136)



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

SUMMARY

Clients’ perceptions of how life was going to be with the baby increased from prenatal intake to postnatal follow-up as well. Specifically, at prenatal intake, over one-quarter of clients reported having a new baby would not be very difficult and would be manageable. After the birth of the baby, however, 57.4% of clients reported life was manageable and not very difficult with the baby. In fact, all the mothers in the follow-up sample reported their babies were doing “great” or “good” and the majority felt confident about being the mother of an infant.

SECTION 5. BIRTH EVENTS AND OUTCOMES: KIDS NOW PLUS CASE MANAGEMENT CLIENTS COMPARED TO THE GENERAL POPULATION OF MOTHERS WITHIN THE REGIONS SERVED BY KIDS NOW PLUS

This section uses the Kentucky Vital Statistics birth data⁴⁰ to examine (1) general risk factors; (2) targeted risk factors available from the Vital Statistics data set; and (3) birth events and outcomes of 136 KIDS NOW Plus case management clients and their babies compared to others in the state who had babies during the same period (between January 2013 and January 2014) but who did not participate in the KIDS NOW Plus Case Management study (n = 34,888).^{41,42}

One KIDS NOW Plus client and 652 mothers from the general population had more than one baby in the data set. This means there were 137 babies in the KIDS NOW Plus sample and 35,550 babies in the general population sample.⁴³ The information in this section is limited to data in the Kentucky Vital Statistics data set. This section describes demographic information (age, race, and area), 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 5.1 shows the demographic differences between KIDS NOW Plus mothers and mothers from the general population in regions served by KIDS NOW Plus at the time of the birth of the baby.

Compared to the general population of women who gave birth, KIDS NOW Plus clients were younger, more likely to be White, and were less likely to live in metropolitan communities.

In addition, significantly more mothers in the general population were married (56.4%) compared to the KIDS NOW Plus mothers (29.4%).

TABLE 5.1. DEMOGRAPHIC INFORMATION OF BIRTH DATA GROUPS

	KIDS NOW Plus (n = 136)	General Population (n = 34,888)
Average age**	25.2	26.7
Race**		
White	92.6%	82.1%
Non-white	7.4%	17.9%
Type of community***		
Metropolitan	43.4%	64.8%
Non-metropolitan	44.9%	25.0%
Very rural	11.8%	10.2%
Married***a	29.4%	56.4%

*** p < .01, ** p < .01.; a—Marital status was missing for 21 women in the general population.

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 Currently 8 CMHC regions provide KIDS NOW Plus case management: LifeSkills, Communicare, Seven Counties, NorthKey, Pathways, Kentucky River, Cumberland River, and Adanta. Out of the 59,813 cases in the Vital Statistics data set that remained after cleaning, 2,338 cases had the mother's residence as out-of-state or not entered and 21,788 cases had the mother's residence in a county outside a CMHC region that provides KIDS NOW Plus. A total of 35,687 cases, therefore, remained in the analysis.

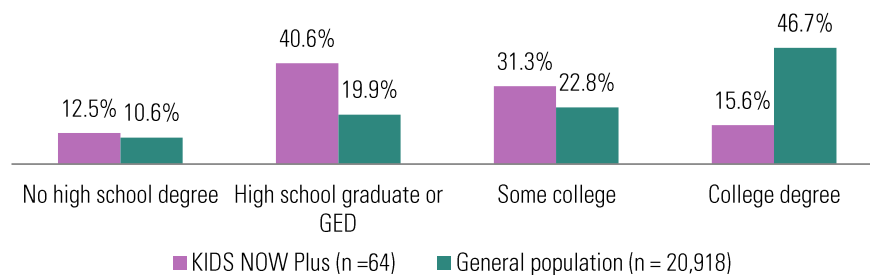
⁴² See Appendix D for further birth data comparisons between KIDS NOW Plus clients and a sample of mothers with matching characteristics.

⁴³ More detailed description of the birth data methods can be found in Appendix B.

SOCIOECONOMIC STATUS INDICATORS

Because the KIDS NOW Plus mothers were younger than the general population it is important to compare education rates only for those who had sufficient time to finish high school or GED. The 2010 census indicates that of Kentucky women ages 25 and older, 81% had high school degrees. When both groups of women ages 25 and older are compared, 87.5% of KIDS NOW Plus mothers and 89.4% of mothers in the general population have at least a high school diploma or GED (see Figure 5.1). Therefore, among women 25 years of age and older, 12.5% of KIDS NOW Plus mothers and 10.6% of mothers in the general population had less than a high school degree. In addition, 46.7% of mothers in the general population, which was significantly older than the KIDS NOW Plus mothers, received a college degree compared to 15.6% of mothers in KIDS NOW Plus.

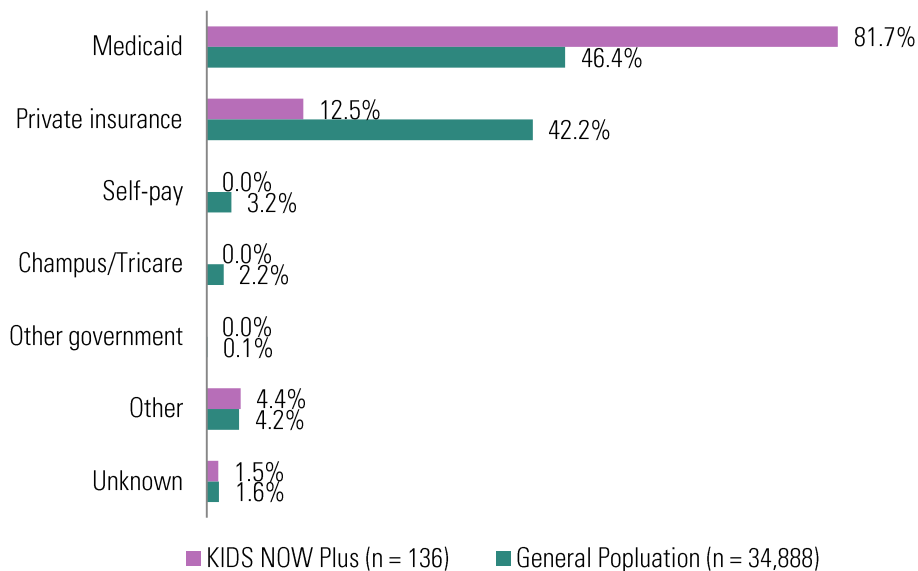
FIGURE 5.1. LEVEL OF EDUCATION ACROSS GROUPS, AMONG WOMEN 25 YEARS OLD OR OLDER***



***p < .001

Figure 5.2 shows that KIDS NOW Plus clients were significantly more likely to have Medicaid as their source of payment for the birth of the baby (81.7%)⁴⁴ whereas the general population was more likely to have private insurance (42.2%) compared to the KIDS NOW Plus clients (12.5%).

FIGURE 5.2. SOURCE OF PAYMENT FOR DELIVERY COSTS ACROSS GROUPS***



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

⁴⁴ Percent of KIDS NOW Plus clients with Medicaid is different from section 2 because this data is from the birth event data set as opposed to self-reported at postnatal follow-up.

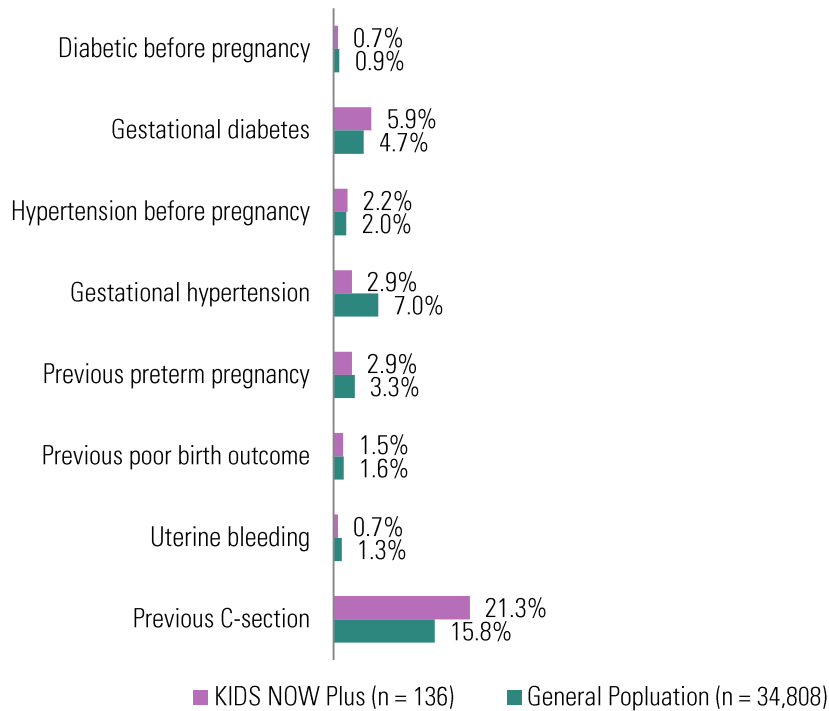
PHYSICAL HEALTH STATUS

General health conditions of pregnancy that could cause harm to the baby or the mother were collected from the state vital statistics data set and shown in Figure 5.3. KIDS NOW Plus mothers were not significantly more or less likely than the general population of mothers in the same regions to experience these maternal health conditions.



KIDS NOW PLUS MOTHERS DID NOT HAVE ANY MORE MATERNAL HEALTH PROBLEMS THAN THE GENERAL POPULATION OF MOTHERS

FIGURE 5.3. OTHER MATERNAL HEALTH FACTORS ACROSS GROUPS^a



a—85 mothers in the general population had missing information on maternal health questions.

KIDS NOW Plus clients were significantly more likely (9.6%) to have sexually transmitted infections such as gonorrhea, syphilis, herpes, or chlamydia compared to the general population (3.9%).⁴⁵ They were also significantly more likely to have hepatitis B or C (7.4%) compared to the general population of mothers (1.3%).

TARGETED RISK FACTORS

SMOKING PATTERNS

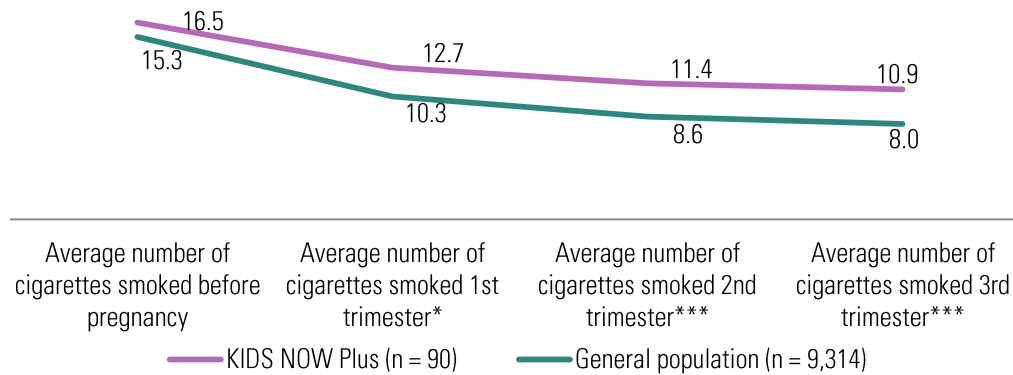
A significantly greater percentage of KIDS NOW Plus mothers (66.9%) were smokers compared to the general population of mothers (26.8%). In addition, among mothers who smoked, KIDS NOW Plus mothers reported smoking more cigarettes in each trimester compared the women in the general population (see Figure 5.4).



KIDS NOW PLUS MOTHERS SMOKED SIGNIFICANTLY MORE CIGARETTES DURING PREGNANCY COMPARED TO WOMEN IN THE GENERAL POPULATION

⁴⁵ Percentage of clients with STI is different from section 2 because this data is from the birth event data set as opposed to self-reported at intake.

FIGURE 5.4. AVERAGE NUMBER OF CIGARETTES SMOKED PER TRIMESTER



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

a— One KIDS NOW Plus client was missing information on the number of cigarettes per trimester. In the general population, 4 mothers were missing information on the number of cigarettes before pregnancy, 2 were missing the number of cigarettes in the first trimester, 3 were missing the number of cigarettes in the second trimester and 1 mother was missing the number of cigarettes in the last trimester.

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 KIDS NOW Plus case management (n = 137) were compared to the outcomes of children born to mothers who did not participate in KIDS NOW Plus and who lived in the CMHC regions that provide KIDS NOW Plus (n = 35,550). Logistic regression models were used to examine the association between KIDS NOW Plus participation and birth outcomes while adjusting for key factors. The alpha level was set at p < .01.

Each birth outcome in Table 5.2 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., less than high school diploma/high school diploma or higher), area of residence (metropolitan vs. non-metropolitan county), and smoking at the time of the birth (Yes/No).⁴⁶

Results of the analysis show that KIDS NOW Plus clients were not significantly more or less likely than mothers in the general population to give birth to a baby prematurely (the adjusted average mean⁴⁷ weeks gestation was 38.5 to 38.4), to have a child with low birth weight (7.2 to 7.3 lbs), to have birthing problems (between 10.0% and 10.2%), to have their baby taken to the neonatal intensive care unit (NICU; 7.3% and 7.4%), or to breastfeed (between 48.9% and 64.7%).



⁴⁶ Because race was highly associated with metropolitan vs. non-metropolitan residence for KIDS NOW Plus clients, such that only 4 non-White KIDS NOW Plus clients lived in a non-metropolitan community, to avoid the problem of multicollinearity in the models, race was excluded as a covariate while mother’s residence in a metropolitan vs. non-metropolitan community was included.

⁴⁷ 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. non-metropolitan county), and smoking at the time of the birth.

TABLE 5.2. EFFECT OF KIDS NOW PLUS PARTICIPATION ON BIRTH OUTCOMES (N = 35,687)^a

	<i>b</i>	Adj. Odds ratio	99% Confidence Intervals
Premature	.104	1.109	.576-2.136
Low birth weight	.004	1.004	.494-2.044
Any birthing problems (other than the baby being taken to the NICU)	-.068	.935	.451-1.938
Baby taken to NICU	-.112	.894	.382-2.092
Breastfeeding	-.094	.910	.571-1.449

Note: Categorical variables were coded in the following ways: KIDS NOW Plus participation (0 = General population, 1 = KIDS NOW Plus client); Type of community in which mother resided (0=Non-metropolitan, 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); 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 = 28), low birth weight (n = 8), any birth problems (n = 19), baby taken to NICU (n = 57), and breastfeeding (n = 398).

The highest APGAR score⁴⁸ was entered as the dependent variable in a linear regression model with KIDS NOW Plus participation as the predictor variable and the covariates of mother's age, education, area of residence, and smoking status at birth. As shown in Table 5.3, there was no difference in APGAR score (adjusted average score of 8.8) for babies born to KIDS Now Plus mothers versus mothers in the general population, after adjusting for the selected covariates.

TABLE 5.3. EFFECT OF PARTICIPATION IN KIDS NOW PLUS ON BABY'S HIGHEST APGAR SCORE (N = 35,335)^a

	β	t	df	p
Highest APGAR score	-.008	-1.540	5	.124

R² = .003, R²adj. = .003, F(5, 35,329) = 22.049, p < .001.

Note: Categorical variables were coded in the following ways: KIDS NOW Plus participation (0 = General population, 1 = KIDS NOW Plus client); Type of community in which mother resided (0=Non-metropolitan, 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).

a--Of the 35,687 cases with residence in a CMHC region that provides KNP case management, 89 cases had missing values for the highest APGAR score, 15 cases had scores outside the range of permissible values (negative values), and 248 cases had missing values on at least one of the covariates.

Specifically, there were no significant differences for the average number of gestational weeks, the percentage of babies who were born premature, highest APGAR score, birth weight, the percentage of babies with birthing problems, the percentage of babies being taken to the neonatal intensive care unit, or the decision to breastfeed. In addition, there was no significant difference for the average number of prenatal care visits with a health care provider. Further analysis of birth data outcomes can be found in Appendix B in which KIDS NOW Plus clients were compared to a sample of mothers on selected factors (i.e., age, race, education, marital status, metropolitan/non-metropolitan 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 birth events and outcomes being very similar across the three groups.

⁴⁸ 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.

NO SIGNIFICANT DIFFERENCES BETWEEN KIDS NOW PLUS MOTHERS COMPARED TO THE GENERAL POPULATION OF MOTHERS ON:

Gestational age



The adjusted average mean weeks gestation was 38.5 to 38.4

Low birth weight



Having a child with low birth weight (7.2 to 7.3 lbs)

Birthing problems



Between 10.0% and 10.2%

Baby taken to NICU



Between 7.3% and 7.4%

Average APGAR



Adjusted average score of 8.8

Breastfeeding



Between 48.9% and 64.7%

SUMMARY

In addition to the targeted risk factors of substance use, mental health symptoms, and partner abuse and violence, clients in KIDS NOW Plus had more risk factors compared to the general population of mothers giving birth in the same time frame. Compared to the general population of mothers giving birth in the regions served by KIDS NOW Plus case management, KIDS NOW Plus clients were younger, more lived in non-metropolitan areas, were less likely to be married, and had less education. In addition, KIDS NOW Plus mothers were more likely to have Medicaid as their source of payment for the birth of the baby. While they were not more likely to have maternal health problems such as gestational diabetes, hypertension and previous poor outcomes, they were more likely to have sexually transmitted infections as well as Hepatitis B and/or C. More KIDS NOW Plus mothers also smoked cigarettes before becoming pregnant and they smoked significantly more cigarettes in each trimester compared to the general population of mothers. Despite these characteristics, a multivariate analysis showed that birth events and outcomes were very similar between groups.

Specifically, KIDS NOW Plus clients were not significantly more or less likely to give birth prematurely, to have a child with low birth weight, to have birthing problems (such as fetal intolerance to labor, seizures or birth injury), to have a baby taken to the neonatal intensive care unit, or to breastfeed. In addition, there was no difference between KIDS NOW Plus mothers and the general population of mothers on average APGAR scores at birth.

SECTION 6. SUBSTANCE USE

This section of targeted risk factors 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; and (5) substance abuse treatment and self-help meetings. 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:⁴⁹

1. 30 day trends
 - a. 30 days before pregnancy. Information collected from the client at prenatal intake regarding the 30 days before she found out she was pregnant.
 - b. 30 days at prenatal intake. Information collected from the client at prenatal intake regarding past 30 days she has been pregnant.
 - c. 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 KIDS NOW Plus case management services.
 - d. 30 days at postnatal follow-up. Information collected at postnatal follow-up regarding the past 30 days.
2. Six month trends
 - a. 6 months before pregnancy. Information collected from the client at prenatal intake regarding the six months before she found out she was pregnant.
 - b. 6 months since the birth of the baby. Information collected at postnatal follow-up regarding the past 6 months since the baby was born.

OVERALL SUBSTANCE USE (ILLEGAL DRUG AND ALCOHOL USE)

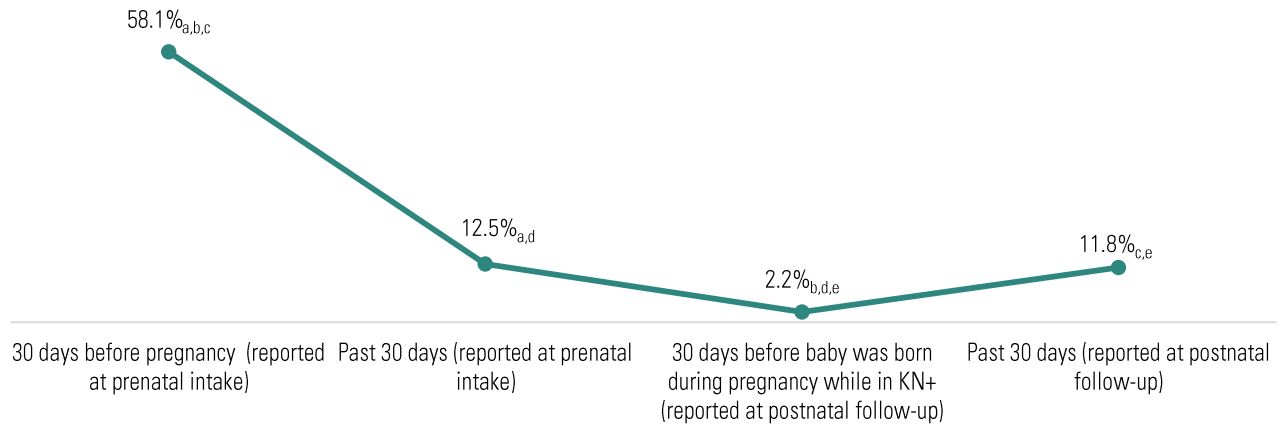
PAST-30-DAY ILLEGAL DRUGS AND/OR ALCOHOL USE

Figure 6.1 shows the results for overall illegal drug and/or alcohol use across all four past 30-day periods. In the 30 days before pregnancy, 58.1% of clients reported using illegal drugs and/or alcohol. In the past 30 days at intake, 12.5% of clients reporting using illegal drugs and/or alcohol (a significant decrease of 78.5% from the 30 days before pregnancy).

At postnatal follow-up, 2.2% of clients reported using illegal drugs and/or alcohol in the 30 days before the baby was born compared to 58.1% of clients in the 30 days before pregnancy (a 96.2% significant decrease) and 12.5% in the past 30 days at prenatal intake (a significant decrease of 84.2%). Finally, 11.8% of clients reported illegal drug and/or alcohol use in the past 30 days at postnatal follow-up. This is a significant decrease of 79.7% compared to the 30 days before pregnancy, but a significant increase of 433.3% compared to the 30 days before the baby was born.

⁴⁹ z-test for proportion was used for significance testing of substance use, mental health problems and intimate partner violence unless otherwise indicated.

FIGURE 6.1. PAST-30-DAY SUBSTANCE USE FROM PRENATAL INTAKE TO POSTNATAL FOLLOW-UP (N = 136)

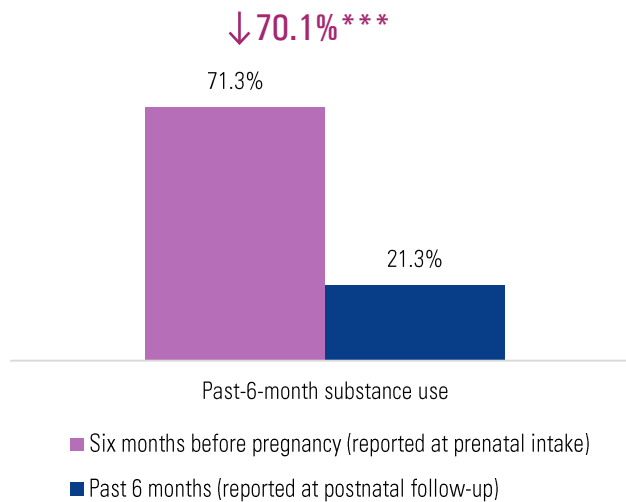


a, b, c, d, e— Values sharing the same subscript differ at $p < .01$

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

In the 6 months before pregnancy, almost three-quarters of clients (71.3%) reported using illegal drugs and/or alcohol. In the past 6 months at follow-up, less than one-quarter (21.3%) of clients reported using illegal drugs and/or alcohol (a significant decrease of 70.1%).

FIGURE 6.2. PAST-6-MONTH SUBSTANCE USE FROM PRENATAL INTAKE TO POSTNATAL FOLLOW-UP (N = 136)



*** $p < .001$

ILLEGAL DRUG USE

PAST-30-DAY ILLEGAL DRUG USE

Less than one-half (44.1%) of clients reported illegal drug use⁵⁰ in the 30 days prior to becoming pregnant (see Figure 6.3). **A national survey of women indicated that 11.4% of non-pregnant women age 15-44 reported using illegal drugs in the past month.**⁵¹ A little less than 10% of clients reported using illegal drugs in the past 30 days

⁵⁰ Illegal drug use includes marijuana, sedatives, barbiturates, prescription opiates, cocaine, heroin, hallucinogens, inhalants, methadone, and non-prescribed buprenorphine.

⁵¹ Substance Abuse and Mental Health Services Administration. *Results from the 2013 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, 2014.

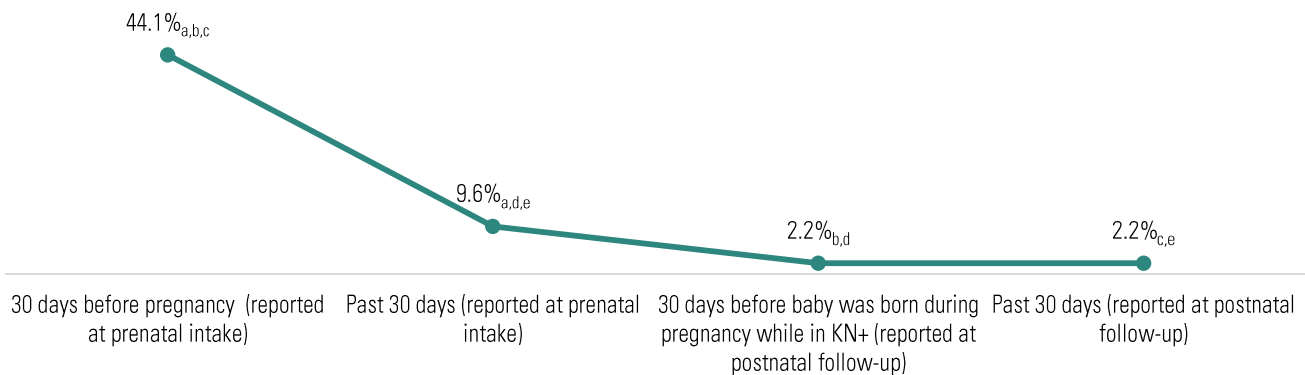
at intake (a significant decrease of 78.3% compared to the 30 days before pregnancy). **In comparison, nationally, 5.4% of pregnant women aged 15-44 reported using illegal drugs in the past month.**

At postnatal follow-up, 2.2% of clients (n = 3) reported using illegal drugs in the 30 days before the baby was born (a significant decrease of 95.0% from 30 days before pregnancy and 76.9% from the past 30 days at prenatal intake). This decrease was sustained in the past 30 days at postnatal follow-up.



95.0% fewer clients
REPORTED ILLEGAL DRUG USE IN THE 30 DAYS BEFORE THE BABY WAS BORN COMPARED TO THE 30 DAYS BEFORE PREGNANCY

FIGURE 6.3. PAST-30-DAY ILLEGAL DRUG USE FROM PRENATAL INTAKE TO POSTNATAL FOLLOW-UP (N = 136)

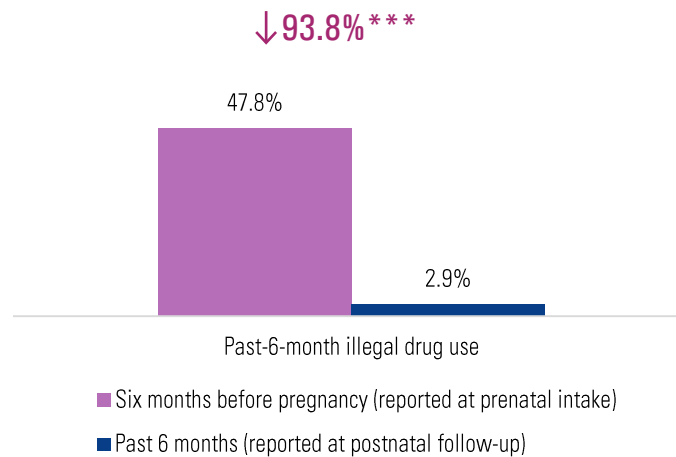


a, b, c, d, e— Values sharing the same subscript differ at $p < .01$

PAST-6-MONTH ILLEGAL DRUG USE

In the 6 months before pregnancy, 47.8% of clients reported using illegal drugs and in the past 6 months at follow-up 2.9% of clients reported illegal drug use (a significant decrease of 93.8%).

FIGURE 6.4. PAST-6-MONTH ILLEGAL DRUG USE FROM PRENATAL INTAKE TO POSTNATAL FOLLOW-UP (N = 136)



*** $p < .001$

INJECTION DRUG USE

At prenatal intake, 20.6% of clients reported ever injecting any drug and one client reported injecting a drug in the past 30 days. No client reported injecting drugs at postnatal follow-up.

ALCOHOL USE

PAST-30-DAY ALCOHOL USE

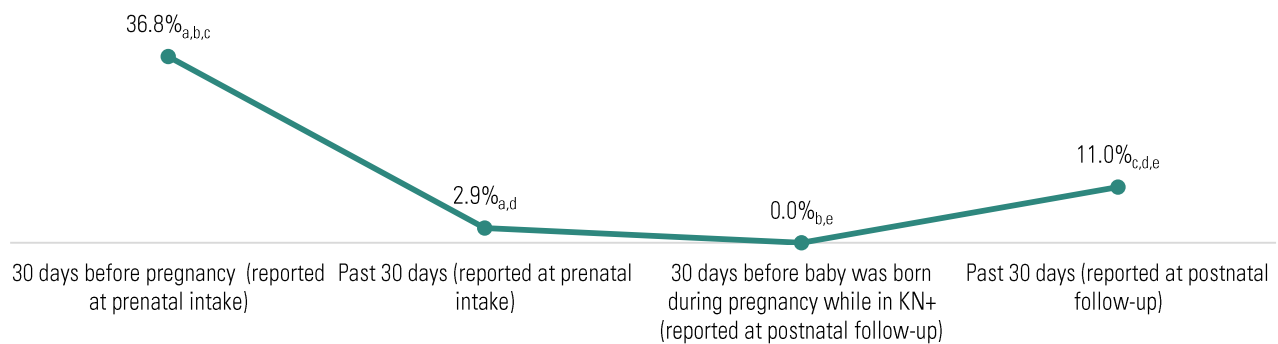
Figure 6.5 shows that 36.8% of clients reported alcohol use in the 30 days prior to becoming pregnant. **At the national level, 55.4% of non-pregnant women aged 15-44 reported drinking alcohol in the past 30 days.** In the past 30 days at prenatal intake, 2.9% of clients reported using alcohol (a significant decrease of 92.0% compared to the 30 days prior to pregnancy). **Nationally, 9.4% of women aged 15-44 reported using alcohol during pregnancy.**

At postnatal follow-up, no client reported using alcohol in the 30 days before the baby was born while they were involved in KIDS NOW Plus. After the baby was born, 11.0% clients reported alcohol use in the past 30 days (a significant increase of 275.0% from the 30 days prior at prenatal intake, but a significant decrease of 70.0% from the 30 days before pregnancy).



0 KIDS NOW Plus clients
REPORTED ALCOHOL USE IN THE 30 DAYS BEFORE THE BABY WAS BORN

FIGURE 6.5. PAST-30-DAY ALCOHOL USE FROM PRENATAL INTAKE TO POSTNATAL FOLLOW-UP (N = 136)

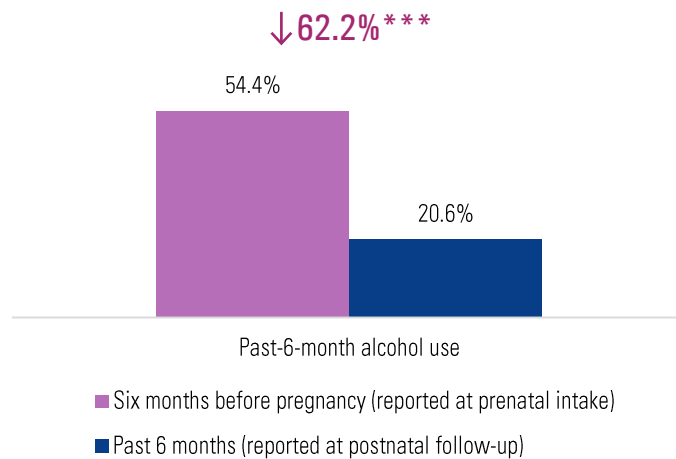


a, b, c, d— Values sharing the same subscript differ at $p < .01$

PAST-6-MONTH ALCOHOL USE

Figure 6.6 shows that in the six months before pregnancy 54.4% of clients reported alcohol use and after the baby was born, 20.6% clients reported alcohol use in the past 6 months (a significant decrease of 62.2% from the six months before pregnancy).

FIGURE 6.6. PAST-6-MONTH ALCOHOL USE FROM PRENATAL INTAKE TO POSTNATAL FOLLOW-UP (N = 136)



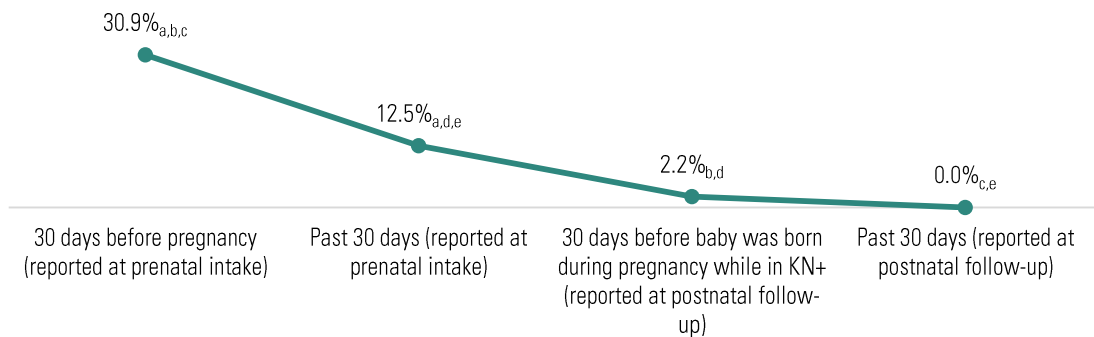
*** $p < .01$

PROBLEMS EXPERIENCED WITH SUBSTANCE USE

ILLEGAL DRUGS

In the 30 days before pregnancy, 30.9% of clients reported they experienced problems with drugs such as craving, withdrawal, wanting to quit but being unable, or worrying about relapse (see Figure 6.7). In the past 30 days at prenatal intake, 12.5% of clients reported experiencing problems with drugs (a significant decrease of 59.5% from the 30 days before pregnancy). At follow-up, 2.2% of clients (n = 3) reported experiencing problems with drugs in the 30 days before the baby was born (a significant decrease of 92.9% from before pregnancy and a significant decrease of 82.4% from the past 30 days at prenatal intake). In the past 30 days at postnatal follow-up, no clients reported any problems with drugs (a significant decrease of 100% from before pregnancy and from the past 30 days at prenatal intake).

FIGURE 6.7. CLIENTS EXPERIENCING PROBLEMS WITH ILLEGAL DRUGS AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)

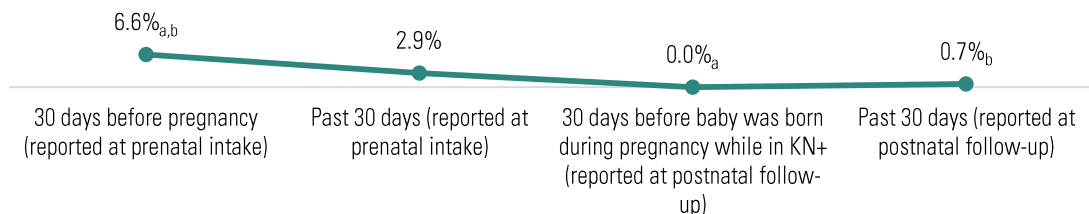


a, b, c, d, e— Values sharing the same subscript differ at $p < .01$

ALCOHOL

In the 30 days before pregnancy, 6.6% of clients reported they experienced problems with alcohol such as craving, withdrawal, wanting to quit but being unable, or worrying about relapse (see Figure 6.8). In the past 30 days at prenatal intake, 2.9% of clients reported experiencing problems with alcohol. At follow-up, none of the KIDS NOW Plus clients reported experiencing problems with alcohol in the 30 days before the baby was born (a significant decrease of 100% from before pregnancy). In the past 30 days at postnatal follow-up, only one client reported any problems with alcohol (a significant decrease of 88.9% from before pregnancy).

FIGURE 6.8. CLIENTS EXPERIENCING PROBLEMS WITH ALCOHOL AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)



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

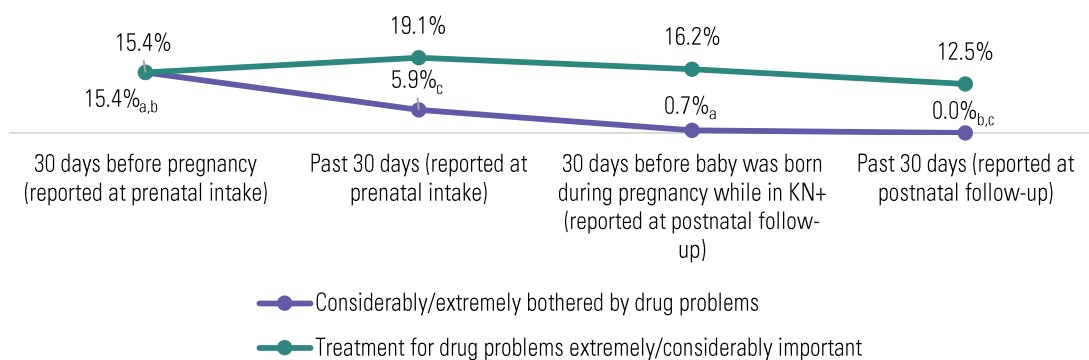
READINESS FOR SUBSTANCE ABUSE TREATMENT

READINESS FOR TREATMENT OF ILLEGAL DRUG USE

In the 30 days before pregnancy, 15.4% of clients reported they were considerably or extremely troubled or bothered by drug problems (see Figure 6.9). In the past 30 days at prenatal intake, 5.9% of clients were considerably or extremely troubled or bothered by drug problems. At follow-up, 0.7% of clients (n = 1) reported being considerably or extremely troubled or bothered by drug problems in the 30 days before the baby was born (a significant decrease of 95.2% from before pregnancy). In the past 30 days at postnatal follow-up, no clients reported being considerably or extremely troubled by drug problems (a significant decrease of 100% from before pregnancy and from the past 30 days at prenatal intake).

At prenatal intake, 15.4% of clients reported that treatment for drug problems was considerably or extremely important in the 30 days before pregnancy. In the past 30 days at prenatal intake, 19.1% of clients reported that treatment for drug problems was considerably or extremely important in the past 30 days. In the 30 days before the baby was born, 16.2% of clients felt that treatment for drug problems was considerably or extremely important and in the past 30 days at follow-up, 12.5% of clients reported treatment for drug problems was considerably or extremely important.

FIGURE 6.9. READINESS FOR TREATMENT FOR ILLEGAL DRUG USE AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)



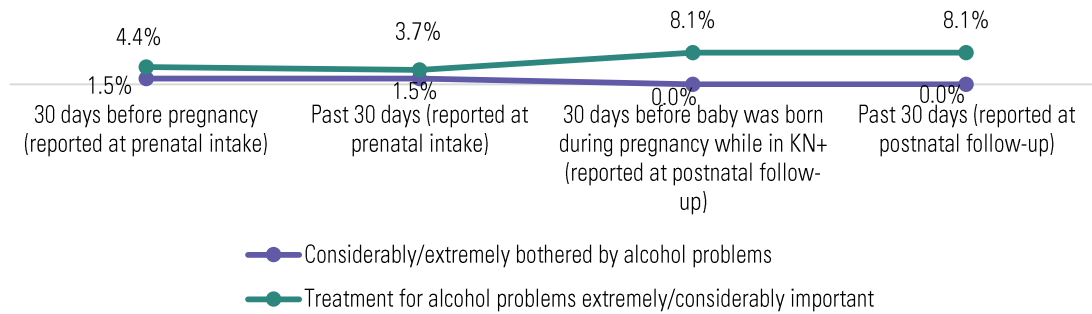
a, b, c– Values sharing the same subscript differ at $p < .01$

READINESS FOR ALCOHOL TREATMENT

Very few clients were considerably or extremely bothered by alcohol problems. In both the 30 days before pregnancy and the past 30 days at prenatal intake, 1.5% of clients reported they were considerably or extremely troubled or bothered by alcohol problems (see Figure 6.10). At follow-up, no client reported being considerably or extremely troubled or bothered by alcohol problems either in the 30 days before the baby was due or in the past 30 days.

In the 30 days before pregnancy, 4.4% of clients reported that treatment for alcohol problems was considerably or extremely important. In the past 30 days at prenatal intake, 3.7% of clients reported that treatment for alcohol problems was considerably or extremely important in the past 30 days. In both the 30 days before the baby was born and the past 30 days at postnatal follow-up, 8.1% of clients felt that treatment for alcohol problems was considerably or extremely important.

FIGURE 6.10. READINESS FOR TREATMENT FOR ALCOHOL USE AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)

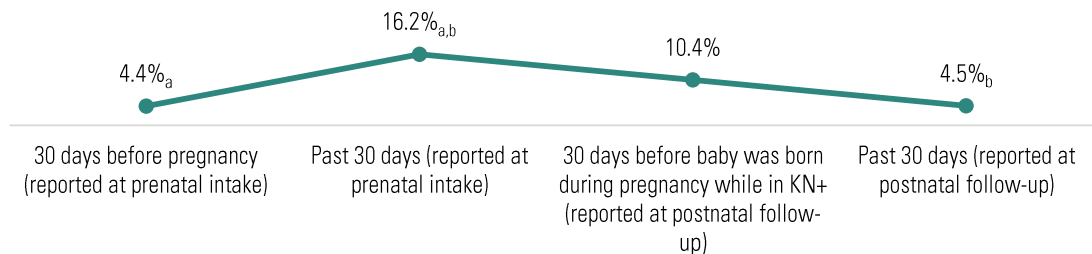


a, b, c– Values sharing the same subscript differ at $p < .01$

SUBSTANCE ABUSE TREATMENT

Figure 6.11 shows that in the 30 days before pregnancy, 4.4% of clients reported being treated for substance abuse (including detox) and in the past 30 days at intake, 16.2% of clients reported being treated for substance abuse (a significant increase of 72.7%). At postnatal follow-up, 10.4% of clients reported being treated for substance abuse (including detox) in the 30 days before the baby was born and 4.5% of clients reported being treated for substance abuse in the past 30 days (a significant decrease of 72.7% from the past 30 days at prenatal intake).

FIGURE 6.11. CLIENTS REPORTING SUBSTANCE ABUSE TREATMENT AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)



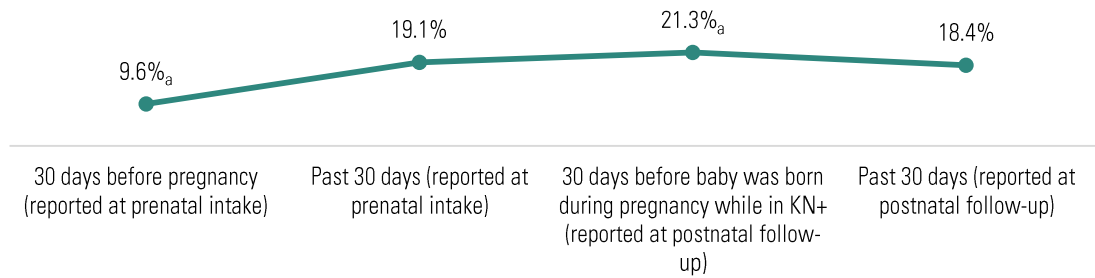
a, b– Values sharing the same subscript differ at $p < .01$

Note: Interviewer skipped question regarding substance abuse treatment for one client in the 30 days before the baby was born and two clients in the past 30 days at postnatal follow-up.

SELF-HELP MEETINGS

The number of clients who reported attending a self-help recovery meeting (such as AA, NA, or MA) increased from the 30 days before pregnancy to the past 30 days at follow-up. In the 30 days prior to pregnancy, 9.6% of clients reported attending a self-help meeting compared to 19.1% in the past 30 days at prenatal intake (see Figure 6.12). At follow-up, 21.3% of clients reported attending a self-help meeting in the 30 days before the baby was born (a significant increase of 123.1% compared to the 30 days before pregnancy). A little over 18% of clients reported attending a self-help meeting in the past 30 days at follow-up which, while not a significant increase, shows a sustained increase from prior to pregnancy.

FIGURE 6.12. CLIENTS REPORTING ATTENDING A SELF-HELP GROUP AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)



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

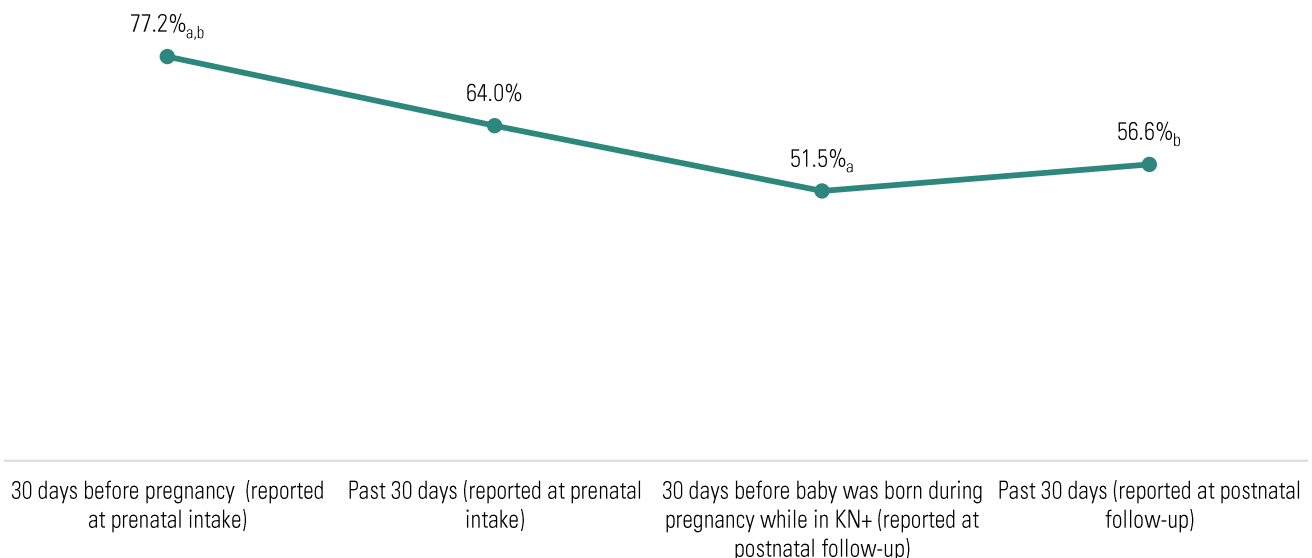
TOBACCO USE

PAST-30-DAY TOBACCO USE

At prenatal intake, 77.2% of clients reported smoking tobacco products in the 30 days prior to pregnancy (Figure 6.13). **This percentage is considerably higher than the national estimate of 24.0% of non-pregnant women aged 15-44 who reported cigarette use.** Sixty-four percent of clients reported smoking tobacco in the past 30 days at prenatal intake **compared to a little over 15% of pregnant women, nationally, reported smoking cigarettes.**

At postnatal follow-up, in the 30 days before the baby was born, 51.5% of clients reported smoking tobacco products (a significant decrease of 33.3% compared to the 30 days prior to pregnancy). The percentage of women who reported cigarette use in the past 30 days at postnatal follow-up remained stable (still a significant decrease from prior to pregnancy).


FIGURE 6.13. SMOKING TOBACCO USE IN THE PAST 30 DAYS FROM PRENATAL INTAKE TO POSTNATAL FOLLOW-UP (N = 136)



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

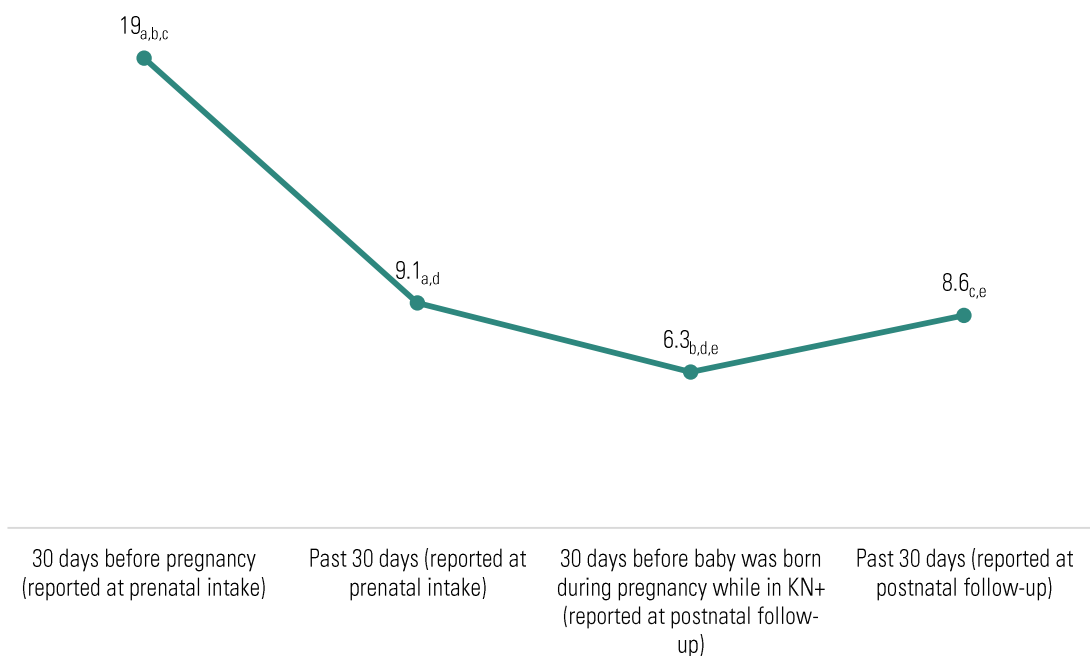
AVERAGE NUMBER OF CIGARETTES SMOKED IN THE PAST 30 DAYS

Figure 6.14 shows that for women who reported smoking tobacco in the 30 days prior to pregnancy (n = 105), the average number of cigarettes smoked declined from prior to pregnancy to after the client became involved in KIDS NOW Plus and remained low after the birth of the baby. At prenatal intake, women who smoked reported that in the 30 days before they found out they were pregnant they smoked an average of 19.0 cigarettes per day (nearly one pack) and an average of 9.1 cigarettes per day in the past 30 days at prenatal intake (a 52.1% significant decrease). At postnatal, in the 30 days before the baby was born and the client was in the KIDS NOW Plus case management program, the average number of cigarettes decreased further to 6.3 (a 66.8% significant decrease from the 30 days prior to pregnancy and a 30.8% significant decrease from the past 30 days at prenatal intake). While there was a significant increase in the number of cigarettes smoked after the baby was born compared to the 30 days before the baby was born (a 36.5% increase), they still smoked significantly fewer cigarettes than before pregnancy (a significant decrease of 54.7%) suggesting positive changes in smoking.



55% decrease
IN THE NUMBER OF CIGARETTES
SMOKED AFTER THE BABY WAS BORN
COMPARED TO BEFORE PREGNANCY

FIGURE 6.14. AVERAGE NUMBER OF CIGARETTES SMOKED AMONG WOMEN REPORTING CIGARETTE USE IN THE 30 DAYS PRIOR TO PREGNANCY (N = 105)

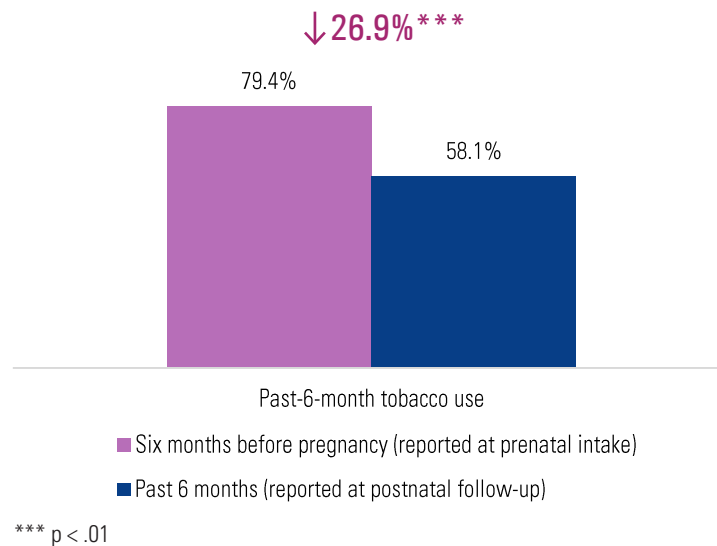


a, b, c, d, e – Values sharing the same subscript differ at p < .01

PAST-6-MONTH TOBACCO USE

At prenatal intake, 79.4% of clients reported smoking tobacco use in the six months prior to pregnancy (Figure 6.15). At postnatal follow-up, 58.1% of clients reported tobacco use in the past 6 months (a significant decrease of 26.9%).

FIGURE 6.15. SMOKING TOBACCO USE IN THE PAST 6 MONTHS FROM PRENATAL INTAKE TO POSTNATAL FOLLOW-UP (N = 136)



SUMMARY

These new mothers reported significant reductions in substance use in the past 30 days of pregnancy at prenatal intake and further reductions after the baby was born. Specifically, 95.0% fewer clients reported illegal drug use in the 30 days before the baby was born compared to the 30 days before pregnancy and no clients reported alcohol use in the 30 days before the baby was born. In addition, after becoming involved in KIDS NOW Plus, fewer clients reported experiencing or being bothered by substance use problems (such as craving, withdrawal, wanting to quit but being unable, or worrying about relapse) while more clients reported attending self-help meetings (such as AA, NA, or MA) in the past 30 days at prenatal intake compared to before pregnancy. The number of women who reported smoking cigarettes in the 30 days before the baby was born decreased 33% from the 30 days prior to pregnancy as did the average number of cigarettes clients reported smoking. These decreases in smoking, compared to before pregnancy, were sustained even after the baby was born.

Furthermore, clients reported experiencing fewer problems with drugs (such as craving, withdrawal, wanting to quit but being unable, or worrying about relapse) from the 30 days before becoming pregnant to during the time they were pregnant and in KIDS NOW Plus. This decrease was sustained in the past 30 days at follow-up. More clients also reported receiving substance abuse treatment and attending self-help meetings while pregnant and involved in KIDS NOW Plus.

SECTION 7. MENTAL HEALTH

This section examines changes in self-reported mental health for following factors: (1) depression; (2) generalized anxiety; (3) exposure to traumatic events; and, (4) number of days physical and mental health were poor. Past 30-day and past-6-month mental health symptoms are examined separately where applicable.

DEPRESSION SYMPTOMS

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

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

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). 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 other symptoms.

In the 6 months before they became pregnant, 17.6% of the women met study criteria for depression. In the past 6 months at postnatal follow-up, 6.6% of KIDS NOW Plus clients met study criteria for depression (a significant decrease of 62.5% from the 6 months before pregnancy). In the past 30 days at prenatal intake, 17.6% of the women met study criteria for depression (see Figure 7.1). At postnatal follow-up, 12.5% of clients met study criteria for depression in the 30 days before the baby was born.

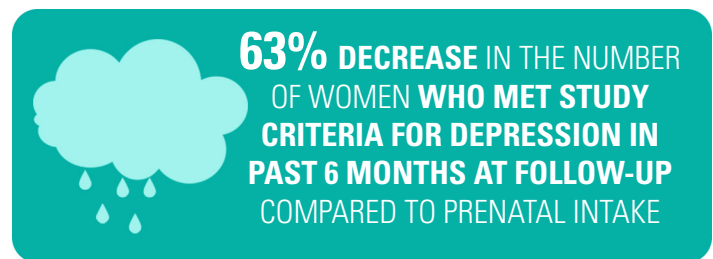
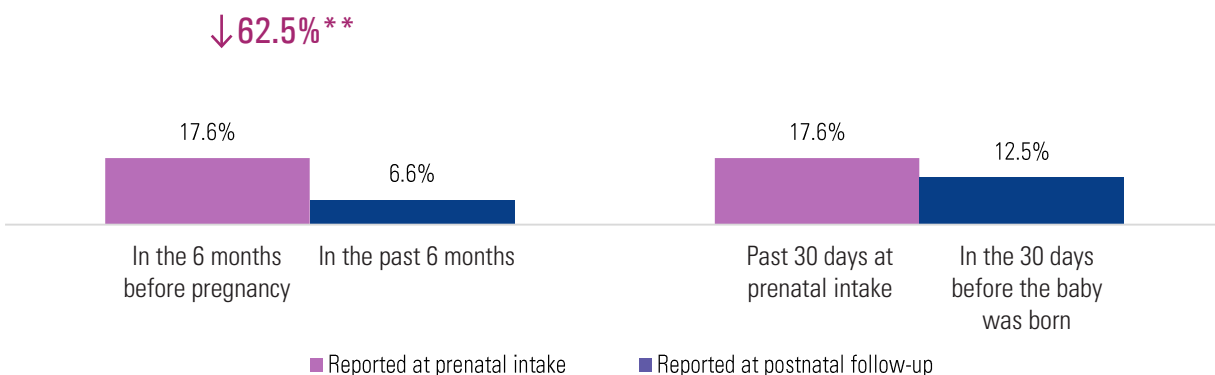


FIGURE 7.1. MEETING STUDY CRITERIA FOR DEPRESSION AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)

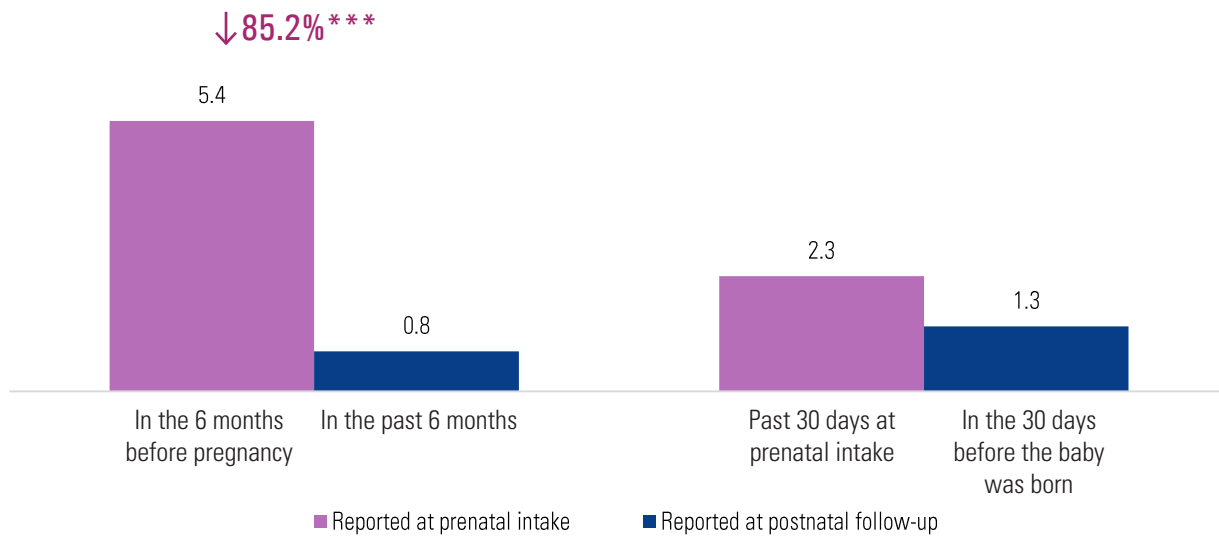


AVERAGE NUMBER OF DEPRESSION SYMPTOMS

Clients who reported experiencing feelings of depression in the 6 months before pregnancy at prenatal intake (n = 24) were asked about 7 symptoms they may have, such as a decrease in appetite, trouble sleeping, feeling worthless or considering hurting themselves (see Figure 7.2). Of the clients who reported experiencing feelings of depression in the 6 months before pregnancy, they reported an average of 5.4 symptoms. In the past 6 months at postnatal follow-up clients reported an average of 0.8 symptoms (a significant decrease of 85.2% compared to before pregnancy), indicating that reduction in depressive symptoms was sustained after KIDS NOW Plus participation.

Clients who reported feelings of depression in the 6 months before pregnancy reported an average of 2.3 symptoms in the past 30 days at prenatal intake and an average of 1.3 symptoms in the 30 days before the baby was born.

FIGURE 7.2. AVERAGE NUMBER OF SYMPTOMS OF DEPRESSION AMONG THOSE CLIENTS WHO MET STUDY CRITERIA FOR DEPRESSION IN THE 6 MONTHS BEFORE PREGNANCY AT PRENATAL INTAKE (N = 24)



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

ANXIETY SYMPTOMS

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

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

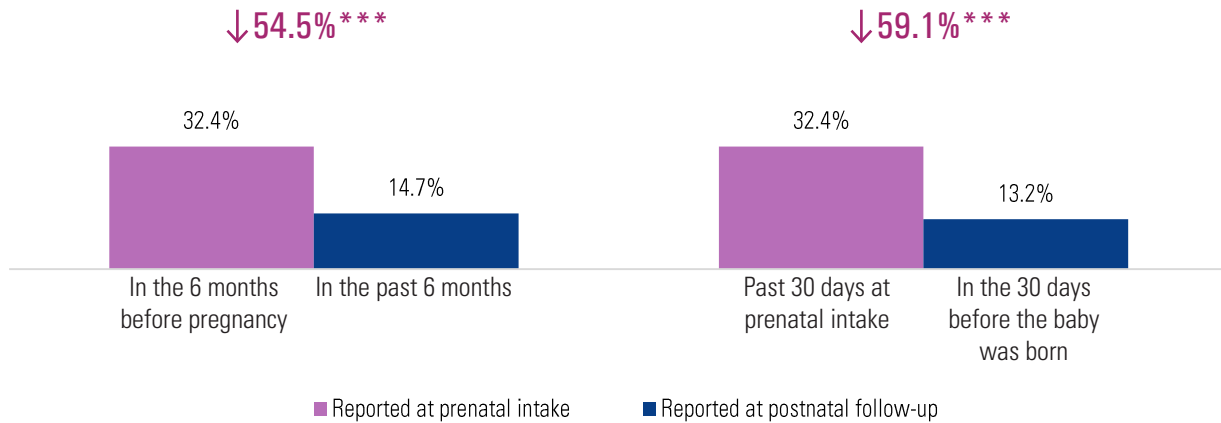
Participants who answered "yes" were then asked 6 additional questions about anxiety symptoms (e.g., felt restless, keyed up or on edge, have difficulty concentrating, feel irritable). To meet study criteria for generalized anxiety, clients had to answer "yes" to the screening question and to at least 3 of the symptom items.

In the 6 months before pregnancy, 32.4% of clients reported symptoms that met study criteria for generalized anxiety (see Figure 7.3). In the past 6 months at postnatal follow-up, 14.7% of clients met study criteria for generalized anxiety, which is a significant decrease of 54.5% from the 6 months before pregnancy.

In the past 30 days at prenatal intake, 32.4% of clients reported symptoms that met study criteria for generalized anxiety (see Figure 7.3). In the 30 days before the baby was born, 13.2% of KIDS NOW Plus clients met criteria for generalized anxiety, which is a significant decrease of 59.1% from the past 30 days at prenatal intake.

55% DECREASE IN THE NUMBER OF WOMEN WHO MET STUDY CRITERIA FOR GENERALIZED ANXIETY IN PAST 6 MONTHS AT FOLLOW-UP COMPARED TO PRENATAL INTAKE

FIGURE 7.3. MEETING STUDY CRITERIA FOR GENERALIZED ANXIETY AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)

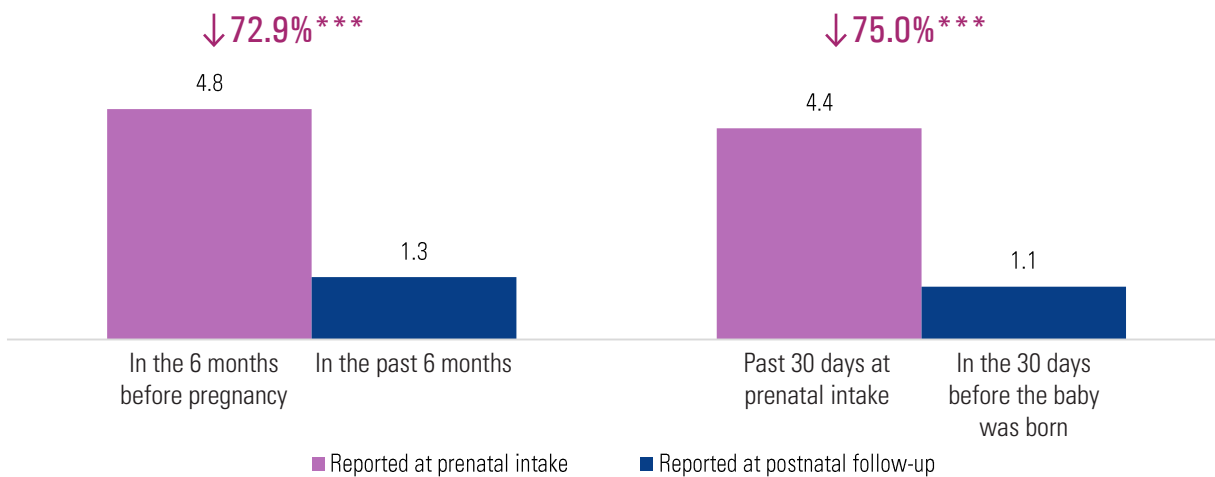


AVERAGE NUMBER OF ANXIETY SYMPTOMS

Clients who reported experiencing feelings of anxiety in the 6 months before pregnancy (n = 44) were asked about 6 symptoms they may have, such as a feeling restless, keyed up or on edge, having difficulty concentrating, or feeling irritable (see Figure 7.4). Of the clients who reported experiencing feelings of anxiety in the 6 months before pregnancy, they reported an average of 4.8 symptoms. In the past 6 months at postnatal follow-up, clients reported an average of 1.3 symptoms which is a significant decrease of 72.9% compared to before pregnancy.

At prenatal intake, clients who reported feelings of anxiety in the 6 months before pregnancy reported an average of 4.4 symptoms in the past 30 days at prenatal intake. At postnatal follow-up, those who reported anxiety prior to pregnancy reported an average of 1.1 symptoms in the 30 days before the baby was born (a significant decrease of 75.0% significant decrease compared to the past 30 days at prenatal intake).

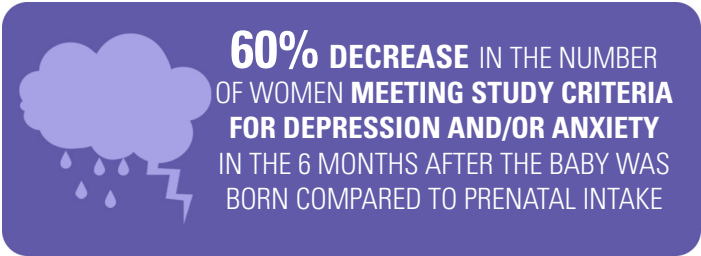
FIGURE 7.4. AVERAGE NUMBER OF SYMPTOMS OF ANXIETY AMONG THOSE CLIENTS WHO REPORTED FEELINGS OF ANXIETY IN THE 6 MONTHS BEFORE PREGNANCY AT PRENATAL INTAKE (N = 44)



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

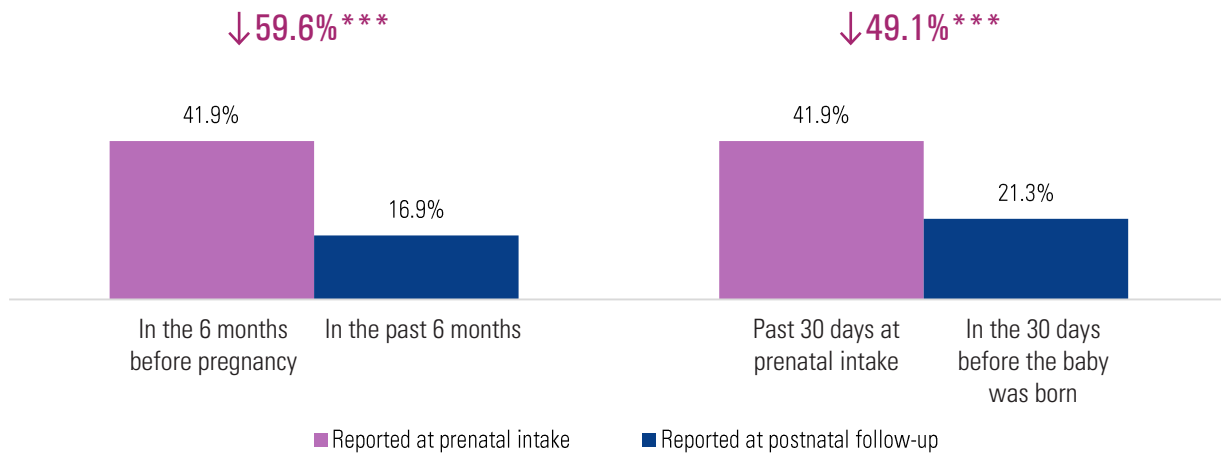
DEPRESSION AND ANXIETY SYMPTOMS

Figure 7.5 shows that 41.9% met study criteria for depression and/or anxiety in the 6 months before pregnancy. In the past 6 months at postnatal follow-up, 16.9% of clients met criteria for depression and/or anxiety which is a 59.6% significant decrease from the 6 months before pregnancy. In the past 30 days at prenatal intake, 41.9% of clients met study criteria for depression and/or anxiety and in the 30 days before the baby was born, 21.3% of the women met study criteria for depression and/or anxiety (a significant decrease of 49.1% from the past 30 days at prenatal intake).



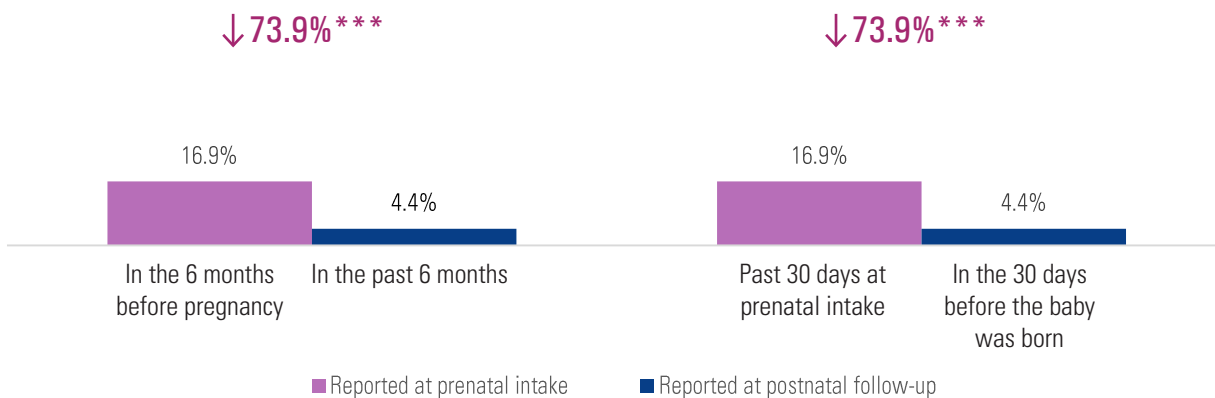
60% DECREASE IN THE NUMBER OF WOMEN MEETING STUDY CRITERIA FOR DEPRESSION AND/OR ANXIETY IN THE 6 MONTHS AFTER THE BABY WAS BORN COMPARED TO PRENATAL INTAKE

FIGURE 7.5. MET STUDY CRITERIA FOR DEPRESSION AND/OR ANXIETY AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)



About 17% of clients met criteria for both anxiety and depression in the past 6 months before they became pregnant as well as in the past 30 days at prenatal intake (see Figure 7.6). At postnatal follow-up, 4.4% of clients reported both anxiety and depression in the 30 days before the baby was born and in the past 6 months (a significant decrease of 73.9% from prenatal intake).

FIGURE 7.6. CLIENTS MEETING CRITERIA FOR COMORBID DEPRESSION AND GENERALIZED ANXIETY AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)



EXPOSURE TO TRAUMATIC EVENTS

In addition to depression and anxiety, at prenatal intake, 32.4% of clients indicated they had, in the past 12 months, experienced or witnessed an extremely traumatic event. At postnatal follow-up, 7.4% of clients reported having experienced or witnessed a new extremely traumatic event in the past 12 months.

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 intake and postnatal follow-up (see Figure 7.7). There was a 68.2% significant decrease from intake to follow-up in the number of days clients reported their physical health was not good (from 4.4 days to 1.4 days). In comparison, America’s Health Rankings indicate people in Kentucky report an average of 4.9 days of poor physical health in the past 30 days.⁵² KIDS NOW Plus clients report fewer days of poor physical health at both prenatal intake and postnatal follow-up compared to the general population surveyed in Kentucky.

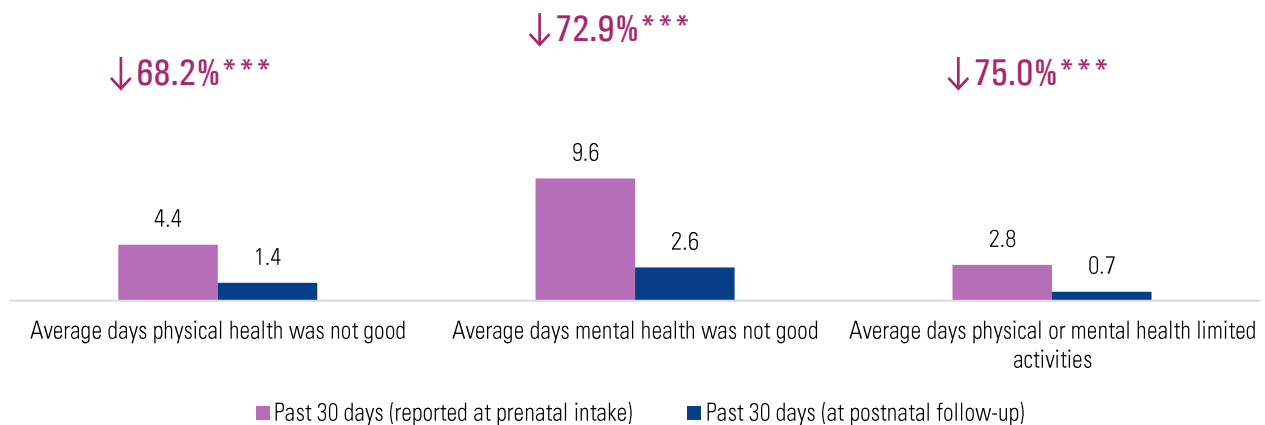
The number of days clients’ mental health was not good decreased significantly by 72.9% from 9.6 days at prenatal intake to 2.6 days at postnatal follow-up. America’s Health Rankings indicate people in Kentucky report an average of 4.5 days of poor mental health in the past 30 days.

The number of days clients reported their physical or mental health kept them from doing their usual activities decreased significantly by 75.0% from 2.8 days at intake to 0.7 days at follow-up



75% DECREASE IN THE NUMBER DAYS CLIENTS REPORTED THEIR PHYSICAL OR MENTAL HEALTH KEPT THEM FROM DOING THEIR USUAL ACTIVITIES

FIGURE 7.7. PERCEPTIONS OF POOR PHYSICAL HEALTH AND MENTAL HEALTH LIMITING ACTIVITIES IN THE PAST 30 DAYS AT INTAKE AND FOLLOW-UP (N = 135)^a



*** p > .01

Significance tested with paired sample t-test

a— One client did not have question on survey at follow-up.

⁵² America’s Health Rankings: A Call to Action for Individuals and Their Communities. Retrieved from <http://www.americashealthrankings.org/KY>.

SUMMARY

The number of clients who met study criteria for depression and/or anxiety decreased significantly from prenatal intake to postnatal follow-up. In addition, of those clients who met criteria for depression and/or anxiety in the 6 months before they were pregnant, the average number of depression and anxiety symptoms decreased significantly from before pregnancy to while they were and involved in KIDS NOW Plus case management services. Furthermore, the average number of symptoms remained lower 6 months after the birth of the baby.

Clients also reported a significant decrease in the average number of days their physical and mental health were not good and the average number of days their physical or mental health limited their activities.

SECTION 8. PARTNER ABUSE AND SEXUAL ASSAULT

This section examines changes in intimate partner abuse and violence such as: (1) any abuse, (2) psychological abuse, (3) coercive control, (4) physical abuse, and (5) sexual violence by any type of perpetrator, from prenatal intake to postnatal follow-up. Past 6-month and past 30-day partner abuse measures are examined separately where applicable.

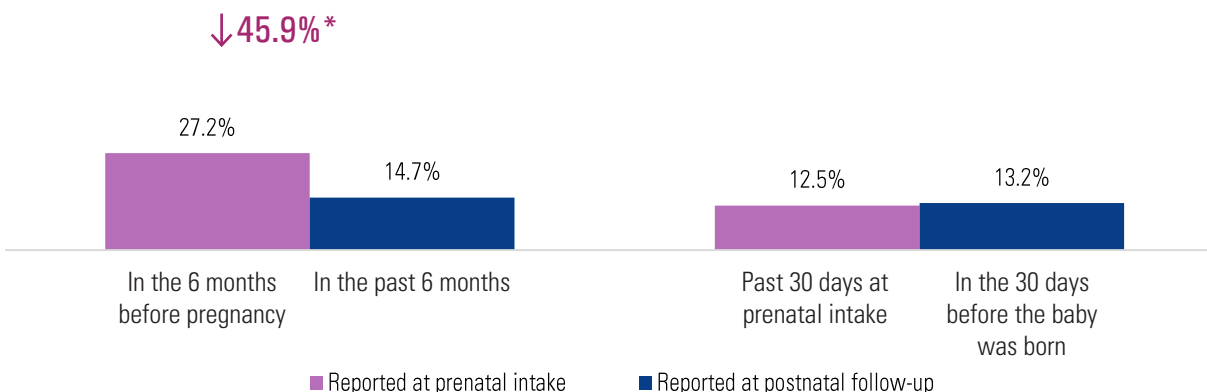
Including fear of a current or ex-partner, 4.4% of clients reported they felt unsafe at intake, and 2.9% reported feeling unsafe at the follow-up.

ANY ABUSE

Figure 8.1 shows that in the 6 months before pregnancy, 27.2% of clients reported experiencing any type of abuse⁵³ (including psychological abuse, control, physical abuse, and sexual abuse) perpetrated by a current or ex-partner and 14.7% of clients reported experiencing abuse in the past 6 months at postnatal follow-up (significant decrease of 45.9%). In the past 30 days at prenatal intake, 12.5% of KIDS NOW Plus clients reported experiencing any type of abuse. In the 30 days before the baby was born, 13.2% of clients reported any type of partner abuse.

46% DECREASE IN THE NUMBER OF CLIENTS WHO REPORTED **ANY INTIMATE PARTNER ABUSE** AT POSTNATAL FOLLOW-UP

FIGURE 8.1. ANY TYPE OF ABUSE AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)



*p < .05

PSYCHOLOGICAL ABUSE

Almost one-quarter of clients reported at prenatal intake that a partner psychologically abused them in the 6 months before pregnancy (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) and 7.4% of clients reported

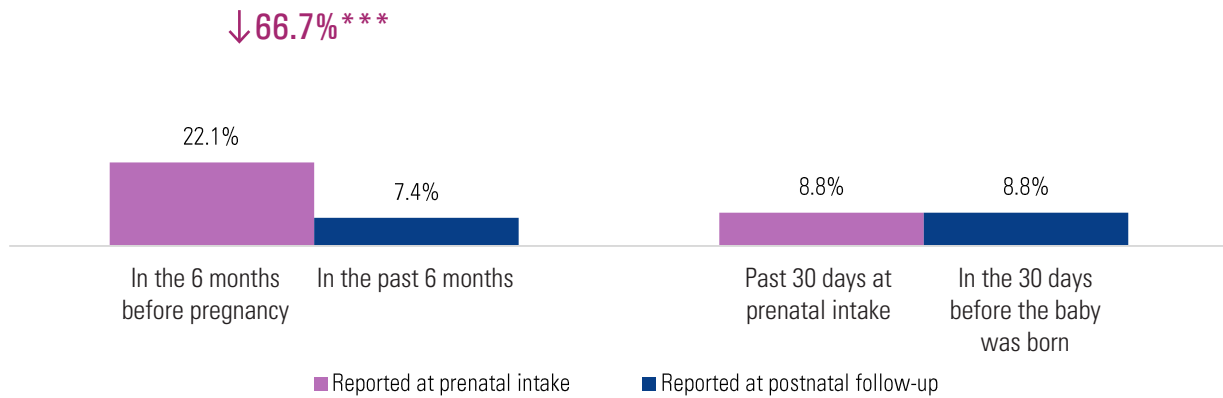
67% DECREASE IN THE PERCENTAGE OF CLIENTS REPORTING BEING A **VICTIM OF PSYCHOLOGICAL ABUSE** IN THE 6 MONTHS AFTER THE BABY WAS BORN

⁵³ 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.

psychological abuse in the past 6 months at postnatal. Compared to the 6 months before they were pregnant, there was a significant 66.7% decrease in reports of psychological abuse in the 6 months after clients had their baby (see Figure 8.2).

In the past 30 days at prenatal intake, 8.8% of clients reported psychological abuse by a partner. This percentage remained unchanged with 8.8% of clients reporting psychological abuse in the 30 days before the baby was born.

FIGURE 8.2. PSYCHOLOGICAL ABUSE AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)



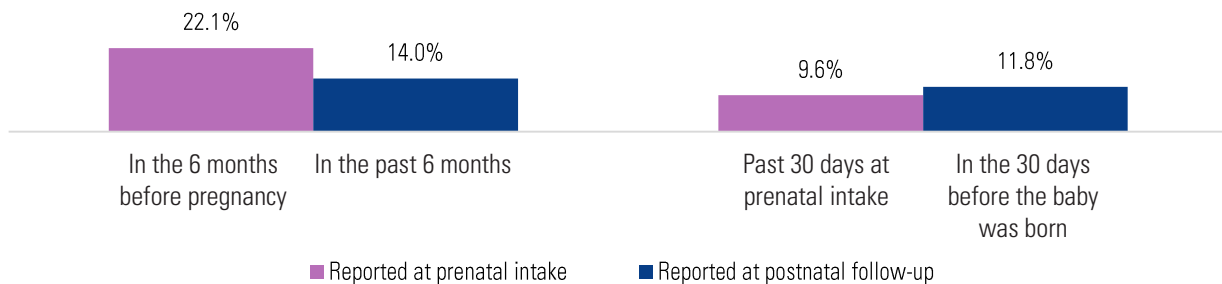
*** p < .01

COERCIVE CONTROL

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 the client or a close friend/family member. In the 6 months before becoming pregnant, 22.1% of clients reported being a victim of coercive control and 14.0% of clients in the past 6 months at postnatal follow-up reported experiencing coercive control from their partner (see Figure 8.3).

In the past 30 days at prenatal intake, 9.6% reported coercive control occurred while they were pregnant and involved in KIDS NOW Plus. Almost 12% reported experiencing coercive control from their partner in the 30 days before the baby was born.

FIGURE 8.3. COERCIVE CONTROL BY A PARTNER AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)



PHYSICAL ABUSE

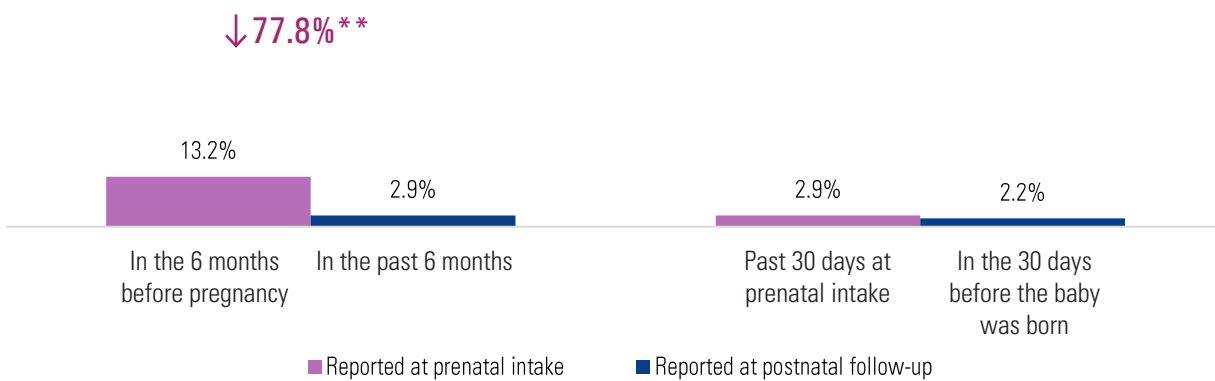
A little over 13% of women reported that a partner physically abused them (e.g., pushing, shoving, kicking, beating up, choking, burning, attacking with a weapon) in the 6 months before they became pregnant (see Figure 8.4). In the past 6 months at postnatal follow-up, 2.9% of clients reported physical abuse by a partner (a significant decrease of 77.8% compared to the 6 months before pregnancy).



78% DECREASE IN THE PERCENTAGE OF CLIENTS REPORTING BEING A **VICTIM OF PHYSICAL ABUSE** IN THE 6 MONTHS AFTER THE BABY WAS BORN

Less than 3% of clients reported a partner physically abused them in the past 30 days at prenatal intake. In the 30 days before the birth of the baby, 2.2% reported a partner physically abused them.

FIGURE 8.4. PHYSICAL ABUSE AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)^a



** p < .01

a—Question skipped for one client at follow-up.

SEXUAL ASSAULT

Very few clients (3.7%, n = 5) reported at prenatal intake 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 six months at postnatal follow-up, one client indicated she had been sexually assaulted by a partner (see Figure 8.5).

In the past 30 days at prenatal intake, only 1 client reported being a victim of sexual assault and in the 30 days before the baby was born, 2 clients reported sexual assault.

FIGURE 8.5. PARTNER SEXUALLY ASSAULTED CLIENT AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)



Only a handful of clients reported being forced to have sex by someone other than a partner at any point (2.9% of clients in the 6 months before pregnancy, 1.5% in the past 6 months at postnatal follow-up, 0.7% clients in the past 30 days at prenatal intake, and 0.7% in the 30 days before the baby was born).

SUMMARY

Several forms of partner violence were examined from prenatal intake to postnatal follow-up. Approximately one-quarter of KIDS NOW Plus clients reported experiencing at least one of the types of abuse asked about on the survey in the 6 months before pregnancy. At postnatal follow-up, about 15% of clients reported experiencing some type of abuse in the past 6 months. The number of clients reporting psychological abuse and reporting physical abuse decreased significantly from before pregnancy to the past 6 months at postnatal follow-up. Very few clients reported experiencing a sexual assault by a partner or other type of perpetrator at any period.

SECTION 9. PHYSICAL HEALTH

Section 9 describes chronic health problems reported at prenatal intake and change in physical health status of clients from prenatal intake to postnatal follow-up including: (1) current health; (2) chronic pain; and (3) emergency room usage.

CHRONIC HEALTH PROBLEMS REPORTED AT PRENATAL INTAKE

At prenatal intake, 39.0% reported no health problems, 36.8% reported having one chronic health problem and 24.3% of clients had two or more chronic health problems.

As Figure 9.1 shows, among the clients who reported at least one physical health problem at prenatal intake (n = 83), 38.6% of KIDS NOW Plus clients reported asthma, 18.1% reported arthritis and another 18.1% reported dental problems.

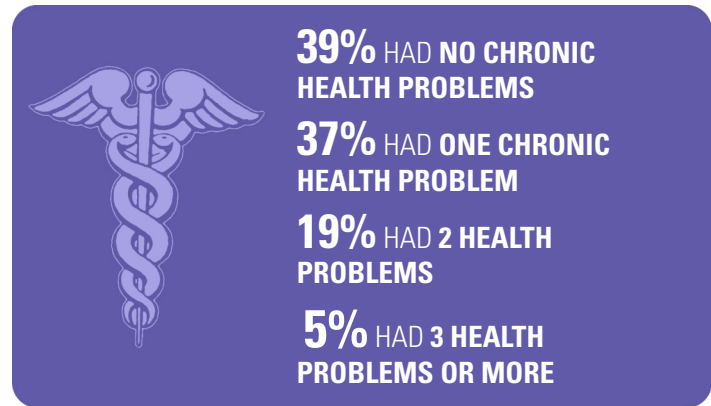
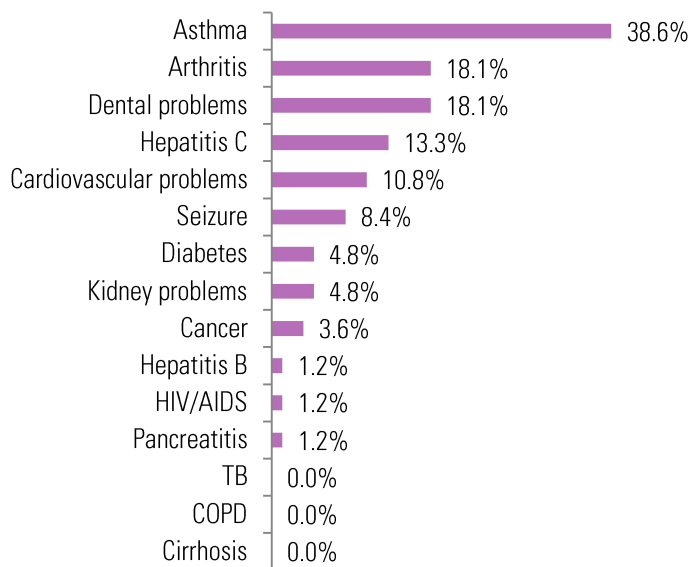


FIGURE 9.1. CHRONIC HEALTH PROBLEMS REPORTED BY CLIENTS AT PRENATAL INTAKE (N= 83)



Overall, at prenatal intake, 9.6% reported they had health problems that were not currently being treated. These problems included hepatitis C, depression and anxiety, and urinary tract infections.

In addition, at prenatal intake, 11.8% of clients reported currently having a sexually transmitted infection (STI). Of those with an STI (n = 16), the most common STIs were chlamydia, trichomoniasis, and genital herpes.

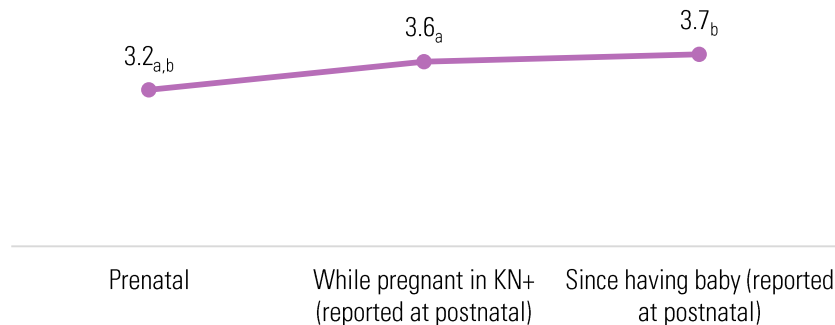
Eleven percent of clients reported having a serious fall or accident during pregnancy that caused bodily injury. In addition, 31.6% of clients reported they had a virus or serious infection while pregnant at prenatal intake. Of these clients (n = 43), 90.7% received medical treatment.

CURRENT HEALTH STATUS

At prenatal intake, clients reported their current health at an average of 3.2 on a scale of 1 being “poor” and 5 being “excellent”. At postnatal follow-up, clients reported that, while pregnant and in KIDS NOW Plus case management services, their health was an average of 3.6, which is significantly higher compared to prenatal intake.

Also at postnatal follow-up, clients were asked about their current health (about 6 months after having the baby) and reported an average current health rating of 3.7, which is significantly higher than it was at prenatal intake (3.2). Figure 9.2 shows the average health ratings at all three points.

FIGURE 9.2. AVERAGE OVERALL HEALTH RATING FROM PRENATAL INTAKE TO POSTNATAL FOLLOW-UP (N = 136)



a, b, – Values sharing the same subscript differ at $p < .01$
 Note. Significance tested with paired sample t-tests

The majority of clients (95.5%) gained weight during their pregnancies (an average of 37 pounds). At prenatal intake, clients reported an average weight of 157.3lbs before they became pregnant and at postnatal follow-up, clients weighed significantly more with an average of 167.1lbs.⁵⁴ As a result, the average body mass index of clients increased significantly from 26.8 before pregnancy to 28.4 in the six months after the baby was born. The number of clients who, according to the Center for Disease Control⁵⁵, are considered overweight or obese did not change significantly from prenatal intake (47.0%) to postnatal follow-up (58.3%).

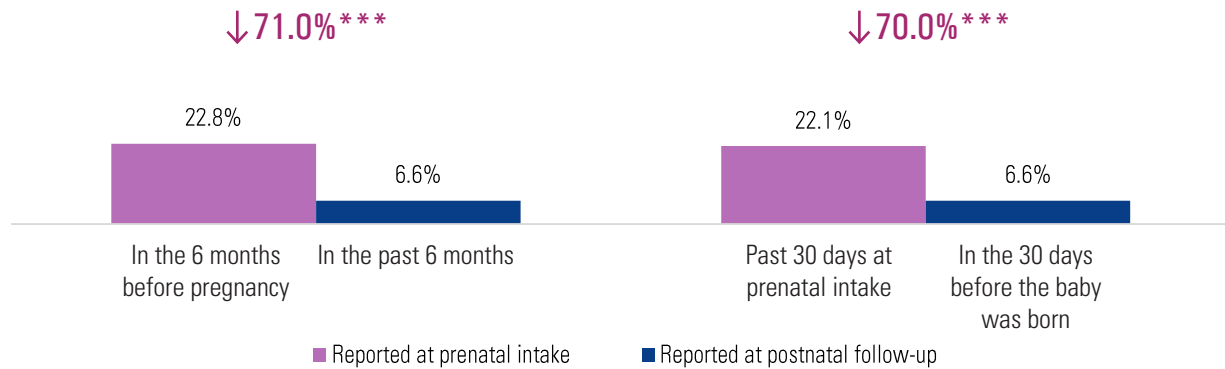
CHRONIC PAIN

At prenatal intake, 22.8% of women reported experiencing chronic pain in the 6 months before pregnancy and 6.6% of clients reported experiencing chronic pain in the past 6 months at postnatal follow-up (a significant decrease of 71.0%). In the past 30 days at prenatal intake, 22.1% of clients reported chronic pain in the past 30 days and in the 30 days before the baby was born 6.6% of clients reported experiencing chronic pain (a significant decrease of 70.0% compared to the past 30 days at intake).

⁵⁴ Four clients did not reveal their weight at follow-up.

⁵⁵ http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html.

FIGURE 9.3. PERCENTAGE OF KIDS NOW PLUS CLIENTS IN CHRONIC PAIN GROUPS (N = 136)



***p<.001

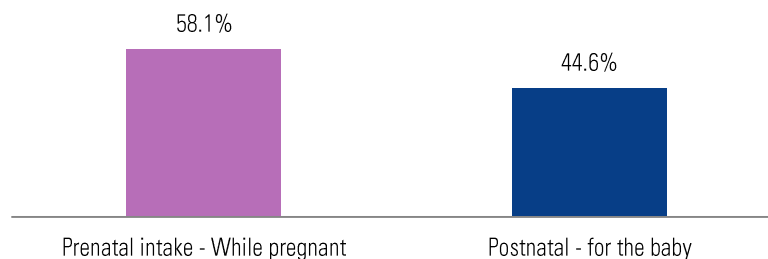
Significance tested with z-test for proportions

Note: Question skipped for one client at follow-up.

EMERGENCY ROOM VISITS DURING PREGNANCY AND POSTNATAL

At both prenatal intake and postnatal follow-up, clients were asked if they had been to the emergency room (see Figure 9.4). At prenatal intake, 58.1% of clients reported they had been to the emergency room while pregnant. At postnatal follow-up, 44.6% of clients reported they had taken their baby to the emergency room.

FIGURE 9.4. CLIENTS REPORTING VISITING THE EMERGENCY ROOM (N = 136)



SUMMARY

At prenatal intake, over one-third of clients reported having at least one chronic health problem such as asthma, arthritis, dental problems and Hepatitis C. Almost 1 in 10 clients reported they had health problems that were not currently being treated. Almost 12% of clients reported at prenatal intake that they currently had a sexually transmitted infection and 11% had experienced a serious fall or accident while pregnant.

Clients' overall current health status rating increased significantly from prenatal intake to while they were pregnant and in KIDS NOW Plus. The average health rating increased even further at after the birth of the baby. Slightly less than one-quarter of clients reported experiencing chronic pain in the 6 months before pregnancy and this decreased significantly to 6.6% in the past 6 months at postnatal follow-up. Furthermore, the number of clients reporting chronic pain during pregnancy significantly decreased while in KIDS NOW Plus with 22.1% of clients reporting chronic pain in the past 30 days at prenatal intake and 6.6% reporting chronic pain in the 30 days before the baby was born.

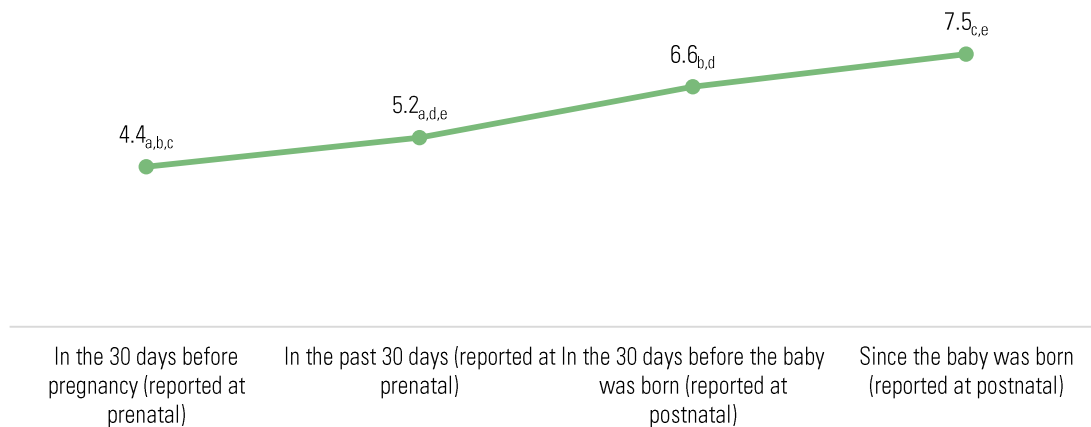
SECTION 10: EMOTIONAL SUPPORT

This section focuses on the number of people the individual said they could count on for emotional support and client satisfaction with the level of emotional support from others.

EMOTIONAL SUPPORT

There was a significant increase in the average number of people clients reported they could count on for support when needed. In the 30 days before pregnancy, clients reported they could count on an average of 4.4 people and an average of 5.2 people in the past 30 days at prenatal intake, which is a significant increase from before pregnancy. In the 30 days before the baby was born, clients reported an average of 6.6 people they could count on for support (a significant increase from both the 30 days before pregnancy and in the past 30 days at prenatal intake). Since the baby was born, clients reported that they could count on an average of 7.5 people for emotional support (a significant increase from both the 30 days before pregnancy and in the past 30 days at prenatal intake).

FIGURE 10.1. AVERAGE NUMBER OF PEOPLE CLIENT COULD COUNT ON FOR EMOTIONAL SUPPORT AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 135)



a,b,c,d,e – Values sharing the same subscript differ at $p < .01$
Significance tested with paired sample t-test

Note: One client was missing data on the number of people the client could count on for emotional support at follow-up.

In general, the majority of clients were satisfied with the level of emotional support they received from others. In the 30 days before pregnancy, 70.6% of KIDS NOW Plus clients were extremely or fairly satisfied with the level of support they received from others (see Figure 10.2). In the past 30 days at prenatal intake, 80.9% were extremely or fairly satisfied with the level of support they received from others. About 85% of clients were extremely or fairly satisfied with the level of emotional support they received from others in the 30 days before the baby was born (a significant increase of 19.8% compared to the 30 days before the pregnancy).

FIGURE 10.2. SATISFACTION WITH THE OVERALL LEVEL OF SUPPORT IN LIFE (N = 136)



In the 30 days before pregnancy (reported at prenatal)	In the past 30 days (reported at prenatal)	In the 30 days before the baby was born (reported at postnatal)	Since the baby was born (reported at postnatal)
--------------------------------------------------------	--------------------------------------------	-----------------------------------------------------------------	-------------------------------------------------

a, b – Values sharing the same subscript differ at $p < .01$
 Significance tested with z-test for proportions

SUMMARY

Almost 84% of KIDS NOW Plus clients at postnatal follow-up were satisfied with the level of support they received from others, a 19.8% significant increase from before pregnancy. In addition, the average number of people clients felt they could count on for support increased significantly from before pregnancy to postnatal follow-up.

SECTION 11: STRESS AND QUALITY OF LIFE

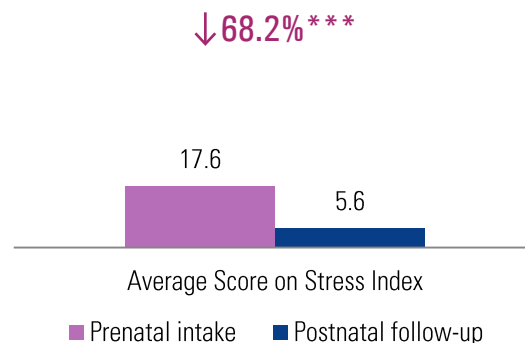
This section examines changes in stress and quality of life including the following factors: (1) health consequences of stress; (2) quality of life ratings; (3) positive and negative experiences; and (4) satisfaction with life.

HEALTH CONSEQUENCES ASSOCIATED WITH STRESS

Clients were asked about physiological symptoms often associated with higher stress called the Stress Index.⁵⁶ The index contains 15 symptoms and clients indicate how often they have experienced these symptoms in the past 7 days (e.g., experienced unexplained aches and pains, slept poorly, experienced an increased heart rate). Higher scores on the scale indicate higher stress and greater health consequences of stress. The minimum score is 0 and the maximum score is 75. For the overall sample, Stress Index scores decreased significantly from 17.6 at prenatal intake to 5.6 at postnatal follow-up, representing a significant decrease of 68.2% (see Figure 11.1).



FIGURE 11.1. AVERAGE SCORES ON THE STRESS INDEX AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 136)



*** $p > .01$
Significance tested with paired sample t-test

QUALITY OF LIFE AND SATISFACTION WITH LIFE

There were three quality of life and satisfaction with life indexes used including: (1) quality of life rating, (2) positive and negative feelings, and (3) satisfaction with life.

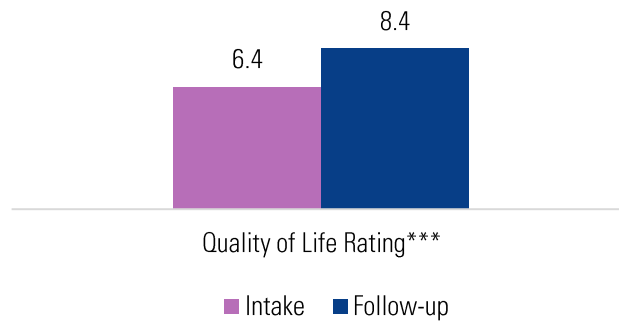
QUALITY OF LIFE

At both prenatal intake 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 KIDS NOW Plus case management program as on average 6.4 (see Figure 11.2). The average rating of quality of life at postnatal follow-up significantly increased to 8.4.



⁵⁶ Stress Index measure created by Logan, TK and Walker, R. Stress and Allostatic Load.

FIGURE 11.2. PERCEPTION OF QUALITY OF LIFE AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 134)



1, worst imaginable; 10, best imaginable

*** $p < .01$

a—Question was missing from one client's survey and interviewer skipped this question at follow-up for one client.

POSITIVE AND NEGATIVE EXPERIENCES

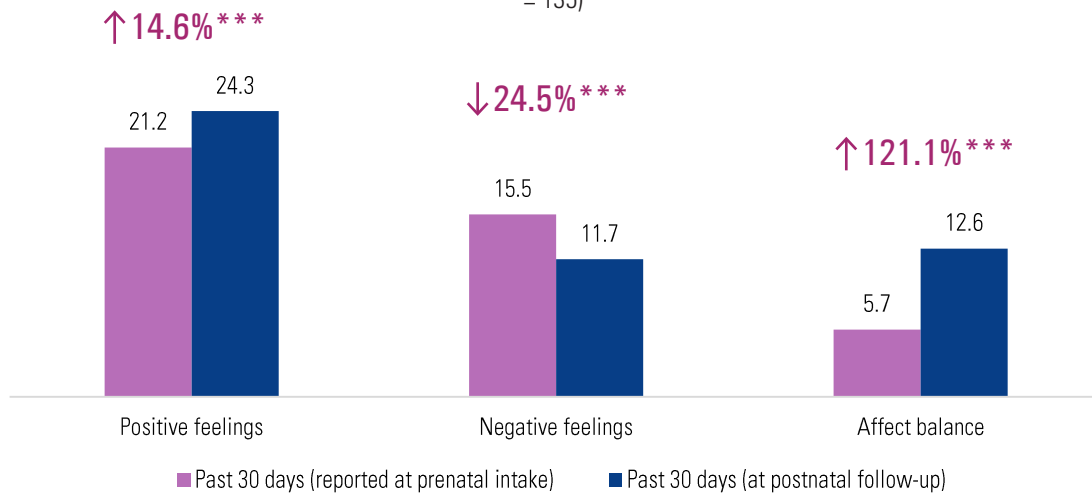
Clients were also asked about their positive or negative experiences on the Scale of Positive and Negative Experience (SPANE).⁵⁷ The index contains 12 feelings/experiences and clients indicate how often they have felt this way in the past 30 days (e.g., positive, negative, good, bad, pleasant, unpleasant, happy, sad). Clients answered using a scale with 1 representing "Very rarely or never" to 5 "Very often or always." The responses are then added for the 6 positive items, yielding a Positive Feelings Score, and the same scoring method is used for the Negative Feelings Score. The minimum score on each scale is 6 and the maximum score is 30. Low scores on the Positive Feelings Scale indicate the client rarely or infrequently experienced the six positive emotions/states. A high score on the Positive Feelings Scale indicates the client very often or frequently experienced the six positive emotions/states. To determine the overall affect balance (or the balance of negative and positive feelings about their life), the score derived from the negative feelings score is subtracted from the positive feelings score (with -24 being the minimum and unhappiest to 24 being the happiest). For example, a client with a high score reports that she rarely experiences negative feelings and very often has positive feelings.

Figure 11.3 shows that clients' average positive feelings score increased significantly from 21.2 at prenatal intake to 24.3 at postnatal follow-up, representing a significant increase of 14.6%. Average scores on the negative feelings decreased significantly by 24.5% from 15.5 at prenatal intake to 11.7 at postnatal follow-up. The significantly higher affect score at postnatal follow-up indicates that clients' positive feelings were more frequent than their negative feelings compared to prenatal intake.



⁵⁷ Diener, E., Wirtz, D. Tov, W., Kim-Prieto, C., Choi, D., Oishi, S., & Biswas-Diener, R. (2009). New measures of well-being: Flourishing and positive and negative feelings. *Social Indicators Research, 39*, 247-266.

FIGURE 11.3. CLIENT'S POSITIVE AND NEGATIVE FEELINGS IN THE PAST 30 DAYS AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 135)^a

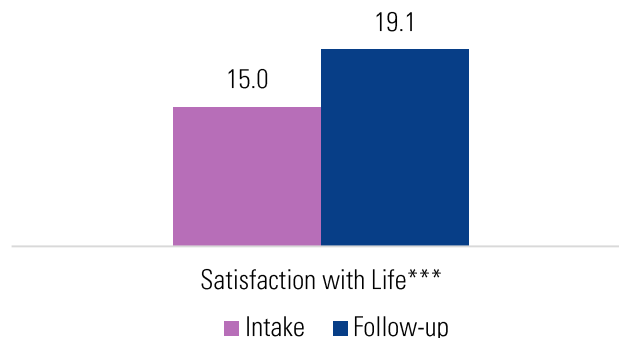


*** p > .001
 Significance tested with paired sample t-test
 a—Question not on survey for one client at follow-up.

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)⁵⁸ at both prenatal intake and postnatal follow-up, and clients responded to each item with 1 'Extremely dissatisfied' to 5 'Extremely satisfied' (see Figure 11.4). Scale scores were a sum of the five items and ranged from 5 which indicates the client is extremely dissatisfied with her current life to 25 which indicates the client is highly satisfied with her life. At prenatal intake, clients reported an average well-being score of 15.0 and this significantly increased to 19.1 at postnatal follow-up, indicating a high score and that clients are generally happy with their lives.

FIGURE 11.4. AVERAGE RANKING OF SATISFACTION WITH LIFE AT PRENATAL INTAKE AND POSTNATAL FOLLOW-UP (N = 135)



***p < .01
 a—Question was skipped for one client at postnatal follow-up.

⁵⁸ 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.

SUMMARY

Clients reported significantly fewer physiological consequences associated with higher stress at postnatal follow-up compared to prenatal intake. In addition, clients reported a significantly greater quality of life at postnatal follow-up (8.4) compared to prenatal intake. There were also significant improvements in the clients' feelings and experiences with clients reporting feeling significantly more positive at postnatal follow-up compared to prenatal intake. Furthermore, clients reported significantly greater satisfaction with their lives at postnatal follow-up.

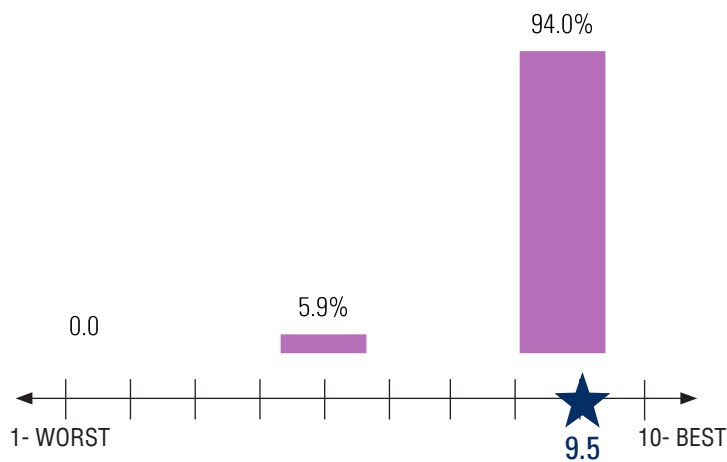
SECTION 12. CLIENT SATISFACTION WITH KIDS NOW PLUS CASE MANAGEMENT

This section describes four aspects of client satisfaction assessed for clients who completed a postnatal follow-up: (1) overall program satisfaction; (2) ratings of program experiences; (3) if the client would recommend the program to a friend; and (4) what clients found most useful from the program.

KIDS NOW PLUS CASE MANAGEMENT SERVICES SATISFACTION RATING

At the beginning of the follow-up interview, interviewers asked clients questions about their satisfaction with the treatment programs where 1 represented the worst experience and 10 represented the best experience. Clients rated their KIDS NOW Plus experience, on average, as 9.5 (see Figure 12.1). Overall, 94.0% gave a rating between 8 and 10 and 76.1% of clients gave the highest possible rating, 10.

FIGURE 12.1. RATING OF EXPERIENCE WITH KIDS NOW PLUS (N = 134)



Note. Two clients indicated they were not sure about a rating.

SATISFACTION WITH EXPERIENCE

Figure 12.2 shows that the majority of clients were very positive about every aspect of their KIDS NOW Plus experience. Most of the pregnant mothers (99.3%) indicated they learned about how drugs and alcohol affect pregnancy and baby outcomes and 99.0% reported that they learned about how tobacco use affects pregnancy and baby outcomes. In addition, 95.5% believed their mental health during pregnancy was better due to KIDS NOW Plus and 92.4% felt safer from partner violence. All clients reported their case manager was polite and respectful, 99.2% indicated the services were helpful, 97.0% reported they had a healthier pregnancy, and 97.8% felt better about themselves as a result of KIDS NOW Plus case management services.



AS A RESULT OF THEIR KIDS NOW PLUS CASE MANAGEMENT EXPERIENCE, THE MAJORITY OF CLIENTS INDICATED THEY **LEARNED ABOUT THE RISKS OF TOBACCO, ALCOHOL AND DRUGS DURING PREGNANCY** AND:

- 97.8% INDICATED THEY **FELT BETTER ABOUT THEMSELVES** AFTER PARTICIPATION
- 97.0% BELIEVED THEY HAD A **HEALTHIER PREGNANCY**
- 95.5% REPORTED THEIR **MENTAL HEALTH WAS IMPROVED**
- 92.4% FELT **SAFER FROM INTIMATE PARTNER VIOLENCE**

FIGURE 12.2. SATISFACTION OF KIDS NOW PLUS EXPERIENCE (N = 135)^a

a- One client indicated she could not remember how satisfied she was with each aspect of treatment.

RECOMMEND KIDS NOW PLUS TO A FRIEND

The majority of clients (98.5%) in the postnatal follow-up sample indicated they would recommend KIDS NOW Plus to a friend. The following are some quotes from clients about why they would recommend Kids NOW Plus to a friend:

"Because [my counselor] gives me really good information and helped me stay calm."

"It helped me out. Before I was pregnant, I didn't know what kind of programs there were."

"The resources and information were very helpful as a new mom."

"This should be recommended to anyone who is on drugs."

MOST USEFUL PARTS OF PROGRAM

When clients were asked what they found most helpful about KIDS NOW Plus, most responses fell into one of three main categories:

1 Information about risks and a healthy baby (56%)

"They helped me get ready for the baby."

"I mainly joined because I wanted to stop smoking cigarettes during my pregnancy and I have only had 1 in the last year."

"The most helpful thing was the substance abuse information."

2 Emotional support (53%)

"They cared and listened."

"My caseworker went out of her way to help me. She still helps me today."

"My case manager was always there when I needed something."

3 Resources (29%)

"The gift cards, resources and classes were very helpful for me as a new mom."

"They bought me a lot of things I needed for the baby."

"They gave me rides to appointments and stores for diapers. She got me a brand new crib and mattress."

SECTION 13: CONCLUSION

OVERVIEW

KIDS NOW Plus is part of the overall KIDS NOW initiative in Kentucky (Kentucky Invests in Developing Success NOW), coordinated and funded by the Governor's Office of Early Childhood, which provides numerous health and educational services for young children. The program is administered by the Kentucky Department for Behavioral Health, Developmental and Intellectual Disabilities and its Division of Behavioral Health. Services are provided by eight of the Commonwealth's fourteen Community Mental Health Centers and are free for pregnant women living in those regions.

The overall goal of KIDS NOW Plus is to increase positive birth outcomes for high risk pregnant women in Kentucky by reducing maternal substance use as well as mental health symptoms and partner abuse and violence. These three interrelated risk factors all impact the health of the pregnant mother, fetal development, and birth outcomes. Clearly alcohol, tobacco, and illicit drug use during pregnancy have been shown to negatively influence fetal development and women's health.^{59, 60, 61, 62, 63} Risks of negative birth outcomes are doubly increased when women using alcohol and illegal drugs avoid obtaining prenatal care due to fear of losing custody of their babies or fear of being arrested.^{64, 65} Further, substance use is related to poor mental health as well as interpersonal victimization such as partner abuse and violence.^{66, 67} Thus, it is critical to target all three of these risk factors to have the best success in reducing substance abuse and the related negative pregnancy outcomes.

KIDS NOW Plus case management clients received both traditional case management assistance to meet basic needs such as safe housing, food, and childcare, as well as referrals to treatment services. Referrals to clinical services are facilitated using the evidence-based practice of Motivational Interviewing aimed at increasing readiness to follow through on referrals, linkage with peer support groups, support to maintain abstinence throughout pregnancy, and finally, support and transportation to attend prenatal appointments. Clients also receive information and support to facilitate a healthy pregnancy and fetus as well as to meet needs after the baby is born. Services provided by KIDS NOW Plus case managers are client centered and do not follow a specific manualized intervention. Client centered services are based on individual needs which change over time with risk, situation, and pregnancy development.

The KIDS NOW Plus outcome evaluation includes a face-to-face intake interview by program staff upon entering the program and approximately 6 months after the birth of their baby, consenting clients are contacted for a follow-up assessment. The follow-up assessment includes their satisfaction with the program, the health and well-being of their baby, the impact KIDS NOW Plus case management services had on them during pregnancy, as well as the

⁵⁹ Chiriboga, CA. (2003). Fetal alcohol and drug effects. *Neurologist*, 9(6), 267-279.

⁶⁰ Bandstra, E. S., Morrow, C. E., Mansoor, E., & Accornero, V. H. (2010). Prenatal drug exposure: infant and toddler outcomes. *Journal of Addictive Diseases*, 29(2), 245-258.

⁶¹ Agrawal, A., Scherrer, J. F., Grant, J. D., Sartor, C. E., Pergadia, M. L., Duncan, A. E., et al. (2010). The effects of maternal smoking during pregnancy on offspring outcomes. *Preventive Medicine*, 50(1), 13-18.

⁶² Salisbury, A. L., Ponder, K. L., Padbury, J. F., & Lester, B. M. (2009). Fetal effects of psychoactive drugs. *Clinics in perinatology*, 36(3), 595-619.

⁶³ Stroud, L. R., Paster, R. L., Goodwin, M. S., Shenassa, E., Buka, S., Niaura, R., et al. (2009). Maternal smoking during pregnancy and neonatal behavior: a large-scale community study. *Pediatrics*, 123(5), e842-e848.

⁶⁴ Poland, M. L., Dombrowski, M. P., Ager, J. W., & Sokol, R. J. (1993). Punishing pregnant drug users: enhancing the flight from care. *Drug and Alcohol Dependence*, 31(3), 199-203.

⁶⁵ Roberts, S., & Nuru-Jeter, A. (2010). Women's perspectives on screening for alcohol and drug use in prenatal care. *Women's Health Issues*, 20(3), 193-200.

⁶⁶ Logan, T., Walker, R., Jordan, C. & Leukefeld, C. (2006). *Women and victimization: contributing factors, interventions, and implications*. Washington, DC: American Psychological Association Press.

⁶⁷ Shah, P. S., & Shah, J. (2010). Maternal exposure to domestic violence and pregnancy and birth outcomes: a systematic review and meta-analyses. *Journal of Women's Health*, 19(11), 2017-2031.

extent to which risk factors decreased during pregnancy and were sustained after the baby's birth.

The pregnant women involved with KIDS NOW Plus case management services are high risk across a number of general and targeted risk factors. The majority of clients who enter the program are about halfway through their pregnancies, are young (in her mid 20s), do not have a college education, and are unemployed. Additionally, many of these young women used cigarettes, alcohol and/or drugs before knowing about their pregnancy. A sizable number of these pregnant women also experience depression, anxiety, and intimate partner abuse and violence.

However, in spite of these significant risk factors, the KIDS NOW Plus mothers had very positive birth outcomes that were similar to the general population of mothers in Kentucky who resided in the same regions served by KIDS NOW Plus and who had babies during the same period. Specifically, the two groups of mothers had similar birth outcomes, such as babies' birth weight, babies' highest APGAR score, premature births, birthing problems, babies taken to NICU, and breastfeeding.

Reported illegal drug use was higher for the KIDS NOW Plus clients when compared to a national sample of pregnant women. Specifically, almost half of clients reported illegal drug use in the 30 days before becoming pregnant, compared to 11.4% of non-pregnant women reporting illegal drug use in the past month in a national survey. In the past 30 days at prenatal intake, 9.6% of clients reported illegal drug use and in the 30 days before the baby was born only 2.2% of clients reported illegal drug use. In comparison, a national survey of women reported 5.4% of pregnant women aged 15-44 used illegal drugs in the past month. 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 KIDS NOW Plus with a sustained decrease after the birth of the baby. A little over one-third of clients reported using alcohol in the 30 days before pregnancy compared to 55.4% of non-pregnant women aged 15-44 in a national sample reporting drinking alcohol in the past 30 days. Further, only 2.9% of KIDS NOW Plus clients reported alcohol use in the past 30 days at prenatal intake compared to 9.4% of pregnant women nationally. Although there was an increase in the number of clients who reported alcohol use at postnatal follow-up (in the six months after the birth of the baby) compared to during pregnancy, there were still significantly fewer clients reporting alcohol use compared to the 6 months 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. This decrease was sustained in the past 30 days at postnatal follow-up. In addition, the average number of cigarettes clients smoked decreased over 50% from before the client found out about their pregnancy to the past 30 days at prenatal intake. The number of cigarettes decreased further in the 30 days before the baby was born and remained low in the past 30 days at postnatal follow-up.

Clients' mental health also showed significant improvements. Specifically, significant reductions in depression and anxiety symptoms were found in the past 6 months at postnatal follow-up compared to before pregnancy. Moreover, individuals reported significantly fewer days in the past 30 days their mental health was not good at follow-up compared to intake. Clients also reported more positive feelings and fewer physiological symptoms associated with stress at postnatal follow-up. In addition, clients reported their quality of life significantly increased at postnatal follow-up.

Reported incidences of intimate partner abuse such as psychological abuse, physical abuse, and coercive control all decreased from the period before they found out they were pregnant to postnatal follow-up.

In addition to these risk factors, there were improvements in other general areas of the mothers' lives after becoming involved in the KIDS NOW Plus program including a reduction in chronic pain and improved overall health. Women also reported improved economic conditions with significantly fewer clients reporting having difficulty meeting basic living or health care needs as a result of financial problems.

Clients also reported significantly higher quality of life after the program, having significantly more positive feelings and significantly less negative feelings, and an overall greater satisfaction with life at postnatal follow-up compared to prenatal intake. The vast majority of clients were satisfied with KIDS NOW Plus case management services and believed they and their baby were better off due to their participation.

There are several limitations to this outcome study including the lack of random assignment to the KIDS NOW Plus program. Although it would be ethically and procedurally difficult to conduct a random assignment of pregnant women at risk for substance use to a program such as KIDS NOW Plus, random assignment can provide more confidence that the birth outcomes of these mothers are directly due to interventions provided by KIDS NOW Plus. Also, this study has no control group with which to compare KIDS NOW Plus clients. While the matched comparison group matches mothers on several key factors (age, race, education, marital status and smoking status), there is no information on drug use, mental health problems or intimate partner violence 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 KIDS NOW Plus play a critical role in the health and safety of these mothers and their children. Further, in order to better understand the results of the KIDS NOW Plus case management program, the analysis was done 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 factors⁶⁸ along with a randomly selected comparison group from the general population were compared to the KIDS NOW Plus case management group on birth outcomes (see Appendix B). Results paralleled the findings of the multivariate analysis on birth outcomes. Specifically, there were no significant differences for the average number of prenatal care visits, average number of gestational weeks, highest APGAR score, birth weight, the percentage of babies who were born premature, or the percentage of babies with birthing problems.

Second, most of the data for this report is self-reported by KIDS NOW Plus clients. Recent research has supported findings about the reliability and accuracy of individuals' reports of their substance use.^{69, 70, 71, 72} Earlier studies found that the context of the interview influences reliability.⁷³ During the informed consent process at the beginning of the follow-up survey, interviewers tell participants that the research team operates independently from the KIDS NOW Plus 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 data collectors 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 use.^{74, 75}

Third, clients are self-selected and voluntarily agree to participate in KIDS NOW Plus 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

⁶⁸ Mothers were matched on age, education, metropolitan/non-metropolitan residence, marital status and smoking status.

⁶⁹ Del Boca, F.K., & Noll, J.A. (2000). Truth or consequences: The validity of self-report data in health services research on addictions. *Addiction*, 95, 347-360.

⁷⁰ Harrison, L. D., Martin, S. S., Enev, T., & Harrington, D. (2007). *Comparing drug testing and self-report of drug use among youths and young adults in the general population (DHHS Publication No. SMA 07-4249, Methodology Series M-7)*. Rockville, MD: Substance abuse and Mental Health Services Administration, Office of Applied Studies.

⁷¹ Rutherford, M.J., Cacciola, J.S., Alterman, A.I., McKay, J.R., & Cook, T.G. (2000). Contrasts between admitters and deniers of drug use. *Journal of Substance Abuse Treatment*, 18, 343-348.

⁷² Shannon, E.E., Mathias, C.W., Marsh, D.M., Dougherty, D.M., & Liguori, A. (2007). Teenagers do not always lie: Characteristics and correspondence of telephone and in-person reports of adolescent drug use. *Drug and Alcohol Dependence*, 8(90), 288-291.

⁷³ Babor, T.F., Stephens, R.S., & Marlatt, A. (1987). Verbal report methods in clinical research on alcoholism: Response bias and its minimization. *Journal of Studies on Alcoholism*, 48, 410-424.

⁷⁴ 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.

⁷⁵ 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.

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 KIDS NOW Plus. 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, or fear being prosecuted.⁷⁶ 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 the state 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.

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 women's substance-using behavior once interventions were initiated. Given these positive outcomes, there is every reason to see a rationale for maintaining and expanding these services in the eight participating regions as well as to the remaining six regions of the state. This is especially critical when comparing the level of tobacco and drug use in the pregnant women served by the KIDS NOW Plus program to the national level data which shows significantly higher rates of substance use at prenatal intake for Kentucky women.

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. The KIDS NOW Plus program ends 60 days after the end of the month in which the child is born, due to Medicaid eligibility limits⁷⁷ and two months postpartum is far too early to fully secure changes toward abstinence or reduced substance use among these women. Those mothers who persist in or return to drug-using lifestyles are at great risk for child neglect and other forms of child maltreatment,^{78, 79} as well as for setting the stage for these children to grow into alcohol and illegal drug users as adolescents and adults.^{80, 81} 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 KIDS NOW Plus program plays a critical role toward this end.

Overall, pregnant women participating in KIDS NOW Plus services significantly improved on all three targeted areas of behavioral health and had birth outcomes similar to the general population of mothers. Further, clients were overwhelmingly positive about the program. They indicated they would refer their friends or others to the program, and felt like what they gained from the program helped them have a healthier pregnancy, improved their birth outcomes, and provided valuable information about the risk of substance use during pregnancy. The study demonstrates positive changes in the inter-related targeted risk factors after involvement in KIDS NOW Plus suggesting significant benefit of this program especially if it were expanded to serve high-risk pregnant women across the state.

⁷⁶ Tuchman, E. (2010). Women and addiction: The importance of gender issues in substance abuse research. *Journal of Addictive Diseases, 29*(2), 127-138.

⁷⁷ Data for the postnatal follow-up was completed prior to Kentucky's Medicaid coverage expansion which was effective January 1, 2014. As of this date, these eligibility limits are no longer in effect.

⁷⁸ McKeganey, N., Barnard, M., & McIntosh, J. (2002) Paying the price for their parent's addiction: meeting the needs of the children of drug using parents. *Drugs: Education, Prevention and Policy, 9*, 233-246.

⁷⁹ Barnard, M., & McKeganey, N. (2004). The impact of parental problem drug use on children: what is the problem and what can be done to help? *Addiction, 99*(5), 552-559.

⁸⁰ Ireland, T. O., Smith, C. A., & Thornberry, T. P. (2002). Developmental issues in the impact of child maltreatment on later delinquency and drug use. *Criminology, 40*(2), 359-400.

⁸¹ Biederman, J., Faraone, S. V., Monuteaux, M. C., & Feighner, J. A. (2000). Patterns of alcohol and drug use in adolescents can be predicted by parental substance use disorders. *Pediatrics, 106*(4), 792-797.

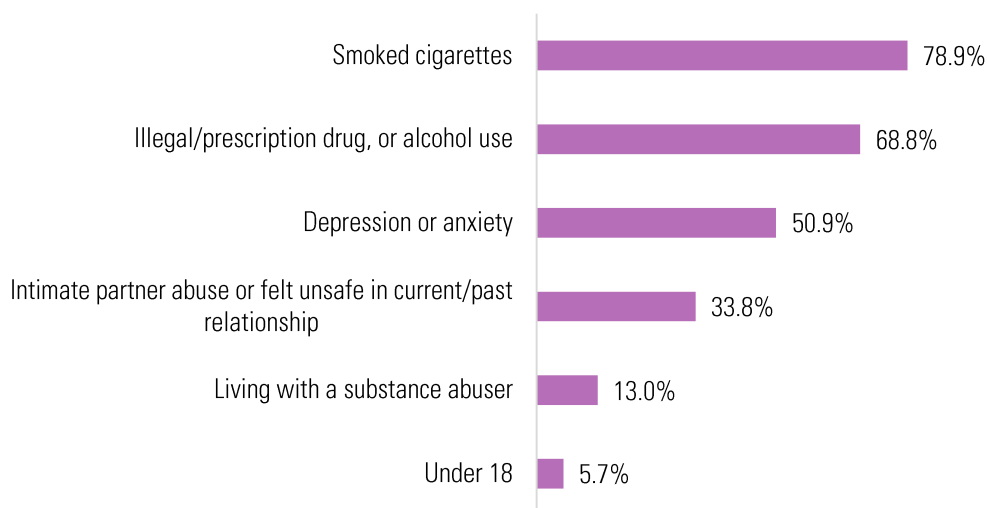
APPENDIX A: DESCRIPTION OF KIDS NOW PLUS CASE MANAGEMENT CLIENTS AT PRENATAL INTAKE

The KIDS NOW Plus outcome evaluation includes a face-to-face intake interview by program staff to assess targeted factors such as substance use, mental health symptoms, intimate partner violence, and other factors such as education, employment status, and living situation prior to pregnancy and while involved in the program. Between January 2013 and June 2014, 564 pregnant women completed a prenatal intake interview.^{82, 83} For 4 clients, however, the date between when the intake assessment was completed and when it was submitted to UK CDAR was greater than 90 days and, therefore, these clients were not included in this analysis. As a result, the analysis below is for 560 pregnant women who completed a prenatal intake assessment and whose assessment was submitted within 90 days of completion.

RISK STATUS

Figure AA.1 shows that of the 560 clients who completed a KIDS NOW Plus prenatal intake, 95.9% (n = 537 clients), fit into at least one of the major risk factor categories assessed in the intake interview. Overall, 78.9% of clients reported cigarette use, 68.8% reported drug or alcohol use at intake, 50.9% reported depression or anxiety, 33.8% reported intimate partner abuse and/or feeling unsafe in either their current relationship or because of a partner from a previous relationship, 13.0% of clients reported currently living with someone who has drug or alcohol problems, and 5.7% were under the age of 18.

FIGURE AA.1. PERCENTAGE OF CLIENTS FALLING INTO AT LEAST ONE TARGETED RISK FACTORS (N = 560)



PREGNANCY STATUS

Eighteen percent of KIDS NOW Plus clients were referred to the case management program by the local health department. Fifteen percent of clients were referred by a counselor and 15.2% were referred by HANDS. Over one-third of clients (35.9%) reported that receiving information about pregnancy and fetal development from KIDS NOW Plus was important, 16.4% wanted information services for after the baby was born. About 11% wanted help with stress or for mental health issues and 10.5% wanted information about substance use and the effects on pregnancy. Overall, at the time clients completed the prenatal intake, they were an average of 22 weeks pregnant (ranging from women who were 5 weeks pregnant to women who were 42 weeks pregnant). Although 81.6% of the clients

⁸² The intake and postnatal assessment were changed in January 2013; therefore, this analysis includes clients who completed the latest version of the assessment to the end of fiscal year 2014.

⁸³ Clients who completed a prenatal intake (n = 564) entered the KIDS NOW Plus case management program between August 2012 and June 2014.

indicated their pregnancy was unplanned, only 1.6% reported they were not sure about keeping the baby or were definitely not keeping their baby.

At the time of prenatal intake, clients had been to an average of 6.1 visits (range of 0-50 visits) with their prenatal health care provider and 45.4% reported they were planning on breastfeeding.

Overall, 72.9% of clients reported they been pregnant before. The majority of clients who entered the KIDS NOW Plus case management program were confident (27.9%) or very confident (57.3%) about caring for a new baby.

Only 3.6% of the women reported the father did not know about the baby. Of those who indicated the father knew about the baby (n = 540), 75.9% indicated the father was excited (16.1%) or extremely excited (59.8%) about the baby.

SOCIOECONOMIC STATUS

- On average, clients were 25 years old (ranging from 14 years old to 43 years old).⁸⁴
- The majority of women who entered KIDS NOW Plus case management were unemployed (73.0%) at the time of the intake interview. Less than 10% were employed full-time and 14.6% either worked part-time or had occasional/seasonal work.
- About 58% of clients were either married (23.9%) or cohabiting with a partner (33.8%) at prenatal intake. Of those clients who were married or cohabiting (n = 323), 93.2% reported that their partner was the father of the baby with whom they were pregnant.
- Eleven percent of the KIDS NOW Plus mothers reported at prenatal intake they were currently homeless. Of those that indicated they were homeless (n = 63), 11.1% were staying in a shelter, 71.4% were staying temporarily with friends/family, and 3.2% were staying on the street or in their car. About 14% reported they perceived themselves to be homeless for other reasons (i.e., living in a residential treatment center or living in poor conditions).

CASE MANAGEMENT ACTIVITY

From January 2013 to June 2014, 576 clients completed a new intake survey for the KIDS NOW Plus program (see Table 1.1) and 891 clients were active in the program at any point during that period for those that had information reported in the KIDS NOW Plus Client Information System.⁸⁵ There are several ways that case managers maintain contact with active clients. For the 891 active clients in the KIDS NOW Plus case management program that had information recorded, there were 13,226 case manager contacts (or about 15 contacts on average per active client). Specifically, there were 6,155 face-to-face contacts with clients (or about 7 face-to-face contacts with each active client, on average) and 5,416 phone contacts (or about 6 phone calls per active client, on average). In addition, case managers had a total of 94 email contacts with clients and 1,561 texts to clients (or almost 2 texts on average per active client).

⁸⁴ Three clients had incorrect birthdates entered and, therefore, age could not be calculated.

⁸⁵ The information in the client information system may not reflect all of the clients or all of the activities, or may contain duplicate clients if the clinician entered her twice. The information provided here is based on what was entered into the system.

TABLE 1.1. CASE MANAGER CASELOAD AND EFFORTS FROM JANUARY 2013 TO JUNE 2014

REGION	CLIENTS ENTERED INTO KIDS NOW PLUS	ACTIVE CLIENTS	FACE-TO-FACE CONTACTS	PHONE CONTACTS	EMAIL CONTACTS	TEXT CONTACTS	TOTAL CASE MANAGER CONTACTS
Adanta	51	74	621	407	0	17	1,045
Communicare	124	234	1,075	388	14	542	2,019
Cumberland River	39	58	348	119	5	331	803
Kentucky River	45	56	262	347	0	361	970
Lifeskills	109	164	1,397	1,504	43	205	3,149
Seven Counties	58	82	778	670	0	0	1,448
NorthKey	19	44	366	337	0	0	703
Pathways	131	179	1,308	1,644	32	105	3,089
TOTAL	576	891	6,155	5,416	94	1,561	13,226

APPENDIX B: METHODS

This evaluation project collects data from pregnant women in Kentucky who are at high risk for substance abuse and participate in KIDS NOW Plus case management services. Eight community mental health centers participate in the program and collect intake data on each client entering the KIDS NOW Plus case management services program. Data analysis has three main phases: (1) examination of service utilization and change in behavior and risks over time, using the prenatal intake information and the postnatal follow-up interviews among clients who gave birth; (2) comparisons of KIDS NOW Plus clients and general population birth outcome information from the Vital Statistics birth outcome data set; and (3) comparison of KIDS NOW Plus clients matched to mothers in the general population who did not receive KIDS NOW Plus case management services based upon age, race, education, marital status, smoking status and metropolitan/non-metropolitan residence.

INTAKE ASSESSMENT

The intake assessment is an electronic, structured interview developed by the University of Kentucky Center on Drug and Alcohol Research (UK CDAR) in collaboration with KIDS NOW Plus program administrators. Intake information is collected during face-to-face client interviews with case managers when the client enters the program and the responses are electronically submitted to UK CDAR. At the end of the intake 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. A total of 560 intakes were completed between January 2013 and June 2014 and submitted to UK CDAR within 90 days.⁸⁶ Overall, women completed a KIDS NOW Plus case management intake when they were an average of 22 weeks pregnant (minimum = 5 weeks, maximum = 42 weeks).⁸⁷

METHOD OF DETERMINING FOLLOW-UP SAMPLE

FOLLOW-UP ASSESSMENT. KIDS NOW Plus clients are eligible for the follow-up assessment if they consent to be contacted by UK CDAR BHOS staff and provide locator information. The target month for follow-up assessment is computed by adding 6 months (180 days) to the self-reported due date the client provides at prenatal intake. In reality, there was an average of 6.4 months between the time the baby was due and the date of the follow-up assessment (with a mode of 6 months). These individuals are then included in the sample of women to be followed up.

Follow-up interviews are conducted on the telephone by the UK CDAR BHOS research team and are independent of KIDS NOW Plus 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.⁸⁸ The follow-up interviews examine program satisfaction, current substance use, intimate partner violence, 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

⁸⁶ The intake assessment was changed in January 2013; therefore, this analysis includes all clients who received the latest version of the assessment through the end of fiscal year 2014. Though 564 clients completed an intake during this time period, only 560 were included in the intake analysis because the time between when the intake was completed and when the intake was submitted to UK CDAR was greater than 90 days for 4 clients.

⁸⁷ The average number of days between when the client was admitted to the KIDS NOW Plus case management program and when the baseline was completed was 21.7 days with a minimum of 0 days and a maximum of 183 days.

⁸⁸ The exception to this is if harm to the client, harm to others, or child abuse is disclosed to the researchers.

follow-up sample one month before the target month for their follow-up interview and continues 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. First, 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. Second, 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, 560 intakes were completed between January 2013 and June 2014 and submitted in less than 90 days from the baseline completion date.⁸⁹ Of these, 276 clients were not yet in the time frame for the targeted follow-up date (i.e., not 6 months from the estimated due date) and, therefore, not yet eligible for the follow-up sample. Of the clients who were in the targeted window to complete a postnatal follow-up (n = 284), 46 did not consent to be contacted by follow-up staff (see Table AB.1). Of the remaining 238 women, 44 were not eligible because they were in jail or another controlled environment (n = 6), because their baby was not living with them (n = 15), or other reasons such as invalid contact data (n = 23). To maximize the number of follow-up assessments included in the FY 2015 Outcomes report, all follow-up assessments that were completed by August 2014, which was the last date the follow-up assessments were pulled, and had a targeted follow-up date in FY 2014, were included in the follow-up sample (n=162).⁹⁰

TABLE AB.1. FOLLOW-UP SAMPLE AND EFFORTS⁹¹

	Number of intakes (n = 560)
Not in the 6 month follow-up targeted window	276
Clients in the 6 month follow-up targeted window	284
Did not consent to follow-up	46
Not eligible for follow-up	44
In jail or controlled environment (i.e, residential treatment)	6
Baby not living with them	15
Other (i.e., invalid data)	23
Total number of intake surveys eligible for follow-up	194
Expired cases (i.e., never contacted, did not complete the survey during the follow-up period)	31
Expired rate ((the number of expired cases/eligible cases)*100)	16.0%
Refused	0
Refusal rate ((the number of refusal cases/eligible cases)*100)	0.0%
Follow-up interviews completed as of August 18, 2014	162
Follow-up rate	83.5%

⁸⁹ Again, 564 prenatal intakes were completed; however, 4 were not submitted within 90 days of the baseline date.

⁹⁰ As of August 18, 2014 clients who had a six month follow-up target date within the 2014 fiscal year were completed.

⁹¹ An additional survey was noted as being completed, but was missing and, therefore, could not be verified. Thus, the number of follow-up surveys completed is 162.

Because the follow-up sample is based upon the women who have had their babies, live in a KIDS NOW Plus region and had a follow-up interview, the next step in determining the follow-up sample was to match to the birth event data set.

OBTAINING THE BIRTH EVENT DATA. The Vital Statistics birth data is used to compare mothers in KIDS NOW Plus case management and their babies to mothers who had babies during the same time period but who did not participate in KIDS NOW Plus 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 KIDS NOW Plus intake data, birth event data for 2013 and 2014 (up to the date of analysis on September 16, 2014) were combined ($n=89,240$; 55,516 for 2013 and 33,724 for 2014). Next, KIDS NOW Plus clients in the birth event data set were identified based upon social security number. Only mothers in the birth data set that had their babies during the same time period as KIDS NOW Plus clients were kept in the data set (January 2013-January 2014); thus, 29,163 cases were removed leaving a sample of $n = 60,077$. Seventeen cases were removed because they were duplicate records (the earliest record for the child was kept in the file). In addition, 167 cases were removed from the whole birth event data set because they matched mothers involved in KIDS NOW Plus 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, because follow-up analysis years regarding the birth data often overlap, cases were removed from the birth data file if they had been analyzed in the previous year's report ($n = 78$). Finally, two cases were removed from the birth data set corresponding to two clients from KIDS NOW Plus who did not give permission to access their birth event data. This left a sample of 59,813.

The next step to preparing the data was that all cases in which the mother was not a Kentucky resident were eliminated ($n=2,338$) which was 3.9% of the birth data sample and left a sample of 57,475 cases in Kentucky.

In addition, because not all CMHC regions provide KIDS NOW Plus services, to make the general population group more comparable to the KIDS NOW Plus mothers, only cases from the regions served by KIDS NOW Plus were included in the analysis.⁹² In order to determine the region, the mother's county of residence from the birth data was matched to the counties in the selected regions. This step eliminated 21,788 cases leaving a sample of $n = 35,687$ cases from regions served by KIDS NOW Plus.

FOLLOW-UP SAMPLE. In order to be included in the analysis of this report, clients must have been engaged in KIDS NOW Plus case management services for at least 30 days before the baby's birth; thus, of the 162 follow-up interviews completed, 10 were not included in the analysis because the intake information was submitted to CDAR less than 30 days before the baby was born. Also, only clients who had data in the birth event data set and who resided in a KIDS NOW Plus region were included in the analysis. Once the follow-up clients were matched to the birth event data set, 14 clients were not included in the follow-up analysis because they did not have a match to data in the Vital Statistics data set.⁹³ In addition, 2 clients did not give permission to access their birth data. This left a follow-up sample of 136 KIDS NOW Plus mothers for the birth event analysis.

ANALYSIS. Once the data set was cleaned and internally certified according to UK CDAR BHOS quality standards,

⁹² KIDS NOW Plus regions include LifeSkills, Communicare, Seven Counties, NorthKey, Pathways, Kentucky River, Cumberland River, and Adanta.

⁹³ Of these 14, 9 did not reside in regions served by KIDS NOW Plus and 5 were not in the birth event data set at all which could be due to an incorrect social security number, name or birthdate.

data analysis began. This included using the statistical software SPSS to complete Chi-square tests of independence, one-way ANOVAS, and z-test for proportions, while percent-of-change calculations were performed in Microsoft Excel. In this analysis the alpha level was set at .01. The statistical results were then placed in tables for review by the research team.

SERVICE EVENT DATA. Information on clinical services and mental health diagnosis codes for KIDS NOW Plus intake clients receiving treatment at community mental health centers is submitted into the Treatment Event Dataset (TEDS) and is managed by the University of Kentucky Institute for Pharmaceutical Outcomes and Policy (IPOP). Clinical services include billed case management, outpatient counseling, residential treatment, and other services as reported monthly by the CMHCs to the Department for Behavioral Health, Development and Intellectual Disabilities as service event data in TEDS. Service events and mental health diagnosis codes were matched to KIDS NOW Plus client intake data using encrypted social security numbers and based upon the timeframe from the date the intake interview was submitted to two months after the date the baby was born which varied for each client (average days 187; Minimum = 91, Maximum = 303 days). Of the 136 postnatal follow-up women included in the analysis, 64.7% (n = 88) received clinical services other than clinical case management services⁹⁴ provided by the KIDS NOW Plus program staff. Services that were categorized by TEDS as “unknown/not collected” or “miscellaneous” were not included in the analysis.

ANALYSIS OF BIRTH EVENTS AND OUTCOME DATA

BIRTH DATA SAMPLE. As described in the section regarding obtaining the birth event data, based upon the range of dates that the KIDS NOW Plus clients gave birth, which were from January 2013 to January 2014, the final sample for the general population of mothers is 34,888 mothers and 35,550 babies who were not involved in KIDS NOW Plus.

The KIDS NOW Plus 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 that 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., January 2013 – January 2014).

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 AB.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 (35,687 babies) there were 1,114 twins, 27 triplets, 4 quadruplets (totaling 1,145 multiple births, or 3.2% of the sample) and 85 children that had siblings born during the time frame but their siblings were not twins or triplets. Thus, when analyzing outcomes of the birth and baby characteristics the total sample size is 35,687 in order to include all babies.

⁹⁴ An additional 20 clients received only clinical case management services including substance abuse, adult mental health, child mental health and intellectual disabilities, and 2 clients received “unknown/not collected” or “miscellaneous” services, but were not included in the analysis.

TABLE AB.2. MULTIPLE BIRTHS AT ONE BIRTH EVENT BETWEEN JANUARY 1, 2013 AND JANUARY 31, 2014

Out of a total of 35,687 babies:	
Twins	1,114
Triplets	27
Quadruplets	4
Total multiple births	1,145 or 3.2%
Siblings born in separate deliveries within the time frame	85

Note: 2 babies in the KIDS NOW Plus sample were twins; the remaining babies were in the general population

Using mothers' social security numbers and children's dates of birth, mothers with multiple and multiparous births were identified as shown in Table AA.3. This shows there were 35,024 mothers total because 663 events with the same mother were excluded from the analysis. 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 557 mothers had twins, 9 had triplets, 1 had quadruplets and 85 had children in separate deliveries but within the selected timeframe. When analyzing characteristics of the mother the sample size will be 35,024 so that these mothers are not counted more than once.

TABLE AB.3. MOTHERS WITH MORE THAN ONE BABY IN THE BIRTH DATA SET BETWEEN JANUARY 1, 2013 AND JANUARY 31, 2014

Out of a total of 35,024 mothers:	
Mothers who had twins	557
Mothers who had triplets	9
Mothers who had quadruplets	1
Total mothers with multiple births	567
Mothers with separate deliveries within the selected timeframe (siblings)	85
Total mothers with more than one child in the data set	652 or 1.9%

Note: Of the 652 mothers, 1 mother from KIDS NOW Plus had twins and or multiparous births. Also, 3 mothers in the general population had one child and then twin siblings. These mothers are counted only once.

ANALYSIS. Using the statistical software IBM SPSS, analysis included Chi-square tests and one-way ANOVAS comparing clients that were in KIDS NOW Plus 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 KIDS NOW Plus participation and birth outcomes while adjusting for key factors. Each birth outcome in Table 5C.1 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., less than a high school diploma or GED vs. high school diploma or higher), area of residence (metropolitan vs. non-metropolitan county), and smoking at the time of the birth (No/Yes).

MATCHED COMPARISON SAMPLE. In order to create a similar sample to which the KIDS NOW Plus birth outcomes and service data can be compared, clients were matched to mothers in the general population who did not receive KIDS NOW Plus case management services based upon age, race, education, marital status, smoking status and metropolitan/non-metropolitan residence.

To create these samples, a random number was assigned to the general population of mothers in Excel. Then, the KIDS NOW Plus and general population mothers were placed in separate data files within Access. A query was created from the KIDS NOW Plus 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 KIDS NOW Plus 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 KIDS NOW Plus 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 KIDS NOW Plus birth event data.

Next, a table of birth event data with characteristics matching KIDS NOW Plus 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 KIDS NOW Plus possess each of the six characteristics, the next step was to pull the remaining number of cases from the birth data set that matched KIDS NOW Plus.

If there were KIDS NOW Plus 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 KIDS NOW Plus client file. This resulted in a sample size of $n = 125$ mothers for each group. Because some mothers had multiple births, there were 126 babies born to the 125 KIDS NOW Plus mothers, 125 babies born to the 125 mothers in the matched comparison sample and 127 babies born to the 125 mothers 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.

MATCHED COMPARISON SAMPLE SERVICE EVENT DATA AND MENTAL HEALTH DIAGNOSIS. Because KIDS NOW Plus strives to get women into necessary services, service event data and mental health diagnoses for KIDS NOW Plus postnatal follow-up clients and the matched comparison sample were analyzed. Service event data was matched to KIDS NOW Plus clients and the matched comparison group using encrypted social security numbers from one year prior to the child's date of birth to the child's date of birth (dates range from January 2012 to January

2014). Of the 125 women in each group,⁹⁵ 90 KIDS NOW Plus clients⁹⁶ and 9 mothers in the matched comparison group had service data. Services that were categorized by TEDS as “unknown/not collected” and “miscellaneous” were not included in the analysis (a total of 4 services for 2 clients). None of the clients had only unknown/not collected services.

⁹⁵ 10 women in the matched comparison sample had invalid social security numbers and were not able to be matched up to service data.

⁹⁶ An additional 12 clients received clinical case management services including substance abuse, adult mental health, child mental health and intellectual disabilities, but were not included in the analysis.

APPENDIX C: CLIENT CHARACTERISTICS AT INTAKE FOR THOSE WITH COMPLETED FOLLOW-UP INTERVIEWS AND THOSE WITHOUT COMPLETED FOLLOW-UP INTERVIEWS

Between January 2013 and June 2014, 560 mothers completed a prenatal intake. Of those clients, 276 either had not yet had their baby or were not in their 6-month postnatal targeted assessment month in FY 2014. Individuals who completed a postnatal follow-up assessment (n = 162) are compared in this section with 122 individuals who did not complete a postnatal follow-up interview but were in their 6-month follow-up window (e.g., ineligible for follow-up [n = 23], did not consent to follow-up [n = 46], interviewers were unable to locate the client for the follow-up survey [n = 31] or other reasons including invalid contact data or more than 30 days between prenatal intake survey completion and submission [n = 22⁹⁷]).

DEMOGRAPHIC CHARACTERISTICS

There were no significant demographic differences between clients who were followed-up and clients who were not followed-up (see Table AC.1). The average client age was about 25 years old for both groups of clients. Clients in both groups came into the KIDS NOW Plus program when they were about 24 weeks pregnant. More than half of clients in both groups were either married or cohabiting at prenatal intake. Of those who were married or cohabiting, over 90% of clients in both groups reported this partner was the father of the baby.

TABLE AC.1. COMPARISON OF DEMOGRAPHICS FOR CLIENTS WHO WERE INCLUDED IN THE FOLLOW-UP SAMPLE AND CLIENTS WHO WERE NOT INCLUDED IN THE FOLLOW-UP SAMPLE

	FOLLOW-UP SAMPLE	
	NO n = 122	YES n = 162
AVERAGE AGE	25.2 years	25.2 years
AVERAGE WEEKS PREGNANT	23.5 weeks	24.2 weeks
RELATIONSHIP STATUS		
Married	16.4%	23.5%
Cohabiting	42.6%	35.8%
Separated or divorced	6.6%	11.7%
Never married	34.4%	29.0%
Of those married or cohabiting, percentage that reported the partner is the father	(n = 67) 93.1%	(n = 96) 90.6%

Of those who completed a postnatal follow-up, 70.4% were currently unemployed compared to 71.3% of the clients who did not complete a follow-up. Almost three-quarters of clients in both groups expected to be employed in the next 12 months (see Table AC.2).

⁹⁷ Category includes one client with missing follow-up survey.

TABLE AC.2. CURRENT EMPLOYMENT STATUS AT PRENATAL INTAKE

	FOLLOW-UP SAMPLE	
	NO n = 122	YES n = 162
EMPLOYMENT		
Not currently employed	71.3%	70.4%
Full-time	10.7%	8.6%
Part-time	12.3%	15.4%
Occasional, from time to time seasonal work	1.6%	2.5%
On leave from a job for pregnancy related reasons	4.1%	3.1%
Expect to be employed in the next 12 months	69.9%	73.6%

The majority of clients reported that their usual living arrangement in the 12 months before entering the KIDS NOW Plus case management program was in a private residence (i.e., their own home or apartment or someone else's home or apartment; see Table AC.3). Small numbers of individuals were living in a correctional facility (i.e., jail or prison) before entering case management services. A small number of individuals reported their usual living arrangement had been in a shelter or on the street. At the time individuals entered KIDS NOW Plus, overall, about 12% of clients considered themselves to be homeless, with many of those individuals stating that they were temporarily staying with friends or family (see Table AC.3). There were no significant differences in living situation at intake between women who completed the postnatal follow-up and women who did not.

TABLE AC.3 LIVING SITUATION OF CLIENTS BEFORE ENTERING THE KIDS NOW PLUS PROGRAM

	FOLLOW-UP SAMPLE	
	NO n = 122	YES n = 162
USUAL LIVING ARRANGEMENT IN THE 12 MONTHS BEFORE ENTERING KIDS NOW PLUS		
Own or someone else's home or apartment	91.0%	96.3%
Jail or prison	2.5%	0.0%
Residential program, hospital, recovery center, or sober living home	3.3%	0.6%
Shelter or on the street	1.6%	1.9%
Other	1.6%	1.2%
CONSIDERS SELF TO BE CURRENTLY HOMELESS		
Why the individual considers himself/herself to be homeless	(n = 19)	(n = 14)
Staying in a shelter	15.8%	7.1%
Staying temporarily with friends or family	68.4%	71.4%
Staying on the street or living in your car	0.0%	7.1%
Other	15.8%	14.3%

PHYSICAL HEALTH

Clients that were included in the follow-up sample were very similar on several physical health measures to clients who were not in the follow-up sample (see Table AC.4). On a scale of 1 - 5, clients rated their health an average of 3.2. A significantly greater number of clients who did not complete a follow-up reported they had no health problems while a little less than a quarter of clients who did complete a follow-up reported two or more health problems. There were no significant differences between the two groups on viruses or emergency room visits since the client became pregnant although more clients who were followed up reporting experiencing a serious fall. The average number of doctor visits reported by clients is very similar with 6.7 visits for clients not followed up and 6.6 visits for clients who completed a follow-up.

TABLE AC.4. PHYSICAL HEALTH ISSUES OF CLIENTS BEFORE ENTERING THE KIDS NOW PLUS PROGRAM

	FOLLOW-UP SAMPLE	
	NO n = 122	YES n = 162
NUMBER OF HEALTH PROBLEMS**		
None	55.7%	37.0%
One health problem	31.1%	39.5%
Two or more health problems	13.1%	23.5%
OVERALL HEALTH RATING (1 – Poor, 5 – Excellent)	3.3	3.2
CHRONIC PAIN IN THE PAST 12 MONTHS	18.0%	22.8%
Of those experiencing chronic pain	n = 22	n = 37
Average level of pain over the past 30 days	7.0	6.1
CURRENTLY HAVE SEXUALLY TRANSMITTED INFECTION	8.2%	11.7%
SINCE PREGNANCY		
Viruses	26.2%	27.8%
Serious falls	4.9%	11.7%
Been to the emergency room	65.6%	59.3%
AVERAGE NUMBER OF DOCTOR VISITS ABOUT PREGNANCY	6.7	6.6

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

TARGETED RISK FACTORS

SUBSTANCE USE

There were few significant differences for substance use at prenatal intake between clients who did and clients who did not complete a postnatal follow-up. The majority of clients reported illegal drug and/or alcohol use in the 6 months prior to pregnancy and over half of clients in both groups reported substance use in the 30 days before pregnancy. Significantly more clients who completed a follow-up interview reported using alcohol in the 6 months prior to pregnancy when compared to clients who did not complete a follow-up interview.

TABLE AC.5 SUBSTANCE USE OF CLIENTS AT PRENATAL INTAKE

	FOLLOW-UP SAMPLE	
	NO n = 122	YES n = 162
SUBSTANCE USE IN THE 6 MONTH PRIOR TO PREGNANCY		
Illegal drugs and/or alcohol	63.9%	72.2%
Illegal drugs	51.6%	50.0%
Alcohol*	38.5%	51.9%
Cigarettes	73.0%	80.9%
SUBSTANCE USE IN THE 30 DAYS PRIOR TO PREGNANCY		
Illegal drugs and/or alcohol	55.7%	58.6%
Illegal drugs	45.9%	45.7%
Alcohol	27.0%	35.8%
Cigarettes	73.0%	79.0%
Of clients who smoked	(n = 89)	(n = 128)
Average number of cigarettes per day	17.9	19.1
SUBSTANCE USE IN THE PAST 30 DAYS		
Illegal drugs and/or alcohol	17.2%	11.7%
Illegal drugs	14.8%	9.3%
Alcohol	3.3%	2.5%
Cigarettes	65.6%	66.0%
Of clients who smoked	(n = 80)	(n = 107)
Average number of cigarettes per day	12.4	11.9

* p < .05

MENTAL HEALTH

There were no significant differences between the two groups for self-reported mental health problems (see Table AC.6). Among those clients who reported depression and those clients who reported anxiety, there were no significant differences between the clients on the average number of symptoms reported for either depression or anxiety.

TABLE AC.6 SELF-REPORTED MENTAL HEALTH SYMPTOMS OF CLIENTS AT PRENATAL INTAKE

	FOLLOW-UP SAMPLE	
	NO n = 122	YES n = 162
EXPERIENCED SYMPTOMS OF DEPRESSION IN THE PAST 6 MONTHS BEFORE PREGNANCY	25.4%	23.5%
Average number of symptoms	(n = 31) 5.0	(n = 38) 5.0
EXPERIENCED SYMPTOMS OF DEPRESSION IN THE PAST 30 DAYS AT PRENATAL INTAKE	21.3%	21.0%
Average number of symptoms	(n = 27) 4.7	(n = 34) 4.6
EXPERIENCED SYMPTOMS OF ANXIETY IN THE PAST 6 MONTHS BEFORE PREGNANCY	27.9%	32.7%
Average number of symptoms	(n = 34) 5.1	(n = 53) 4.9
EXPERIENCED SYMPTOMS OF ANXIETY IN THE PAST 30 DAYS AT PRENATAL INTAKE	29.5%	32.1%
Average number of symptoms	(n = 36) 4.6	(n = 52) 4.8
EVER EXPERIENCED OR WITNESSED AN EXTREMELY TRAUMATIC EVENT	28.7%	34.6%

INTIMATE PARTNER ABUSE AND VIOLENCE

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. More than one-quarter of clients in both groups reported some type of partner abuse or violence in the 6 months before pregnancy (see Table AC.7).

TABLE AC.7 INTIMATE PARTNER VIOLENCE AND SEXUAL VIOLENCE BY ANY TYPE OF PERPETRATOR REPORTED BY CLIENTS AT PRENATAL INTAKE

	FOLLOWED UP	
	NO n = 122	YES n = 162
ANY TYPE OF ABUSE		
6 Months before pregnancy	30.3%	25.9%
Past 30 days	16.4%	11.7%
VERBAL ABUSE		
6 Months before pregnancy	20.5%	20.4%
Past 30 days	10.7%	8.0%
COERCIVE CONTROL		
6 Months before pregnancy	27.9%	21.0%
Past 30 days	10.7%	8.6%
PHYSICAL ABUSE		
6 Months before pregnancy	13.1%	13.0%
Past 30 days	2.5%	2.5%
STALKED		
6 Months before pregnancy	9.8%	9.3%
Past 30 days	1.6%	2.5%
SEXUAL ABUSE		
6 Months before pregnancy	4.1%	3.7%
Past 30 days	1.6%	1.2%

APPENDIX D: KIDS NOW PLUS 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 KIDS NOW Plus case management services who gave birth between January 2013 and January 2014 (n = 125)⁹⁸; (2) a comparison group of mothers (n = 125) matched on selected characteristics (race, age, education, metropolitan/non-metropolitan residence, marital status and smoking status); and (3) a randomly selected group of mothers (n = 125) from the general population. Only mothers who reside in regions served by KIDS NOW Plus 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.

Overall, one KIDS NOW Plus mother and two mothers from the general population had more than one child in the sample. This means there were 126 babies in the KIDS NOW Plus sample, 125 babies in the comparison group and 127 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 AD.1 shows that the only significant differences between the KIDS NOW Plus clients and matched comparison sample compared to the general population of mothers in the KIDS NOW Plus regions are race (with a significantly greater percentage of the general population of mothers being non-white) and metropolitan/non-metropolitan residence (with more mothers in the general population living in metropolitan communities compared to the KIDS NOW Plus and matched comparison group). In addition, a greater percentage of clients in the general population (55.2%) were married compared to the KIDS NOW Plus and comparison group (28.8%). The general population of mothers were also significantly older than the KIDS NOW Plus and matched comparison sample.

⁹⁸ While analysis on intake data includes 136 pregnant women involved in KIDS NOW Plus, a match on all characteristics for 11 KIDS NOW Plus clients could not be found in the sample of other mothers in the KIDS NOW Plus regions. Thus, clients who did not have a matched comparison were excluded from the sample leaving a sample size of 125.

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

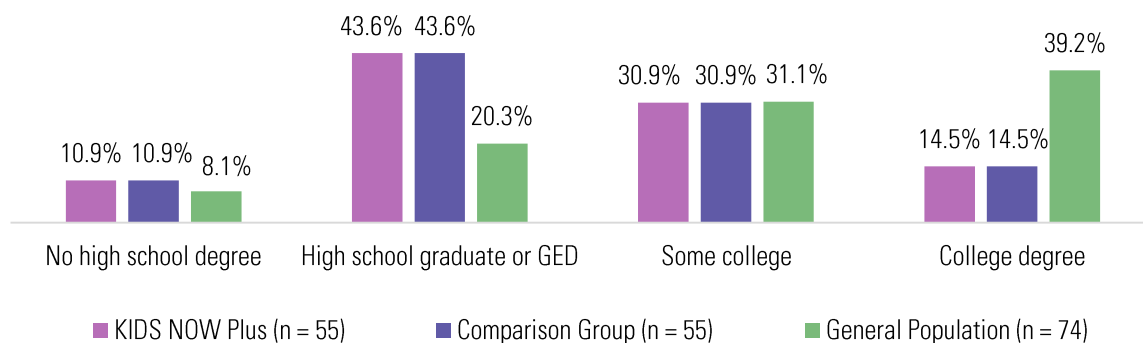
	KIDS NOW Plus (n = 125)	Comparison Group (n = 125)	General Population (n = 125)
Race***			
White	95.2%	95.2%	81.6%
Non-white	4.8%	4.8%	18.4%
Average age*			
	24.5	24.5	26.1
Metropolitan/non-metropolitan status***			
Metropolitan	41.6%	41.6%	68.0%
Non metropolitan	46.4%	46.4%	23.2%
Very rural	12.8%	12.8%	8.8%
Marital status***			
Not married	71.2%	71.2%	44.8%
Married	28.8%	28.8%	55.2%

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

SOCIOECONOMIC STATUS INDICATORS

Because the KIDS NOW Plus mothers were younger than the general population it is important to compare education rates only for those who had sufficient time to finish high school. The 2010 census indicates that of Kentucky women ages 25 and older, 81% had high school degrees. When groups of women ages 25 and older are compared, 89% of KIDS NOW Plus mothers and 90.6% of mothers in the general population have at least a high school diploma or GED (see Figure AD.1). Therefore, when looking at women 25 years old or older, 10.9% of KIDS NOW Plus and the matched comparison group mothers and 8.1% of mothers in the general population had less than a high school degree. However, 39.2% of mothers in the general population received a college degree compared to 14.5% of mothers in KIDS NOW Plus and the matched comparison sample.

FIGURE AD.1. LEVEL OF EDUCATION BETWEEN BIRTH EVENT DATA GROUPS^{99**}



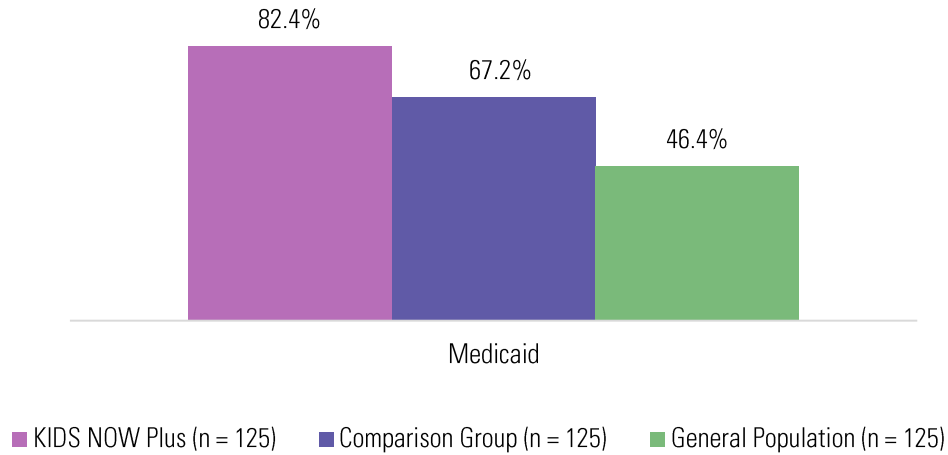
**p < .001

KIDS NOW Plus mothers were more likely to use Medicaid as their source of payment for the birth of the baby

⁹⁹ Education was unknown for one mother (1.4%) in the general population.

compared to either the matched comparison sample or the general population as Figure AD.2 shows.

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

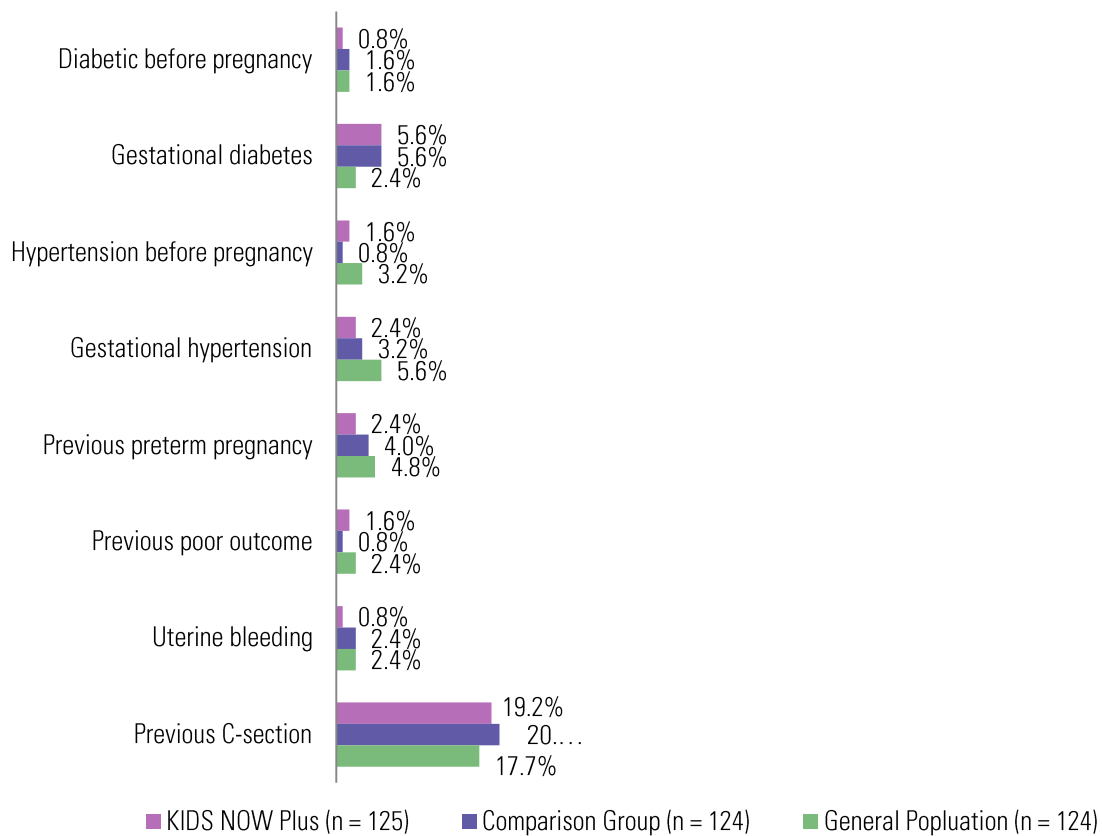


***p < .001

PHYSICAL HEALTH STATUS

General health conditions of pregnancy were examined from the Vital Statistics data set as well (see Figure AD.3). There were no significant differences between the groups on health conditions such as gestational diabetes, gestational hypertension or previous poor birth outcomes.

FIGURE AD.3. OTHER MATERNAL RISK FACTORS BETWEEN BIRTH DATA GROUPS



Note: Maternal health risk factors were unknown for one mother in the matched comparison group and one mother in the general population.

KIDS NOW Plus mothers were significantly more likely (9.6%) to have a sexually transmitted infection such as gonorrhea, syphilis, herpes, or chlamydia compared to the matched comparison group (2.4%) or the general population sample (6.5%; not depicted in a Figure).

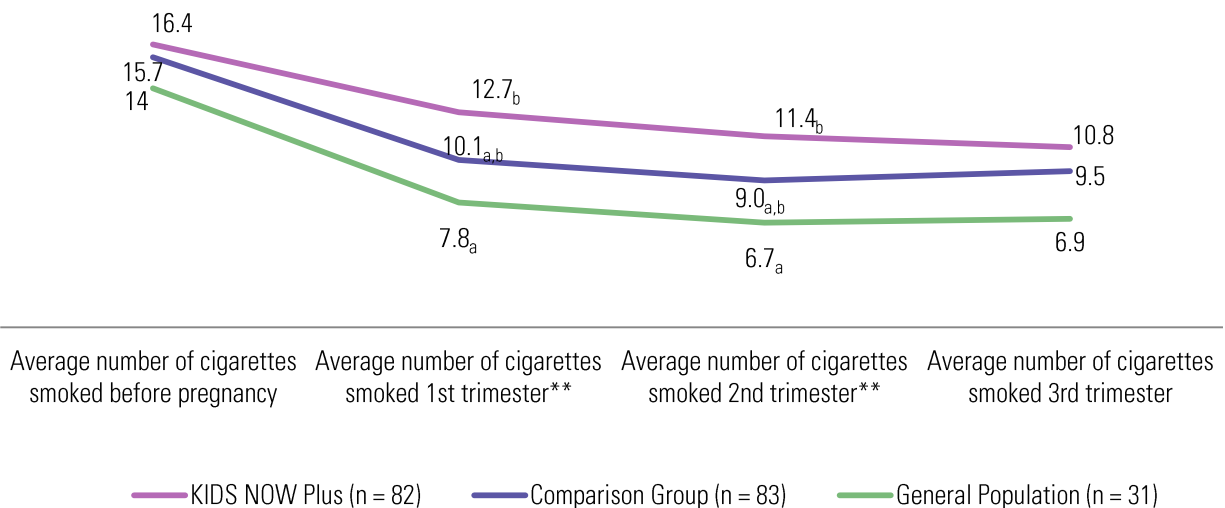
When only hepatitis B and C are examined, KIDS NOW Plus mothers were not significantly more likely to be infected (6.4%) compared to the matched comparison group (1.6%) and the general population sample (4.0%).

TARGETED RISK FACTORS

SMOKING PATTERNS

Significantly more KIDS NOW Plus clients and the matched comparison mothers reported being a smoker (66.4%) compared to the general population (25.0%) as Figure AD.4 shows. Of those who smoked, they did not report smoking significantly more cigarettes before pregnancy or in the third trimester. However, in both the first trimester and the second trimester, KIDS NOW Plus clients smoked significantly more cigarettes than the general population of mothers who smoked.

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



a, b– Significance established using Tukey’s HSD test where groups that do not share coefficients are significantly different
 ** p < .01

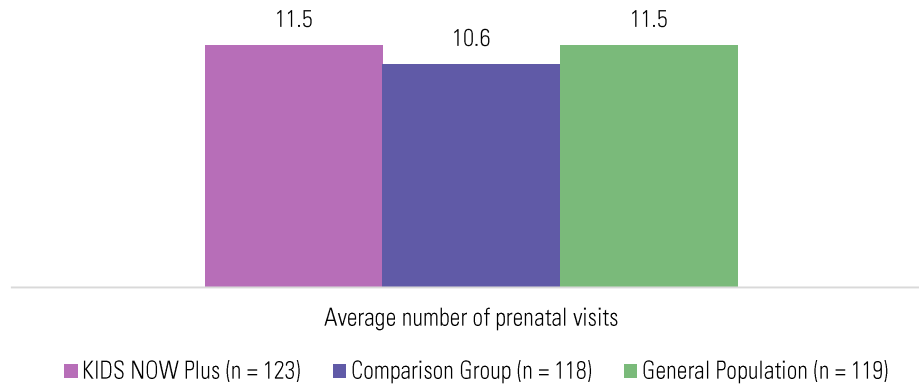
Note: One KIDS NOW Plus client was missing information on the number of cigarettes per trimester.

BIRTH EVENTS AND OUTCOMES

PRENATAL VISITS

As mentioned previously, one of the goals if the KIDS NOW Plus case management program is to engage clients in services that will improve their health and the health of the fetus. Besides referrals to substance abuse or mental health services, KIDS NOW Plus providers also engage clients in prenatal care and assist them in attending all their prenatal care visits. As a result, KIDS NOW Plus mothers had about the same average number of prenatal visits compared to the matched comparison group and the general population (see Figure AD.5). KIDS NOW Plus clients had an average of 11.5 prenatal visits, the matched comparison group had an average of 10.6 prenatal visits and the general population sample had an average of 11.5 prenatal visits.

FIGURE AD.5. AVERAGE NUMBER OF PRENATAL CARE VISITS WITH A HEALTH CARE PROVIDER ACROSS GROUPS

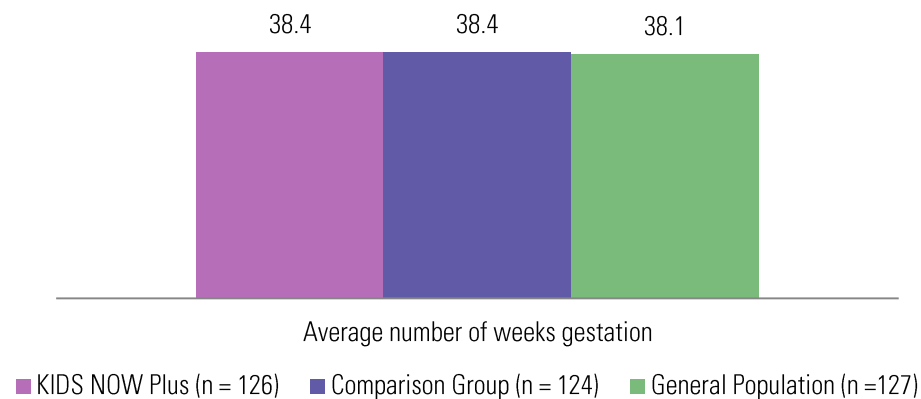


Note: Two KIDS NOW Plus mothers, 7 mothers in the comparison group and 6 mothers in the general population were missing information on the number of prenatal visits.

WEEKS GESTATION

There was no significant difference in average weeks of gestation of babies born to KIDS NOW Plus mothers compared to the matched comparison sample or to the general population of births as Figure AD.6 shows. KIDS NOW Plus babies were born at an average of 38.4 weeks, babies born to mothers in the matched comparison group were born at 38.4 weeks and babies born to mothers in the general population were 38.1 weeks.

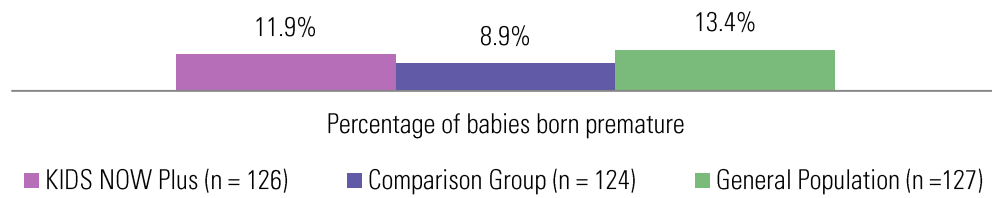
FIGURE AD.6. AVERAGE NUMBER OF GESTATIONAL WEEKS ACROSS GROUPS



Note: One baby in the comparison group was missing information on the number of gestational weeks.

Comparing all three groups, there were no significant differences in the percentage of babies that were born prematurely (before 37 weeks gestation; see Figure AD.7).

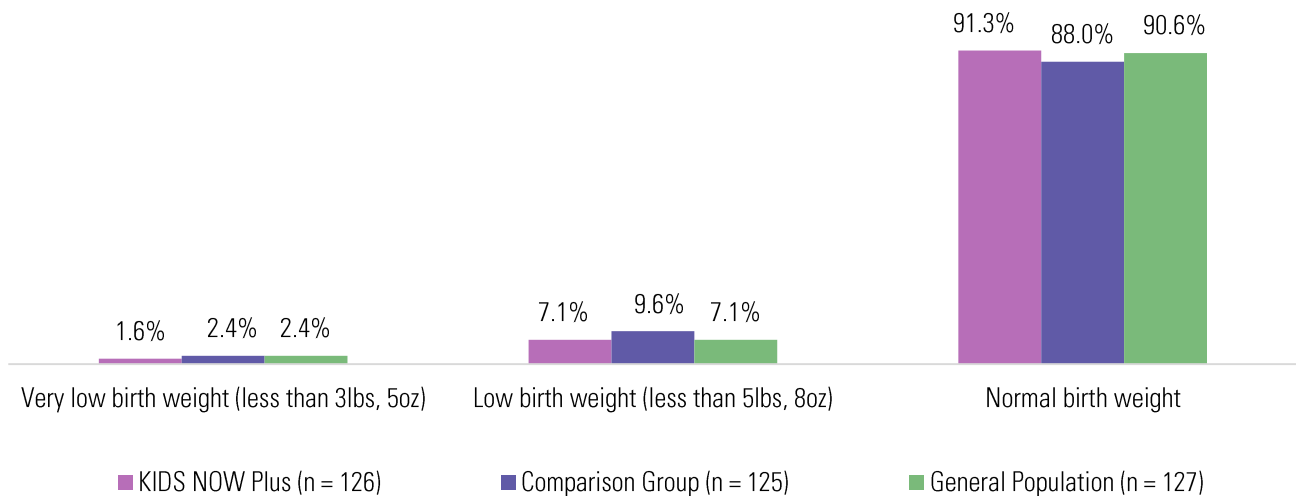
FIGURE AD.7. BABIES BORN PREMATURELY ACROSS BIRTH DATA GROUPS



BIRTH WEIGHT

There were no significant differences in birth weight between babies in the three groups. Babies born to all three groups weighed an average of 7lbs, 0oz when converted from grams to pounds and ounces. Further, there were no significant differences in rates of low birth weight babies between the three groups. Figure AD.8 shows that among KIDS NOW Plus babies, 7.1% were less than 5lbs, 8oz and 1.6% were under 3lbs, 5oz, which is considered “very low birth weight.” For the matched comparison group, 9.6% were considered low birth weight and 2.4% were very low birth weight.

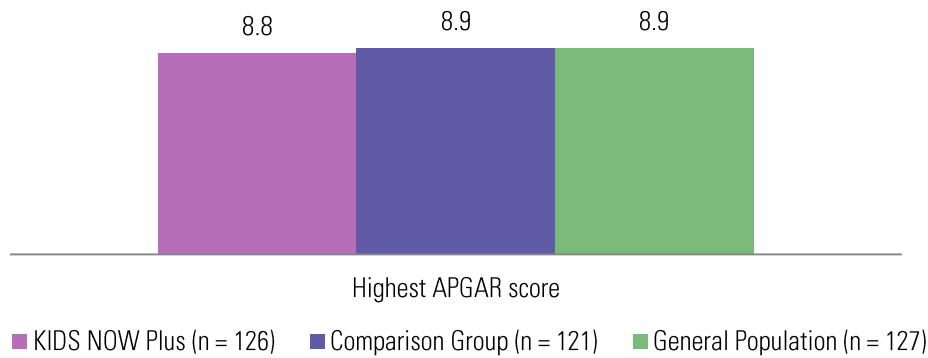
FIGURE AD.8. BIRTH WEIGHT STATUS ACROSS GROUPS



APGAR

The final APGAR scores recorded may be taken at either five minutes or ten minutes after the birth. The highest score of the 5-minute and 10-minute APGARs for each group is displayed in Figure AD.9 and shows no significant differences between the groups on average APGAR scores. Babies born to KIDS NOW Plus mothers had an average APGAR score of 8.8 while babies born to the matched comparison sample and the general population had an average APGAR score of 8.9.

FIGURE AD.9. AVERAGE HIGHEST APGAR SCORES ACROSS GROUPS

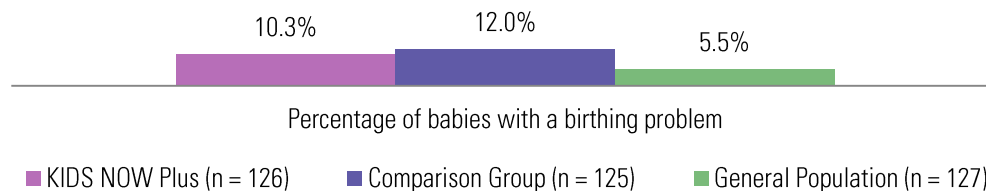


BIRTH PROBLEMS

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

Overall, there were no differences in the percentage of babies born with a birthing problem as Figure AD.10 shows (not including being admitted to the neonatal intensive care unit).¹⁰⁰ In addition, among those babies with birthing problems, there were no differences in the average number of birthing problems between babies in the KIDS NOW Plus group (an average of 1.3 problems) and the babies in the matched comparison sample (an average of 1.8 problems) or the general population (an average of 1.4 problems).

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



Specifically, KIDS NOW Plus 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 AD.11).

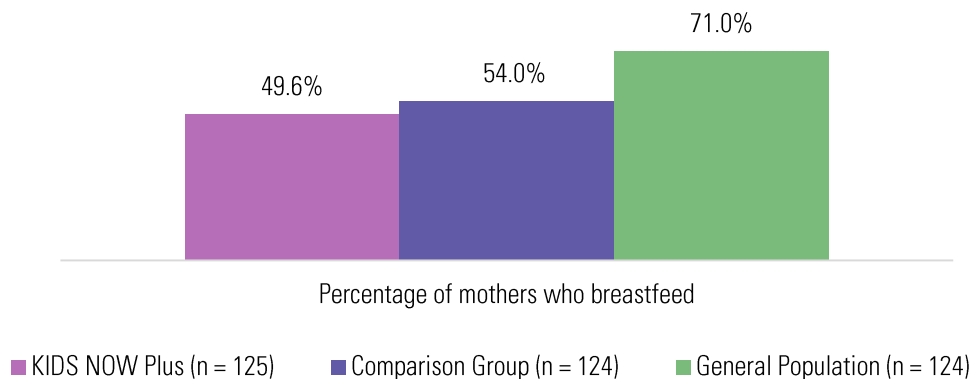
¹⁰⁰ Birthing problem index was created by looking at the proportion of births in each group that had any of the following problems: inflammation of fetal membranes, meconium present, fetal intolerance, baby put on ventilator, surfactant deficient, antibiotic for sepsis, baby had seizure, and birth injury.

FIGURE AD.11. BABIES WITH A BIRTHING PROBLEM ACROSS GROUPS



KIDS NOW Plus clients and the matched comparison group were significantly less likely to breastfeed their babies (49.6% and 54.0% respectively) compared to the general population sample of mothers (71.0%) as shown in Figure AD.12.

FIGURE AD.12. PERCENTAGE OF CLIENTS WHO BREASTFED^{101**}



¹⁰¹Breastfeeding information was missing for one mother in the matched comparison group and one mother in the general population.

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 giving birth in the regions served by KIDS NOW Plus case management, KIDS NOW Plus clients and mothers in the matched comparison sample were more likely to have Medicaid as their source of payment for the birth of the baby. More KIDS NOW Plus mothers smoked cigarettes before becoming pregnant than mothers in the general population. At the same time, birth events and outcomes were very similar across the three groups. Specifically, there were no significant differences for the average number of gestational weeks, the percentage of babies who were born premature, highest APGAR score, birth weight, the percentage of babies with birthing problems, or the percentage of babies being taken to the neonatal intensive care unit. In addition, there was no significant difference for the average number of prenatal care visits with a health care provider; however, KIDS NOW Plus mothers and the matched comparison group of mothers were less likely to breastfeed compared to the general population.