



Sociodemographic and Psychosocial Predictors of VIP Attendance in Smart Beginnings Through 6 Months: Effectively Targeting At-Risk Mothers in Early Visits

Elizabeth B. Miller¹ · Caitlin F. Canfield² · Pamela A. Morris¹ · Daniel S. Shaw³ · Carolyn Brockmeyer Cates^{2,4} · Alan L. Mendelsohn²

Published online: 20 August 2019

© Society for Prevention Research 2019

Abstract

Past research on predictors of participation in early childhood parenting programs suggest that families experiencing higher levels of sociodemographic adversity (e.g., younger maternal age, single parenthood, lower income or education) are *less* likely to participate in parenting programs. This is significant, as it may indicate that those most in need of additional support are the least likely to receive it. Data from a randomized control trial (RCT) of Smart Beginnings, an integrated, tiered model for school readiness, were used to explore predictors of attendance in Video Interaction Project (VIP) through 6 months. VIP is a primary preventive intervention delivered in tandem with pediatric well-child visits, aimed at reducing income-based disparities in early child development through promotion of responsive parent-child interactions. Using Poisson distribution models ($N = 403$; treatment arm, $n = 201$), we find that demographic, socioeconomic status (SES), and psychosocial variables are associated with program attendance but not always in the expected direction. While analyses show that first-time mothers have higher levels of program attendance as expected, we find that less-educated mothers and those with lower parenting self-efficacy have higher levels of attendance as well. The latter findings may imply that the VIP intervention is, by some indicators, effectively targeting families who are more challenging to engage and retain. Implications for pediatric-based interventions with population-level accessibility are discussed.

Keywords Parent-child · Interactions · Pediatric-based · Participation

Large disparities in school readiness exist early in life between lower and higher socioeconomic status (SES) children, often characterized by gaps in socioemotional competence, self-regulation, and achievement (Garcia and Weiss 2017; Shonkoff and Phillips 2000). Early childhood and home visiting programs designed to ameliorate these disparities have shown promise by targeting parents as children's key sources of self-regulatory and educational support (Cates et al. 2016a, b; Landry et al. 2012), as differences in the quality of parent-child relationships and associated parenting practices account

for 25–50% of these school readiness gaps (Brooks-Gunn and Markman 2005). For example, interventions such as Play and Learning Strategies (PALS) improve mother and child behavior during play, shared reading, and everyday routines, and impacts of PALS on children's language during book reading were mediated through increased maternal responsiveness (Landry et al. 2012). Similarly, in the Family Check-Up (FCU), improvements in positive parenting support mediated improvements both in child disruptive behavior (Dishion et al. 2008) and later academic achievement (Brennan et al. 2013).

For early childhood interventions to be maximally effective for population impact and reduce school readiness gaps, however, initial engagement of parents and their continued attendance and participation is critical (Baker et al. 2011; Reyno and McGrath 2006). Following recent suggestions for terminology (Sims and Crump 2018), we define initial engagement as the activities related to beginning an intervention, including enrollment and making a commitment to attend an initial session; attendance or retention as taking part in intervention sessions; and participation as taking part in a broader set of

✉ Elizabeth B. Miller
ebmiller@nyu.edu

¹ New York University, New York, NY, USA

² New York University School of Medicine, New York, NY, USA

³ University of Pittsburgh, Pittsburgh, PA, USA

⁴ Purchase College, State University of New York, Purchase, NY, USA

program activities. Studies have indicated that each step—from enrollment to attendance to participation—can affect intervention outcomes (Berkel et al. 2018). Understanding which families actively attend parenting programs and whether such interventions are appropriately targeting and engaging families most in need of services can substantially improve intervention design and implementation, with the ultimate goal of improving parenting practices and children’s school readiness at the population level from birth.

Using data from a randomized control trial (RCT) of Smart Beginnings, we explore predictors of attendance in the intervention. As part of a comprehensive strategy designed to close the gap in school readiness, Smart Beginnings utilizes the pediatric primary care setting as the initial point of contact for population-level engagement of families, with subsequent linkage to home visiting for more specified and intensive services in a tiered parenting model. This design incorporates a universal primary prevention program (Video Interaction Project (VIP); Mendelsohn et al. 2005) with screening and referral to a more intensive secondary prevention program (the Family Check-Up (FCU); Dishion and Stormshak 2007) for families with additional child and psychosocial risks. VIP is delivered in the pediatric clinic at well-child appointments, while the FCU is delivered as a home visiting program. Both are discussed in detail below.

Importance of Interventions Based in Pediatrics

Interventions based in pediatrics bridge the gap between education and public health, potentially maximizing participation through increased access and low cost (Kolko and Perrin 2014). Additionally, gaps in school readiness often occur in the context of health-related and psychosocial stressors common in low-income households, such as maternal depression or family conflict (Currie 2005), representing key barriers to optimal parenting. Healthcare workers play a lead role in the identification and treatment of these stressors, and primary care is the only entity with sufficiently regular, frequent contact with low-income families in early childhood (13–15 visits from birth to 5 years) to allow for substantial dose of interventions at the population level (Hagan et al. 2017).

The standard for well-child and preventive care in pediatrics is outlined in *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents* (Hagan et al. 2017), which is led by the American Academy of Pediatrics (AAP) and supported by the Health Resources and Services Administration (HRSA). *Bright Futures* emphasizes primary prevention and the monitoring and care for child health broadly, providing support for co-located and collaborative programs to support children’s social/behavioral, family, and environmental health, including targeted mental health

programs, as well as universal programs to promote responsive parenting, early literacy, and other social determinants of health (Kolko and Perrin 2014; Kuo et al. 2012). Furthermore, healthcare access for low-income families has increased in the context of initiatives such as the Child Health Insurance Program (Howell and Kenney 2012) and Medicaid expansion in the context of the Affordable Care Act (Alker and Chester 2015). Therefore, primary care provides a unique opportunity for linkages with community-based models, including home visiting, as in the Smart Beginnings program under study here. Scalability, and potentially increased efficacy, is further enhanced by engaging families in a setting they trust, building on the credibility of primary care providers as sources of parenting and child development advice (Cates et al., 2016a, b; Leslie et al. 2016), and leveraging existing infrastructure in a single location, with the potential for low cost. Finally, the medical home model delivers culturally informed, comprehensive, family-centered care (Hagan et al. 2017), making it an ideal setting for interventions that focus on family interactions. Thus, Smart Beginnings is conceptualized as a new school readiness strategy that utilizes pediatric primary care for initial contact in the intervention delivery platform.

Parenting Program Attendance and Parental Wellbeing

Despite the potential of interventions based in pediatric primary care to improve parent and child outcomes, such impacts are only attainable if parents participate. Several studies have shown that attendance alone in parenting programs can predict treatment effects for both parents and children, presumably because without attendance, parents cannot internalize the relevant program content (Barnes and Freude-Lagevardi 2002; Reyno and McGrath 2006). Further, if parents do not attend the sessions, interventions are not reaching their target participants—parents whose children may be most at risk for suboptimal outcomes.

Attendance has been found to be associated with intervention effectiveness, particularly for preventive interventions in the healthcare setting. Although few RCTs have looked specifically at parenting programs for infants and toddlers, those that have provide further evidence for the importance of attendance. In a clinic-based maltreatment prevention program for high-risk parents of infants and toddlers, the median number of sessions attended was six of eight, and attendance was a significant predictor of improvement in parenting stress and behaviors, as well as the home environment (Huebner 2002). Previous studies of VIP have also found links between attendance and parent outcomes (Cates et al. 2018), with stronger positive outcomes for those families who attended at least three sessions per year (Weisleder et al. 2016).

Parenting programs during the infant and toddler years in non-healthcare contexts that show strong impacts, particularly for parental wellbeing, also often have high overall levels of attendance. For example, two attachment-oriented programs—Attachment and Biobehavioral Catch-Up (ABC) Intervention and the Circle of Security Parenting (COS-P) Intervention—were both 10 weeks long and had high rates of attendance. Seventy-eight percent of intervention families completed all ten ABC sessions (M. Dozier, personal communication, 15 May 2018), and parents demonstrated increased maternal sensitivity and better self-regulation (Research Supporting ABC n.d.). Similarly, in an RCT of COS-P with children from Head Start, all families attended at least six sessions (60%; J. Cassidy, personal communication, 16 May 2018), and parents showed higher levels of responsiveness to child distress (Cassidy et al. 2017).

In Family Foundations, an eight-session intervention that begins in the month before birth and targets co-parenting, 80% of couples attended at least three of four prenatal sessions and 60% attended at least three postnatally. Positive impacts on parental stress, parent self-efficacy, and co-parenting satisfaction were found (Feinberg et al. 2010). Nearly all (88%) of the referred parents in the Hawaii Healthy Start Program (HSP) had at least one home visit, resulting in reductions in intimate partner violence and maternal parenting stress (Duggan et al. 1999). The Incredible Years (IY) Parenting Program targeting infants and toddlers found that 64% of parents completed at least half of the eight program sessions, with significant improvements in parental confidence and mental health and wellbeing (Evans et al. 2015). Finally, in the UCLA Family Development Project, no families dropped out before age 2 and families completed approximately 75% of scheduled visits (Heinicke et al. 2001); program attendance predicted both maternal responsiveness and secure child attachment, as the supportive relationships mothers experienced influenced both their parenting and their children's development (Heinicke et al. 2006).

Predictors of Participation in Parenting Programs

Based on the links between parenting program participation and parental wellbeing outcomes discussed above, identifying sociodemographic and psychosocial predictors of all aspects of parent participation is critical in the design and implementation of early childhood preventive interventions, with implications for their success in improving parent-child relationships and, ultimately, child school readiness. Enrollment in parenting programs is generally relatively low, with rates typically around 45% (Baker et al. 2011). Continued attendance in parenting programs specifically targeted for infants and toddlers is also similarly low: for example, only 44% of

parents enrolled in Early Head Start had at least a weekly visit and only 47% met with their case manager on a weekly basis (Besharov et al. 2011), and a recent meta-analysis of attendance patterns in Nurse-Family Partnership (NFP) sites across the USA found that over 50% of mothers involved in the program dropped out before completing 20 visits (Holland et al. 2018).

Past research on predictors of attendance and participation in parenting programs have yielded mixed findings. While some studies have indicated that more perceived stressors resulted in increased participation (e.g., Smith et al. 2018), most studies suggest that families experiencing higher levels of sociodemographic adversity (e.g., younger maternal age, single parenthood, lower income or education) are *less* likely to participate in parenting programs (Reyno and McGrath 2006). Low levels of literacy and education may also influence parenting knowledge and beliefs, in turn affecting their participation (Whittaker and Cowley 2012). Psychosocial stressors such as maternal depression, parenting stress, and marginalization, including discrimination based on racial or ethnic minority status, also have been linked to reduced retention in programs (Ingoldsby 2010; O'Brien et al. 2012). Further, family-level stressors, such as inter-parental conflict may lead to attendance at fewer sessions (Mauricio et al. 2018). These stressors may also have indirect effects on engagement and participation through impacts on parental self-efficacy and expectations (Gross et al. 2004; Staudt 2007). Logistical barriers to attendance and participation including lack of child care, difficulty with transportation, limitations on time, and privacy concerns have further been shown to affect program attendance (Gross et al. 2004; Ingoldsby 2010).

The primary care platform, generally, and the Smart Beginnings program, specifically, may address at least some of these barriers, making parent attendance and participation more likely. First, because VIP visits take place at the time of well-child pediatric appointments, it reduces cost and travel requirements for parents. It targets parents where they are already present with their children and takes advantage of unoccupied waiting time to deliver a short, effective parenting intervention. As noted above, universal delivery within pediatric care also provides legitimacy to the program for parents and reduces stigmatization (Leslie et al. 2016). Further, both VIP and the FCU are strength-based interventions, and incorporate trauma-informed practices, such as collaboration and cultural sensitivity, into their sessions. Thus, Smart Beginnings has the potential to engage families facing high levels of stress and adversity and can address the heterogeneity of risk found in low-income households.

Although previous studies of VIP have reported relatively high attendance, with families receiving a median of 9 out of the possible 14 visits from birth to age 3 (Weisleder et al. 2016), predictors of attendance have not been examined. A study of participation in the FCU indicated that consistent

with previous literature, higher levels of economic hardship and child problem behaviors were associated with lower participation in the program, but that increased caregiver stress was associated with higher FCU participation (Smith et al. 2018).

Present Study

Based on previous findings on the importance of parent attendance in programs and the potential for Smart Beginnings to address some of the barriers to successful participation, the present study examined data from VIP, the universal component of Smart Beginnings being tested in pediatric primary care, to understand predictors of attendance. Understanding which families actively take part in a universal prevention strategy like VIP, as part of a rigorous RCT, can inform intervention design and scaling, with the ultimate goal of improving parenting practices and children's school readiness. Consistent with prior literature, we hypothesized that families experiencing higher levels of sociodemographic adversity (e.g., younger maternal age, lower income or education) would be less likely to participate in VIP. However, because of the placement of the VIP program in pediatric primary care, we expected qualitatively higher average retention overall compared with published studies of parenting programs in other settings such as schools or community centers that traditionally have had high barriers to attendance (Spoth and Redmond 2000).

Method

We conducted an RCT of the Smart Beginnings intervention with 403 families taking place in New York, NY and in Pittsburgh, PA. Smart Beginnings is one of the first to integrate the use of two evidence-based interventions in pediatric primary care with the aim of enhancing early psychosocial development and school readiness of children in poverty through positive parenting practices and reduction of psychosocial stressors. Smart Beginnings includes: (1) a universal primary prevention strategy (VIP; Mendelsohn et al. 2005), which was provided for all families randomly assigned to the intervention group; and (2) a targeted home-based secondary prevention strategy (FCU; Dishion and Stormshak 2007), for intervention families with additional psychosocial risks or child behavior problems. The trial is taking place in two distinct urban contexts—Bellevue Hospital in New York City (NYC) and the Children's Hospital of Pittsburgh. The sites were chosen because of their diversity of sociodemographic characteristics. In NYC, the primary care clinic at Bellevue serves primarily Latino families (79%; A.H. Fienman, personal communication, 6 March 2019), whereas the clinic at the Children's Hospital of Pittsburgh serves mostly African-

American families (76%; S. Faulds, personal communication, 21 February 2019).

Intervention Design

Smart Beginnings Smart Beginnings is a tiered model of intervention that begins with VIP and then provides the FCU for select families later in infancy. Families are randomly assigned to two treatment conditions: the Smart Beginnings intervention who all receive VIP and have the potential to receive the FCU, or the control group, which receives only routine primary care. All families that are assigned to the VIP treatment condition are able to “screen into” the FCU (which provides more intensive, home-based services) at 6, 18, and 30 months if they are assessed to be at high risk for negative family and child outcomes. As the current study is restricted to attendance in Smart Beginnings during the first 6 months, the focus is exclusively on predictors of attendance at VIP sessions prior to receipt of FCU services.

Video Interaction Project VIP is a primary preventive intervention aimed at reducing income-based disparities in early child development through promotion of responsive parent-child interactions. It was conceived as an enhancement to Reach Out and Read (ROR; Needlman et al. 1991), which provides children's books and counseling on the importance of reading aloud during pediatric primary care well-child visits. The VIP infant-toddler program consists of 14 sessions that take place between birth and 3 years, scheduled at the time of well-child appointments, occurring more often in the first year (six times) and then less frequently in years 2 and 3 (every 3 months).

During each VIP session, the family meets with a bachelor's level interventionist one-on-one for 25–30 min. The interventionist first engages the parent about the child's development, encouraging them to be an active observer of their child. The parent is then provided with a developmentally-appropriate toy or book to take home, and the interventionist video-records the dyad playing or reading together for 3–5 min. The video is then reviewed together by the parent and interventionist to identify and reinforce responsive parenting behaviors, allowing for self-reflection. To emphasize messaging and reinforce parenting behaviors at home, the parent is provided with a copy of the video and a personalized pamphlet with goals for interacting with her child at home. VIP interventionists undergo an initial three-day training course, followed by on-the-ground training and ongoing supervision. The VIP interventionist is ideally conceptualized as a member of the healthcare team.

Prior evaluations of VIP have demonstrated causal impacts on parenting, including stress and behaviors (Cates et al. 2016a, b). Parents in VIP, as compared with the control group, reported significantly lower levels of depressive symptoms

when their infants were 6 months old (Berkule et al. 2014). Further, they were less likely to use physical punishment when their children were 2 years old, an impact that was mediated by VIP effects on maternal wellbeing (Canfield et al. 2015). Parents in the VIP program also participated in more cognitively stimulating interactions, including book sharing, play, and teaching activities (Cates et al. 2018).

The Family Check-Up The Family Check-Up (FCU) is an evidence-based home-visiting model for reducing the development of early disruptive behavior that was designed to address some of the limitations of the traditional parent training model (Dishion and Stormshak 2007). The FCU is a brief preventive intervention seeking to motivate parents to engage in services that improve the quality of parenting practices. Around 50% of treatment families across sites qualified for the FCU. Whereas VIP began at birth, qualifying families did not receive FCU until infant age 6 months. Our description of the FCU is therefore purposefully brief. The reader is referred to Dishion et al. (2008) or Shaw et al. (2006) for a more thorough description of the FCU and its evidence base in early childhood.

Participants

Mothers and infants were enrolled in the Smart Beginnings RCT in the postpartum units of Bellevue Hospital in NYC between June 2015 and February 2017 ($N=200$, treatment arm, $n=101$) and Magee Women's Hospital adjacent to the Children's Hospital of Pittsburgh ($N=203$, treatment arm, $n=100$) between June 2016 and October 2017. Inclusion criteria were full-term singleton non-low birthweight births with no significant prenatal or perinatal medical conditions, no eligibility for Early Intervention at birth (e.g., Down syndrome), and plans to receive pediatric care at the institution. Mothers were invited to participate if they were the primary caregiver, had no prior participation in VIP or the FCU, had no known impairment that was a barrier to communication (e.g., intellectual disability or schizophrenia), and spoke English or Spanish.

Descriptive statistics of the sample are listed in Table 1. Although the sample was primarily composed of low-income mothers at both sites, with about a third primiparous (first-time birth), there were many notable site-specific differences. The majority of mothers in NYC were Latino (84%), whereas in Pittsburgh, they were predominantly African-American (81%). Furthermore, the sample in NYC had much higher rates of marriage and cohabitation compared with Pittsburgh (81 vs. 40%). The mothers in Pittsburgh were more likely to be high school graduates than the mothers in NYC (84 vs. 56%). Lastly, although the sample at both sites was low income, the income-to-needs ratio in NYC (0.82) was higher than in Pittsburgh (0.64).

Measures

VIP Attendance Because of the importance of the very early months of life in supporting parents with their new infants to set the stage for later shared reading, pretend play, and daily routines (Malmberg et al. 2016), we focused on attendance at the first four VIP visits through 6 months (i.e., at 1, 2, 4, and 6 months). Interventionists at each site recorded if a family completed, partially completed, or missed each VIP session. Based on the realities of child rearing, mothers were sometimes unable to complete VIP sessions for reasons such as time constraints; a fussy, crying, or sleeping baby; or general discomfort being on camera. This type of visit usually consisted of a full VIP session without the video, and thus was termed a “partially completed visit.” Furthermore, occasionally, even though a mother missed a given VIP visit, she had enough time at the following session to complete the one she missed *plus* the current one. This was known as a combined VIP visit, but was coded as two separate visits and gave mothers credit for attending both. About 30% of mothers in NYC and 40% of mothers in Pittsburgh have had at least one combined VIP visit in their intervention progression.

From an intervention delivery perspective, whether the mother fully or partially completed the session and whether it was a single or combined session was considered the same by the VIP interventionist because she and the mother still discussed current developmental milestones, discussed the book or toy, and set goals for home. As such, in primary calculations, each family received an attendance score equal to the total number of completed or partially completed VIP visit counts, whether they were combined or not, through the first 6 months. See Table 2 for cumulative attendance rates at both sites and in the combined sample.

Primary Predictors As predictors of attendance in VIP, we included several sociodemographic and psychosocial characteristics collected in the baseline survey. Predictors were included based on prior research and theory shown to predict enrollment, attendance, and participation in parenting programs (e.g., Ingoldsby 2010; Reyno and McGrath 2006). These included sociodemographic characteristics such as maternal age, primiparous birth, Temporary Assistance for Needy Families (TANF) and Supplemental Security Income (SSI) receipt, as well as level of maternal education. Psychosocial predictors included indicators of maternal depression and parenting self-efficacy.

Sociodemographic Characteristics Maternal age at the target child's birth was a continuous indicator in years based on the difference between the mother's date of birth and the target child's date of birth. Furthermore, a primiparous birth was determined based on baseline survey responses and corroborated by hospital delivery records. As part of the baseline

Table 1 Descriptive statistics of Smart Beginnings by site

	NYC sample (N = 200)		Pitt sample (N = 203)		Combined site sample (N = 403)	
	Mean/proportion of sample	SD	Mean/proportion of sample	SD	Mean/proportion of sample	SD
Target child characteristics—baseline						
Gender—female	0.49		0.50		0.50	
Race						
Asian	0.02		0.00 [†]		0.01	
African-American	0.08		0.90***		0.50	
White	0.01		0.05*		0.03	
Latino	0.84		0.02***		0.42	
Other	0.06		0.03		0.04	
Child age in months—6-month survey	7.18	1.61	7.57*	1.46	7.37	1.55
Primary caregiver characteristics—baseline						
Race						
Asian	0.03		0.00*		0.02	
African-American	0.08		0.81***		0.45	
White	0.02		0.12**		0.07	
Latino	0.84		0.03***		0.43	
Other	0.03		0.03		0.03	
Marital status						
Married	0.32		0.04***		0.18	
Cohabiting partner	0.49		0.36*		0.42	
Non-cohabiting partner	0.11		0.35***		0.23	
Biological father is current partner	0.98		0.94		0.96	
Level of education						
HS grad	7.64	3.17	8.67**	1.74	8.17	2.59
Some college	0.56		0.84***		0.70	
Woodcock-Johnson grade equivalent	9.20	3.44	8.29**	2.66	8.78	3.12
English	7.66	2.64	8.28 [†]	2.67	8.20	2.71
Spanish	10.00	3.56	N/A		10.00	3.56
Primiparous birth	0.36		0.33		0.34	
Teenage mother (< 20)	0.04		0.09*		0.06	
Family household characteristics—baseline						
Income-to-needs ratio	0.82	0.60	0.64**	0.60	0.72	0.61
Crowding ratio	1.40	0.57	0.86***	0.31	1.12	0.53
Language of baseline interview—Spanish	0.61		N/A		0.30	
Scales—baseline						
EPDS	3.15	3.91	3.81	4.16	3.49	4.05
GLS	55.66	8.62	58.76**	8.67	57.25	8.77
PSE	27.84	3.49	29.23***	1.54	28.55	2.76
CHAOS	3.17	3.27	3.71	3.91	3.44	3.62

Level of education is an ordinal scale from 1 (*no formal schooling*) to 15 (*completed postcollege graduate or professional school*), with 7 = *high school diploma/technical*, 8 = *high school diploma/academic*, and 9 = *GED*

EPDS, Edinburgh Postnatal Depression Scale; GLS, General Life Satisfaction Scale; PSE, Maternal Parenting Self-Efficacy; CHAOS, Confusion, Hubbub, and Order Scale

[†] $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ —site-level differences

survey, mothers reported their highest level of education completed. This variable was an ordinal scale ranging from *No formal schooling* (1) to *Completed postcollege graduate or*

professional school (15). Further, mothers reported whether they were currently receiving several forms of public assistance, as dichotomous 0–1 indicators for each possible

Table 2 Cumulative VIP intervention participation in Smart Beginnings through 6 months

	Number	% cumulative	
NYC sample—number of VIP visits through 6 M (complete and partials)			
Completed 100% of VIP visits (4 visits)	67	83.75	83.75
Completed 75% of VIP visits (3 visits)	5	6.25	90.00
Completed 50% of VIP visits (2 visits)	4	5.00	95.00
Completed 25% of VIP visits (1 visit)	3	3.75	98.75
Completed 0% of VIP visits (0 visits)	1	1.25	100.00
Total	80		
Pitt sample—number of VIP visits through 6 M (complete and partials)			
Completed 100% of VIP visits (4 visits)	68	76.40	76.40
Completed 75% of VIP visits (3 visits)	14	15.73	92.13
Completed 50% of VIP visits (2 visits)	7	7.87	100.00
Completed 25% of VIP visits (1 visit)	0	0.00	100.00
Completed 0% of VIP visits (0 visits)	0	0.00	100.00
Total	89		
Combined site sample—number of VIP visits through 6 M (complete and partials)			
Completed 100% of VIP visits (4 visits)	135	79.88	79.88
Completed 75% of VIP visits (3 visits)	19	11.24	91.12
Completed 50% of VIP visits (2 visits)	11	6.51	97.63
Completed 25% of VIP visits (1 visit)	3	1.78	99.41
Completed 0% of VIP visits (0 visits)	1	0.59	100.00
Total	169		

program. We specifically focused on TANF and SSI, as these cash assistance programs tend to have the strictest eligibility requirements compared with other programs, and public assistance receipt is a more reliable estimate of economic need than asking participants to report their income (Bauman 1998).

Psychosocial Characteristics Maternal depressive symptoms were assessed using the Edinburgh Postnatal Depression Scale (EPDS; Cox et al. 1987). The EPDS is a ten-question self-assessment tool that identifies a patient's risk for postnatal depression ($\alpha = 0.87$). Sample questions include "I have been anxious or worried for no good reason" and responses range from *No, not at all* (1) to *Yes, very often* (3), with the AAP recommending a score of greater than or equal to 10 for initiation of a professional referral for depression services (Earls 2010). Maternal parenting self-efficacy was measured using a tool based on the Karitane Parenting Confidence Scale (KPCS; Crncec et al. 2008; $\alpha = 0.81$) with modified anchor points to aid in understanding in low-literacy Latino populations (D'Alonzo 2011). Mothers were asked to rate their confidence about 10 specific parenting tasks such as "I am confident in my ability to care for my baby" from *Not at all confident* (1) to *Very confident* (4).

Data Analytic Plan

Because the outcome of interest in this study is a non-negative count variable, we used Poisson distribution models to estimate predictors of attendance in the first four VIP sessions through infant age 6 months. These models have stricter assumptions than Ordinary Least Squares and are appropriate for estimating data in the form of non-negative counts (Gardner et al. 1995). Regressions were computed by each site separately and then together including fixed effects for site. The focus of the interpretation is on the overall pattern of results.

Results

Descriptive Analyses

The Smart Beginnings trial entailed a randomized block design in which randomization occurred within two blocks, or sites, of NYC and Pittsburgh. Therefore, baseline equivalence was compared between intervention and control groups within each site. There were no significant differences on any baseline characteristic between the treatment groups greater than expected by chance, lending confidence that randomization resulted in groups well-balanced pre-treatment at each site. Table 2 shows that, overall, attendance was very high at early VIP visits. Over 75% of mothers at both sites attended all four of the VIP visits through 6 months.

Primary Regression Analyses

The primary regression analyses for this study involved estimating a series of theoretically driven Poisson distribution models displayed in Table 3. The reported coefficients in the models are incident-rate ratios (IRRs). IRRs are computed as the ratio of the incident rate in an exposed group divided by the incident rate in an unexposed (or less exposed) comparison group. Thus, an IRR greater than one means that particular group has a higher incidence rate compared with the comparison group, while a number less than one means that group has a lower incidence rate than the comparison group.

Results from both series of models suggest that demographic, SES, and psychosocial variables were associated with VIP program attendance. Furthermore, whereas there were null findings within each individual site, most of the statistically significant findings were in the model that pooled the sites, likely because of increased power from a larger sample size. In the combined sample models, VIP attendance was significantly higher among first time mothers (IRR = 1.06, $p < 0.001$). Less educated mothers (IRR = 1.01, $p < 0.05$) and those with lower parenting self-efficacy (IRR = 1.01, $p < 0.01$) also had significantly higher levels of attendance.

Table 3 Regressions predicting VIP intervention attendance, main results and sensitivity checks

	VIP intervention attendance— completed and partially completed			VIP intervention attendance— excluding partially completed	VIP intervention attendance— excluding combined VIP
	NYC sample	Pitt sample	Combined site sample	Combined site sample	Combined site sample
Demographic characteristics					
Maternal age	1.00 (0.01)	1.01 (0.01)	1.00 (0.00)	1.00 (0.01)	1.07 (0.10)
Primiparous birth	1.04 (0.15)	1.08 (0.16)	1.06*** (0.02)	1.07*** (0.00)	1.01 (0.01)
SES characteristics					
TANF receipt	1.17 (0.35)	0.90 (0.11)	0.93 (0.05)	0.96 (0.09)	0.95* (0.02)
SSI receipt	1.07 (0.28)	0.93 (0.16)	0.97 (0.06)	1.06 (0.01)	1.05 (0.04)
Level of education (reversed)	1.01 (0.02)	1.00 (0.04)	1.01* (0.00)	1.00 (0.01)	1.01*** (0.00)
Psychosocial characteristics					
Maternal depression	0.99 (0.02)	0.99 (0.01)	0.99 (0.00)	0.99* (0.00)	1.00 (0.01)
Maternal parenting self-efficacy (reversed)	1.01 (0.02)	1.01 (0.03)	1.01** (0.00)	1.02*** (0.00)	1.01*** (0.00)

Standard errors in parentheses. Incident-rate ratios reported in the table. *N* = 80 in NYC sample, *N* = 89 in Pitt sample, and *N* = 169 in combined site sample. Level of education is an ordinal scale from 1 (*no formal schooling*) to 15 (*completed postcollege graduate or professional school*), with 7 = *high school diploma/technical*, 8 = *high school diploma/academic*, and 9 = *GED*, which we then reversed. Covariates not shown: maternal race in all models and site in the combined models

TANF, Temporary Assistance to Needy Families; SSI, Supplemental Security Income

p* < 0.05; *p* < 0.01; ****p* < 0.001

Supplemental Analyses and Robustness Checks

As described above, in primary calculations, both complete and partially complete visits were combined to create the count of VIP attendance for each family. However, as a robustness check, we performed additional analyses also presented in Table 3 in which we counted only fully completed VIP visits with the video, and excluded the partially completed visits. When partially completed visits were excluded, about 40–50% of mothers in the full sample completed all of the first four VIP visits through 6 months. Furthermore, in the combined site Poisson distribution models, the results were similar when excluding partially completed visits. First-time mothers (IRR = 1.07, *p* < 0.001) and those with lower levels of baseline depression (IRR = .99, *p* < 0.05) had significantly higher levels of VIP attendance as expected, whereas mothers with lower parenting self-efficacy (IRR = 1.02, *p* < 0.001) also had significantly higher attendance rates.

As a further check, we excluded all combined VIP visits, and our main results primarily held. In the combined site models, less-educated mothers (IRR = 1.01, *p* < 0.001) and those with lower parenting self-efficacy (IRR = 1.01, *p* < 0.001) had significantly higher levels of attendance.

Discussion

This paper examined predictors of parent attendance in a primary care-based parenting intervention by investigating VIP,

one component of a novel integration of two parent-focused intervention models. To our knowledge, this is one of the first examinations of this in a pediatric parenting program among a diverse, predominantly low-income sample, and the first study to do so in the context of a universal intervention for infants and toddlers. In line with prior research on parenting programs, sociodemographic and psychosocial factors were associated with program attendance, albeit not always in the expected direction. In line with previous meta-analytic research in this area (e.g., Ingoldsby 2010; Reyno and McGrath 2006), multivariate analyses showed higher levels of attendance for first-time mothers, older mothers, and, in line with our hypotheses, those with lower levels of baseline depression. Contrary with our hypotheses however, which predicted lower attendance among mothers facing increased adversity, less-educated mothers and those with lower parenting self-efficacy showed *higher* attendance. The robustness of the results across specifications lends confidence to the findings we report.

One of the particular challenges of parent attendance in early childhood interventions is that the risk factors that tend to be associated with lower participation rates are also the same ones that are frequently associated with reduced rates of school readiness. Therefore, parenting interventions are often not utilized by the participants who, based on their baseline risk factors, might need them the most. In fact, in this regard, our unexpected findings are intriguing and suggest that VIP may be effectively targeting more traditionally challenging-to-engage families by providing them with social support during a difficult life transition, the raising of an

infant. That is, the exact targets of the VIP program—families who likely need extra support in shared reading, pretend play and daily routines, such as less educated moms or those with lower parenting self-efficacy—are participating in VIP more than their counterparts. Furthermore, since the intervention sites are so highly correlated with the racial-ethnic makeup of participating families, the lack of significant differences in site-specific predictors of program attendance lends support for the universal applicability and successful implementation of VIP across two distinct sites serving very different populations of families.

Our second hypothesis—that retention of families in VIP would be higher than in programs in other settings—was supported. In fact, the particularly high retention rates in VIP are especially impressive compared with (1) other targeted parenting intervention programs, such as the Incredible Years (approximately 60% on average in previous studies; Baker et al. 2011); and (2) those targeting infants and toddlers across settings, such as Early Head Start in child care (44%; Besharov et al. 2011) and the Nurse-Family Partnership in home visiting (50% on average; Holland et al. 2018). Over 75% of mothers at both sites attended all four VIP visits through 6 months. By comparison, in a previous RCT of VIP alone (i.e., no screening or additional intervention) conducted with primarily Latino families at Bellevue Hospital, only 50% of families attended all four sessions (Canfield et al., manuscript in preparation). Both the previous study of VIP and the studies of other programs mentioned above noted subgroups of participants who enrolled but never attended a session or attended only one session. This was not the case in the current study. Although we were unable to examine mechanisms for why attendance was unusually high, the lack of enrolled families who never attended a session may be due to simple retention efforts now integrated into VIP (e.g., appointment reminder cards). In addition, the emphasis in VIP on parents' own goals may dispel feelings that they have “fallen behind” if they miss a session—a potential reason for drop-outs noted by Baker et al. (2011). Finally, knowledge that the second component of the Smart Beginnings program (the FCU) would potentially be available at 6 months may have encouraged families to continue attending sessions. Future studies are needed to further explore whether and how these aspects of Smart Beginnings may have addressed issues that led enrolled families to continue with attendance and participation.

Beyond this, it is possible the families formed particularly deep connections with the interventionists. As a one-on-one intervention, VIP is relationship based, and the parent-interventionist alliance may be important for both attendance and impacts. Research indicates that parent perceptions of their relationship with the interventionist mediate outcomes (e.g., Escudero et al. 2008). In turn, these supportive relationships encourage families to actively participate even if they cannot fully complete the session and to make up missed sessions in combined ones.

These highly promising attendance rates lend support for the opportunity to engage and retain participants in interventions that promote school readiness through the pediatric primary care platform. Such increased engagement and attendance may, in turn, lead to greater impacts. The healthcare system is one of the only entities with sufficient trust, expertise, and regular contact with families to allow for population-level scaling of preventive interventions for school readiness and parenting and can serve as an initial point of contact for more intensive interventions like home-visiting. Further research is needed to explore whether other sites serving high-risk families, like WIC, could replicate the successful attendance found here.

Limitations and Future Directions

Some limitations of this study are worth noting. First, despite our confidence in the findings, the results reported here are not based on causal inference. Nonetheless, because findings replicated across multiple model specifications, including across racial and ethnic groups that have previously had lower engagement (O'Brien et al. 2012), we believe them to be the best estimate of predictors of parent attendance in VIP through the first 6 months in the current effort. Further, this study examined only attendance, which while important (Reyno and McGrath 2006), is one of several dimensions of participation in interventions (Sims and Crump 2018). Future studies should include additional aspects of participation like parent feedback and interventionist perceptions to create a fuller picture of engagement, as these are likely important predictors of participation (Ingoldsby 2010). Future studies will also more explicitly assess how program attendance affects parent and child outcomes and can include higher-income families who may also benefit from parenting interventions.

In sum, the results lend support for the ability of pediatric primary care to facilitate high attendance, and potentially broader participation rates, a critical component of widespread implementation of preventive parenting programs. There is evidence that such dissemination may improve children's and families' future economic outcomes by addressing the immediate impacts of poverty for both parents and children (Van Ryzin et al. 2018). By understanding which families actively take part in VIP, we can improve intervention design and implementation to have the most effective practice, with the eventual goal of improving parenting practices and children's school readiness at the population level beginning at birth.

Acknowledgments Research reported in this publication was supported by the Eunice Kennedy Shriver National Institute of Child Health & Human Development of the National Institutes of Health under Award Number R01HD076390-05. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

Informed Consent Informed consent was obtained from all individual participants included in the study.

References

- Alker, J., & Chester, A. (2015). *Children's health insurance coverage rates in 2014: ACA results in significant improvements*. Washington, DC: Georgetown University Health Policy Institute.
- Baker, C. N., Arnold, D. H., & Meagher, S. (2011). Enrollment and attendance in a parent training prevention program for conduct problems. *Prevention Science, 12*, 126–138. <https://doi.org/10.1007/s11121-010-0187-0>.
- Barnes J., & Freude-Lagevardi, A. (2002). *From pregnancy to early childhood: Early interventions to enhance the mental health of children and families*. London: Mental Health Foundation.
- Bauman, K. (1998). Direct measures of poverty as indicators of economic need: Evidence from the survey income and program participation. In *Population Division Technical working Paper No. 30*. Washington, DC: U.S. Bureau of the Census.
- Berkel, C., Sandler, I. N., Wolchik, S. A., Brown, C. H., Gallo, C. G., Chiapa, A., et al. (2018). "Home practice is the program": Parents' practice of program skills as predictors of outcomes in the new beginnings program effectiveness trial. *Prevention Science, 19*, 663–673. <https://doi.org/10.1007/s11121-016-0738-0>.
- Berkule, S. B., Cates, C. B., Dreyer, B. P., Huberman, H. S., Arevalo, J., Burtchen, N., et al. (2014). Reducing maternal depressive symptoms through promotion of parenting in pediatric primary care. *Clinical Pediatrics, 53*, 460–469. <https://doi.org/10.1177/000922814528033>.
- Besharov, D. J., Germanis, P., Higney, C. A., & Call, D. M. (2011). Early head start—Research and evaluation project. In D. J. Besharov, P. Germans, C. A. Higney, & D. M. Call (Eds.), *Assessments of twenty-six early childhood evaluations (Ch. 7)*. College Park: Welfare Reform Academy, University of Maryland.
- Brennan, L. M., Shelleby, E. C., Shaw, D. S., Gardner, F., Dishion, T. J., & Wilson, M. (2013). Indirect effects of the family check-up on school-age academic achievement. *Journal of Educational Psychology, 105*, 762–773. <https://doi.org/10.1037/a0032096>.
- Brooks-Gunn, J., & Markman, L. B. (2005). The contribution of parenting to ethnic and racial gaps in school readiness. *The Future of Children, 15*, 139–168.
- Canfield, C. F., Weisleder, A., Cates, C. B., Huberman, H. S., Dreyer, B. P., Legano, L. A., et al. (2015). Primary care parenting intervention effects on use of physical punishment among low-income parents of toddlers. *Journal of Developmental and Behavioral Pediatrics, 36*, 586–593. <https://doi.org/10.1097/DBP.0000000000000206>.
- Cassidy, J., Brett, B. E., Gross, J. T., Stern, J. A., Martin, D. A., Mohr, J. J., & Woodhouse, S. S. (2017). Circle of security—Parenting: A randomized control trial in head start. *Development and Psychopathology, 29*, 651–673. <https://doi.org/10.1017/S0954579417000244>.
- Cates, C. B., Weisleder, A., Dreyer, B. P., Johnson, S. B., Vlahovicova, K., Ledesma, J., & Mendelsohn, A. L. (2016a). Leveraging healthcare to promote responsive parenting: Impacts of the video interaction project on parenting stress. *Journal of Child and Family Studies, 25*, 827–835. <https://doi.org/10.1007/s10826-015-0267-7>.
- Cates, C. B., Weisleder, A., & Mendelsohn, A. L. (2016b). Mitigating the effects of family poverty on early child development through parenting interventions in primary care. *Academic Pediatrics, 16*, S112–S120. <https://doi.org/10.1016/j.acap.2015.12.015>.
- Cates, C. B., Weisleder, A., Johnson, S. B., Seery, A. M., Canfield, C. F., Huberman, H., et al. (2018). Enhancing parent talk, reading, and play in primary care: Sustained impacts of the video interaction project. *The Journal of Pediatrics, 199*, 49–56. <https://doi.org/10.1016/j.jpeds.2018.03.002>.
- Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression: Development of the 10-item Edinburgh postnatal depression scale. *British Journal of Psychiatry, 150*, 782–786. <https://doi.org/10.1192/bjp.150.6.782>.
- Crncec, R., Barnett, B., & Matthey, S. (2008). Development of an instrument to assess perceived self-efficacy in the parents and of infants. *Research in Nursing & Health, 31*, 442–453. <https://doi.org/10.1002/nur.20271>.
- Currie, J. (2005). Health disparities and gaps in school readiness. *The Future of Children, 14*, 117–138.
- D'Alonzo, K. T. (2011). Evaluation and revision of questionnaires for use among low-literacy immigrant Latinos. *Revista Latino-Americana de Enfermagem, 19*, 1255–1264. <https://doi.org/10.1590/S0104-11692011000500025>.
- Dishion, T. J., & Stormshak, E. A. (2007). *Intervening in children's lives: An ecological, family-centered approach to mental health care*. Washington, DC: American Psychological Association.
- Dishion, T. J., Connell, A., Weaver, C., Shaw, D., Gardner, F., & 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*, 1395–1414. <https://doi.org/10.1111/j.1467-8624.2008.01195.x>.
- Duggan, A. K., McFarlane, E. C., Windham, A. M., Rohde, C. A., Salkever, D. S., Fuddy, L., ... Sia, C. C. (1999). Evaluation of Hawaii's healthy start program. *The Future of Children, 9*, 66–90.
- Earls, M. F. (2010). Incorporating recognition and management of perinatal and postpartum depression into pediatric practice. *Pediatrics, 126*, 1032–1039. <https://doi.org/10.1542/peds.2010-2348>.
- Escudero, V., Friedlander, M. L., Varela, N., & Abascal, A. (2008). Observing the therapeutic alliance in family therapy: Associations with participants' perceptions and therapeutic outcomes. *Journal of Family Therapy, 30*, 194–214. <https://doi.org/10.1111/j.1467-6427.2008.00425.x>.
- Evans, S., Davies, S., Williams, M., & Hutchings, J. (2015). Short-term benefits from the incredible years babies programme in Powys. *Community Practitioner, 88*, 46–48.
- Feinberg, M. E., Jones, D. E., Kan, M. L., & Goslin, M. C. (2010). Effects of family foundations on parents and children: 3.5 years after baseline. *Journal of Family Psychology, 24*, 532. <https://doi.org/10.1037/a0020837>.
- Garcia, E., & Weiss, E. (2017). *Education inequalities at the school starting gate: Gaps, trends, and strategies to address them*. Washington, DC: Economic Policy Institute.
- Gardner, W., Mulvey, E. P., & Shaw, E. C. (1995). Regression analyses of counts and rates: Poisson, overdispersed Poisson, and negative binomial models. *Psychological Bulletin, 118*, 392–404. <https://doi.org/10.1037/0033-2909.118.3.392>.
- Gross, D., Julion, W., & Fogg, L. (2004). What motivates participation and dropout among low-income urban families of color in a prevention intervention? *Family Relations, 50*, 246–254. <https://doi.org/10.1111/j.1741-3729.2001.00246.x>.

- Hagan, J. F., Shaw, J. S., & Duncan, P. M. (2017). *Bright futures: Guidelines for health supervision of infants, children, and adolescents*. Elk Grove Village: American Academy of Pediatrics (AAP).
- Heinicke, C. M., Fineman, N. R., Ponce, V. A., & Guthrie, D. (2001). Relation-based intervention with at-risk mothers: Outcome in the second year of life. *Infant Mental Health Journal*, 22, 431–462. <https://doi.org/10.1002/imhj.1010>.
- Heinicke, C. M., Goorsky, M., Levine, M., Ponce, V., Ruth, G., Silverman, M., & Sotelo, C. (2006). Pre-and postnatal antecedents of a home-visiting intervention and family developmental outcome. *Infant Mental Health Journal*, 27, 91–119. <https://doi.org/10.1002/imhj.20082>.
- Holland, M. L., Olds, D. L., Dozier, A. M., & Kitzman, H. J. (2018). Visit attendance patterns in nurse-family partnership community sites. *Prevention Science*, 19, 516–527. <https://doi.org/10.1007/s11121-017-0829-6>.
- Howell, E. M., & Kenney, G. M. (2012). The impact of the Medicaid/CHIP expansions on children: A synthesis of the evidence. *Medical Care Research and Review*, 69, 372–396. <https://doi.org/10.1177/107758712437245>.
- Huebner, C. E. (2002). Evaluation of a clinic-based parent education program to reduce the risk of infant and toddler maltreatment. *Public Health Nursing*, 19, 377–389. <https://doi.org/10.1046/j.1525-1446.2002.19507.x>.
- Ingoldsby, E. M. (2010). Review of interventions to improve family engagement and retention in parent and child mental health programs. *Journal of Child and Family Studies*, 19, 629–645. <https://doi.org/10.1007/s10826-009-9350-2>.
- Kolko, D. J., & Perrin, E. (2014). The integration of behavioral health interventions in children's health care: Services, science, and suggestions. *Journal of Clinical Child & Adolescent Psychology*, 43, 216–228. <https://doi.org/10.1080/15374416.2013.862804>.
- Kuo, A. A., Etzel, R. A., Chilton, L. A., Watson, C., & Gorski, P. A. (2012). Primary care pediatrics and public health: Meeting the needs of today's children. *American Journal of Public Health*, 102, e17–e23. <https://doi.org/10.2105/AJPH.2012.301013>.
- Landry, S., Smith, K., Swank, P., Zucker, T., Crawford, A., & Solari, E. (2012). The effects of a responsive parenting intervention on parent-child interactions during shared book reading. *Developmental Psychology*, 48, 969–986. <https://doi.org/10.1037/a0026400>.
- Leslie, L. K., Mehus, C. J., Hawkins, J. D., Boat, T., McCabe, M. A., Barkin, S., ... Brown, R. (2016). Primary health care: Potential home for family-focused preventive interventions. *American Journal of Preventive Medicine*, 51, S106–S118. doi:<https://doi.org/10.1016/j.amepre.2016.05.014>.
- Malmberg, L.-E., Lewis, S., West, A., Murray, E., Sylva, K., & Stein, A. (2016). The influence of mothers' and fathers' sensitivity in the first year of life on children's cognitive outcomes at 18 and 36 months. *Child: Care, Health and Development*, 42, 1–7. <https://doi.org/10.1111/cch.12294>.
- Mauricio, A. M., Mazza, G. L., Berkel, C., Tein, J.-Y., Sandler, I. N., Wolchik, S. A., & Winslow, E. (2018). Attendance trajectory classes among divorced and separated mothers and fathers in the new beginnings program. *Prevention Science*, 19, 620–629. <https://doi.org/10.1007/s11121-017-0783-3>.
- Mendelsohn, A. L., Dreyer, B. P., Flynn, V., Tomopoulos, S., Rovira, I., Tineo, W., ... Nixon, A. F. (2005). Use of videotaped interactions during pediatric well-child care to promote child development: A randomized, controlled trial. *Journal of Developmental and Behavioral Pediatrics*, 26, 34–41.
- Needelman, R., Fried, L. E., Morley, D. S., Taylor, S., & Zuckerman, B. (1991). Clinic-based intervention to promote literacy: A pilot study. *American Journal of Diseases in Children*, 145, 881–884. <https://doi.org/10.1001/archpedi.1991.02160080059021>.
- O'Brien, R. A., Moritz, P., Luckey, D. W., McClatchey, M. W., Ingoldsby, E. M., & Olds, D. L. (2012). Mixed methods analysis of participant attrition in the nurse-family partnership. *Prevention Science*, 13, 219–228. <https://doi.org/10.1007/s11121-012-0287-0>.
- Research Supporting ABC. (n.d.). Retrieved from <http://www.abcintervention.org/researchsupport>. Accessed 15 May 2018
- Reyno, S. M., & McGrath, P. J. (2006). Predictors of parent training efficacy for child externalizing behavior problems—A meta-analytic review. *Journal of Child Psychology and Psychiatry*, 47, 99–111. <https://doi.org/10.1111/j.1469-7610.2005.01544.x>.
- Shaw, D. S., Dishion, T. J., Supplee, L., Gardner, F., & Arnds, K. (2006). Randomized trial of a family-centered approach to the prevention of early conduct problems: 2-year effects of the family check-up in early childhood. *Journal of Consulting and Clinical Psychology*, 74, 1–9. <https://doi.org/10.1037/0022-006X.74.1.1>.
- Shonkoff, J. P., & Phillips, D. A. (Eds.). (2000). *From neurons to neighborhoods: The science of early childhood development*. Washington, DC: National Academy Press.
- Sims, B. E., & Crump, A. D. (2018). Commentary on participation in preventative interventions. *Prevention Science*, 19, 685–688. <https://doi.org/10.1007/s11121-018-0887-4>.
- Smith, J. D., Berkel, C., Hails, K. A., Dishion, T. J., Shaw, D. S., & Wilson, M. N. (2018). Predictors of participation in the family check-up program: A randomized trial of yearly services from age 2 to 10 years. *Prevention Science*, 19, 652–662. <https://doi.org/10.1007/s11121-016-0679-7>.
- Spoth, R., & Redmond, C. (2000). Research on family engagement in preventive interventions: Toward improved use of scientific findings in primary prevention practice. *The Journal of Primary Prevention*, 21, 267–284. <https://doi.org/10.1023/A:1007039421026>.
- Staudt, M. (2007). Treatment engagement with caregivers of at-risk children: Gaps in research and conceptualization. *Journal of Child and Family Studies*, 16, 183–196. <https://doi.org/10.1007/s10826-006-9077-2>.
- Van Ryzin, M. J., Fishbein, D., & Biglan, A. (2018). The promise of prevention science for addressing intergenerational poverty. *Psychology, Public Policy, and Law*, 24, 128–143. <https://doi.org/10.1037/law0000138>.
- Weisleder, A., Cates, C. B., Dreyer, B. P., Johnson, S. B., Huberman, H. S., Seery, A. M., ... Mendelsohn, A. L. (2016). Promotion of positive parenting and prevention of socioemotional disparities. *Pediatrics*, 137, 1–9. doi:<https://doi.org/10.1542/peds.2015-3239>.
- Whittaker, K. A., & Cowley, S. (2012). An effective programme is not enough: A review of factors associated with poor attendance and engagement with parenting support programmes. *Children & Society*, 26, 138–149. <https://doi.org/10.1111/j.1099-0860.2010.00333.x>.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.