

Supplemental Information

SUPPLEMENTAL TABLE 3 Consolidated Standards of Reporting Trials Information for Mothers Enrolled in Trial Through 18-Year Follow-up

Treatment group assignment	T1 ^a	T2 ^b	T3 ^c	T4 ^d	Total (T2 + T4)
No. allocated to each treatment ^e	166	514 ^f	230	228	742
No. miscarriages (mothers not followed)	6	19	6	8	27
No. stillbirths (mothers not followed)	0	5	3	2	7
No. child death before age 2 (mothers not followed)	—	7	—	1	8
No. mothers declined participation after random assignment and before child age 18	—	14	—	11	25
No. maternal deaths (not included above under miscarriages or neonatal deaths before child age 18)	—	13	—	3	16
No. mothers available for 18-y follow-up	—	453	—	203	658
No. completed maternal interview	—	456	—	192	659

There were 1290 subjects eligible to participate; 151 declined participation, and 1138 were randomly assigned. CBCL, Child Behavior Checklist; —, not applicable.

^a Treatment 1, prenatal transportation.

^b Treatment 2, prenatal transportation + developmental screening and referral.

^c Treatment 3, prenatal transportation + developmental screening and referral + prenatal nurse home visits.

^d Treatment 4, prenatal transportation + developmental screening and referral + prenatal and infant or toddler nurse home visits.

^e We assigned twice as many participants to the T2 control condition as the T4 NV group to minimize costs, given that program costs were paid for with research dollars. Groups 1 and 3 were included in the original phase of the trial to meet statistical power requirements for estimating prenatal effects. The original publication describes the allocation methods and assignment ratios in detail.⁷

^f Note that one mother was enrolled and randomly assigned twice by mistake after a miscarriage. We included her only once with her original assignment to the control group.

SUPPLEMENTAL TABLE 4 Outcome Domains, Variables Measured, and Bases for Maternal Life Course Hypotheses

Outcome Domains and Variables Measured	Basis for Hypotheses ^a			
	Earlier Effect in Current Trial	Effect in Other Trial	Predicted From Earlier Phases or Trials	Conditional Effect
Primary outcome				
Mother's total public benefit costs in dollars ^b	—	$\chi^{5,6}$	χ^7	HPR ^c
SNAP, AFDC and TANF, and Medicaid costs from birth to 18 y ^d	χ^{8-11}	—	—	—
Secondary outcomes				
Substance abuse or dependence ^b	—	—	$\chi^{6,11}$	—
Composite International Disease Interview, Substance Abuse Module ²³	—	—	—	—
Mother's borderline or clinical depression ^b	—	—	$\chi^{5-14,50}$	—
Beck Depression Screening Inventory ²⁴	—	—	—	—
Exploratory outcomes examined as mediators				
Cumulative subsequent children ^{b,e}	—	$\chi^{5-9,13,14}$	—	HPR ^c
Subsequent-child years through 18 y	$\chi^{10,11}$	—	—	—
Partnered relationships ^{b,f}	χ^{8-11}	—	—	—
Being in a partnered relationship (yes or no) across assessments	—	—	—	—
Cohabiting (yes or no) across assessments	—	—	—	—
Married (yes or no) across assessments	—	—	—	—
Duration of employment, marital partners ^{b,f}	$\chi^{8,10}$	—	$\chi^{9,11}$	—
No. mo marital partners reported to have worked at 18 y	—	—	—	—
Duration of employment, mothers ^b	—	$\chi^{5,13}$	—	—
Cumulative No. mo mothers reported working from birth to 18 y	χ^7	—	—	—
Income ^{b,g}	—	—	$\chi^{5-14,50}$	—
SSA income birth to child age 16	—	—	—	—
Illicit and illegal drug use, % ^b	χ^{11}	χ^6	$\chi^{7-14,50}$	—
Any drug use in preceding 30-d period ²⁵	—	—	—	—
Anxiety, borderline or clinical, % ^b	—	—	$\chi^{5-14,50}$	—
Beck Anxiety Screening Inventory ²⁶	—	—	—	—
Mastery ^{b,h}	—	—	$\chi^{5-14,50}$	—
Pearlin Mastery Scale ¹⁷	χ^{7-11}	—	—	—

—, not applicable.

^a We show the bases for hypotheses in 3 categories: (1) an earlier effect on the same specific measure or construct in an earlier phase of the trial, (2) an effect on the same measure or construct in other trials, and (3) effects in earlier phases or trials that predict the current outcomes on theoretical or epidemiological grounds. When the prediction was made from the same measure, the basis for the hypothesis is shown on the same row; otherwise it is shown on the construct row (outcome domains). Note that those outcomes hypothesized to be greater for particular subgroups are shown in the last column.

^b Outcome domains. Specific variables assessed are shown under each outcome domain. Outcomes were selected on the basis of their being affected in earlier phases of this trial, the preceding trial, or on theoretical and epidemiological grounds, with attention to those aspects of functioning that are of clinical or public health importance and that could be assessed without overburdening respondents.

^c Subgroup defined by youths' mothers at registration⁷ falling into the upper half of the distribution of an index composed of the average z scores of women's intellectual functioning,¹⁵ mental health,¹⁶ and sense of mastery¹⁷ and self-efficacy (based on participants' confidence in their ability to accomplish key NFP behavioral objectives).¹⁸

^d Monthly grant amounts for SNAP and AFDC and TANF were derived from the Center for Business and Economic Research, University of Tennessee, which provided administrative records of payments for those who lived in Tennessee. In addition, the Center for Business and Economic Research provided monthly enrollment data for Medicaid. Medicaid costs were derived from TennCare per capita costs published annually by the state of Tennessee and varied on the basis of the number, age, and sex of live-born children alive each month. Estimates of enrollment for those who moved out of Tennessee were based on maternal report. Out-of-state grant amounts for SNAP and TANF and AFDC were imputed by using average grant amounts in Tennessee for a particular family size (mother + all live-born children), and Medicaid costs were derived by using the same per capita costs published from Tennessee. There were no treatment differences in the percentage of mothers who lived out of Tennessee. Note that welfare reform went into effect in 1996, constraining eligibility requirements for receiving cash assistance. Costs were discounted at 3% and adjusted to 2009 dollars, the midpoint during which this follow-up was completed.

^e Exploratory outcome. Given that the program had increased interpregnancy intervals consistently in earlier phases of this trial⁷⁻¹¹ and in other trials,^{5,13,14} beginning with the 9- and 12-y follow-ups,^{10,11} we shifted the focus of the analysis to cumulative subsequent-child years after birth of the first child in an effort to understand the role of subsequent birth timing in accounting for public benefit costs. Note that in earlier publications, this variable was labeled "cumulative subsequent births." The current definition is clearer but not different operationally, other than defining the data in total cumulative subsequent-child years instead of annualized means. The variable is exploratory in the sense that we wanted to explore its role in accounting for public benefit costs. Note that the prevention of closely spaced subsequent pregnancies was targeted to promote maternal and child health²⁷⁻³⁵ and to help women gain traction in the workforce.^{34,35}

^f Exploratory outcomes. Nurses systematically made an effort to involve fathers and mothers' partners in the program, along with grandmothers, to help create a supportive informal social environment to promote the mother's own health and well-being, a broader system of care for the child, and a financial resource for the family.⁴ We found program effects on various aspects of mothers' partnered relationships (ie, having a partner, cohabiting, and marriage) and duration of these relationships at earlier phases of follow-up.^{8,10,11} This set of variables was assessed to better understand the endurance of these effects and their role in mediating program effects on public benefit costs and maternal substance abuse and depression.

^g Exploratory outcome. We found short-term program effects on self-reported employment in an earlier trial,⁵ and a subsequent trial,¹⁵ but no effects on reported employment in the current trial. SSA income provided the first objective indicator of maternal earnings after the child's birth through age 16. We estimated SSA income from SSA records from the first child's date of birth through age 16; we relied on analyses conducted by SSA, using code written by M.D.K. The SSA income values were discounted at 3% and adjusted to 2008 dollars for each mother for each year after birth of the first child through age 16. SSA shared results of analyses in summary tables.

^h Exploratory outcome. We found consistent intervention effects on maternal sense of mastery reported at earlier phases of follow-up.^{7,9-11} We measured it in the current phase to examine the endurance of this effect and examine its possible role in mediating program effects on public benefit costs. Note that the promotion of maternal self-efficacy is a core theoretical component of the program.⁴

SUPPLEMENTAL TABLE 5 Background Characteristics at Random Assignment of Those Participants for Whom 18-Year Assessments Were Completed

Variable	Group	Control (T2)		NV (T4)	
		<i>n</i>	% or Mean (SD)	<i>n</i>	% or Mean (SD)
Male sex, %	Whole	426	49.5	192	51.6
	HPR ^a	204	54.4	88	48.9
Mother married, %	Whole	426	1.9	192	0.5
	HPR ^a	204	2.5	88	0.0
Maternal race, African American, %	Whole	426	94.1	192	91.1
	HPR ^a	204	92.6	88	89.8
Head of household employed, %	Whole	425	56.0	191	49.2
	HPR ^a	204	59.3	88	50.0
Drank alcohol last 14 d, %	Whole	425	4.2	192	5.2
	HPR ^a	204	2.9	88	2.3
Smoked cigarettes last 3 d, %	Whole	425	7.1	192	10.4
	HPR ^a	204	7.8	88	9.1
Used marijuana last 14 d, %	Whole	425	1.4	192	1.0
	HPR ^a	204	1.0	88	0.0
Any sexually transmitted disease before random assignment, %	Whole	423	34.0	192	37.5
	HPR ^a	204	34.3	88	36.4
Maternal age, y	Whole	426	18.00 (3.05)	192	18.10 (3.30)
	HPR ^a	204	17.97 (2.96)	88	17.81 (2.43)
Gestational age, wk	Whole	426	16.62 (5.68)	192	16.64 (5.77)
	HPR ^a	204	16.76 (5.58)	88	16.68 (5.84)
Psychological resources index ^{b,c}	Whole	425	99.92 (10.00)	192	99.59 (10.83)
	HPR ^a	204	108.24 (6.07)	88	108.91 (6.54)
Highest grade completed, mother	Whole	426	10.25 (1.89)	192	10.13 (2.02)
	HPR ^a	204	10.63 (1.78)	88	10.66 (1.84)
Discretionary annual household income, /\$1000 ^d	Whole	426	1.57 (6.97)	192	-0.08 (6.68)
	HPR ^a	204	3.49 (7.05)	88	1.26 (7.01)
% of census tract below poverty	Whole	426	34.95 (21.16)	192	35.76 (20.17)
	HPR ^a	204	33.19 (21.33)	88	36.52 (19.19)
Housing density ^e	Whole	426	0.95 (0.49)	192	1.01 (0.54)
	HPR ^a	204	0.85 (0.43)	88	0.92 (0.60)
Conflict with mother ^f	Whole	425	3.97 (0.87)	192	4.06 (0.80)
	HPR ^a	204	3.81 (0.57)	88	3.96 (0.67)
Conflict with partner ^f	Whole	425	3.96 (0.84)	192	4.07 (0.80)
	HPR ^a	204	3.85 (0.67)	88	3.91 (0.58)
Attitudes toward child-rearing predictive of child abuse ^g	Whole	426	99.99 (7.69)	192	101.04 (8.65)
	HPR ^a	204	97.23 (7.26)	88	97.97 (8.57)
Household poverty index ^{c,h}	Whole	426	99.65 (10.11)	192	101.93 (9.92)
	HPR ^a	204	97.21 (9.65)	88	99.98 (10.01)
Neighborhood disadvantage index ⁱ	Whole	426	2.34 (1.62)	192	2.37 (1.79)
	HPR ^a	204	2.16 (1.65)	88	2.48 (1.90)

^a Subgroup defined by youths' mothers falling into the upper half of the distribution for psychological resources (HPR) described in the following footnote.

^b Average *z* scores of women's intellectual functioning,¹⁵ mental health,¹⁶ and sense of mastery¹⁷ and self-efficacy¹⁸ (mastery and self-efficacy measures standardized and averaged; self-efficacy based on participants' beliefs about the importance of and their confidence in accomplishing key NFP behavioral objectives).

^c Standardized to sample mean = 100, SD = 10.

^d Annual household discretionary income based on income subsistence standards for Medicaid eligibility, reported household income, and number of individuals in household at registration.

^e Persons per room.

^f Locally developed scale that is used to assess the degree to which mother experiences conflict in relationship with this person.

^g Adult-Adolescent Parenting Inventory.³⁸

^h Average *z* scores of household discretionary income, housing density, and whether head of household was employed.

ⁱ Average of variables calculated in SD units from the national means of components that comprise the index of concentrated social disadvantage (% of block group residents [1] below the federal poverty level, [2] receiving public assistance, [3] unemployed, [4] headed by single women, [5] younger than age 18, [6] African American).¹⁹

SUPPLEMENTAL TABLE 6 Estimates of Numbers of Months and Costs for Specific Public Benefits Among Control and NV Families

Variable	Child Age at Assessment, y	Control (T2)		NV (T4)		T4-T2		P
		n	LS Mean (SE)	n	LS Mean (SE)	LS Mean Difference (SE)	ES (95% CI)	
SNAP No. mo ^a	0-18	472	122.08 (2.44)	208	112.84 (3.65)	-9.24 (4.40)	-0.11 (-0.22 to -0.01)	.04*
	12-18	472	35.89 (1.17)	208	35.07 (1.75)	-0.82 (2.11)	-0.03 (-0.18 to 0.12)	.70*
SNAP costs (2009 dollars 3% discounted) ^a	0-18	472	\$66 518 (\$1657)	208	\$60 040 (\$2482)	\$-6477 (\$2989)	-0.12 (-0.23 to -0.01)	.03*
	12-18	472	\$18 032 (\$0781)	208	\$17 240 (\$1165)	\$-791 (\$1403)	-0.04 (-0.20 to 0.11)	.57
AFDC and TANF No. mo ^a	0-18	479	84.90 (2.48)	214	78.90 (3.70)	-6.00 (4.47)	-0.07 (-0.17 to 0.03)	.18
	12-18	479	17.63 (1.08)	214	18.01 (1.61)	0.38 (1.94)	0.01 (-0.12 to 0.14)	.85
AFDC and TANF costs (2009 dollars 3% discounted) ^a	0-18	479	\$29 930 (\$0968)	214	\$26 632 (\$1448)	\$-3298 (\$1744)	-0.09 (-0.19 to 0.00)	.06(*)
	12-18	479	\$4978 (\$0344)	214	\$4585 (\$0513)	\$-393 (\$0619)	-0.03 (-0.14 to 0.07)	.53
Medicaid No. mo ^a	0-18	472	146.30 (2.51)	208	139.18 (3.76)	-7.12 (4.52)	-0.09 (-0.19 to 0.02)	.12
	12-18	472	40.09 (1.26)	208	38.47 (1.88)	-1.61 (2.26)	-0.06 (-0.22 to 0.10)	.48
Medicaid costs (2009 dollars 3% discounted) ^a	0-18	472	\$95 793 (\$2105)	208	\$88 817 (\$3153)	\$-6976 (\$3796)	-0.10 (-0.21 to 0.01)	.07(*)
	12-18	472	\$35 389 (\$1269)	208	\$33 492 (\$1895)	\$-1897 (\$2282)	-0.08 (-0.28 to 0.11)	.41

LS, least squares.

^a Model for analysis includes classification factors for treatment, maternal psychological resources (HPR or LPR), child age, and their interactions as well as 2 covariates: household poverty and maternal CAA.

(*) $P < .10$.

* $P < .05$.