Research article

Reducing maltreatment recurrence through home visitation: A promising intervention for child welfare involved families

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ABSTRACT

Maltreatment of children is a key predictor of a range of problematic health and developmental outcomes. Not only are affected children at high risk for recurrence of maltreatment, but effective interventions with known long term impact are few and limited. While home visiting is one of the most tested secondary prevention models for improving parenting, its primary focus on young primiparous mothers underemphasizes one of the most important risk groups: child welfare involved multiparous mothers. This study's focus is a randomized controlled trial of Healthy Families New York that included a subgroup of mothers (n = 104) who had at least one substantiated child protective services (CPS) report before enrolling in the program. By the child's seventh birthday, mothers in the home visited group were as half as likely as mothers in the control group to be confirmed subjects for physical abuse or neglect (AOR = .46, p = .08). The number of substantiated reports for mothers in the control group was twice as high as for those in the home visited group (1.59 vs. 79 p = .02, ES = .44). Group differences were only observed after the child's third birthday, suggesting the possible effect of surveillance in early years. Post-hoc analyses indicate that home visited mothers had fewer subsequent births that may have contributed to less parenting stress and improved life course development for mothers. In light of our findings, we suggest considering and further testing home visiting programs as a tertiary prevention strategy for child welfare-involved mothers.

1. Introduction

Early-childhood home visiting programs are among the most rigorously tested child maltreatment prevention models, having been implemented with diverse populations within the United States and in other countries (Avellar & Supplee, 2013; Barlow et al., 2007; Casillas, Fauchier, Derkash, & Garrido, 2016; Chen & Chan, 2016; Fergusson, Boden, & Horwood, 2013; Guterman, 2001; Sanders, Turner, & Markie-Dadds, 2002). Evaluation findings have demonstrated positive effects in many areas, including birth outcomes, child health and development, maternal health and life course development, and parenting practices (Avellar & Supplee, 2013; Fergusson et al., 2013; Gomby, 2007; Kirkland, 2013; Lee et al., 2009; Olds, Henderson, Kitzman, & Cole, 1995, 2002).

Despite these promising outcomes, program impacts on child maltreatment prevention have been inconsistent and mixed (Avellar & Supplee, 2013; Casillas et al., 2016; Chaffin, Hecht, Bard, Silovsky, & Beasley, 2012; MacMillan et al., 2009). Most critically, families with current or prior substantiated reports of maltreatment are often excluded from early childhood home visiting

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interventions as such interventions frequently focus on primiparous mothers and on preventing maltreatment before it occurs (Easterbrooks et al., 2012; Green, Sanders, & Tarte, 2017; Lanier & Jonson-Reid, 2014; Olds, Henderson, Chamberlin, & Tatelbaum, 1986; Williams et al., 2017). Nor is it clear to what extent families with child protective services involvement and prior substantiated maltreatment do participate in early childhood home visiting programs when parity is not a consideration for eligibility (Jonson-Reid et al., 2018). Consequently, research on the impact of home visiting programs for these families is underdeveloped as only a few trials have been conducted, with mixed results (Chaffin et al., 2012; Jonson-Reid et al., 2018; MacMillan et al., 2005).

In this study, we investigate the long-term maltreatment outcomes from Healthy Families New York (HFNY)'s randomized controlled trial. The trial includes a group of mothers who are at higher risk of recurrent child maltreatment given at least one substantiated CPS report prior to randomization. The prospective study examines HFNY's impact on preventing recurrent child maltreatment and adds to the current discourse on the promise of home visiting programs for this underserved population.

1.1. Evidence based home visiting programs

A large body of research, spanning over thirty years, has provided a compelling rationale for expanding evidence-based home visiting models through the federal Maternal, Infant, and Early Childhood Home Visiting (MIECHV) program in the United States (Avellar & Supplee, 2013). To date, evaluation findings have demonstrated the positive impact of home visiting on birth outcomes and child health (Kitzman et al., 2010; Lee et al., 2009; Olds et al., 1986; Williams et al., 2017), child development (Barlow et al., 2015; Kirkland, 2013; Lowell, Carter, Godoy, Paulicin, & Briggs-Gowan, 2011; Olds et al., 2004), maternal health and life course development (Kitzman et al., 1997; Olds et al., 2007), and parenting practices (Dishion et al., 2008; DuMont et al., 2008; LeCroy & Krysik, 2011) in various samples of high-risk families. In other industrialized countries, such as New Zealand, Australia, and Canada, a range of home visiting programs targeting at-risk populations have also been implemented with positive results (Chartier et al., 2017; Sanders et al., 2002; Fergusson et al., 2013).

While preventing maltreatment is an explicitly stated program outcome for many evidence based home visiting programs (Avellar & Supplee, 2013), several randomized controlled trials (RCTs) have shown mixed results. Program impact during early follow-up periods is generally positive on self-reported parenting behaviors, (DuMont et al., 2008; LeCroy & Krysik, 2011) but is null or limited when measured through official CPS reports (Duggan et al., 2004, 2007; Easterbrooks et al., 2012; Green et al., 2017). For example, a trial targeting first-time adolescent mothers found positive effects on parenting stress but no significant group differences in CPS records at the two-year follow-up (Jacobs et al., 2016). In the first trial of the Nurse Family Partnership (NFP), the program effect was limited to a subgroup of poor, unmarried teen mothers (Olds et al., 1986). Findings for HFNY have shown similar patterns: At the year 2, year 3 and year 7 follow-ups, program effects were observed on self-reported or observed parenting outcomes for all mothers, and a subset of first time mothers, but not on substantiated maltreatment reports (DuMont et al., 2008, 2011; Rodriguez, Dumont, Mitchell-Herzfeld, Walden, & Greene, 2010).

When home visiting programs were found to be successful in preventing child maltreatment through verified records, effects typically occurred after the program had ended or even as far off as a decade later. A home-based therapeutic intervention for multi-risk mothers of young children demonstrated a significant reduction in CPS involvement but only three years after enrollment (Lowell et al., 2011). An evaluation of Early Start, a New Zealand home visiting program modeled after the Hawaii Healthy Start Program, demonstrates how early effects on parenting behaviors can be translated into sustained effects on later maltreatment outcomes (Fergusson, Grant, Horwood, & Ridder, 2005, 2013). In an earlier follow-up of the program, effects of home visitation were observed in the areas of child health and parenting but there were no significant group differences in official child abuse and neglect reports (Fergusson et al., 2005). In the nine-year follow-up, program benefits include reduced unintended injury and harsh punishment (Fergusson et al., 2013). Likewise, the impact of NFP on child maltreatment prevention was most pronounced at the 15-year follow-up (Olds et al., 1997) with earlier results showing positive maternal and child health/development outcomes but no impact on substantiated maltreatment (Olds et al., 1986).

Frequent contact with agency staff and mandated reporters, leading to enhanced family surveillance, has been suggested as a possible explanation for limited differences in verified child maltreatment outcomes during early follow up periods among program families (Fergusson et al., 2005; Olds et al., 1995). Measuring later or sustained program impact remains difficult given intense resources needed for longitudinal studies. NFP has pioneered these efforts by providing rich data on "sleeper" effects (Eckenrode et al., 2010; Kitzman et al., 2010), and has identified reduced childbearing and decreased reliance on public assistance as possible mechanism for long-term effects on child maltreatment prevention (Eckenrode et al., 2017).

1.2. Home visiting programs for families involved in the child welfare system

Despite the promise that home visiting programs hold for families at risk of child maltreatment, far less is known about how home visiting programs impact families with prior substantiated maltreatment. First, many statewide and national home visiting models in the US specifically target first-time mothers based on the assumption that they are more receptive to home-based parenting education than multiparous mothers (Easterbrooks et al., 2012; Green et al., 2017; Olds et al., 1986; Williams et al., 2017), thus limiting the potential pool of participants for study. Second, it is unclear to what extent child protective service agencies seek collaboration with early childhood home visiting programs (Stahlschmidt et al., 2018). Given the complexity and variation of the child welfare system

The current state of the literature for child welfare involved families suggests that there is insufficient evidence that home visiting programs can prevent the recurrence of child abuse and neglect (Casillas et al., 2016; Klevens & Whittaker, 2007; MacMillan et al., 2009). One evaluation adapting NFP for child welfare-involved families found no program impacts on administrative child protective service records at the three-year follow-up. Indeed, a review of hospital records found that there was a greater recurrence of abuse or neglect in the intervention group compared to the control group. Review of the records suggested that surveillance bias may have played a primary role in this finding (MacMillan et al., 2005). A recent trial of the Parents as Teacher (PAT) home visiting program found no significant differences in the rate of re-reports for maltreatment during an 18-month follow-up period (Jonson-Reid et al., 2018). Home visiting models may heed the results from the SafeCare (SC) evaluation targeting CPS involved families (Chaffin et al., 2012). All families received intensive "home based" services but families receiving the SC intervention emphasizing behavioral modification by highly trained home visitors showed the most reduction in child maltreatment recidivism over a seven-year period (Chaffin et al., 2012).

In summary, current evidence unequivocally supports the role of home visiting models as secondary prevention models, effective in reducing parenting risks and promoting positive developmental outcomes for infants and young children. But there is a need to further explore early childhood home visitation's potential as a tertiary prevention program for families who already have a record of maltreatment. Longitudinal data from HFNY's randomized controlled trial offer a fortuitous opportunity for such exploration. Specifically, we ask, does home visitation for families with prior maltreatment histories have an impact on maltreatment recurrence? We also conducted a series of post hoc analyses to explore potential mechanisms for reducing recurrent maltreatment among high risk mothers. Finally, we seek to stimulate discussion on the role of home visiting programs for multiparous families with prior substantiated maltreatment.

2. Methods

2.1. Healthy Families New York

Healthy Families New York is an evidence-based home visiting program targeted to highly stressed families residing in communities with high rates of teen pregnancy, low birth-weight babies, infant mortality, Medicaid births, and mothers with late or no prenatal care (DuMont et al., 2008; Lee et al., 2009; Kirkland, 2013). Early findings from the HFNY's randomized controlled trial indicate positive parenting attitudes among young, primiparous mothers at the two-year follow-up (DuMont et al., 2008) as well as warm and nurturing parenting behavior among both primiparous and multiparous mothers at the three-year follow-up for the home-visited group (Rodriguez et al., 2010). The program is open to expectant families or families who have an infant less than three months of age. HFNY is a Healthy Families America (HFA) accredited home visiting program. The HFA program model reaches 560 sites in 39 states, five US territories, and Washington, D.C.

Families who screen positive based on demographic risk factors are referred to a local HFNY program, where workers administer the Kempe Family Stress Checklist to assess the presence of personal and parenting strengths, factors associated with increased risk for child maltreatment, and the need for services or supports. The Kempe Family Stress Inventory (KFSI) is an index that assesses risk for parenting difficulties based upon a thorough psychosocial screening interview focused on parental history and experiences. The scale has been used in Healthy Families America studies to predict parents' future risk of maltreating their children as well as other family functioning outcomes (Korfmacher, 2000). Families who score 25 or higher on the checklist are offered intensive home visiting services. Families whose risk scores do not meet the threshold are offered referrals to other services in the community.

Once a family agrees to participate in HFNY, they are assigned to a home visitor, also called a Family Support Worker (FSW), who initiates contact and schedules home visits. The FSW often shares the same language and cultural background as program participants. During the prenatal period, FSWs are expected to make bi-weekly visits. Immediately following the child's birth, visits are increased to weekly until the child is six months of age, after which they decrease in intensity as the family's needs change. Visits generally take place at home for about one hour, but FSWs may accompany participants to other services, if needed.

FSWs use various evidence-based curricula to promote parent-child attachment, foster safe and nurturing home environments, and encourage positive parenting practices. Although the protocol does not call for a single dedicated curriculum, the program sites during the trial primarily used the Partners for A Healthy Baby Home Visiting Curriculum (2017), the Parents as Teachers (2018)), or the Healthy Babies…Healthy Families (2018). Thus FSWs may educate families on child development and parenting, help families access community resources and services, connect families with medical providers, assess children for developmental delays, and work with parents to address family challenges such as substance abuse, intimate partner violence, and maternal depression.

2.2. HFNY's randomized controlled trial and study samples

Recruitment for the HFNY RCT was conducted between March 2000 and August 2001 at three sites with home visiting programs that had been in operation since the HFNY's inception in 1995. Randomization was conducted using a computer application after eligibility was determined following the HFNY screening and assessment procedures.

As illustrated in Fig. 1, there were 1254 mothers deemed eligible for the study and 1173 completed baseline interviews (intervention, n = 579; control, n = 594). Follow-up interviews were conducted at the time of the target child's first, second, and seventh
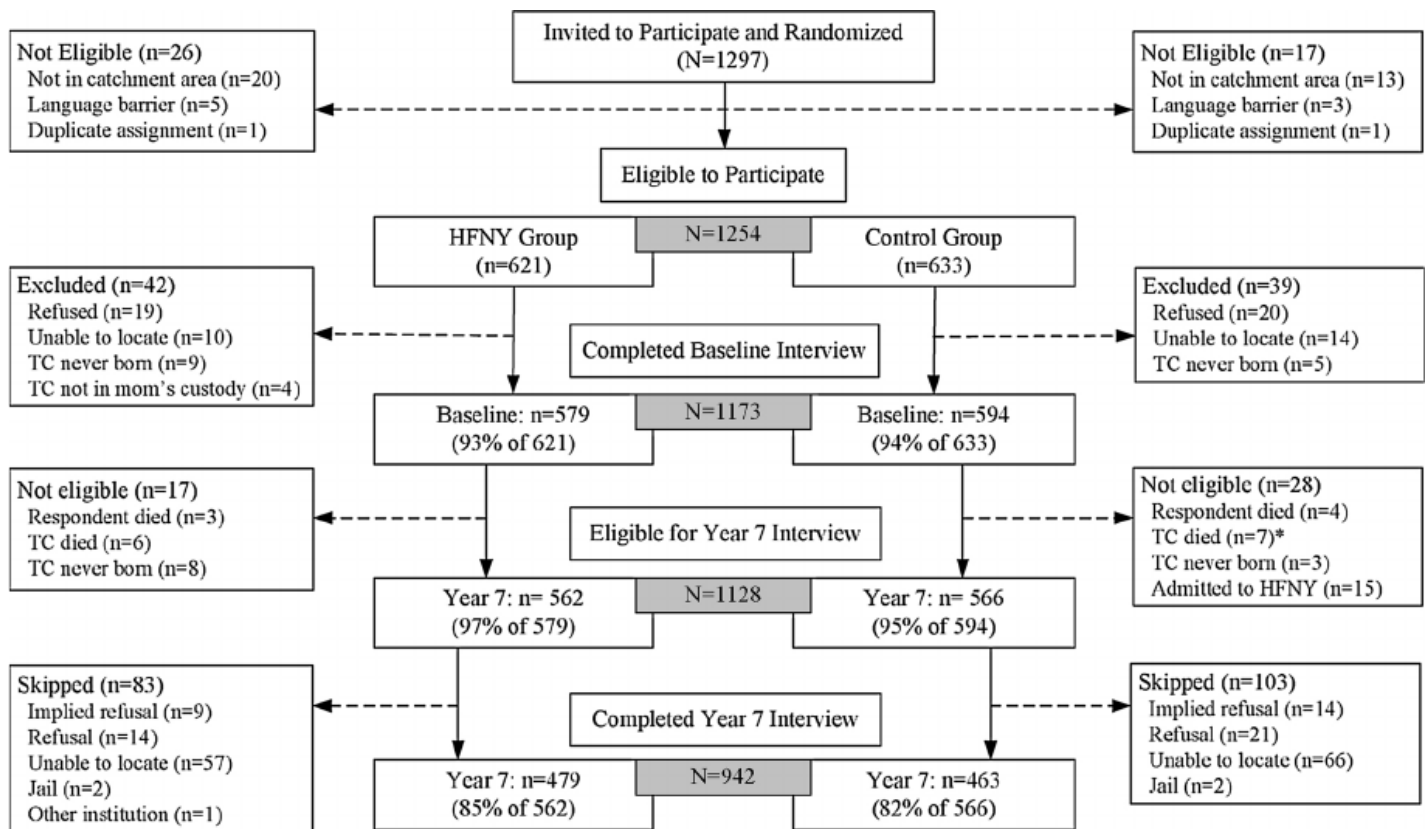
Fig. 1. Consort diagram of biological mothers' involvement at random assignment (RA), baseline, and Year 7.

signing study consent forms. The research protocol was approved by the Institutional Review Board of the State University of New York University at Albany (IRB Approval #00-246).

The group of interest for this study (CPS-involved mothers) consists of mothers who were involved in an indicated CPS report (as a non-victim) within five years prior to random assignment. Most of these mothers already had one or more children at the time of study participation and all had recently given birth or were expecting a baby. Child welfare services involvement was not a prior consideration for random assignment. Therefore, the extent of their participation in the trial was not known until the completion of baseline interviews. However, given HFNY's prevailing practices of serving multiparous mothers, their inclusion was not discouraged.

2.3. Data sources and measures

2.3.1. Baseline interviews

Participating mothers were interviewed in their homes by a trained interviewer, who was independent of the HFNY program and blind to group assignment. The interviewer answered mothers' questions about the study and obtained informed consent from the mother for interviews and administrative data look-ups. Interview data were collected using laptop computers equipped with a Computer-Assisted Personal Interviewing (CAPI) system. The interview took about 60–75 min to complete. Sensitive questions, such as those concerning parenting and alcohol and drug involvement, were mailed with a prepaid postage envelope with the study's return address.

2.3.2. Administrative databases

In order to maximize our ability to accurately identify respondents and their target children across the multiple administrative databases providing data for this study, we compiled a master file containing all of the personal information available to us through the research study dataset. This included the respondents' and their target children's first and last names, dates of birth, sex, race/ethnicity, and other system-based identifiers. Various combinations of these study and system-based identifiers were used to conduct manual or automated searches of NYS administrative databases.

To determine whether respondents or their target children were ever the confirmed subject or confirmed victim in an indicated NYS CPS report, manual searches were conducted of CONNECTIONS, the child welfare computer system that tracks calls made to the New York Statewide Central Register of Child Abuse and Neglect from intake through investigation conclusion. CONNECTIONS maintains information on all CPS investigations in a searchable database indexed by name and person identification number (PID). Information was extracted from the CONNECTIONS system for indicated CPS reports occurring in the five years prior to random

activities for children and families receiving child welfare family support services. CCRS contains a record of all child preventive and protective cases opened for services and all foster care placement entries, movements and exits. CCRS uses a Client Identification Number (CIN) to catalogue services for each child. Manual searches of the NYS Welfare Management System (WMS), the statewide system that tracks authorizations for the purchase of services that are provided to children and families in the NYS child welfare system, were conducted to obtain the CINs. We then used the CINs to perform a computerized search of CCRS and extracted information for matching target children who received child preventive, protective, or foster care placement services at any point from birth (or random assignment for those who enrolled postnatally) through the target child's seventh birthday. This information included service assessment dates, service assessment choice (i.e., preventive, protective, or placement), and start and end dates for each movement through the system.

2.4. Measures

2.4.1. Socio-demographic variables

The following socio-demographic measures from the baseline interviews were included in the study: the mother's race/ethnicity, the mother's age, the presence of a regular partner, at least one move in the past year, and the receipt of at least a high school diploma or equivalent.

We used data on the household composition and the number of births to create a variable that describes the total number of other biological children (excluding the designated target child) the respondent reported as of the baseline interview. The target child's gender and age were also assessed at baseline or after birth if enrolled prenatally.

2.4.2. Risk factors

As a measure of psychological well-being, we used the Center for Epidemiologic Studies Depression Scale (CES-D) to assess mothers' level of depressive symptoms at baseline (Radloff, 1977). This scale asks caregivers to rate how often over the past week they experienced symptoms associated with depression such as restless sleep, poor appetite, feeling nervous or lonely. Kempe risk factors at the time of program eligibility assessment and prenatal status at random assignment were also included in the study.

2.4.3. Public assistance

Using the information available from a state database, we created a dummy variable to indicate public assistance receipt at the time of random assignment.

2.4.4. Child maltreatment outcomes

Information regarding child abuse and neglect investigations and initiation of family support services cases were summarized using data extracted from state-administered databases, CONNECTIONS, and CCRS, respectively. We created a set of variables representing the cumulative rate and cumulative number of indicated reports involving the mother as the confirmed subject and/or the target child as the confirmed maltreated victim from random assignment through the target child's seventh birthday. Given HFA's distinct goals regarding parenting, mother-child interactions, and child development, we summarized rates of indicated reports for the mother as the confirmed subject and the target child as the confirmed victim separately for (1) reports involving any type of abuse or neglect, (2) reports involving any neglect, (3) reports involving any physical abuse, and (4) reports involving any sexual abuse. We also created separate variables for the mother as the confirmed subject and the target child as the confirmed victim to summarize the cumulative number of indicated reports for any type of abuse and neglect. We then created cumulative rates of indicated reports by maltreatment type and person for each of the seven years to investigate when the program's impact began to emerge. Finally, we created a variable representing the cumulative rate of family support services tracks initiated for preventive, protective, or foster care placement services from random assignment through the target child's seventh birthday.

The post-hoc analysis included several measures that were included in earlier follow-ups. Parenting attitudes were measured at baseline, year one and year two using the Adult Adolescent Parenting Inventory (AAPI) (Bavolek & Keene, 1999). Limit setting was measured at year two using the Parent-Child Relationship Inventory (PCRI) (Coffman, Guerin, & Gottfried, 2006). Self-reported parenting behaviors were measured at year one and year two using the Conflict Tactics Scale: Parent-Child version (CTS-PC) (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998). Information on a subsequent birth was asked during the year one and year two interviews with participants.

2.5. Analysis plan

Consistent with the intention-to-treat approach (Hollis & Campbell, 1999; Sainani, 2010), all study respondents who had data were included in the analyses, regardless of their participation in the program. In all tests of the program's effectiveness, the intervention condition (1) was the primary independent variable, with the control condition (0) serving as the reference group. Covariates were included as necessary to maximize the equivalence of the two study arms. These included baseline variables with significant or near significant group differences. The covariates used are indicated on each table.

Indicated CPS reports were analyzed as both dichotomous outcomes and frequency or total count scores. We used generalized

Table 1
Characteristics of All Mothers and CPS-involved Mothers at Baseline by Group.

	ALL (n = 1173)			CPS Involved Mothers (n = 104)		
	Control (n = 594) %	HFNY (n = 579) %	P	Control (n = 52) %	HFNY (n = 52) %	P
Mother's race/ethnicity						
White, non-Latina	34.3	34.4	.39	25.0	42.3	.17
African-American, non-Latina	46.5	44.4		61.5	46.2	
Latina	17.7	18.3		13.5	11.5	
Mother < 19 years old	29.8	32.3	.36	1.9	5.8	.31
First-time mother	54.4	56.5	.47	3.8	7.7	.40
At least high school diploma or GED	49.3	45.4	.18	50.0	55.8	.56
Had partner	65.8	69.2	.22	69.2	64.7	.63
Moved in past 12 months	56.2	55.6	.83	69.2	53.8	.11
Public assistance at random assignment	35.2	37.8	.35	78.8	61.5	.05
Pregnant at random assignment	66.7	62.9	.17	69.2	64.7	.63
Target child female	50.0	42.1	.01	51.9	34.6	.08
CPS involved at random assignment	8.8	9.0	.89	100.0	100.0	–
	ALL (n = 1173)			CPS Involved Mothers (n = 104)		
	Control (n = 594) Mean (s.d.)	HFNY (n = 579) Mean (s.d.)	P	Control (n = 52) Mean (s.d.)	HFNY (n = 52) Mean (s.d.)	P
Mean maternal age in years	22.53 (5.43)	22.37 (5.56)	.60	26.96 (5.03)	26.65 (6.35)	.78
Number of other biological children	.83 (1.15)	.85 (1.31)	.77	2.67 (1.37)	2.33 (1.99)	.30
Total depressive symptoms (CESD)	15.61 (10.98)	15.68 (11.30)	.92	16.54 (10.29)	20.65 (12.90)	.08
Count of risk items (Kempe)	5.60 (1.37)	5.79 (1.34)	.02	6.04 (1.27)	5.96 (1.22)	.75

HFNY: Healthy Family New York, CPS: Child Protective Services. GED: General Educational Development.

variance for each variable was greater than the mean. These variables were therefore analyzed with a negative binomial distribution and log link function, using generalized linear models, SPSS 21. Since the study's focus was on a small sample of mothers with prior child welfare involvement, we report prevalence by group, odds ratios and p values up to the significance level of .1, and also provide mean differences with effect sizes using Hedges 'g' (Dulak, 2009; Hedges, 1981; Sullivan & Feinn, 2012).

3. Results

3.1. Description of study sample

Table 1 presents the baseline characteristics of the control and HFNY groups for the subgroup of mothers with indicated CPS reports prior to study enrollment (n = 104). For comparison, we also included the characteristics of the entire RCT sample (n = 1173). The recruitment for the HFNY randomized controlled trial and the randomization process were discussed in earlier papers (DuMont et al., 2008; Lee et al., 2009; Rodriguez et al., 2010; Kirkland, 2013), and indicated that the characteristics between the two arms of the study were remarkably similar for the whole sample on most individual and family variables.

Although prior CPS involvement was not a criterion for random assignment, the characteristics between the two study arms are fairly consistent. Parental neglect was the prevailing reason for child maltreatment substantiation for mothers in the treatment group as well as for those in the control group. The rates of physical abuse were also similar (26.9% for HFNY group vs. 28.8% for the control group). Some differences exist between mothers in the treatment and control conditions on child gender, and depressive symptoms. Mothers in the HFNY group were less likely to receive public assistance than mothers in the control group at the time of study enrollment.

Of the 104 mothers interviewed at enrollment, about two-thirds were pregnant with the target child at random assignment (see Table 1). Only a very small proportion of the mothers with prior indicated CPS reports were first-time mothers (6%), indicating that they were investigated for child maltreatment allegations after the target child's birth but before they were recruited for the trial: most were multiparous mothers. On average, women were assessed as having moderate to severe levels of risk.

Overall, the CPS-involved mothers were poorer, older, and less likely to be first-time mothers than those in the whole sample. The rates for cash assistance at random assignment for the CPS involved mothers were almost twice those for the whole sample. A small proportion of the CPS involved mothers were 18-years-old or younger.

In addition to public assistance receipt, the CPS-involved mothers showed another high risk factor compared to those in the whole sample. The CES-D scores of the HFNY mothers in the CPS group were significantly higher than those of the control mothers in the

Table 2

Administrative indicators of child maltreatment for CPS involved mothers at Year 7 follow-up (n = 104). [a]

	Control		HFNY			
Cumulative Rate of Indicated Reports	%	CI	%	CI	p	AOR[c]
Bio mom OR target child confirmed subject or victim of CPS report	60.35	.46–.73	41.51	.28–.56	.09	.47
Bio mom confirmed subject – CAN[b]	57.42	.43–.71	38.18	.25–.53	.08	.46
Target child confirmed subject – CAN	47.69	.34–.62	36.42	.24–.51	.29	.63
Bio mom confirmed subject – N	57.42	.43–.71	38.18	.25-.53	.08	.46
Target child confirmed victim – N	47.69	.34–.62	36.42	.24–.51	.29	.63
Bio mom confirmed – PA	13.44	.06–.29	3.25	.01–.13	.08	.22
Target child confirmed – PA	8.81	.03–.21	6.71	.02–.18	.69	.75
Bio mom confirmed – SA[d]	3.80		0.00		.15	
Target child confirmed – SA[e]	1.90		1.90		1.00	
Family support services track initiated	60.02	.46–.73	38.03	.25–.52	.04	.41

	Contro		HFNY			
Cumulative Number of Indicated Reports	Mean	CI	Mean	CI	p	ES[f]
Bio mom or target child confirmed subject or victim of CPS report	1.63	1.12–2.36	.96	.64–1.46	.08	.35
Bio mom confirmed subject – CAN	1.59	1.09–2.31	.79	.51–1.23	.02	.44
Target child confirmed subject – CAN	.99	.65–1.51	.67	.42–1.06	.24	.24

CPS: Child Protective Services; CAN: Child abuse and neglect; N: Neglect; PA: Physical Abuse; SA: Sexual Abuse.

[a] Analyses controlled for female target child, being white, cash assistance at random assignment, depressive symptoms at baseline, and at least one move in the past year.

[b] CAN is a composite measure which includes all confirmed maltreatment types.

[c] Adjusted odds ratio.

[d] Unadjusted percentage; incidence too low to reliably estimate in multivariate model.

[e] Unadjusted percentage; incidence too low to reliably estimate in multivariate model.

[f] ES: Effect size – Hedges' g.

3.2. HFNY impact on preventing recurrence of child maltreatment

Table 2 displays the rates, numbers, adjusted odds ratios and effect sizes for administrative indicators of maltreatment by the target child's seventh birthday for mothers who had indicated CPS reports prior to study enrollment. Program effects were observed for the cumulative rate and cumulative number of indicated CPS reports for the study sample and for family support services track initiations.

As compared to their counterparts in the control group, HFNY mothers and/or target children were less likely to be a confirmed subject or victim in an indicated CPS report for any type of abuse or neglect (41.5% vs. 60.4%, p = .09). The HFNY mothers were also less likely to be a confirmed subject in an indicated CPS report for any type of abuse or neglect, and for neglect specifically, than mothers in the control group (38.2% versus 57.4%, p = .08). Additionally, HFNY mothers were less likely to be a confirmed subject in an indicated CPS report for physical abuse than their counterparts in the control group (3.3% vs. 13.4%, p = .08). Families in the HFNY group were also less likely to have had a family support services track for preventive, protective, and placement services initiated as a response to a CPS report than their counterparts in the control group (38.0% vs. 60.0%, p = .04).

Examination of the cumulative number of subsequent indicated CPS reports also suggested group differences. Reported in the bottom panel of Table 2, effect sizes reflected the magnitude and direction of the differences in the maltreatment incidences between the HFNY and the control groups. HFNY mothers and/or target children were the confirmed subject or victim in fewer subsequent indicated CPS reports for any type of abuse or neglect (1.0 vs. 1.6, p = .08, ES = .35). HFNY mothers, specifically, were the confirmed subject in fewer subsequent indicated CPS reports than mothers in the control group (.8 vs. 1.6, p = .02, ES = .44).

Fig. 2 illustrates the cumulative rate of indicated reports where the mother was a confirmed subject over the child's first seven years of life. At baseline, all mothers (100%) had at least one prior indicated CPS report. By the first birthday, one out of every five
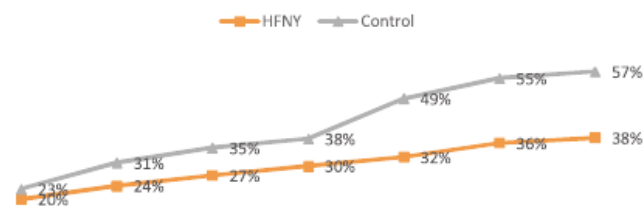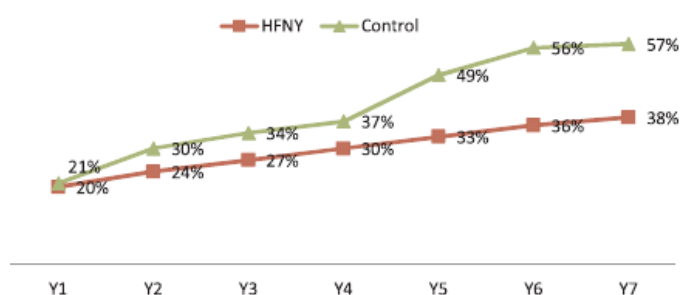
Fig. 3. Cumulative Rates of Subsequent Indicated Neglect by Group (Mom as Confirmed Subject).

families (20% vs 23%) had a subsequent indicated CPS report. Differences began to emerge between the two groups following the target child's fourth birthday and continued to widen each successive year. Between the child's fourth and seventh birthdays, the rates of subsequent indicated CPS reports increased more slowly for the HFNY group than for the control group.

Similar patterns were observed in the cumulative rate of indicated reports for study mothers who were confirmed subjects for neglect (Fig. 3). By the target child's fourth birthday, 37% of mothers in the control group were the confirmed subject for neglect compared to 30% of mother in the HFNY group. By the target child's sixth birthday, the differences had widened significantly (56% vs. 36%; p = .07), and remained so by the target child's seventh birthday (p = .08).

Unlike neglect, physical abuse was a far less common occurrence. Remarkably, the rates of subsequent indicated reports where HFNY mothers were confirmed subjects for physical abuse cases remained stable at 3% over seven years (Fig. 4). In contrast, the cumulative rate among the control mothers continued to climb, reaching 13% by the child's seventh year.

3.3. Post-hoc analyses

Given the consistency and direction of the effects and the potential importance of the findings, we conducted a series of post-hoc analyses to examine several factors that might account for the association between the HFNY intervention and reduced rates of subsequent indicated CPS reports. After reviewing the literature on predictors of maltreatment recurrence (see Bae, Solomon, & Gelles, 2008) and considering the program's impact at earlier waves (DuMont et al., 2008; Rodriguez et al., 2010), we considered several possible pathways: changes in parenting attitudes from baseline to years one and two, more appropriate limit setting at year two, self-reported parenting behaviors at years one and two, and whether any subsequent children were born between the baseline interview and year two. Given these impacts, we chose to focus specifically on subsequent indicated reports where the mother was a confirmed subject.

Measures for parenting attitudes, limit setting, parenting behaviors and subsequent births were employed as mediators. Examinations of correlation coefficients between each of the potential mediators and the outcome—cumulative rate of indicated reports where the mother was a confirmed subject—suggested that parenting attitudes at year one, parenting behaviors at year one, specifically psychological aggression and very severe or severe assault, and any subsequent children born between the baseline interview and year two had the potential to play a mediating role between HFNY home visiting services and maternal maltreatment.

Using logistic regression analyses, we examined a model identical to the one used to determine the relationship between the program and the cumulative rate of indicated reports involving the mother as a confirmed subject. We then evaluated the degree to which each of the mechanisms attenuated the treatment effect when entered in the model individually. When considering parenting attitudes, we also controlled for baseline values for parenting attitudes measured by AAPI at baseline. Similarly, when considering any subsequent births, we controlled for the number of other children at baseline.

Of the four possible mediators that we tested, we found that only subsequent births between baseline and the two-year follow-up had an impact on the relationship between the intervention and subsequent indicated reports where the mother was a confirmed subject. As shown in Fig. 5, there was a significant (p .10) direct effect between the intervention and subsequent indicated reports where the mother was a confirmed subject. Similarly, significant differences (p .05) were found between the intervention and subsequent births between baseline and the two-year follow-up, and between any subsequent births between baseline and the two-year follow up and subsequent indicated reports where the mother was a confirmed subject. A Sobel test was conducted to test the significance of this indirect relationship, which was significant at the p .10 level.

To further explore the lack of group differences in earlier years, we examined the association between mothers' self-reported
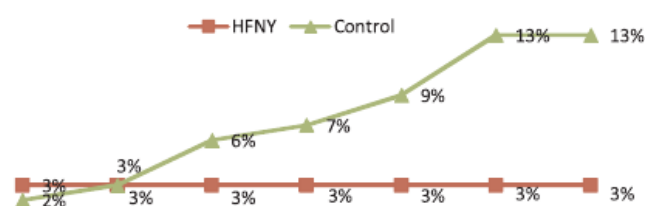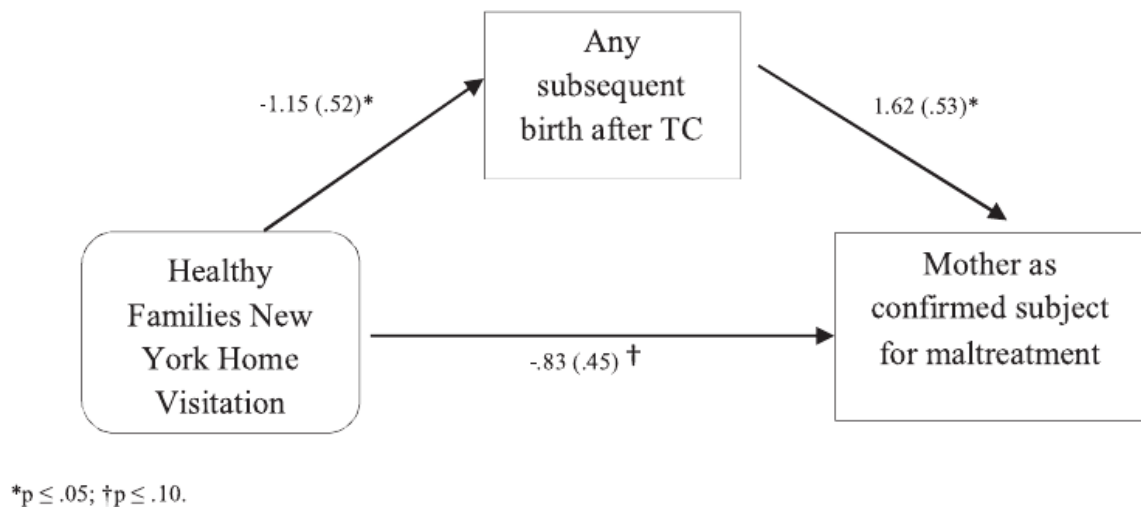
Fig. 5. Mediation model of Healthy Family New York program's effect on maltreatment via subsequent birth among CPS involved mothers (n = 104).

parenting behaviors and official records. Specifically, we evaluated whether mothers in the HFNY group who self-reported serious abuse and neglect during the first-year interview were more likely to have a CPS report than mothers in the control group who self-reported serious abuse or neglect. 71.4% of HFNY mothers who self-reported serious abuse and neglect had a CPS report as compared to 50.0% of mothers who self-reported serious abuse and neglect in the control group. These results suggest that HFNY mothers were more likely to be reported for child maltreatment than mothers in the control group and may indicate a surveillance bias often observed in parenting programs.

4. Discussion

Evidence-based home visiting models have gained in popularity as secondary prevention programs targeting high risk parents in the U.S. and in other countries over the last thirty years (Avellar & Supplee, 2013; Chen & Chan, 2016; MacMillan et al., 2009). Under the MIECHV program initiative, the expansion of various home visiting programs in the U.S. where preventing child maltreatment is either a primary goal or one of the major outcome areas has been swift and remarkable (Avellar & Supplee, 2013; Casillas et al., 2016). Yet, studies have rarely addressed whether home visiting programs could be used as tertiary prevention for mothers who have already been investigated for child maltreatment and for whom the goal is to prevent recurrence. This is a critical arena for prevention since children who are victims of recurrent maltreatment are among those at most risk for compromised development outcomes (Cicchetti, Cowell, Rogosch, & Toth, 2015; Éthier, Lemelin, & Lacharité, 2004; Lanier & Jonson-Reid, 2014; Li & Godinet, 2014). Preventing the recurrence of child maltreatment has remained an intractable issue and only a few interventions have been found effective (MacMillan et al., 2009).

The primary question addressed in this study is whether HFNY is effective in reducing recurrence of substantiated child maltreatment among mothers with indicated CPS reports prior to randomization. Our results indicate that over time, maltreatment recurrence was consistently reduced for the home visited mothers compared to control mothers. For example, HFNY mothers were the confirmed subject in significantly fewer subsequent indicated CPS reports than mothers in the control group at the year 7 follow up. Our study consistently found a pattern of differences for both rates and levels of subsequent indicated reports, particularly for mothers as confirmed subjects. Considering the current study's small sample size but experimental design, our robust effect sizes suggest meaning and practical significances (Dulak, 2009; Sullivan & Feinn, 2012).

Interestingly, group differences in maltreatment outcomes are not observed at earlier ages. This may seem counterintuitive, given that many home visiting programs such as HFNY are voluntary and by the third year most participants no longer remain in services. One possibility is that, similar to findings from other home visiting programs, a finding of no observed group differences in official records during early years may reflect increased surveillance of mothers in the program (Chaffin & Bard, 2006; Green et al., 2017; Olds et al., 1995). As demonstrated in a recent study (Green et al., 2017), a surveillance bias may mask otherwise detectable group differences in official child maltreatment records in an early follow-up. Part of the home visitor's responsibilities is to connect mothers with community resources, which exposes program mothers to other mandated reporters. Also, our post-hoc analysis indicates that mothers in the HFNY group were more likely to be detected for child maltreatment than mothers in the control group during early years of the trial. This suggests that HFNY may be intervening earlier on in the child's life and reducing long term risks.

There are other possible explanations for the lack of group differences in official child maltreatment records at earlier ages. For example, one might posit that there is a developmental effect of the home visiting program, in that mothers take time to practice skills and adopt responsive parenting behaviors introduced in the intervention, with a cumulative or sleeper effect (van Aar, Leijten, Orobio de Castro, & Overbeek, 2017; van der Put, Assink, Gubbels, & Boekhout van Solinge, 2018). Additionally, to the extent that control

Participation in the HFNY program also resulted in a significantly lower rate of initiation of child welfare family support services to prevent possible foster care placement for the children of CPS involved mothers. The initiation of services is often indicative of heightened risk of families reported to CPS, and this low rate suggests risk reduction among HFNY families with prior CPS history. While reduction in harmful parenting behaviors could not be confirmed as possible mechanisms for this subgroup, results for the whole group at the year 7 follow up indicated that HFNY had sustained effects on reducing harmful parenting (DuMont et al., 2011). In addition, HFNY's reflective supervision of home visitors, intensive training using role playing, as well as fidelity monitoring, are likely to be key factors for achieving better child maltreatment outcomes (Casillas et al., 2016).

A broadening impact of the home visiting intervention over time is found in both in the follow-up studies of Early Start and NFP. Results from the NFP's Elmira sample indicated that the early effects of the program in reducing maltreatment were not only sustained but became stronger over time, with families in the treatment condition having significantly fewer official child maltreatment reports over a 15-year period (Olds et al., 1997; Zeilinski, Eckenrode, & Olds, 2009). In addition, we note that investigation of important subgroups embedded in larger studies can shed important light on the nuances of impact and important moderating variables. For example, program effects were not observed for women experiencing domestic violence (Eckenrode et al., 2000). In this study, we focus in on families with child welfare involvement, a critically unaddressed group.

Results from our post-hoc analyses confirmed that having fewer subsequent children was associated with lower rates of subsequent indicated reports for the CPS-involved mothers, pointing to the importance of addressing family planning issues in home visiting programs. Research has consistently shown that subsequent childbearing, notably closely spaced second births, is a key mediator of poorer life outcomes for both mother and child (Crowne et al., 2012; Kalmuss & Namerow, 1994), but it is preventable through home-based services (Black et al., 2006). Large family size is linked to risk of maltreatment as well as other maternal risk factors (Lanier & Jonson-Reid, 2014). Given HFNY's focus on maternal life course development, it is plausible to suggest that to have a long-term impact on maltreatment outcomes, the intervention would have to alter significant aspects of mothers' life course, such as fertility patterns (Eckenrode et al., 2017). Our findings suggest improving maternal life-course development through reductions in family size and birth spacing represent key pathways through which long-term improvements in parenting and reductions in the incidence of child maltreatment can be achieved.

Despite the encouraging findings, our study has several limitations. First and foremost, the study was not based on an a priori sample. Child welfare involved families have always been served by HFNY programs, but the identification and inclusion of this subgroup in the trial was not planned in advance (DuMont et al., 2011). However, for the most part, randomization worked to produce two equivalent groups. Second, the study sample is small. Therefore, while results on recurrent maltreatment are consistent, and clinically important, findings need to be confirmed and strengthened through additional analyses on different samples. Additionally, the study is limited to one region of the United States and one home visiting model. A range of home visiting programs is available, and there are program variations as indicated within Healthy Families America programs and between various models. Therefore, the findings cannot be generalized across home visiting programs. More research is needed to address the impact of this variability

Despite these limitations, our study supports the potential of extending home visiting programs to child welfare involved families given the well-known risk of recurrent maltreatment and the lack of effective community based interventions. Focusing home visiting services only on first-time mothers leaves out a majority of expectant and new mothers that could benefit from home visiting programs. Furthermore, multiparous mothers have higher risk factors, often precipitating reports of child maltreatment, than primiparous mothers (Lanier & Jonson-Reid, 2014). Home visiting programs that do not require parity as eligibility criteria have been successful in preventing child maltreatment (Chartier et al., 2017; Fergusson et al., 2005; Fergusson et al., 2013). Despite limited data, tertiary prevention programs targeting families referred to CPS have been shown to be effective (Chaffin et al., 2012; Jouriles et al., 2010; Oxford, Spieker, Lohn, & Fleming, 2016) indicating the potential for extending existing home visiting programs (Chaffin et al., 2012).

We recommend that future evaluations of home visiting programs include multiparous mothers as well as those with prior CPS involvement. The current findings with larger samples would allow for statistical tests that are adequately powered to detect small to medium effects. In addition, study designs that are stratified from the outset would help to minimize potential differences across the treatment groups. In the current study, statistical controls were used to compensate for differences in the baseline characteristics of child welfare–involved mothers, and the equivalent or nearly equivalent cell sizes helped to limit heterogeneity in variances across the two groups, thereby promoting valid and comparable estimates of program impact.

Regarding practice, we recommend establishing strong links between local departments of social services and home visiting programs. While child welfare–involved families present added challenges in recruitment and retention, they are accessible and interested in community-based home visiting services (Stahlschmidt et al., 2018). Home visiting presents an opportunity to create meaningful change in the lives of families with a history of maltreatment. This change could be accomplished or supported, for example, by encouraging local child protective services agencies to refer recently or actively indicated child welfare cases to a home visiting program when the mother is expecting or has recently delivered a child.

Home visiting presents a unique opportunity for trained worker to forge enduring relationships with families at a time when parents are vulnerable and the developmental path of the newborn and mother may be particularly malleable. Parents with child welfare involvement may benefit from home visiting to reduce child maltreatment recidivism (Chen & Chan, 2016; Reuter, Melchior, & Brink, 2016) by focusing on life course development, improving parenting practices, and reducing risk factors. The well docu-

Conflict of interests

References

Allen, A. D., Hyde, J., & Leslie, L. K. (2012). "I don't know what they know": Knowledge transfer in mandated referral from child welfare to early intervention. *Children & Youth Services Review, 34*(5), 1050–1059.

Avellar, S. A., & Supplee, L. H. (2013). Effectiveness of home visiting in improving child health and reducing child maltreatment. *Pediatrics, 132*, S90–S99.

Bae, H., Solomon, P. L., & Gelles, J. (2008). Multiple child maltreatment recurrence relative to single recurrence and no recurrence. *Children and Youth Services Review, 31*, 617–624.

Barlow, J., Davis, H., McIntosh, E., Jarrett, P., Mockford, C., & Stewart-Brown, S. (2007). Role of home visiting in improving parenting and health in families at risk of abuse and neglect: Results of a multicentre randomised controlled trial and economic evaluation. *Archives of Disease in Childhood, 92*(3), 229–233. https://doi.org/10.1136/adc.2006.095117.

Barlow, A., Mullany, B., Neault, N., Goklish, N., Billy, T., Hastings, R., ... Walkup, J. T. (2015). Paraprofessional-delivered home-visiting intervention for American Indian teen mothers and children: 3-year outcomes from a randomized controlled trial. *American Journal of Psychiatry, 172*(2), 154–162.

Bavolek, S. J., & Keene, R. G. (1999). *Adult-Adolescent Parenting Inventory (AAPI-2): Administration and development handbook.* Park City, UT: Family Development Resources Inc.

Black, M. M., Bentley, M. E., Papas, M. A., Oberlander, S., Teti, L. O., McNary, S., ... O'Connell, M. (2006). Delaying second births among adolescent mothers: A randomized, controlled trial of a home-based mentoring program. *Pediatrics, 118*(4), e1087–e1099.

Casillas, K. L., Fauchier, A., Derkash, B. T., & Garrido, E. F. (2016). Implementation of evidence-based home visiting programs aimed at reducing child maltreatment: A meta-analytic review. *Child Abuse & Neglect, 53*, 64–80.

Chaffin, M., & Bard, D. (2006). Impact of intervention surveillance bias on analysis of child welfare report outcomes. *Child Maltreatment, 11*(4), 301–312.

Chaffin, M., Hecht, D., Bard, D., Silovsky, J. F., & Beasley, W. H. (2012). A statewide trial of the SafeCare home-based services model with parents in Child Protective Services. *Pediatrics, 129*(3), 509–515.

Chartier, M. J., Brownell, M. D., Isaac, M. R., Chateau, D., Nickel, N. C., ... Taylor, C. (2017). Is the Family First home visiting program effective in reducing child maltreatment and improving child development? *Child Maltreatment, 22*, 121–131.

Chen, M., & Chan, K. L. (2016). Effects of parenting programs on child maltreatment prevention: A meta-analysis. *Trauma, Violence, & Abuse, 17*(1), 88–104.

Cicchetti, D., Cowell, R., Rogosch, F., & Toth, S. (2015). Childhood maltreatment and its effect on neurocognitive functioning: Timing and chronicity matter. *Developmental Psychopathology, 27*(2), 521–533.

Coffman, J. K., Guerin, D. W., & Gottfried, A. W. (2006). Reliability and validity of the parent-child relationship inventory (PCRI): Evidence from a longitudinal cross-information investigation. *Psychological Assessment, 18*(2), 209–214.

Crowne, S. S., Gonsalves, K., Burrell, L., McFarlane, E., & Duggan, A. (2012). Relationship between birth spacing, child maltreatment, and child behavior and development outcomes among at-risk families. *Maternal And Child Health Journal, 16*(7), 1413–1420. https://doi.org/10.1007/s10995-011-0909-3.

Dishion, T. J., Shaw, D., Connell, A., Gardner, F., Weaver, C., & Wilson, M. (2008). The family check-up with high-risk indigent families: Preventing problem behavior by increasing parents' positive behavior support in early childhood. *Child Development, 79*(5), 1395–1414.

Duggan, A., Caldera, D. L., Rodriguez, K., Burrell, L. D., Rohde, C., & Crowne, S. S. (2007). Impact of a statewide home visiting program to prevent child abuse. *Child Abuse & Neglect, 31*, 801–827.

Duggan, A., McFarlane, E., Fuddy, L., Burrell, L., Higman, S. M., Windham, A., ... Sia, C. (2004). Randomized trial of a statewide home visiting program: Impact in preventing child abuse and neglect. *Child Abuse & Neglect, 28*, 597–622.

Dulak, J. (2009). How to select, calculate, and interpret effect sizes. *Journal of Pediatric Psychology, 34*(9), 917–928. https://doi.org/10.1093/jpepsy/jsp004.

DuMont, K. A., Mitchell-Herzfeld, C., Greene, R., Lee, E., Lowenfels, A., Rodriguez, M., ... Dorabawila, V. (2008). Healthy Families New York randomized trial: Effects on early child abuse and neglect. *Child Abuse & Neglect, 32*, 295–315.

DuMont, K. A., Kirkland, K., Mitchell-Herzfeld, S., Ehrhard-Dietzel, S., Rodriguez, M., Lee, E., ... Greene, R. (2011). *A randomized trial of Healthy Families New York (HFNY): Does home visiting prevent child maltreatment? Final technical report to US.* Department of Justice.

Easterbrooks, M. A., Jacobs, F. H., Bartlett, J. D., Goldberg, J., Contreras, M. M., Kotake, C., ... Chaudhuri, J. H. (2012). *Initial findings from a randomized, controlled trial of Healthy Families Massachusetts: Early program impacts on young mothers' parenting. Report to the Pew Center on the States*Medford, MA: Tufts University.

Eckenrode, J., Ganzel, B., Henderson, C. J., Smith, E., Olds, D. L., Powers, J., ... Sidora, K. (2000). Preventing child abuse and neglect with a program of nurse home visitation: The mining effects of domestic violence. *Journal of the American Medical Association, 284*(11), 1385–1391. https://doi.org/10.1001/jama.284.11.1385.

Eckenrode, J., Campa, M. I., Morris, P. A., Henderson, C. J., Bolger, K. E., Kitzman, H., ... Olds, D. L. (2017). The prevention of child maltreatment through the nurse family partnership program: Mediating effects in a long-term follow-up study. *Child Maltreatment, 22*(2), 92–99. https://doi.org/10.1177/1077559516685185.

Eckenrode, J., Campa, M., Luckey, D. W., Henderson, C. R., Cole, R., Kitzman, H., ... Olds, D. (2010). Long-term effects of prenatal and infancy nurse home visitation on the life course of youths: 19-year follow-up of a randomized trial. *Archives of Pediatrics & Adolescent Medicine, 164*(1), 9–15.

Éthier, L. S., Lemelin, J. P., & Lacharité, C. (2004). A longitudinal study of the effects of chronic maltreatment on children's behavioral and emotional problems. *Child Abuse & Neglect. 28*(12), 1265–1278.

Fergusson, D. M., Grant, H., Horwood, L. J., & Ridder, E. M. (2005). Randomized trial of the Early Start program of home visitation. *Pediatrics, 116*, e803–e809. https://doi.org/10.1542/peds.2005-0948.

Fergusson, D. M., Boden, J. M., & Horwood, L. J. (2013). Nine-year follow-up of a home-visitation program: A randomized trial. *Pediatrics, 131*(2), 297–303. https://doi.org/10.1542/peds2012-1612.

Gomby, D. S. (2007). The promise and limitations of home visiting: Implementing effective programs. *Child Abuse & Neglect, 31*, 793–799.

Green, B. L., Sanders, M. B., & Tarte, J. (2017). Using administrative data to evaluate the effectiveness of the Healthy Families Oregon home visiting program: 2-year impacts on child maltreatment & service utilization. *Children and Youth Services Review, 75*, 77–86.

Guterman, N. B. (2001). *Stopping child maltreatment before it starts: Emerging horizons in early home visitation services.* Thousand Oaks, CA: Sage Publications.

Healthy Babies…Healthy Families (2018). *Healthy Families San Angelo.* http://www.hfsatx.com/parenting-curricula.

Hedges, L. (1981). Distribution theory for glass's estimator of effect size and related estimators. *Journal of Educational Statistics, 6*(2), 107–128.

Jonson-Reid, M., Drake, B., Constantino, J. N., Tandon, M., Pons, L., Kohl, P., ... Auslander, W. (2018). A randomized trial of home visitation for CPS-involved families: The moderating impact of maternal depression and CPS history. *Child Maltreatment,* 1–13. https://doi.org/10.1177/1077559517751671.

Jouriles, E. N., McDonald, R., Rosenfield, D., Norwood, W. D., Spiller, L., Stephens, N., ... Ehrensaft, M. (2010). Improving parenting in families referred to child maltreatment: A randomized controlled trial examining effects of Project Support. *Journal of Family Psychology, 24,* 328–338.

Kalmuss, D. S., & Namerow, P. B. (1994). Subsequent childbearing among teenage mothers: The determinants of a closely spaced second birth. *Family Planning Perspectives,* 149–159.

Kirkland, K. (2013). Effectiveness of home visiting as a strategy for promoting children's adjustment to school. *Zero to Three, 33*(3), 31–37.

Kitzman, H., Olds, D. L., Henderson, C. R., Hanks, C., Cole, R., Tatelbaum, R., ... Barnard, K. (1997). Effects of prenatal and infancy home visitation by nurses on pregnancy outcomes, childhood injuries, and repeated childbearing: A randomized controlled trial. *Journal of the American Medical Association, 278,* 644–652.

Kitzman, H. J., Olds, D. L., Cole, R. E., Hanks, C. A., Anson, E. A., Arcoleo, K. J., ... Holmberg, J. R. (2010). Enduring effects of prenatal and infancy home visiting by nurses on children: Follow-up of a randomized trial among children at age 12 years. *Archives of Pediatrics & Adolescent Medicine, 164*(5), 412–418.

Klevens, J., & Whittaker, D. J. (2007). Primary prevention of child physical abuse and neglect: Gaps and promising directions. *Child Maltreatment, 12,* 364–377.

Korfmacher, J. (2000). The Kempe Family Stress Inventory: A review. *Child Abuse & Neglect, 24,* 129–140.

Lanier, P., & Jonson-Reid, M. (2014). Comparing primiparous and multiparous mothers in a nurse home visiting prevention program. *Birth, 41*(4), 344–352.

LeCroy, C., & Krysik, J. (2011). Randomized trials of the healthy familes Arizona home visiting programs. *Children and Youth Services Review, 33*(10), 1761–1766.

Lee, E., Mitchell-Herzfeld, S., Lowenfels, A., Greene, R., Dorabawilla, V., & DuMont, K. A. (2009). Improving birth outcomes through home visitation: A randomized controlled trial. *American Journal of Preventive Medicine, 36,* 154–160.

Li, F., & Godinet, M. T. (2014). The impact of repeated maltreatment on behavioral trajectories from early childhood to early adolescence. *Children and Youth Services Review, 36,* 22–29.

Lowell, D. I., Carter, A. S., Godoy, L., Paulicin, B., & Briggs-Gowan, M. J. (2011). A randomized controlled trial of Child First: A comprehensive home-based intervention translating research into early childhood practice. *Child Development, 82*(1), 193–208.

MacMillan, H. L., Thomas, B. H., Jamieson, E., Walsh, C. A., Boyle, M. H., Shannon, H. S., ... Gafni, A. (2005). Effectiveness of home visitation by public-health nurses in prevention of the recurrence of child physical abuse and neglect: A randomized controlled trial. *Lancet, 365,* 1786–1793.

MacMillan, H. L., Watchen, C. N., Barlow, J., Fergusson, D. M., Leventhal, J. M., & Taussig, H. N. (2009). Interventions to prevent child maltreatment and associated impairment. *Lancet, 373,* 250–266.

Olds, D., Henderson, C., Chamberlin, R., & Tatelbaum, R. (1986). Preventing child abuse and neglect: A randomized trial of nurse home visitation. *Pediatrics, 78,* 65–78.

Olds, D., Henderson, C. R., Jr., Kitzman, H., & Cole, R. (1995). Effects of prenatal and infancy nurse home visitation on surveillance of child maltreatment. *Pediatrics, 95*(3), 365–372.

Olds, D. L., Eckenrode, J. J., Henderson, C. R., Jr., Kitzman, H., Powers, J., Cole, R., ... Luckey, D. (1997). Long-term effects of home visitation on maternal life course, child abuse and neglect: Fifteen-year follow-up of a randomized trial. *Journal of the American Medical Association, 278,* 637–643.

Olds, D. L., Kitzman, H. J., Cole, R., Robinson, J., Sidora, K., Luckey, D. W., ... Holmberg, J. (2004). Effects of nurse home-visiting on maternal life course and child development: Age 6 follow-up results of a randomized trial. *Pediatrics, 114,* 1150–1159.

Olds, D. L., Kitzman, H. J., Hanks, C., Cole, R., Anson, E., Sidora-Arcoleo, K., ... Bondy, J. (2007). Effects of nurse home visiting on maternal and child functioning: Age-9 follow-up of a randomized trial. *Pediatrics, 120,* 832–845.

Olds, D., Robinson, J., O'Brien, R., Luckey, D., Pettit, L., Henderson, C., ... Talma, A. (2002). Home visiting by paraprofessionals and nurses: A randomized, controlled trial. *Pediatrics, 110*(3), 486–496.

Oxford, M. L., Spieker, S. J., Lohn, M. J., & Fleming, C. B. (2016). Promoting First Relationships: Randomized trial of a 10-week home visiting program with families referred to child protective services. *Child Maltreatment, 231,* 267–277. https://doi.org/10.1177/1077559516668.

Parents as Teachers (2018). *Parents as Teachers National Center, Inc.* https://parentsasteachers.org/foundational-training-curriculum.

Partners for A Healthy Baby Home Visiting Curriculum (2017). *Florida State University Center for Prevention & Early Intervention Policy.* https://cpeip.fsu.edu/phb/.

Proctor, E. (2012). Implementation science and child maltreatment: Methodological advances. *Child Maltreatment, 17*(1), 107–112. https://doi.org/10.1177/1077559512437034.

Radloff, L. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*(3), 385–401.

Reuter, K. E., Melchior, L. A., & Brink, A. M. (2016). An intensive mental health home visiting model for two at-risk early childhood populations. *Children and Youth Services Review, 61,* 22–30.

Rodriguez, M. L., Dumont, K., Mitchell-Herzfeld, S. D., Walden, N. J., & Greene, R. (2010). Effects of Healthy Families New York on the promotion of maternal parenting competencies and the prevention of harsh parenting. *Child Abuse & Neglect, 34,* 711–723.

Sainani, K. L. (2010). Statistically speaking: Making sense of intention-to-treat. *The American Academy of Physical Medicine and Rehabilitation, 2,* 209–213.

Sanders, M. R., Turner, K. M. T., & Markie-Dadds, C. (2002). The development and dissemination of the Triple P—Positive Parenting Program: A multilevel, evidence-based system of parenting and family support. *Prevention Science, 3,* 173–189. https://doi.org/10.1023/A:1019942516231.

Stahlschmidt, M. J., Jonson-Reid, M., Pons, L., Constantino, J., Kohl, P. L., Drake, B., ... Auslander, W. (2018). Trying to bridge the worlds of home visitation and child welfare: Lessons learned from a formative evaluation. *Evaluation and Program Planning, 66,* 133–140. https://doi.org/10.1016/j.evalprogplan.2017.10.001.

Straus, M. A., Hamby, S. L., Finkelhor, D., Moore, D. W., & Runyan, D. (1998). Identification of child maltreatment with the Parent-Child Conflict Tactics Scales: Development and psychometric data for a national sample of American parents. *Child Abuse & Neglect, 22*(4), 249–270.

Sullivan, G. M., & Feinn, R. (2012). Using effect size-or why the p value is not enough. *Journal of Graduate Medical Education, 4*(3), 279–282. https://doi.org/10.4300/JGME-D-12-00156.1.

van Aar, J., Leijten, P., Orobio de Castro, B., & Overbeek, G. (2017). Sustained, fade-out or sleeper effects? A systematic review and meta-analysis of parenting interventions for disruptive child behavior. *Clinical Psychology Review,* 51153–51163. https://doi.org/10.1016/j.cpr.2016.11.006.

van der Put, C. E., Assink, M., Gubbels, J., & Boekhout van Solinge, N. F. (2018). Identifying effective components of child maltreatment interventions: A meta-analysis. *Clinical Child & Family Psychology Review, 21*(2), 171–202. https://doi.org/10.1007/s10567-017-0250-5.

Williams, C., Cprek, S., Asaolu, I., English, B., Jewell, T., Smith, K., ... Robl, J. (2017). Kentucky Health Access Nurturing Development Services home visiting program improves maternal and child health. *Maternal & Child Health Journal, 21*(5), 11661174. https://doi.org/10.1007/s1099501622156.

Zeilinski, D. S., Eckenrode, J., & Olds, D. L. (2009). Nurse home visitation and the prevention of child maltreatment: Impact on the timing of official reports. *Development & Psychopathology, 21,* 441–453.