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- Background:** Poor birth outcomes increase the risk of infant mortality and morbidity, developmental delays, and child maltreatment. This study assessed the effectiveness of a prenatal home-visitation program in reducing adverse birth outcomes among socially disadvantaged pregnant women and adolescents.
- Design:** As part of a larger RCT, this study examined the effects of home-visitation services on low birth weight (LBW) deliveries.
- Setting/
participants:** Pregnant women and adolescents eligible for Healthy Families New York (HFNY) were recruited in three communities. Eligibility was based on socioeconomic factors such as poverty, teen pregnancy, and the risk of child maltreatment. Two thirds of the participants were black or Hispanic, and 90% were unmarried.
- Intervention:** Pregnant women and adolescents were randomized to either an intervention group that received bi-weekly home-visitation services ($n=236$) or to a control group ($n=265$). Home visitors encouraged healthy prenatal behavior, offered social support, and provided a linkage to medical and other community services. Services were tailored to individual needs.
- Main
outcome
measure:** An LBW of <2500 grams on birth certificate files. Baseline and birth interviews were conducted from 2000 to 2002, and birth records were collected in 2007. Analyses were done from 2007 to 2008.

of Health (NYSDOH) for mothers who were randomly assigned prenatally and provided informed consent to a review of the target child's birth records. The match was performed using the names and dates of birth of the child and the mother and resulted in finding birth certificate data for 99% of the cases.

provider from pregnancy to birth for both groups. In addition, the study examined program data from the HFNY administrative database for those who enrolled in HFNY. A particular focus was on program dosage and the linkages to social and health services arranged by home visitors.

To test the association of preterm births to LBW, the study compared the prevalence of prematurity for LBW babies to healthy-weight babies. Then it explored whether HFNY was associated with fetal weight gain regardless of whether the mother carried the baby to term. Relying on national birth weight percentiles for gestational age by racial/ethnic group,⁶⁰ the incidence of small-for-gestational-age (SGA) births was calculated, and the mean weights were compared by group and gestational age. SAS and SPSS software were used for all statistical analyses.

Results

Table 1 summarizes the demographic characteristics and risk factors for the prenatal sample, showing that the intervention and control groups were largely equivalent. Due to site variation in prenatal enrollment, Site B made up less than the expected 25% of the prenatal sample. Otherwise, the prenatal sample resembled the overall population in the trial (not presented).⁴⁹ The prenatal sample included a sizable number of women and adolescents known to be at increased risk for poor birth outcomes: young, unmarried, and receiving welfare. Black respondents made up close to half of the sample, and Hispanics approximately one fourth.

As shown in **Table 2**, the mothers in the HFNY group were significantly less likely to have LBW babies than the mothers in the control group (5.1% vs 9.8%, respectively). These effects remained even after adjusting for covariates (AOR=0.43). Further, earlier enrollment in the program was associated with a larger reduction in LBW. Odds for LBW (AOR=0.32) were further reduced for mothers randomized at a gestational age of ≤ 24 weeks—a group that had the potential to receive prenatal home-visitation services for at least 3 months—and even lower for mothers randomized at a gestational age of ≤ 16 weeks (AOR=0.13).

To assess the potential for missing data to influence findings, the study re-analyzed LBW after substituting clinical estimates of gestational age for the 44 mothers who were missing the date of the LMP.⁵³ This

substitution increased the size of the prenatal sample to 545. The results were consistent with those from the sample using only the LMP for gestational age, indicating reduced odds of LBW across the three gestational age groups that were examined (AOR=0.56, 0.47, and 0.16, respectively; data not shown).

Post-hoc analyses were conducted to examine whether the outcomes varied by racial/ethnic group, given the differential risks for LBW. Black mothers assigned to the HFNY group at ≤ 30 weeks' gestation were significantly less likely than black mothers in the control group to deliver LBW babies (3.1% vs 10.2%, respectively). Although not significant, levels of LBW were noticeably lower for Hispanics in the HFNY group than for those in the control group. There was little difference in LBW among white mothers in the HFNY and control groups.

Program effects were also estimated within each of the three sites to test the robustness of the results. At Site B, LBW levels were similar for the HFNY and the control-group mothers, but were markedly lower for HFNY mothers compared to control-group mothers at Site A and Site C.

Among the mothers assigned to the HFNY group, 7.6% did not receive any prenatal home visits. These mothers either did not enroll in time to receive the visits or did not enroll in HFNY at all. Those who did enroll received a median of seven prenatal visits (range: 1–28 visits), and 95% of these visits addressed prenatal health issues including stress, medical appointments, nutrition, or risk behaviors. Moreover, there were differences in the number of home visits depending on when the mothers were offered the program. The participants who were randomized at a gestational age of ≤ 16 weeks received a median of nine visits, while those who were

Table 1 Characteristics and risk indicators of the prenatal subsample, Healthy Families New York (HFNY) RCT

	n	n (%)	n (%)	p value
Black	98 (41.5)	127 (47.9)	225 (44.9)	0.626
Hispanic	58 (24.6)	54 (20.4)	112 (22.4)	0.283
White	74 (31.4)	77 (29.1)	151 (30.1)	0.626
Age at enrollment				
16–24 weeks	58 (24.6)	51 (19.2)	109 (21.8)	0.159
25–30 weeks	25 (10.6)	25 (9.4)	50 (10.0)	0.766
31–36 weeks	64 (27.2)	52 (19.7)	116 (23.2)	0.056
37–42 weeks	69 (29.2)	66 (24.9)	135 (26.9)	0.313
Parity				
1st	131 (55.5)	151 (57.0)	282 (56.3)	0.787
2nd	1.6	1.4	1.5	0.352
3rd	124 (52.5)	133 (50.2)	257 (51.3)	0.654
4th	40 (16.9)	51 (19.2)	91 (18.2)	0.562
5th	72 (30.5)	81 (30.6)	153 (30.5)	1.000
n	236 (47.1)	265 (52.9)	501 (100.0)	

TANF, Temporary Assistance for Needy Families

offered the program at a gestational age of \leq

People 2010's goal of reducing the prevalence of LBW to 5.0%. Further, mothers offered home-visitation services

