Promotion of Positive Parenting and Prevention of Socioemotional Disparities

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abstract

OBJECTIVE: The goal of this study was to determine what effects pediatric primary care interventions, focused on promotion of positive parenting through reading aloud and play, have on the socioemotional development of toddlers from low-income, primarily immigrant households.

METHODS: This randomized controlled trial included random assignment to 1 of 2 interventions (Video Interaction Project [VIP] or Building Blocks [BB]) or to a control group. Mother–newborn dyads were enrolled postpartum in an urban public hospital. In VIP, dyads met with an interventionist on days of well-child visits; the interventionist facilitated interactions in play and shared reading through provision of learning materials and review of videotaped parent–child interactions. In BB, parents were mailed parenting pamphlets and learning materials. This article analyzes socioemotional outcomes from 14 to 36 months for children in VIP and BB versus control.

RESULTS: A total of 463 dyads (69%) contributed data. Children in VIP scored higher than control on imitation/play and attention, and lower on separation distress, hyperactivity, and externalizing problems, with effect sizes ∼0.25 SD for the sample as a whole and ∼0.50 SD for families with additional psychosocial risks . Children in BB made greater gains in imitation/play compared with control.

CONCLUSIONS: These findings support the efficacy of VIP, a preventive intervention targeting parent–child interactions, for enhancing socioemotional outcomes in low-income toddlers. Given the low cost and potential for scalability of primary care interventions, findings support expansion of pediatric-based parenting programs such as VIP for the primary prevention of socioemotional problems before school entry.

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WHAT'S KNOWN ON THIS SUBJECT: Differences in socioemotional development are an important contributor to poverty-related disparities in school readiness. It is unknown whether pediatric interventions seeking primary prevention of disparities by promoting parent–child interactions through reading aloud and play can enhance socioemotional outcomes.

WHAT THIS STUDY ADDS: This randomized controlled trial demonstrated the effects of pediatric-based interventions focused on promoting positive parenting through reading and play on socioemotional outcomes of toddlers from low-income families. Findings support the efficacy of a primary preventive intervention with high potential for scalability.

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Poverty-related disparities in child development and school readiness emerge early in childhood and widen over time,[1–3] placing disadvantaged children at risk for lower educational attainment.[4,5] Addressing these disparities is a national priority, as evidenced by American Academy of Pediatrics policy and recent federal initiatives.[6,7] The present article examines the potential for pediatric-based primary preventive interventions to reduce poverty-related disparities in school readiness by enhancing children's socioemotional development.

Socioemotional development is a core component of school readiness, affecting children's school adjustment and academic performance.[8–11] Critical socioemotional factors associated with children's transition to school and long-term academic trajectories include attention, social competence, and behavior.[8,11,12] Although positive parenting plays a critical role in supporting children's socioemotional development,[13,14] poverty is associated with reductions in responsive parent–child interactions.[15–17] Promotion of positive parenting during early childhood is a promising avenue for enhancing socioemotional development in low-income children in general, and it may be especially important for children at increased risk due to family psychosocial factors.[18,19]

Pediatric primary health care provides a significant opportunity for population-level, primary prevention of school readiness disparities through promotion of positive parenting (eg, using the Reach Out and Read [ROR] and Healthy Steps programs),[20–22] given the frequency and near universality of well-child visits and the opportunity to leverage existing health care infrastructure. Previous studies have shown that this platform can be effectively used to enhance socioemotional development through promotion of positive parenting in children with already-identified behavioral problems (eg, using the Incredible Years program).[23–25] However, it is unknown whether pediatric interventions seeking the primary prevention of disparities through promotion of parent–child interactions in reading aloud and play can also enhance socioemotional development.

We addressed this gap through a study of 2 pediatric, primary care–based preventive interventions: the Video Interaction Project (VIP) and Building Blocks (BB). VIP was designed as an enhancement to ROR, adding an interventionist who uses videorecordings of the parent and child interacting to promote parents' self-reflection and encourage positive parenting behaviors.[26] Previous studies of VIP have shown beneficial effects on parent–child interactions and reduced family psychosocial stressors, including maternal depression and parenting stress.[27–30] BB is a lower intensity intervention that uses mailed newsletters highlighting positive parenting strategies. BB has also been shown to enhance responsive parenting and reduce maternal depressive symptoms, although the effects are smaller.[27,28]

The present article describes findings from a randomized controlled trial (RCT) examining the effects of VIP and BB on parenting, child development, and school readiness. The present analyses examined effects of VIP and BB on children's socioemotional development from 14 to 36 months, a primary outcome of the RCT. We hypothesized that: (1) socioemotional outcomes would be improved in VIP and BB compared with the control group, with stronger effects of VIP given its higher intensity and previous evidence of greater impacts; and (2) intervention effects would be larger in families with increased psychosocial risk.

METHODS

Study Design

A single-blind, 3-way RCT entitled the Bellevue Project for Early Language, Literacy and Education Success (BELLE) was conducted at an urban public hospital serving low-income families (Bellevue Hospital Center).[27] Consecutive enrollment of mother–child dyads occurred in the postpartum unit, with 675 dyads enrolled. Approval was obtained from the Institutional Review Board at the New York University School of Medicine, Bellevue Hospital Center, and the New York City Health and Hospitals Corporation. The initial study design included follow-up of all groups at 6, 14, 24, and 36 months. Financial constraints, however, led to limited follow-up of BB families at 24 months and no follow-up at 36 months.

Randomization Groups

After enrollment, dyads were randomized to VIP, BB, or control by using a random number generated by the project director by using Microsoft Excel 2003 (Microsoft Corporation, Redmond, WA). Group assignments were concealed from staff and study participants until enrollment was completed.

VIP

VIP sessions occur at regularly scheduled pediatric visits beginning in the first month, totaling 15 possible sessions through age 3 years. An interventionist meets with families in 1-on-1 sessions for 25 to 30 minutes. Parent–child dyads are videorecorded during 5- to 7-minute play/shared reading interactions by using a developmentally appropriate toy and/or book provided by the program. The interventionist reviews the video along with the parent to identify and reinforce responsive interactions and promote parent self-reflection. The video is given to the parent to promote generalization of identified behaviors in the home;

pamphlets provide suggestions related to positive parenting during play, reading, and daily routines, as well as opportunities for parents to develop their own plans for interacting with their child. When possible, the same interventionist meets with each family at each session. Interventionists typically have bachelor's degrees in fields related to young children and receive training and supervision by Bellevue Project for Early Language, Literacy, and Education Success Project leadership. VIP has an estimated cost of $150 to $200 per child per year.[26]

BB

BB utilizes mailed information and learning materials to improve parent self-efficacy and promote positive parenting. Each month, parents are mailed a toy or book, along with a newsletter that provides information on encouraging learning and ideas for interactions around a specific developmental goal. Parents are also asked to complete Ages and Stages developmental questionnaires[31] every 4 to 6 months. BB has an estimated cost of $75 to $100 per child per year.

Control

Control families received standard pediatric care, including recommended anticipatory guidance and monitoring. Standard pediatric care included ROR for all groups.

Participants

Enrollment occurred between November 2005 and October 2008, as previously described.[27] Consecutive mother–infant dyads meeting inclusion criteria and providing informed consent were enrolled. Inclusion criteria were: plans to receive pediatric care at Bellevue Hospital Center; term birth; no significant medical complications or eligibility for early intervention at birth; and a mother who was the primary caregiver, aged ≥18 years, spoke primarily English or Spanish, and was able to maintain contact with the program.

Measures

Sociodemographic Characteristics

Information on sociodemographic characteristics was collected during the postpartum period through interviews with the mother, as previously described.[27] At the 6-month assessment, maternal literacy was assessed in the mother's preferred language by using the Woodcock-Johnson III/Woodcock-Muñoz Bateria III Letter-Word Identification Test[32]; for cases with missing literacy data, educational level was used as a proxy.

Families were considered to be at increased psychosocial risk if the mother reported ≥1 of the following: being a victim of violence, homelessness, involvement with child protective services, significant financial hardship, food insecurity, cigarette smoking or alcohol use during pregnancy, or history of previous mental illness.

Dependent Variables

At 14 and 24 months, socioemotional outcomes were assessed via mother interviews by using 3 subscales from the Infant–Toddler Social and Emotional Assessment-Revised (ITSEA)[33]: imitation/play, attention, and separation distress. These subscales were selected to assess key dimensions of socioemotional development at this age, including social skills, attention, and behavior. The ITSEA includes items describing behaviors that the parent rates as "not true/rarely," "somewhat true/sometimes," or "very true/often," with scores ranging from 0 to 2. It is available in English and Spanish and has been validated in children aged 12 to 36 months. At the 14-month assessment, the ITSEA was not included in the protocol until ∼4 months into the process; thus, although the 14-month assessment was performed for 327 families, the ITSEA was collected for 242 families at this age.

At the 36-month assessment, interviews were conducted with mothers by using 4 subscales from the Parent Rating Scales of the Behavior Assessment System for Children–Second Edition (BASC-2)[34]: social skills, attention problems, hyperactivity, and aggression. The BASC-2 has been normed for use in English and Spanish. T scores (mean ± SD: 50 ± 10) were calculated for each subscale, and a composite score was computed for externalizing problems (hyperactivity and aggression). Clinically at-risk behavior was defined based on the manual as a T score ≥60 for attention problems, hyperactivity, aggression, and externalizing problems; a T score ≤40 was used for social skills.

Statistical Analysis

A total of 225 families were enrolled per group, providing 80% power to detect a minimum effect size (ES) of 0.33 SD, assuming 33.3% attrition by age 3 years. Statistical analyses were performed based on an intention-to-treat model. Analysis of variance (ANOVA) and χ^2 tests were used to compare sociodemographic characteristics between randomization groups and to compare families who contributed data on at least 1 time point versus those who did not.

For 14- and 24-month outcomes, ANOVA was used, followed by Tukey post hoc testing, to compare ITSEA mean scores between randomization groups. Socioemotional development was then compared over time by using multilevel modeling with Stata SE 12 (Stata Corp, College Station, TX); this approach allowed us to test group differences while accounting for repeated measures. Separate multilevel modeling was performed for each subscale. We first calculated a model with age and group predicting ITSEA mean scores; a second model was then

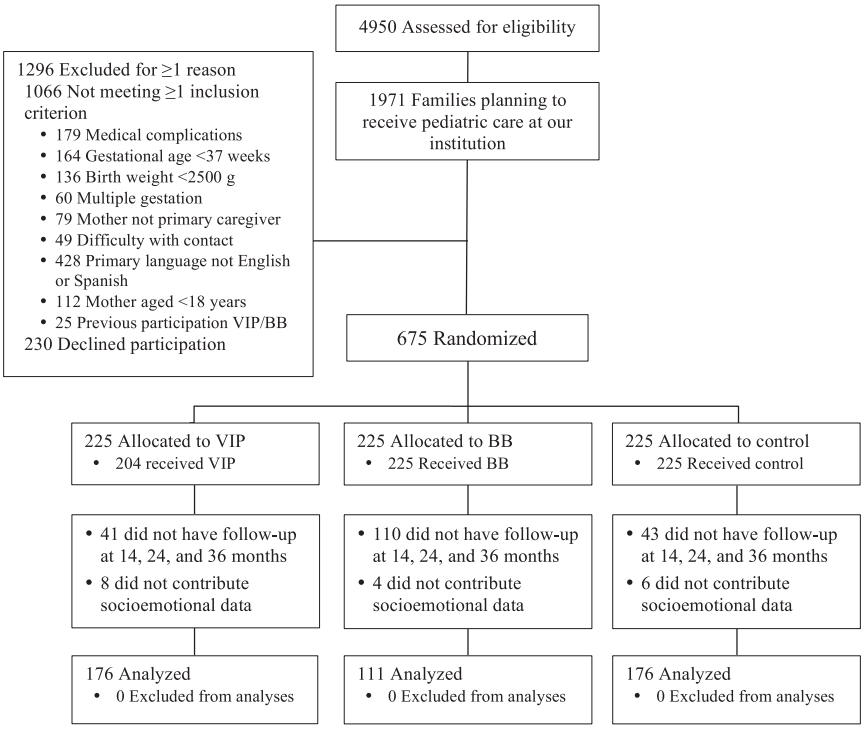

FIGURE 1
Participant flowchart.

TABLE 1 Demographic Characteristics of Families in the Analytic Sample

Characteristic	VIP (N = 176), %	BB (N = 111), %	Control (N = 176), %	P[a]
Mother <age 21 y	10	12	9	.76
Hispanic	94	96	92	.46
Non–high school graduate	62	54	60	.40
Born outside the United States	92	87	87	.26
Married/partner	85	88	85	.72
Spanish speaking	85	79	82	.50
Low socioeconomic status	93	92	91	.91
Female child	56	51	48	.28
First-born child	42	37	36	.50
Low maternal literacy (less than ninth grade)	32	31	22	.10
High psychosocial risk	34	33	30	.63

The analytic sample includes all families contributing data at ≥1 time point.
[a] P value based on χ^2 tests.

computed that included group-by-age interaction terms. Multilevel models adjusted for all baseline sociodemographic characteristics; child age was included as a random effect. In the main effects models, coefficients represent the difference in scores for VIP or BB compared with control across the entire 14- to 24-month period; in interaction models, coefficients represent the difference in slope (change from 14 to 24 months) for VIP or BB compared with the control.

For 36-month outcomes, t tests were used to compare BASC-2 T scores between VIP and the control. Findings for ES were calculated by using Cohen's d, which reflects mean differences between groups in SD units. We performed χ^2 analyses to compare proportions of children with clinically at-risk behaviors. To assess whether intervention effects were more pronounced for higher risk families, subgroup analyses were performed comparing VIP and control children of mothers at increased psychosocial risk. To examine dose–response effects, piecewise regressions were performed with the number of VIP sessions completed as predictor variables.

RESULTS

Study Sample

A total of 463 (69%) of 675 families contributed data on socioemotional outcomes at ≥1 assessment point (analytic sample) (Fig 1), including 78% of VIP and control participants and 49% of BB participants (BB follow-up was lower due to financial constraints, as described earlier). Descriptive statistics for dyads in the analytic sample are provided in Table 1. Mothers were primarily Hispanic/Latino and born outside the United States; 34% of families were at increased psychosocial risk. VIP families completed a median of 9.5 sessions; 67% of families completed one-half or more sessions, whereas 15% completed fewer than one-third (5 sessions).

Dyads contributing data did not significantly differ from those who did not contribute data for maternal age, literacy, psychosocial risk, or birth order. However, mothers contributing data were less likely to have graduated high school or be living with a partner, and they were more likely to be Hispanic/Latina, immigrants, of lower socioeconomic status, and speak Spanish as their primary language (all P < .01); children in the analytic sample were more likely to be female (P < .05). Importantly, there were no differences in sociodemographic characteristics according to randomization group for participants in the analytic sample (Table 1).

TABLE 2 Effects of VIP and BB on Socioemotional Outcomes at 14 and 24 Months: Mean ± SD Scores for ITSEA Subscales

Variable	14 Months				24 Months			
	VIP (n = 79)	BB (n = 74)	Control (n = 89)	P[a]	VIP (n = 152)	BB (n = 62)	Control (n = 145)	P[a]
Imitation/play	1.46 ± 0.37[b,c]	1.27 ± 0.38[b]	1.34 ± 0.38[c]	.01	1.52 ± 0.36	1.53 ± 0.36	1.46 ± 0.39	.30
Attention	1.32 ± 0.44	1.37 ± 0.44	1.33 ± 0.41	.75	1.47 ± 0.43[b]	1.36 ± 0.45	1.35 ± 0.38[b]	.04
Separation distress	0.87 ± 0.49	1.01 ± 0.49	0.92 ± 0.48	.20	0.84 ± 0.51[c]	0.92 ± 0.46	0.97 ± 0.49[c]	.07

[a] Omnibus P value based on F test for ANOVA.

[b] Groups differing at $P < .05$ based on post hoc testing by Tukey's honestly significant different test.

[c] Groups differing at $P < .1$ based on post hoc testing by Tukey's honestly significant different test.

Primary Analyses

Table 2 displays the socioemotional outcomes as a function of group at the 14- and 24-month assessments. At 14 months, ANOVA tests showed significant differences between groups for imitation/play ($P < .01$) but not for attention ($P = .75$) or separation distress ($P = .20$). Tukey's honestly significant difference post hoc testing at 14 months found that VIP children had higher imitation/play scores than BB children ($P < .01$), with an ES based on Cohen's d of 0.49; post hoc comparison of VIP and the control did not reach statistical significance (ES: 0.31; $P < .1$). At 24 months, ANOVA tests showed differences between groups for attention ($P < .05$); differences in imitation/play ($P = .30$) and separation distress ($P = .07$) did not reach statistical significance. Post hoc testing at 24 months showed that VIP children had significantly higher attention scores than control subjects (ES: 0.30; $P < .05$). There were no significant effects of BB at 14 or 24 months.

Figure 2 displays the trajectories of intervention effects on socioemotional development from 14 to 24 months. Results of multilevel modeling (Table 3) found a significant main effect of VIP for imitation/play ($P < .05$) and separation distress ($P < .05$), indicating that VIP children were more advanced in imitation/play and had lower separation distress than control children throughout this period. The main effect of VIP on attention did not reach significance ($P = .08$); however, there was a significant positive interaction between VIP and age ($P < .05$), indicating that VIP children made greater gains in attention between 14 and 24 months than control children. There were no significant main effects of BB. However, there was a significant positive interaction between BB and age for imitation/play ($P < .05$), indicating that BB children made greater gains in imitation/play between 14 and 24 months than children in the control group.

Table 4 displays socioemotional outcomes at 36 months for the sample as a whole and for families at increased psychosocial risk. VIP children had significantly reduced hyperactivity (ES: 0.27; $P < .05$) and externalizing problems (ES: 0.27; $P < .05$) compared with control children. Although VIP children also tended to have lower aggression scores, this finding did not reach statistical significance (ES: 0.20; $P < .1$) for the sample as a whole. Among higher risk families, VIP children had lower aggression scores than those in the control group (ES: 0.48; $P < .05$), as well as reduced hyperactivity (ES: 0.55; $P < .01$) and externalizing problems (ES: 0.57; $P < .01$).

Table 5 presents the proportion of children that reached thresholds for clinically at-risk behaviors on the BASC-2 at 36 months. No statistically significant differences were found in the proportion of children with at-risk scores for the sample as a whole. Among families at increased psychosocial risk, VIP children were significantly less likely than control children to be at risk for hyperactivity (15% vs 41%; $P < .01$) and externalizing problems (11% vs 30%; $P < .05$); these findings corresponded to an absolute risk reduction for VIP of 26% (95% confidence interval [CI]: 8%–43%) for hyperactivity and 18% (95% CI: 2%–34%) for externalizing problems, and a relative risk reduction for VIP of 63% (95% CI: 23%–82%) for hyperactivity and 62% (95% CI: 8%–84%) for externalizing problems. Among families at higher psychosocial risk, 4 VIP families (95% CI: 2–12) would need to receive VIP to prevent 1 child from being in the at-risk category for hyperactivity, and 5 (95% CI: 3–44) would need to receive VIP to prevent 1 child from being in the at-risk category for externalizing problems. Among higher risk families, VIP children tended to be less likely than control children to be in the at-risk category for aggression (8% vs 20%) and social skills (0% vs 7%), but these findings did not reach statistical significance ($P < .1$)

Within-group analyses were conducted of dose effects for families randomized to receive VIP. In piecewise regressions, a dose–response was seen for each additional visit completed beyond the first 5 visits for hyperactivity ($B = 1.00$, $\beta = -0.26$, $P < .05$) and externalizing problems ($B = 0.80$, $\beta = -0.24$, $P < .05$). This outcome is equivalent to a reduction in T score of 1 unit for every visit beyond the fifth visit for hyperactivity and of 0.8 U

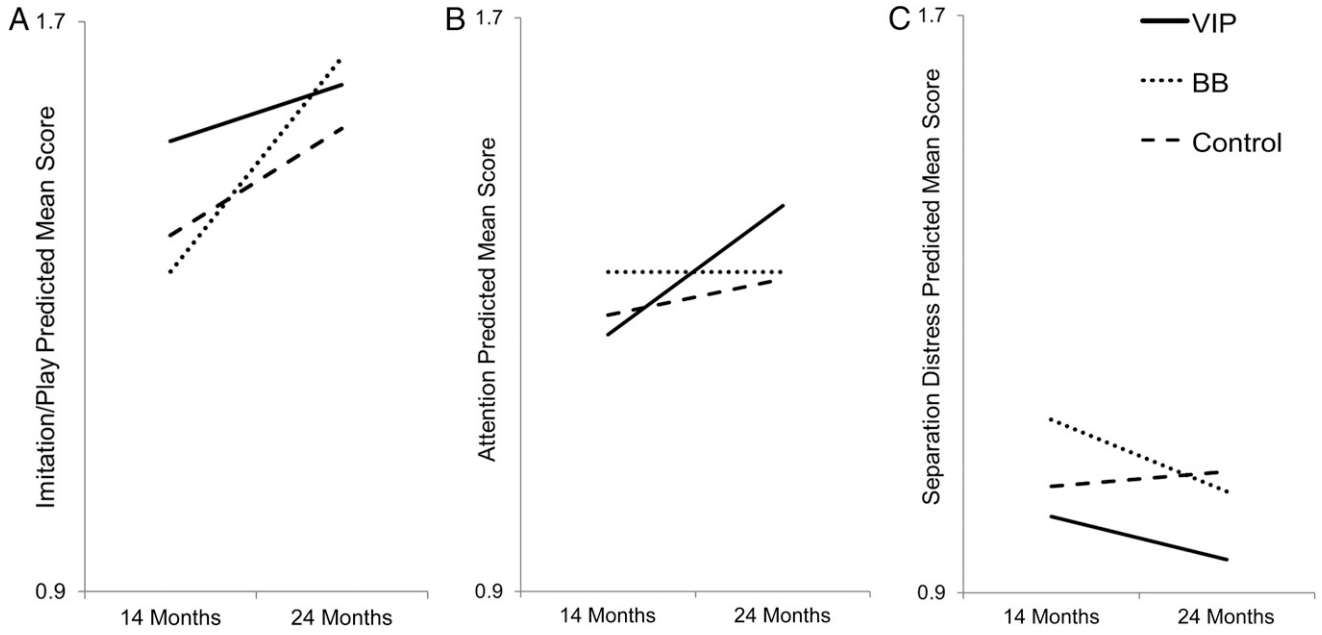

FIGURE 2
Trajectories of mean scores on (A) imitation/play, (B) attention, and (C) separation distress from 14 to 24 months for children in each of the 3 randomization groups; the y-axis displays the predicted values based on multilevel models.

TABLE 3 Multilevel Model Results: Predictors of ITSEA Mean Scores at 14 to 24 Months

Variable	Unstandardized Coefficients	95% CI	*P*
Imitation/play			
Main effects model[a]			
VIP	0.080	0.006 to 0.154	.03
BB	0.020	−0.064 to 0.104	.64
Age	0.016	0.011 to 0.021	<.001
Interaction model[b]			
VIP × age	−0.007	−0.018 to 0.005	.28
BB × age	0.015	0.001 to 0.028	.04
Attention			
Main effects model[a]			
VIP	0.074	−0.010 to 0.158	.08
BB	0.052	−0.043 to 0.147	.28
Age	0.009	0.003 to 0.014	.01
Interaction model[b]			
VIP × age	0.013	0.001 to 0.025	.048
BB × age	−0.005	−0.019 to 0.010	.55
Separation distress			
Main effects model[a]			
VIP	−0.104	−0.202 to −0.006	.04
BB	0.015	−0.096 to 0.126	.79
Age	−0.003	−0.010 to 0.003	.35
Interaction model[b]			
VIP × age	−0.008	−0.023 to 0.007	.29
BB × age	−0.012	−0.030 to 0.005	.17

[a] Adjusts for child gender, first-born status, family socioeconomic status, maternal language, Latina ethnicity, immigration status, marital status, literacy/education, and psychosocial risk. Coefficients for VIP and BB represent the difference in mean item scores for each group compared with the control across the 14- to 24-month period.
[b] Includes all predictors from the main effects model in addition to listed interaction terms. Coefficients represent differences in slope between 14 and 24 months for VIP/BB compared with the control.

per visit for externalizing problems. There was no significant change in T scores related to completion of the first 4 visits (hyperactivity: β = −0.10, *P* = .69; externalizing: β = −0.14, *P* = .58).

DISCUSSION

The present study found that low-cost, pediatric parenting interventions beginning in early infancy and delivered before the identification of behavior problems can have meaningful effects on socioemotional development during the toddler period. These findings are important because of increasing evidence that socioemotional capacities are critical to school readiness and predict a range of adult outcomes across domains of education, employment, criminal activity, substance use, and mental health.[8,10,11,35,36]

Overall, we found strong effects of VIP on children's socioemotional outcomes, with more limited impacts of BB. In particular, VIP produced positive effects on key aspects of socioemotional development beginning at 14 months and extending through 36 months, including enhanced imitation and attention, and reduced separation distress, hyperactivity, and externalizing problems. The presence of effects across multiple time points

TABLE 4 Effects of VIP at 36 Months for the Entire Sample and for the Subgroup of Families at Increased Psychosocial Risk: Mean ± SD BASC-2 T Scores

Variable	Entire Sample			Highest Psychosocial Risk		
	VIP (n = 152)	Control (n = 149)	P[a]	VIP (n = 53)	Control (n = 44)	P[a]
Social skills[b]	55.28 ± 9.4	54.55 ± 9.0	.49	55.74 ± 8.8	53.93 ± 7.8	.30
Attention problems	48.40 ± 10.9	49.68 ± 11.5	.32	47.62 ± 10.9	49.86 ± 10.3	.30
Hyperactivity	51.74 ± 11.5	54.98 ± 12.4	.02	51.13 ± 12.3	57.93 ± 12.5	.01
Aggression	44.71 ± 9.3	46.47 ± 8.9	.095	44.81 ± 9.0	49.70 ± 11.5	.02
Externalizing problems	48.11 ± 10.2	50.85 ± 10.4	.02	47.83 ± 10.5	54.16 ± 11.7	.01

[a] P value based on independent samples t test.

[b] Higher T scores indicate better outcomes for social skills and worse outcomes for the other subscales.

TABLE 5 Effects of VIP at 36 Months for the Entire Sample and for the Subgroup of Families at Increased Psychosocial Risk: Proportion of Children Reaching Threshold for Clinically At-Risk Behaviors on BASC-2 Subscales

Variable	Entire Sample				Highest Psychosocial Risk			
	VIP (n = 152)	Control (n = 149)	RRR (95% CI)	P[a]	VIP (n = 53)	Control (n = 44)	RRR (95% CI)	P[a]
Social skills	6 (4%)	10 (7%)	41% (–58 to 78)	.32	0	3 (7%)	100% (ND[b])	.09
Attention problems	26 (17%)	32 (21%)	20% (–27 to 50)	.38	8 (15%)	9 (20%)	26% (–75 to 69)	.59
Hyperactivity	35 (23%)	47 (32%)	27% (–6 to 50)	.12	8 (15%)	18 (41%)	63% (23 to 82)	.01
Aggression	10 (7%)	14 (9%)	30% (–53 to 68)	.40	4 (8%)	9 (20%)	63% (–12 to 88)	.08
Externalizing problems	21 (14%)	29 (19%)	29% (–19 to 58)	.22	6 (11%)	13 (30%)	62% (8 to 84)	.04

Unless otherwise indicated, data are presented as n (%) at risk. RRR, relative risk reduction.

[a] P value based on Fisher's exact test.

[b] CI not defined (ND) due to no VIP children in the at-risk category.

and domains of socioemotional development provides strong support for VIP's impacts during the toddler period. We did not document effects of BB at any single time point; however, BB infants made greater gains in imitation/play from 14 to 24 months compared with control infants, suggesting that there may be some positive effects of this very low intensity intervention. Stronger effects for VIP compared with BB are consistent with the idea that specific characteristics of VIP, such as the relationship with the interventionist and use of videotaping to promote self-reflection, are important for achieving these outcomes. An important implication of our work is that relationship-based interventions should be strongly considered as policy makers seek to address school readiness disparities.

The ES findings for VIP were within the range of those found for interventions using other platforms (eg, home visiting, community-based programs) that tend to have higher costs.[37,38] These averaged 0.25 SD for the sample as a whole and were even greater (0.50 SD) for children in families with additional psychosocial risks. For higher risk families, the relative risk reduction for clinically at-risk hyperactivity and externalizing behaviors due to VIP was >60%, which, together with the low number needed to treat (4 and 5, respectively), suggest potential for substantial benefits.

One of the most important scientific and policy implications of the present study is that interventions focused on promotion of activities such as reading aloud and play may be effective in enhancing socioemotional development, in addition to their well-documented role in enhancing cognitive-language outcomes.[39,40] Indeed, most existing parenting interventions shown to affect socioemotional outcomes in young children include direct teaching of discipline strategies.[23,41] Notably, VIP affects socioemotional development without teaching these strategies, instead focusing on promotion of responsive parent–child interactions in the context of activities such as reading aloud and play that are typically considered to be cognitively oriented.

This study had 3 main limitations. First, because of resource limitations, there was no follow-up of the BB group past 24 months; findings related to BB should therefore be interpreted with caution. Second, socioemotional outcomes were based on parent report, which, while obtained by using reliable and standardized instruments, can be subject to bias. Third, participating mothers were primarily first-generation Hispanic/Latino immigrants; results may not be generalizable to families with other sociodemographic characteristics.

CONCLUSIONS

This study showed that pediatric primary care interventions focused on promotion of positive parenting through reading aloud and play can enhance socioemotional development among children in poverty. Given the potential for low

cost and population-level reach of primary care interventions, these findings suggest that the pediatric platform should play an important role in primary prevention of poverty-related disparities in school readiness.

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ABBREVIATIONS

ANOVA: analysis of variance
BASC-2: Behavior Assessment System for Children–Second Edition
BB: Building Blocks
CI: confidence interval
ES: effect size
ITSEA: Infant–Toddler Social and Emotional Assessment
RCT: randomized controlled trial
ROR: Reach Out and Read
VIP: Video Interaction Project

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REFERENCES

1. Hart BM, Risley TR. *Meaningful Differences in the Everyday Experience of Young American Children*. Baltimore, MD: Brookes Publishing Co; 1995
2. Halle T, Forry N, Hair E, et al. *Disparities in Early Learning and Development: Lessons From the Early Childhood Longitudinal Study—Birth Cohort (ECLS-B)*. Washington, DC: Child Trends; 2009
3. Fernald A, Marchman VA, Weisleder A. SES differences in language processing skill and vocabulary are evident at 18 months. *Dev Sci*. 2013;16(2):234–248
4. Duncan GJ, Dowsett CJ, Claessens A, et al. School readiness and later achievement. *Dev Psychol*. 2007;43(6):1428–1446
5. Sabol TJ, Pianta RC. Patterns of school readiness forecast achievement and socioemotional development at the end of elementary school. *Child Dev*. 2012;83(1):282–299
6. High PC, Klass P; Council on Early Childhood. Literacy promotion: an essential component of primary care pediatric practice. *Pediatrics*. 2014;134(2):404–409
7. Avellar S, Paulsell D, Sama-Miller E, Del Grosso P, Akers L, Kleinman R. *Home Visiting Evidence of Effectiveness Review: Executive Summary*. Washington, DC: Mathematica Policy Research; 2015
8. McClelland MM, Cameron CE, Connor CM, Farris CL, Jewkes AM, Morrison FJ. Links between behavioral regulation and preschoolers' literacy, vocabulary, and math skills. *Dev Psychol*. 2007;43(4):947–959
9. Raver CC. Young children's emotional development and school readiness. Social Policy Report, 16(3). 2003
10. High PC; American Academy of Pediatrics Committee on Early Childhood, Adoption, and Dependent Care and Council on School Health. School readiness. *Pediatrics*. 2008;121(4). Available at: www.pediatrics.org/cgi/content/full/121/4/e1008
11. Rimm-Kaufman SE, Pianta RC, Cox MJ. Teachers' judgments of problems in the transition to kindergarten. *Early Child Res Q*. 2000;15(2):147–166
12. Denham SA. Social-emotional competence as support for school readiness: what is it and how do we assess it? *Early Educ Dev*. 2006;17(1):57–89
13. Raby KL, Roisman GI, Fraley RC, Simpson JA. The enduring predictive significance of early maternal sensitivity: social and academic competence through age 32 years. *Child Dev*. 2015;86(3):695–708

14. Anthony LG, Anthony BJ, Glanville DN, Naiman DQ, Waanders C, Shaffer S. The relationships between parenting stress, parenting behaviour and preschoolers' social competence and behaviour problems in the classroom. *Infant Child Dev*. 2005;14(2):133–154

15. Mesman J, van IJzendoorn MH, Bakermans-Kranenburg MJ. Unequal in opportunity, equal in process: parental sensitivity promotes positive child development in ethnic minority families. *Child Dev Perspect*. 2012;6(3):239–250

16. Lugo-Gil J, Tamis-LeMonda CS. Family resources and parenting quality: links to children's cognitive development across the first 3 years. *Child Dev*. 2008;79(4):1065–1085

17. Brooks-Gunn J, Markman LB. The contribution of parenting to ethnic and racial gaps in school readiness. *Future Child*. 2005;15(1):139–168

18. Barlow J, Smailagic N, Ferriter M, Bennett C, Jones H. Group-based parent-training programmes for improving emotional and behavioural adjustment in children from birth to three years old. *Cochrane Database Syst Rev*. 2010;(3):CD003680

19. Sanders MR. Triple P-Positive Parenting Program: towards an empirically validated multilevel parenting and family support strategy for the prevention of behavior and emotional problems in children. *Clin Child Fam Psychol Rev*. 1999;2(2):71–90

20. Mendelsohn AL. Promoting language and literacy through reading aloud: the role of the pediatrician. *Curr Probl Pediatr Adolesc Health Care*. 2002;32(6):188–202

21. Zuckerman B. Promoting early literacy in pediatric practice: twenty years of reach out and read. *Pediatrics*. 2009;124(6):1660–1665

22. Minkovitz CS, Hughart N, Strobino D, et al. A practice-based intervention to enhance quality of care in the first 3 years of life: the Healthy Steps for Young Children Program. *JAMA*. 2003;290(23):3081–3091

23. Perrin EC, Sheldrick RC, McMenamy JM, Henson BS, Carter AS. Improving parenting skills for families of young children in pediatric settings: a randomized clinical trial. *JAMA Pediatr*. 2014;168(1):16–24

24. Bauer NS, Webster-Stratton C. Prevention of behavioral disorders in primary care. *Curr Opin Pediatr*. 2006;18(6):654–660

25. Sanders MR. Triple P-Positive Parenting Program as a public health approach to strengthening parenting. *J Fam Psychol*. 2008;22(4):506–517

26. Mendelsohn AL, Cates CB, Weisleder A, Berkule SB, Dreyer BP. Promotion of early school readiness using primary care as an innovative platform. *Zero Three*. 2013;34(1):29–40

27. Mendelsohn AL, Huberman HS, Berkule SB, Brockmeyer CA, Morrow LM, Dreyer BP. Primary care strategies for promoting parent-child interactions and school readiness in at-risk families: the Bellevue Project for Early Language, Literacy, and Education Success. *Arch Pediatr Adolesc Med*. 2011;165(1):33–41

28. Berkule SB, Cates CB, Dreyer BP, et al. Reducing maternal depressive symptoms through promotion of parenting in pediatric primary care. *Clin Pediatr (Phila)*. 2014;53(5):460–469

29. Cates CB, Weisleder A, Dreyer BP, et al. Leveraging healthcare to promote responsive parenting: impacts of the Video Interaction Project on parenting stress. *J Child Fam Stud*. 2015;1–9

30. Canfield CF, Weisleder A, Cates CB, et al Primary care parenting intervention and its effects on the use of physical punishment among low-income parents of toddlers: VIP 0-3 impacts on reduced physical punishment. J Dev Behav Pediatr. 2015;36(8):586–593

31. Bricker D, Squires J, Mounts L. *Ages & Stages Questionnaires: A Parent-Completed, Child-Monitoring System*. Baltimore, MD: Paul H. Brookes; 1999

32. Woodcock RW, Muṇoz-Sandoval AF. *Bateria Woodcock-Munoz: Pruebas de habilidad cognitiva–Revisada*. Itasca, IL: Riverside Publishing; 1996

33. Carter AS, Briggs-Gowan MJ, Jones SM, Little TD. The Infant-Toddler Social and Emotional Assessment (ITSEA): factor structure, reliability, and validity. *J Abnorm Child Psychol*. 2003;31(5):495–514

34. Reynolds C.R., Kamphaus R.W. Behavior Assessment System for Children (2nd ed.). Bloomington, MN: Pearson Assessments; 2004

35. Jones DE, Greenberg M, Crowley M. Early social-emotional functioning and public health: the relationship between kindergarten social competence and future wellness. *Am J Public Health*. 2015;105(11):2283–2290

36. Fergusson DM, Horwood LJ, Ridder EM. Show me the child at seven: the consequences of conduct problems in childhood for psychosocial functioning in adulthood. *J Child Psychol Psychiatry*. 2005;46(8):837–849

37. Landry SH, Smith KE, Swank PR, Guttentag C. A responsive parenting intervention: the optimal timing across early childhood for impacting maternal behaviors and child outcomes. *Dev Psychol*. 2008;44(5):1335–1353

38. Kaminski JW, Perou R, Visser SN, et al. Behavioral and socioemotional outcomes through age 5 years of the legacy for children public health approach to improving developmental outcomes among children born into poverty. *Am J Public Health*. 2013;103(6):1058–1066

39. High PC, LaGasse L, Becker S, Ahlgren I, Gardner A. Literacy promotion in primary care pediatrics: can we make a difference? *Pediatrics*. 2000;105(4 pt 2):927–934

40. Mendelsohn AL, Valdez PT, Flynn V, et al. Use of videotaped interactions during pediatric well-child care: impact at 33 months on parenting and on child development. *J Dev Behav Pediatr*. 2007;28(3):206–212

41. Shaw DS, Dishion TJ, Supplee L, Gardner F, Arnds K. 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. *J Consult Clin Psychol*. 2006;74(1):1–9

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