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Parent Training and Child Development at Low Cost?

EVIDENCE FROM A RANDOMIZED FIELD EXPERIMENT IN MEXICO

Sergio Cárdenas, David K. Evans, and Peter Holland

Abstract

Can at-scale, government-implemented parent training programs improve parenting practices and child development outcomes? This paper presents evidence on the effects of a low-cost, group-based early childhood education program that provided parent training and direct child stimulation in rural communities in six Mexican states. Despite limited take-up, the program had positive impacts on observed parent behaviors in its first year. An index of observed parenting behaviors increased by 0.20 standard deviations, with larger effects (0.32 standard deviations) for parents of the youngest children (ages 0–35 months). An index of impacts on child development showed no statistically significantly effects, but certain aspects of child development showed suggestive evidence of positive impacts in the first year. For both parenting practices and child development, effect sizes were smaller and not statistically significant in the second year. The fade-out of effects is consistent with existing literature on parenting programs. Impacts of the program on child development were not significantly different for girls versus boys or for younger versus older children. These results suggest that parent training can be implemented at low cost, although design changes to improve implementation and take-up would likely be needed to generate sustained impacts on parenting practices.

KEYWORDS
Early childhood education, early childhood development, low- and middle-income countries, human capital, parenting

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Contents

List of Figures

List of Tables

1. Introduction

In recent years, a growing body of research has highlighted the benefits of investing early in children (Black et al., 2017; Engle et al., 2011; García et al., 2021). Early childhood development and education programs come in many forms—daycare centers for young children, preschool for slightly older children, home visits by nurses or others, nutritional supplementation, among others. Yet in most low- and middle-income countries, the individuals that young children interact with the most are parents—or extended family members playing a parenting role. As a result, the potential return to improving the quality of parent-child interactions is high.[1] One of the most popular policy tools to improve the quality of those interactions is programs that train or educate parents in parenting skills (Jeong et al., 2021). Yet there often limited resources allocated to early childhood education (Kim et al., 2022a; Zubairi and Rose, 2017) and to addressing persistent inequalities within countries (Kim et al., 2022b), underlining the need for low-cost interventions that can be applied at scale.

This study estimates the impact of a low-cost parent training program in Mexico, implemented at large scale and through government systems. Specifically, we worked with the Government of Mexico to use random assignment to select the communities in which to scale up its existing, community-based program in which local facilitators, or *promotoras*, invited caregivers and their children to a series of sessions in an existing community structure over the course of nine months. Because the communities for initial scale-up were selected randomly, we attribute differences between the communities in which the program was initially scaled and those in which it was not to the impact of the program.

Among caregivers who signaled interest in participating in the program, we find that take-up of the program was relatively low: the median household attended just four meetings in the first year, and the average household attended 11 meetings. (Meetings were to be held multiple times a month over the course of nine months.) Despite that, we still observe positive, statistically significant impacts on parenting practices for parents of the youngest children (ages 0–3) in the first year of the program, although by the second year, the results are smaller (albeit still positive) and no longer statistically significant. Results are similar for girls and boys. These results suggest that even with limited contact, it may be possible to improve parenting practices. Another evaluation of the same program in an overlapping set of states in Mexico found no impact when the program operated alone but found significant benefits to child development when the program was directly promoted by a conditional cash transfer program (Fernald et al., 2017; Knauer et al., 2016).[2]

This adds to a significant literature and policy discussion around parent training programs. In Latin America alone, several countries have implemented parent training programs through

1 The COVID pandemic led to school closures across most countries in 2020 and 2021, further increasing time that children spent with parents—including children who would normally have been in early childhood education programs (Anderson et al., 2022)—and increasing the potential return to improved parenting skills. While global pandemics are infrequent to date, individual countries regularly experience shocks that result in school closures (Angrist et al., 2023).

2 The Fernald et al. (2017) and Knauer et al. (2016) studies—both stemming from the same evaluation—took place in Chiapas, Puebla, and Oaxaca states, whereas our study takes place in Chiapas, Estado de México, Oaxaca, Puebla, Querétaro, and Veracruz.

government systems: *Primeira Infância Completa* [Complete Early Childhood] in Rio de Janeiro, Brazil (Rio Prefeitura, 2010), *Madres Guías* [Mother Guides] in Guatemala and Honduras (Celis, 2022; Elvir and Asensio, 2006), or *Nadie es perfecto* [No One Is Perfect] in Chile. The Chilean program, shorter than the program we evaluate in Mexico, at just 2–3 months, showed positive impacts on child development and the home environment (Carneiro et al., 2019). Some parenting programs include a narrower focus: one Brazilian program added monthly parent training workshops at its childcare centers with a focus on parents reading aloud to their children. Nine months after the start of the intervention, children in the intervention group had better cognitive outcomes (e.g., receptive vocabulary and working memory) (Weisleder et al., 2018).

The program we evaluate focuses on a broad range of parenting skills. Many parenting programs involve home visits, which tend to have positive impacts but may be more costly than group-based trainings like the one we evaluate in Mexico. For example, a government-implemented parenting program in China, delivered through home-visits, had positive impacts for both parenting practices and child development (Sylvia et al., 2021). Relatively few evaluated interventions (just 11 percent in one sample of 102 interventions) have used community spaces like the Mexico program (Jeong et al., 2021). A recent systematic review of parenting programs found positive average impacts on parenting practices and child development in the short run (Jeong et al., 2021), although there is evidence of a fade-out of effects on child development over time (Jeong, Pitchik, and Fink, 2021).

2. The early education program

The Early Education program (*Programa Educación Inicial* or *PEI*), is an example of a non-formal education program aimed at developing competencies among children, and an additional set of skills for parents. In this program, *promotoras* (facilitators who receive two weeks of annual training, educational materials, and a small stipend) run up to 65 group sessions during a nine-month term, where parents and caregivers receive information and training over four main aspects: a) childcare (health and safety), b) personal and social development (autonomy and self-regulation), c) language and communication, and d) exploration and knowledge of the context.[3] These up to 65 sessions included (a) up to 26 sessions for caregivers and parents (men and women), (b) up to 18 sessions for caregivers and parents (men and women) focused on children, (c), up to 5 sessions for parents who are men,[4] and (d) up to 8 sessions for pregnant women. In addition, *promotoras* could organize up to 8 additional sessions for diagnosis, planning, and evaluation.

3 The main goal is to develop among children the following competencies: language and communication, healthy practices, hygiene and nutrition, interactions with others, executive function, personal and social skills, body control, fine and gross motor skills, and representation, among others.

4 We initially intended to evaluate the impact of these men's meetings on the quality of fathers' parenting, but take-up of the men's meetings was almost zero across all treatment communities, which made such an evaluation of impact impossible. A recent review found that only three percent of studies of early childhood development programs estimate impacts on fathers (Evans, Jakiela, and Knauer, 2021); low take-up, as observed in our program, may be part of the explanation.

Promotoras would invite parents of children aged from 0 to 47 months old (i.e., 3 years and 11 months) via home visits, distribution of flyers, or through local networks (groups or committees). Sessions were generally held for two hours, and the frequency of these sessions is defined through an initial agreement between the *promotoras* and participants, often one or more times per week between the sessions of type (a) and (b). Operating out of community spaces (like schools or community centers) or people's home, two types of sessions were organized: adult learning oriented and children learning oriented. In the first case, sessions were intended to be "experiential learning," aiming to foster reflections, a shared conceptualization of problems and opportunities, and the application of acquired knowledge. Child-oriented sessions, on the other hand, were based on game-based learning, including participation of parents in some of these activities. Children´s sessions aim to develop cognition, language, communication, social skills, knowledge of the environment, and socio-emotional aspects. Sessions were usually organized around a theme (e.g., nutrition). About once a month, a supervisor would observe the session, and offer feedback to the *promotora* after the session.

This program "has strong family and community participation components.... Community participation includes selecting [*promotoras*], providing spaces for educational sessions, convening community meetings for monitoring and evaluation activities (for example, to learn about program progress and conduct self-evaluations), requesting the support of the authorities, and interacting with them as needed" (Vegas and Santibañez, 2010). Because of its participatory orientation, PEI has relatively low training costs, low-cost educational materials, use of community resources for the organization of sessions (e.g., occasional meals, free facilities), and reduced supervision expenditures.

3. Methods

3.1. Data

To draw our sample, staff from the planning unit of the government agency that oversaw the program (the National Council for Education Development, called the *Consejo Nacional de Fomento Educativo* or CONAFE) helped to identify 300 communities located in poor or very poor rural areas across six states (Chiapas, Estado de México, Oaxaca, Puebla, Querétaro, and Veracruz), all fulfilling program selection requirements. Out of this population, we randomly drew 160 communities, and representatives from CONAFE visited these communities to advertise and held introductory meetings to confirm if parents were interested in participating in this program.[5] Once we confirmed willingness to participate, we conducted a pair-wise matching process to define sets of two communities to be considered either as treatment or control groups.[6]

5 Based on the number of sites, considering a significance level of 0.05, a correlation coefficient of 0.05 and the minimum number of families to be interviewed, we reached a power of 0.80 with a Minimum Detectable Effect (MDE) size of 0.18 (0.20 if the correlation coefficient = 0.10). Under this estimation, all the communities included in the sample had at least 8 families with at least one child per family between 0 and 42 months old. In addition, none of these communities should have been part of any ECCE program, either municipal, state, or federal, since 2007.

6 We paired communities using measures of poverty, total population, population 0 to 5 years old, population 3 years and older, indigenous language speakers, percentage of Illiterate population, population older than 15 years who

During the validation process we concluded that some of the selected communities were not eligible to participate, mostly due to safety issues and the possibility that they would lack adequate support from CONAFE (e.g., due to an inability to find a *promotora* or to carry out supervision in the most remote areas), increasing the odds of an ineffective implementation. We also excluded some other communities because early care interventions from other local public agencies had been recently implemented.[7] Due to these concerns, our final sample was reduced from 160 to 130 locations, later reduced to 126 because of attrition: 64 treatment communities and 62 control communities.[8]

In each of the three waves of data collection, we administered a questionnaire to caregivers measuring participation in the program (in treatment communities) and caregiver practices based on the Home Observation Measurement of the Environment (or HOME) scale, for both treatment and control communities. Interviewers also observed the interaction between children and caregivers in both type of communities. To measure child development, we relied on the administration of the Ages and Stages Questionnaire (ASQ-3). All of our instruments were reviewed in collaboration with staff from CONAFE, to ensure that the items being measured were in line with the skills being taught to caregivers and children enrolled in the program. In addition, we administered a questionnaire to *promotoras*, to capture potential heterogeneity in the implementation of the program associated to individual characteristics.

3.2. Baseline characteristics and balance across treatment groups

Participating children were evenly distributed between boys and girls, and roughly 80% of children were age 0–35 months. As expected, main caregivers were overwhelmingly female (97%), and 88% of them had completed only either primary or secondary school. A relatively small proportion of caregivers spoke only an indigenous language (3%).[9] While these are rural communities, almost 80% of households had a solid or cement floor, about 91% had a bathroom or toilet, and about 91% had daily access to electricity. At the same time, 51% of caregivers lived in a household with only one bedroom, only 61% had daily access to water in the household, 52% had a cellular telephone, 5% had a computer, and only 3% had access to the Internet. Table 1 shows baseline characteristics of our sample.

abandoned primary school, population older than 15 years who abandoned lower secondary school, working population and employed, population without access to health services, population without access to other social services, number of households, number of household members, and total population in each locality.

7 By implementing this validation, we addressed the problem of self-selection, given that we requested that communities convene and approve the potential participation in the PEI without informing them of whether they would be part of the treatment or the control group (in addition, no public official from CONAFE knew at this point the result of the random assignment already conducted).

8 We consequently considered power calculations and changes in the MDE based on the final number of interviewed families. For the 126 communities included in the final sample with roughly 12 households each, assuming a statistical significance of 95% and an intra-cluster correlation of 0.05, we needed a modest effect of 0.20 in order to achieve a statistical power of 0.80. Doubling the intra-cluster correlation to 0.10 had very little impact to a minimum detectable effect of 0.22. Note that the higher number of households (i.e., 12 households) interviewed in comparison to what was anticipated for the original sample (i.e., 8 households) reduce concerns about power and MDE. All sample sizes were calculated using Optimal Design software.

9 22 of the sampled communities required interpreters for 6 languages other than Spanish (13 in Chiapas, and 9 in Oaxaca).

TABLE 1. Descriptive statistics of the study population (at baseline)

Panel A: Children	
Percentage of boys	52%
Percentage of children at 0–35 months	79%
Percentage of children at 36–72 months	21%
Panel B: Caregivers	
Percentage of female	97%
Average age (years)	30
Education level: without formal education	6%
Education level: primary or secondary* (only)	88%
Education level: beyond secondary	4%
Relationship to child: parents	93%
Native Language: Spanish only	88%
Native Language: Indigenous language only	3%
Panel C: Home assets – percentage of houses/households with	
Walls made of brick, stone or quarry	75%
Roof made of metal or asbestos ceramics	43%
Roof made of concrete ceiling or joist firm	51%
Solid or cement floor	80%
More than 3 rooms	32%
Only 1 bedroom	51%
Daily access to electricity at least for 3 hours	91%
Water pipes on site	70%
Daily access to water	61%
Bathrooms or toilets	91%
Gas stove	65%
Wood stove	68%
Water tank	48%
Water heater	16%
Cistern	14%
Shower	22%
Electricity meter	79%
Car	22%
Internet	2%
Computer	5%
Landline phone	8%
Cellphone	52%
Washing machine	32%
Refrigerator	51%
Television	82%
Radio	59%

Note: *Secondary includes upper secondary education.

At baseline we observed balance on observed characteristics (Table 2). Across child development outcomes, as measured on the ASQ, we found no significant differences in any of the measured outcomes. Across observed caregiver outcomes, we observed nearly perfect balance: out of 21 observed characteristics across families allocated to treatment and control groups, only one is statistically significantly different at the 5 percent level. (One in twenty is the number of statistically significant differences at the 5 percent level that one would expect to see by random chance.)

TABLE 2. Balance across ASQ & observed characteristics

Variable	Treatment	Control	P-value of Difference	Observations
ASQ				
ASQ: Communication	−0.14	−0.06	0.23	1,583
ASQ: Gross motor	−0.21	−0.17	0.54	1,583
ASQ: Fine motor	0.06	0.06	1.00	1,583
ASQ: Problem solving	0.10	0.07	0.71	1,583
ASQ: Social	−0.09	−0.10	0.90	1,583
Caregivers for children ages 0–35 months				
Parent and children together	0.12	0.13	0.97	1,380
Spoke to children	−0.08	−0.10	0.79	1,379
Parent responded	−0.20	0.07	0.02**	1,380
Parent hugged or kissed	−0.08	0.06	0.31	1,379
Parent used corporal punishment	−0.00	0.01	0.97	1,378
Parent interfered children's actions	−0.03	−0.09	0.76	1,378
Parent gave games	−0.14	0.15	0.13	1,378
Kept children in sight	−0.12	−0.10	0.77	1,379
Safe play area	−0.05	−0.05	0.65	1,367
Caregivers for children ages 36–72 months				
Parent and children together	0.21	0.00	0.14	189
Spoke to children	0.07	−0.08	0.38	181
Parent responded	0.20	0.09	0.41	182
Parent hugged or kissed	−0.06	0.10	0.72	189
Parent introduced children	−0.25	−0.06	0.21	179
Parent interfered children's actions	−0.23	0.10	0.12	178
Parent gave games	−0.07	0.28	0.79	187
Parent reflected positive attitude	0.02	−0.27	0.12	179
Safe play area	0.04	−0.14	0.85	187
Dark house interior	−0.29	−0.21	0.68	178
Clean rooms	0.13	−0.28	0.46	178
House not packed	0.26	−0.42	0.07*	178

Notes: ASQ references the Ages and Stages Questionnaire (ASQ-3). All characteristics have been standardized to have a mean of 0 and standard error of 1 for comparability. All errors are clustered at the community level. Robust standard errors clustered at the community-level in parentheses. ***p<0.01, **p<0.05, *p<0.1.

3.3. Attrition

Unfortunately, not all caregivers and children remained in the study. Between 69% and 76% of children remained in the study during the first year, as well as between 68% and 73% of caregivers (Table 3). Attrition was lower in the second year (more than 75% retained on average across groups), after the research term invested significant effort in tracking all the households' members. While the level of attrition is higher than desired, the principal concern is whether attrition is correlated with treatment. However, a regression analysis confirmed that attrition was balanced across treatment and comparison groups, with no statistically significant differences (Appendix Table A1). As such, there is no reason to believe that any group would be different in the treatment group than in the control group. In our results section, we run robustness checks including only those individuals who appear in all three rounds of the study, and the results do not change significantly.

TABLE 3. Attrition descriptive statistics

Wave	Children		Caregivers	
	Treatment	Control	Treatment	Control
Baseline	797	788	690	672
Year 1	553	598	472	493
	(69%)	(76%)	(68%)	(73%)
Year 2	623	638	505	523
	(78%)	(81%)	(73%)	(78%)

Note: The percentages inside the parentheses are share of participants in each succeeding year against the baseline. For example, the 69 percent in the first column is from dividing 553 (in the first year) by 797 (from the baseline), Forez.

3.4. Estimation strategy

To estimate the effect of the PEI, we used a regression model with the following specification:

$$Y_{ft} = \beta_0 + \beta_1 Post + \beta_1 Treatment + \beta_1 Post * Treatment + \varepsilon_{b,t}$$

where Y_{ft} is the outcome variable corresponding to member of the family '*f*' (parent or child) in term '*t*'; "*Post*" is a variable set to one after the PEI was implemented (term one or two), "*Treatment*" is a variable set to one if the family '*f*' lives in any treatment community, *Post*Treatment* is an interaction aimed to capture the impact of the PEI; and $\varepsilon_{b,t}$ is the error term across families and time/terms. β_0 through β_3 are regression parameters to be estimated. As expected, a statistically significant β_3 parameter would imply differences between treatment and control communities in the outcome of interest explained by participation in the PEI (i.e., an intent-to-treat estimate). A positive sign of the parameter would identify whether families in treatment communities positively changed parenting practices, or whether children improved their cognitive development according to the ASQ measures. We include community fixed effects and cluster standard errors at the community level. To control for potential false positive results as a result of testing multiple hypotheses, we include indices of our two major outcome groups: parenting practices and child development outcomes

(Anderson, 2008). To construct the parenting practices indices, we re-orient the variables so that a positive change is a "good" outcome, standardize each variable (pooled across all waves), take the first principal component of a principal components analysis (Stein, 2019), and then standardize the resulting index.[10] For child development, we sum the scores across the individual components of the ASQ, which is a standard form of analysis for that instrument and standardize the resulting sum. (We also include the standardized first component of a principal components analysis of the ASQ as well as the non-standardized simple sum, both as robustness checks.)

We complement our intent-to-treat analysis with treatment-on-the-treated analysis, in which a dummy variable for actual participation is instrumented with random assignment of the community to the program. The coefficients are somewhat larger with the treatment-on-the-treated analysis (as expected), and the pattern of significance is similar.

4. Results

4.1. Implementation of the program

The vast majority of *promotoras* were female (90%), with an average age of 31 years. One-third of *promotoras* had some previous experience on teaching or promoting childcare activities, and just under three-quarters of *promotoras* actually attended the training organized by CONAFE. Among the *promotoras* without previous experience, 36% did not participate in the training, and 92% of *promotoras* had access to at least one of the handbooks designed to support their activities.

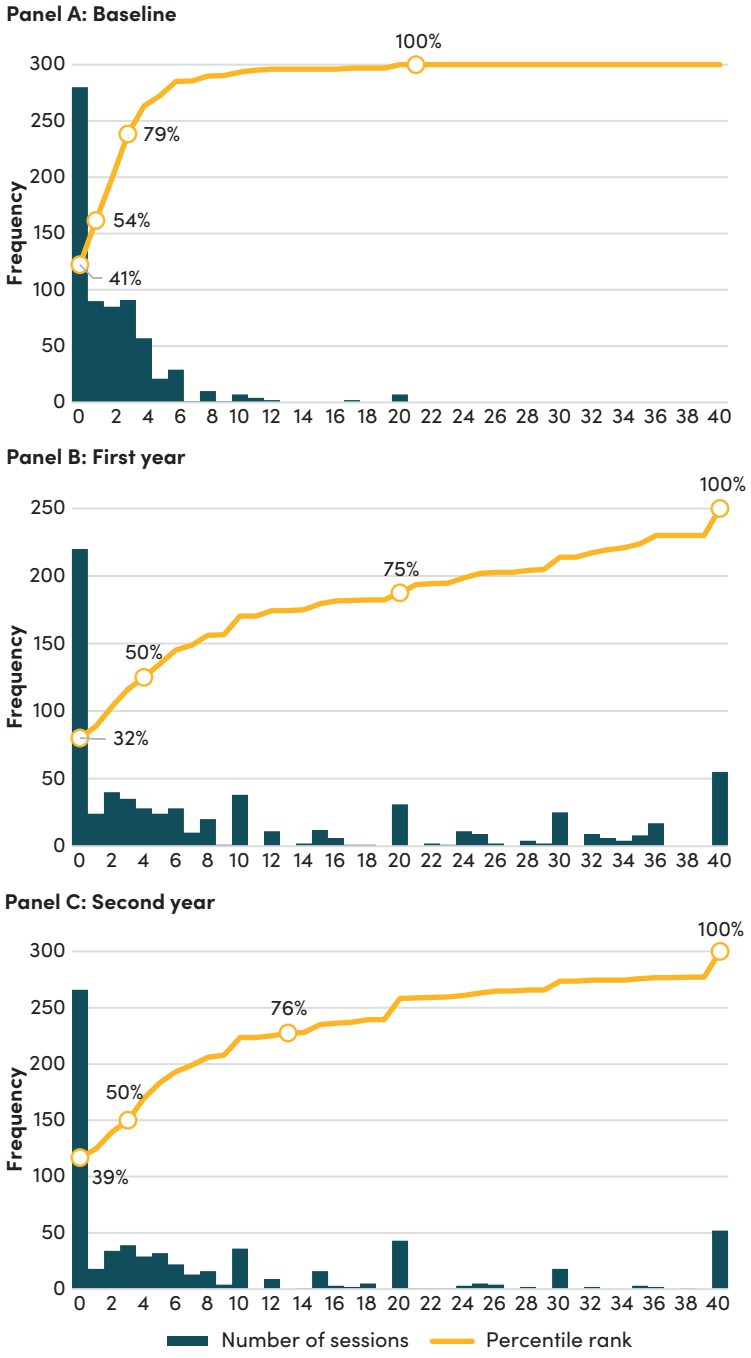
Regarding PEI groups, on average 15 children and 15 caregivers were registered in each community. They usually met in facilities that the *promotoras* managed to get access to free of charge, including homes (33%), schools (10%), and other facilities. A common complaint of the *promotoras* in the focus groups we conducted was the inadequacy of the meeting spaces.

At each round of data collection, caregivers were asked how many meetings they had attended since the last interview (Figure 1; Table A2). At baseline, the median caregiver in program communities had attended one meeting, consistent with the orientation meetings held in all communities to identify households' interest in the program. At the end of the first year, while caregivers had attended 11 meetings on average, the median number of meetings was much lower, at only four. A careful analysis of the data reveals that a significant number of households attended no meetings at all after the orientation meetings: the 25th percentile of caregivers attended zero meetings, but that another significant number reported very high attendance, at either 20 or 40 meetings. (The 75th percentile reported attendance at 20 meetings). In the second year, the mean number of meetings fell from

10 The principal component captures a different subset of variation than an inverse covariance weighted average. The latter puts more weight on components that offer more new information, whereas the first simply tries to capture the most variation in the data (Samii, 2016). We focus on the former, but we provide evidence from the latter as well.

11 to 8.7, and the median fell from 4 to 3. The 25th percentile remained at zero, and the 75th percentile fell from 20 to 12, suggesting that overall, even with limited participation in the first year, it dropped off still further in the second year.

FIGURE 1. Caregiver attendance at meetings—baseline, first year, and second year



Notes: The bars present a histogram of the number of parent training sessions that caregivers attended that year. The line shows the percentile rank: i.e., at baseline, the median parent had attended one meeting; at the end of the first year, the median caregiver had attended 4 meetings (that year), and at the end of the second year, the median caregiver had attended 3 meetings (that year). The numbers underlying this figure are in Appendix Table A2.

We also examine whether or not being in a community that was assigned to receive the program increased the probability that target parents would participate in the program—also known as the first-stage regression (Table 4). Households in communities assigned to the program were 74 percent more likely to participate in the program on average: 77 percent in the first year and 72 percent in the second year.

TABLE 4. First-stage estimates

First-Stage	Coefficient (SE)
Assignment to treatment and attending at least one session at any year	0.74 (0.01)***
Assignment to treatment and attending at least one session at year 1	0.77 (0.02)***
Assignment to treatment and attending at least one session at year 2	0.72 (0.02)***

Notes: ***p<0.01, **p<0.05, *p<0.1.

4.2. Parent behaviors

We begin with the intent-to-treat results for children ages 0–36 months. After the first year of the program, the first principal component of an index of all 9 observed practices reveals an improvement of 0.32 standard deviations, statistically significant at the 5% level (Table 5).[11,12] At the end of the second year, the improvement in the index is roughly half the size but is no longer statistically significant. The treatment-on-the treated results are larger—with an index effect of 0.41 standard deviations, significant at the 5% level (Appendix Table A3). For older children, age 36–72 months, we observe no statistically significant differences in the index of observed caregiver behavior (Appendix Table A4).

In terms of individual parenting practices for the 0–35 month olds, which we mention only as suggestive areas for future research, almost all are positive (Table 5): in the first year, caregivers were statistically significantly 0.31 standard deviations more likely to respond to the child (i.e., if the child spoke to the caregiver during the interview), and in the second year, caregivers were significantly more likely to hug or kiss the child during the interview (0.27 standard deviations).

11 Figure 2 provides an overview of all the results.

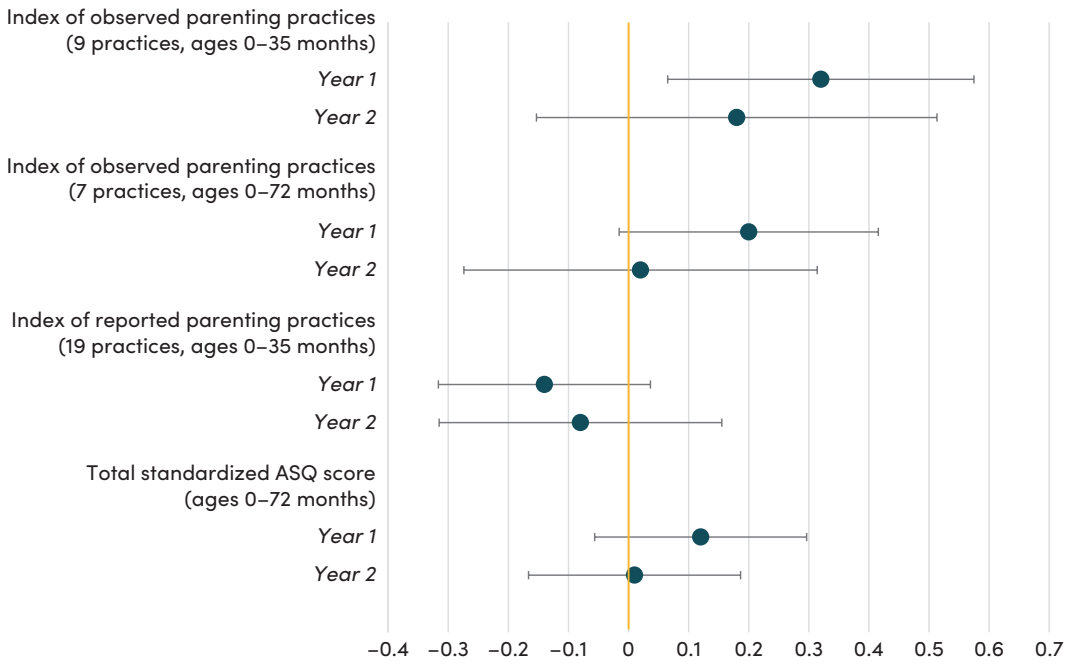
12 The index effect in Table 5 is larger than the individual components, which may—for example—come about if uncorrelated classical measurement error biases the individual component effects toward zero but those errors average closer to zero in the index.

TABLE 5. Impact on observed parenting practices—9 practices + an index—age (0–35 months)

	Observed Parenting Practice Index	Together with Child	Spoke to Child	Responded to Child	Hugged/ Kissed Child	No Incidents of Corporal Punishment	Did not Interfere w/Child's Actions	Gave Games	Kept Child in Sight	Safe Play Place
Treatment * Year 1	0.32**	0.20	0.11	0.31**	0.14	0.11	0.09	0.08	0.13	0.15
	(0.13)	(0.12)	(0.11)	(0.13)	(0.13)	(0.11)	(0.13)	(0.12)	(0.12)	(0.13)
Treatment * Year 2	0.18	0.23	0.03	−0.08	0.27*	−0.13	0.03	0.22	0.07	−0.05
	(0.17)	(0.17)	(0.17)	(0.15)	(0.16)	(0.13)	(0.13)	(0.15)	(0.12)	(0.15)
Year 1	−0.10	−0.30***	0.09	−0.09	−0.04	−0.06	0.09	−0.17*	0.16*	0.09
	(0.09)	(0.10)	(0.08)	(0.09)	(0.08)	(0.08)	(0.10)	(0.09)	(0.08)	(0.09)
Year 2	−0.08	−0.48***	0.16	0.06	−0.21*	0.08	0.30***	−0.26**	0.25***	0.23**
	(0.12)	(0.13)	(0.10)	(0.09)	(0.12)	(0.07)	(0.09)	(0.11)	(0.08)	(0.11)
Constant	0.00	0.13***	−0.07***	−0.00	0.01	0.02	−0.10***	0.07***	−0.10***	−0.06***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1,901	1,943	1,937	1,942	1,939	1,938	1,922	1,920	1,922	1,916
Number of communities	126	126	126	126	126	126	126	126	126	126

Notes: All individual practices are standardized. The index in the first column is constructed from the first principal component of a principal components analysis (PCA) of the standardized parenting practices and the index itself is standardized (see section 3.4 for more details on the estimation strategy). Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.

FIGURE 2. Coefficients from the main outcome indices



Notes: The indices shown in this forest plot are the indices reported in the first columns of Tables 5 to 8. Children ages 0–3 years are 0–35 months. Children ages 0–6 years are 0–72 months.

These results suggest that the highest value of the program is at the earliest ages. Because some children fall in the younger group during the first follow-up and then in the older group during the second follow-up, we estimate a further specification, which uses only the 7 caregiver practices that are observed across all ages and includes all children (Table 6). The observed practice index effects are smaller but positive and marginally statistically insignificant (10% level). They are slightly larger in the treatment-on-the-treated estimates, with similar significance patterns (Appendix Table A5).

TABLE 6. Impact on observed parenting practices—7 practices + an index—ages 0–72 months

	Observed Practice Index	Together with Child	Spoke to Child	Responded to Child	Hugged/ Kissed Child	No Incidents of Corporal Punishment	Did not Interfere w/Child's Actions	Safe Play Place
Treatment * Year 1	0.20*	0.11	0.10	0.23**	0.05	0.12	0.13	0.12
	(0.11)	(0.09)	(0.10)	(0.11)	(0.12)	(0.10)	(0.11)	(0.12)
Treatment * Year 2	0.02	−0.04	−0.07	0.07	0.08	−0.01	0.03	−0.04
	(0.15)	(0.12)	(0.13)	(0.12)	(0.13)	(0.08)	(0.09)	(0.11)
Year 1	−0.20***	−0.24***	0.05	−0.05	−0.10	−0.05	0.16*	−0.05
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.09)	(0.09)
Year 2	−0.25**	−0.29***	0.13	−0.05	−0.25***	0.10	0.41***	0.12*
	(0.10)	(0.08)	(0.09)	(0.07)	(0.09)	(0.06)	(0.07)	(0.07)
Constants	0.11***	0.17***	−0.06**	−0.00	0.09***	−0.03	−0.21***	−0.03
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)
Observations	3,234	3,308	3,294	3,298	3,305	3,300	3,270	3,269
Number of communities	126	126	126	126	126	126	126	126

Notes: All individual practices are standardized. The index in the first column is constructed from the first principal component of a principal components analysis (PCA) of the standardized parenting practices and the index itself is standardized (see section 3.4 for more details on the estimation strategy). Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.

There are many caregiver practices that cannot be observed directly during the course of a one-hour visit. Thus, we complement the earlier analysis with caregiver reports of behavior. For children ages 0–35 months, we observe no significant change in the index of reported parenting practices (Table 7).

In terms of individual practices (again mentioned as avenues for future research), three are statistically significant: Children in treatment households were 0.91 standard deviations more likely to have more than one book (1% significance) and watched significantly fewer hours of television on weekdays and on weekends. We observe similar patterns for the index and the individual elements in the treatment-on-the-treated estimates (Appendix Table A6). Reported parenting behaviors are similarly not statistically significant for older children (Appendix Table A7).

TABLE 7. Impact of reported parenting practices (ages 0–35 months)

	Reported Parenting Index	The Child Went Out of House More than Once a Week	The child had More than One Book	Told Stories Some Times per Year	Took the Child to Market at Least Once a Week	The Child had More than 2 Dolls or Stuffed Animals	The Child had More than 2 Toys to Push or Pull	Believed they Should Teach their Children	How Much TV Watched at Home on Weekdays?	How Much TV Watched Somewhere Else on Weekdays?
Treatment * Year 1	−0.14	−0.21*	0.91***	0.02	−0.16	0.01	−0.12	−0.03	−0.20**	−0.07
	(0.09)	(0.11)	(0.09)	(0.09)	(0.10)	(0.08)	(0.10)	(0.10)	(0.10)	(0.11)
Treatment * Year 2	−0.08	0.02	−0.01	−0.07	−0.11	0.01	−0.07	−0.06	0.11	0.14
	(0.12)	(0.18)	(0.15)	(0.13)	(0.14)	(0.12)	(0.14)	(0.13)	(0.13)	(0.13)
Year 1	0.60***	0.12	0.31***	0.39***	0.25***	0.22***	0.28***	0.12	0.33***	0.14**
	(0.08)	(0.08)	(0.07)	(0.06)	(0.08)	(0.06)	(0.08)	(0.08)	(0.08)	(0.07)
Year 2	0.65***	0.07	0.54***	0.64***	0.32***	0.30***	0.18*	0.03	0.25**	0.05
	(0.08)	(0.12)	(0.10)	(0.09)	(0.11)	(0.08)	(0.09)	(0.10)	(0.10)	(0.06)
Constant	−0.23***	0.00	−0.29***	−0.19***	−0.06***	−0.07***	−0.06***	−0.03	−0.11***	−0.05***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1,726	1,944	1,945	1,947	1,948	1,935	1,945	1,947	1,943	1,948
Number of communities	126	126	126	126	126	126	126	126	126	126

TABLE 7. (Continued)

	How Much TV Watched at Home on Weekends?	How Much TV Watched Somewhere Else on Weekend?	How Much is TV on?	Parents Lived Together	The Child Saw Father Every Day	The Child ate with Parents More than Once a Day	The Child was Very Attached to Father	Responded to Children When they Required Attention Even if Busy	The Child was Very Attached to Mother	How many Incidents of Corporal Punishment in the Last Week?
Attended at least one session * Year 1	−0.31***	−0.02	−0.01	−0.08	0.05	0.08	−0.09	0.14	−0.19*	0.06
	(0.10)	(0.11)	(0.04)	(0.07)	(0.08)	(0.10)	(0.12)	(0.12)	(0.10)	(0.12)
Attended at least one session * Year 2	−0.10	0.00	0.05	−0.01	0.24*	0.14	−0.01	0.11	0.06	−0.15
	(0.12)	(0.16)	(0.36)	(0.11)	(0.13)	(0.13)	(0.15)	(0.14)	(0.16)	(0.12)
Year 1	0.40***	0.02	0.03	0.11**	0.01	0.07	0.24***	−0.23***	0.05	0.15**
	(0.08)	(0.06)	(0.03)	(0.04)	(0.07)	(0.08)	(0.09)	(0.08)	(0.06)	(0.07)
Year 2	0.39***	0.05	0.89***	0.18**	−0.15*	0.02	0.29***	−0.41***	−0.04	0.34***
	(0.09)	(0.10)	(0.23)	(0.07)	(0.09)	(0.08)	(0.11)	(0.10)	(0.11)	(0.07)
Constant	−0.14***	−0.01	−0.17***	−0.06***	−0.01	−0.05***	−0.11***	0.12***	0.02	−0.08***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1,947	1,946	1,864	1,950	1,839	1,841	1,908	1,947	1,948	1,947
Number of communities	126	126	126	126	126	126	126	126	126	126

Notes: All individual practices are standardized. The index in the first column is constructed from the first principal component of a principal components analysis (PCA) of the standardized parenting practices and the index itself is standardized (see section 3.4 for more details on the estimation strategy). Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.

4.3. Child development outcomes

The impact of the program on child development outcomes is measured with the ASQ. A standardized total score across the components shows a positive but not statistically significant improvement (Table 8). We observe statistically significant increases in two child development areas in the first year, communication (0.15 standard deviations) and gross motor skills (0.16 standard deviations). While changes in other areas (fine motor skills, problem solving, or socio-emotional skills) are positive, they are smaller and not statistically significant. We observe a similar pattern of significance in the treatment-on-the-treated estimates (Appendix Table A8).

TABLE 8. Impact on child development (full sample of children, ages 0–72 months)

	Total	Communication	Gross Motor	Fine Motor	Problem Solving	Social
Treatment * Year 1	0.12	0.15*	0.16*	0.08	0.01	0.04
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Treatment * Year 2	0.01	0.09	0.08	−0.06	−0.08	−0.00
	(0.09)	(0.09)	(0.08)	(0.09)	(0.09)	(0.09)
Year 1	0.02	0.07	0.18***	−0.21***	−0.04	0.07
	(0.07)	(0.07)	(0.06)	(0.07)	(0.07)	(0.07)
Year 2	0.20***	0.20***	0.42***	0.01	−0.20***	0.26***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.07)
Constant	−0.08***	−0.10***	−0.19***	0.05**	0.08***	−0.10***
	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	3,880	3,880	3,880	3,880	3,880	3,880
Number of communities	126	126	126	126	126	126

Notes: All individual practices are standardized. The index in the first column is the simple sum of the standardized parenting practices which we then standardized. Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.

One might expect the impact of the program to change by intensity of treatment—i.e., parents and children who participate more in the program derive larger benefits. We do not have any exogenous variation in intensity of participation: families that participate more may be different from those who participate less in important ways—they may have more flexible schedules or they may put a higher value on children's investments more broadly. As such, this analysis is purely exploratory. Simple ordinary least squares regressions of the total child development score on whether households attended at least one session, whether they attended at least the median number of sessions that household who attended at least one session attended, or on the total number of sessions attended reveal no significant results (Appendix Table A9).

When we divide the analysis by gender, effect sizes are not statistically significantly different (Appendix Table A10); statistical significance disappears for both genders on communication, most likely due to a lack of statistical power, as the actual effect size is the same as in the joint analysis. The gross motor skill effect is larger for girls in year one than for boys.

Dividing our sample by child age, using children older and younger than 36 months, we observed that the child development effects are entirely concentrated among the younger group, the same children for whom caregiver practices improved (Appendix Table A11). If we instead divide the sample at 22 months (Appendix Table A12), as a test for sensitivity, the median age of children in the sample at baseline, we surprisingly see more significant impacts for communication among the older group, while gross motor improvements remain concentrated in the younger group. It may be that the communication skills are most affected by the program in the window between 22 and 36 months, when speaking tends to begin in earnest.

4.4. Robustness

4.4.1. Survey effects in the child development measures

One concern with the results could be that, for those items that are reported by the caregiver, the intervention could lead to answers that are too high. For example, if a caregiver has learned in the program that children should be able to clap their hands at a certain age, then she might feel compelled to report that the child does indeed clap his hands all the time, even if that is not the case. To test for this, we first compare the informed values on the ASQ for three categories: behavior reported by parents, behavior observed directly over the course of the interview, or behavior reported by parents but then confirmed by the field researcher (Appendix Table A13). Items receive a value of 0 if the child never does the activity, 5 if the child sometimes does the activity, and 10 if the child does the activity "all the time." Our results show that parents reported significantly higher values than what interviewers observed. However, even if caregivers reported biased information, this principally biases the impact evaluation estimates if caregivers in treatment communities disproportionately report biased information. To explore this, we tested the effect of treatment on ASQ-measured areas separately for those items which are directly observed and for those items which are reported by the caregiver (Appendix Table A14). The coefficients on treatment are very similar across groups. For example, in year 1 communication, the treatment effect for items that were observed is 0.14, whereas the treatment effect for items that were reported is 0.11. The estimates are likewise similar for gross motor skills, the other area where significant treatment effects were identified in the initial analysis.

A second concern could be that observed caregiver actions were biased by the ASQ experience, since caregivers—upon seeing the administration of the ASQ—may be reminded of the good caregiver practices they learned about in the program sessions and then behave more affectionately during the interview. While that would be a program impact, it could signal a very local impact, only taking place when the caregiver is primed.[13] In the baseline and the second follow-up, the ASQ was administered first in only 5% of cases. In the first follow-up, the ASQ was administered first in 21% of

13 Interviewers were instructed, in general, to implement the caregiver questionnaire first, in order to build trust with caregivers before interacting directly with the children during administration of the ASQ.

cases. Deviations from caregiver-first were driven by availability of the caregiver and of the child. If this priming effect indeed took place in the first follow-up, that could explain the positive significant caregiver behaviors in that round of data collection. To test for this, we regress our outcome variables on a dummy for the ASQ being administered first (Appendix Table A15). The administration of the ASQ first had no significant impact on any of the ASQ values or on parenting practices for younger children, where the significant impacts were concentrated. Surprisingly, we observe a negative impact for caregiver practices among older children: Treatment caregivers seem to behave more poorly with their older children if the ASQ was administered first. The reason for this is unclear, but if this is biasing the measured impact of caregiver practices, that means the null effects we observe for older children are biased downward; there may in fact be significant impacts that we are not capturing.

Third, we re-run our main analysis regressions including only those children who appear in all three rounds of data, and the results are comparable to those we have already discussed (Appendix Tables A16, A17, and A18).

Finally, the fact that we observe changes in the index of observed behaviors but not that of reported behaviors is further suggestive evidence that those results that are statistically significant are not merely an artifact of social desirability bias, in which respondents give those answers that they believe interviewers wish to hear. This bias could be exacerbated by an intervention that teaches caregivers how they should behave. But if that were the case, we would expect to see more significant effects among reported behaviors than observed behaviors, which is not the case here.

4.4.2. Indices

We use the first component of a principal components analysis for our main analysis of parent behaviors. We construct two alternative indices using an inverse covariance weighted average. One is the index proposed by Schwab et al. (2020); the other is proposed by Bouguen et al. (2020). Both build on the work of Anderson (2008). We observe the same pattern of results across the different indices. While the magnitude of the effects varies, we observe a significant, positive impact in the first year on observed parenting practices for parents of children ages 0–3 (Appendix Table A19) and on observed parenting practices for parents of children ages 0–6 (Appendix Table A20). We do not observe significant impacts on reported parenting practices for children ages 0–3 (Appendix Table A21) or on the child development measure (Appendix Table A22) for any of the indices.

5. Discussion

This evaluation demonstrates that parenting practices can be affected—at least in the short run—by a low-cost intervention. Furthermore, despite the very limited caregiver engagement, the program had modest direct effects on child development. Unfortunately, we cannot disentangle whether

effects on child behavior are the result of improved parenting practices, or because of the direct contact between children and *promotoras* during the meetings. However, it is notable that results for both caregivers and children are concentrated among the youngest children.

This program is relatively low cost. Our own estimates of implementation cost come to roughly US$113 per child per year (in 2016 dollars), including training, stipends and salaries, and materials. This is roughly 10% of the cost of comparable programs implemented in urban areas in Mexico (Myers et al., 2013). An analysis of other programs around Latin America found that a home visiting program in Jamaica cost US$313 per child per year, whereas community daycare in Chile cost US$984 (Myers, 2008).

Results from this evaluation are promising, particularly considering the limited take-up and the relative inexperience of the *promotoras* in these communities. If *promotoras* receive better training and more support, and if it were possible to increase parent participation, the effects could potentially be more sustained without increasing costs. One way to increase take-up would be to link this program to cash transfer programs already implemented, thus providing incentives to attend for busy parents who may underestimate the long-term returns to improvements in parent practices.

A version of the same program, when promoted within Mexico's longstanding conditional cash transfer program (called *Prospera* at that time), found positive impacts on child development (Fernald et al., 2017).[14] In other words, the first arm of the Fernald et al. study may be seen as an independent evaluation of the same program that we evaluate (taking place at roughly the same time), whereas the second arm of the Fernald et al. study shows the potential of the same program when heavily promoted. In that arm, those responsible for managing the conditional cash transfer program also drew attention to the parent training program, encouraged mothers to participate, and scheduled meetings in such a way that mothers could attend both cash transfer meetings and parent training meetings. Although cash transfer payments were not dependent on participation in the parent training program, some local program implementers thought they were. (Even in those cases, cash payments were not withheld from non-participants in the parent training program.) The fact that the Fernald et al. study only identified consistent impacts when the parent training was heavily promoted by another program with more immediate impacts on household budgets suggests a potential pathway for supporting both short-term needs (cash) and longer term investments (parenting skills).

An analysis of the pathways of impact in the intervention evaluated by Fernald et al. suggests that up to one third of the child development impacts may have been driven by improved parenting practices such as increased play activities and book reading (Knauer et al., 2016). Even with the modest cost increase that greater promotion might entail, the program would likely still remain a cost-effective option for rural populations.

14 *Prospera* was cancelled by the Mexican government in 2019.

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Appendix tables

TABLE A1. Attrition regression analysis

	Treatment	Control	P-value of Difference	Number of Observations
Children				
Year 1	0.31	0.24	0.11	1,583
Year 2	0.29	0.25	0.25	1,583
Caregivers				
Year 1	0.32	0.27	0.20	1,362
Year 2	0.27	0.22	0.15	1,362

Note: All errors are clustered at the community level.

TABLE A2. Intermediate results: take-up

How many meetings have you attended since we last spoke? (Treatment only)				
	Mean	Median	25th Percentile	75th Percentile
Baseline	2.1	1	0	3
Year 1	11.0	4	0	20
Year 2	8.7	3	0	12

TABLE A3. Impact on observed parenting practices—9 practices + an index—ages 0–35 months (treatment-on-the-treated estimates)

	Observed Practice Index	Together with Child	Spoke to Child	Responded to Child	Hugged/ Kissed Child	No Incidents of Corporal Punishment	Did not Interfere w/Child's Actions	Gave Games	Kept Child in Sight	Safe Play Place
Attended at least one session * Year 1	0.41**	0.06	0.06	0.18**	0.08	0.02	0.04	0.05	0.05	0.08
	(0.17)	(0.04)	(0.06)	(0.08)	(0.08)	(0.02)	(0.06)	(0.07)	(0.05)	(0.07)
Attended at least one session * Year 2	0.25	0.08	0.02	−0.05	0.17*	−0.02	0.02	0.14	0.03	−0.03
	(0.24)	(0.05)	(0.10)	(0.10)	(0.10)	(0.03)	(0.06)	(0.09)	(0.05)	(0.08)
Year 1	−0.19	−0.08***	0.03	−0.08	−0.04	−0.01	0.02	−0.09	0.04	0.02
	(0.12)	(0.03)	(0.05)	(0.05)	(0.05)	(0.01)	(0.05)	(0.05)	(0.03)	(0.05)
Year 2	−0.14	−0.13***	0.07	0.04	−0.14*	0.02	0.10**	−0.15**	0.07**	0.10
	(0.16)	(0.04)	(0.06)	(0.05)	(0.07)	(0.01)	(0.04)	(0.07)	(0.03)	(0.06)
Constant	0.00	0.97***	0.72***	0.71***	0.70***	0.98***	0.83***	0.32***	0.86***	0.78***
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	1,901	1,943	1,937	1,942	1,939	1,938	1,922	1,920	1,922	1,916
Number of communities	126	126	126	126	126	126	126	126	126	126

Notes: All individual practices are standardized. The index in the first column is constructed from the first principal component of a principal components analysis (PCA) of the standardized parenting practices and the index itself is standardized (see section 3.4 for more details on the estimation strategy). Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.

TABLE A4. Impact on observed parenting practices—ages 36–72 months

	Observed Practice Index	Together with Child	Spoke to Child 2x	Responded to Child	Hugged/ Kissed Child	Introduced Children	Did not Restrict Child's Actions	No Incidents of Corporal Punishment	Positive Attitude	Safe Play Place	House has Adequate Interior Lighting	Clean Rooms	House is Packed
Treatment * Year 1	−0.11	−0.20	−0.07	−0.12	−0.07	0.10	0.36*	0.07	−0.23	0.03	0.31	−0.17	−0.26
	(0.23)	(0.18)	(0.22)	(0.20)	(0.22)	(0.21)	(0.21)	(0.30)	(0.22)	(0.23)	(0.23)	(0.21)	(0.20)
Treatment * Year 2	−0.27	−0.38**	−0.29	−0.20	0.01	0.06	0.22	−0.07	−0.36*	−0.10	0.25	−0.05	−0.07
	(0.23)	(0.18)	(0.21)	(0.21)	(0.22)	(0.19)	(0.17)	(0.27)	(0.20)	(0.21)	(0.19)	(0.20)	(0.21)
Year 1	0.16	0.10	0.08	0.02	−0.01	0.09	−0.27*	0.17	0.36**	0.02	0.14	0.22	0.31**
	(0.14)	(0.15)	(0.16)	(0.11)	(0.14)	(0.15)	(0.15)	(0.23)	(0.15)	(0.18)	(0.18)	(0.16)	(0.14)
Year 2	0.28*	0.11	0.18	−0.08	−0.04	0.29**	−0.07	0.35	0.34**	0.34**	0.22	0.34**	0.57***
	(0.15)	(0.14)	(0.16)	(0.13)	(0.16)	(0.14)	(0.10)	(0.21)	(0.14)	(0.14)	(0.16)	(0.14)	(0.15)
Constant	−0.10	0.07	−0.04	0.12	0.04	−0.22***	0.01	−0.26**	−0.16*	−0.17*	−0.29***	−0.20**	−0.33***
	(0.09)	(0.07)	(0.09)	(0.08)	(0.09)	(0.08)	(0.08)	(0.12)	(0.09)	(0.09)	(0.09)	(0.08)	(0.08)
Observations	1,289	1,372	1,361	1,364	1,373	1,355	1,352	1,369	1,355	1,358	1,301	1,299	1,300
Number of communities	126	126	126	126	126	126	126	126	126	126	126	126	126

Notes: All individual practices are standardized. The index in the first column is constructed from the first principal component of a principal components analysis (PCA) of the standardized parenting practices and the index itself is standardized (see section 3.4 for more details on the estimation strategy). Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.

TABLE A5. Impact on observed parenting practices—7 practices + an index—ages 0–72 months (treatment-on-the-treated estimates)

	Observed Practice Index	Together with Child	Spoke to Child	Responded to Child	Hugged/ Kissed Child	No Incidents of Corporal Punishment	Did Not Interfere w/ Child's Actions	Safe Play Place
Attended at least one session * Year 1	0.26*	0.14	0.13	0.30**	0.06	0.15	0.16	0.15
	(0.14)	(0.11)	(0.13)	(0.14)	(0.15)	(0.13)	(0.14)	(0.15)
Attended at least one session * Year 2	0.03	−0.05	−0.10	0.09	0.11	−0.01	0.04	−0.05
	(0.20)	(0.16)	(0.18)	(0.16)	(0.17)	(0.11)	(0.12)	(0.14)
Year 1	−0.25***	−0.27***	0.02	−0.11	−0.12	−0.08	0.12	−0.08
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.11)	(0.11)
Year 2	−0.25*	−0.27**	0.16	−0.07	−0.28**	0.10	0.40***	0.13
	(0.13)	(0.11)	(0.12)	(0.10)	(0.12)	(0.08)	(0.09)	(0.09)
Constants	0.11***	0.17***	−0.06**	−0.00	0.09***	−0.03	−0.21***	−0.03
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)
Observations	3,234	3,308	3,294	3,298	3,305	3,300	3,270	3,269
Number of communities	126	126	126	126	126	126	126	126

Notes: All individual practices are standardized. The index in the first column is constructed from the first principal component of a principal components analysis (PCA) of the standardized parenting practices and the index itself is standardized (see section 3.4 for more details on the estimation strategy). Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.

TABLE A6. Impact on reported parenting practices—ages 0–35 months (treatment-on-the-treated estimates)

	Reported Parenting Index	The Child Went Out of House more than Once a Week	The Child had More than One Book	Told Stories Some Times per Year	Took the Child to Market at Least Once a Week	The Child had More than 2 Dolls or Stuffed Animals	The Child had More than 2 Toys to Push or Pull	Believed they Should Teach their Children	How Much TV Watched at Home on Weekdays?	How Much TV Watched Somewhere Else on Weekdays?
Treatment * Year 1	−0.18	−0.27*	1.19***	0.02	−0.21	0.01	−0.16	−0.04	−0.26**	−0.09
	(0.13)	(0.15)	(0.13)	(0.12)	(0.13)	(0.11)	(0.14)	(0.13)	(0.13)	(0.14)
Treatment * Year 2	−0.11	0.02	−0.00	−0.10	−0.15	0.02	−0.10	−0.09	0.15	0.19
	(0.16)	(0.24)	(0.20)	(0.18)	(0.19)	(0.16)	(0.19)	(0.18)	(0.18)	(0.18)
Year 1	0.64***	0.18	0.04	0.38***	0.30***	0.22***	0.31***	0.13	0.39***	0.16*
	(0.10)	(0.11)	(0.10)	(0.08)	(0.10)	(0.08)	(0.10)	(0.10)	(0.10)	(0.09)
Year 2	0.68***	0.07	0.53***	0.66***	0.35**	0.29***	0.20	0.05	0.22	0.00
	(0.11)	(0.17)	(0.14)	(0.12)	(0.15)	(0.11)	(0.13)	(0.13)	(0.14)	(0.09)
Constant	−0.23***	0.00	−0.29***	−0.19***	−0.06***	−0.07***	−0.06***	−0.03	−0.11***	−0.05***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1,726	1,944	1,945	1,947	1,948	1,935	1,945	1,947	1,943	1,948
Number of communities	126	126	126	126	126	126	126	126	126	126

TABLE A6. (Continued)

	How Much TV Watched at Home on Weekends?	How Much TV Watched Somewhere Else on Weekend?	How Much is TV on?	Parents Lived Together	The Child Saw Father Every Day	The Child ate with Parents More than Once a Day	The Child was Very Attached to Father	Responded to Children When they Required Attention Even if Busy	The Child was Very Attached to Mother	How Many Incidents of Corporal Punishment in the Last Week?
Attended at least one session * Year 1	−0.41***	−0.03	−0.02	−0.10	0.06	0.10	−0.11	0.19	−0.25*	0.07
	(0.14)	(0.14)	(0.05)	(0.10)	(0.11)	(0.13)	(0.16)	(0.16)	(0.13)	(0.16)
Attended at least one session * Year 2	−0.14	0.00	0.07	−0.02	0.33*	0.19	−0.02	0.15	0.07	−0.20
	(0.16)	(0.21)	(0.49)	(0.15)	(0.18)	(0.18)	(0.20)	(0.19)	(0.21)	(0.16)
Year 1	0.49***	0.03	0.04	0.13**	−0.01	0.04	0.26**	−0.28**	0.11	0.13
	(0.11)	(0.09)	(0.04)	(0.06)	(0.09)	(0.10)	(0.12)	(0.11)	(0.08)	(0.10)
Year 2	0.43***	0.05	0.87***	0.18*	−0.23*	−0.03	0.30**	−0.45***	−0.06	0.38***
	(0.11)	(0.13)	(0.32)	(0.10)	(0.12)	(0.12)	(0.15)	(0.14)	(0.14)	(0.10)
Constant	−0.14***	−0.01	−0.17***	−0.06***	−0.01	−0.05***	−0.11***	0.12***	0.02	−0.08***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1,947	1,946	1,864	1,950	1,839	1,841	1,908	1,947	1,948	1,947
Number of communities	126	126	126	126	126	126	126	126	126	126

Notes: All individual practices are standardized. The index in the first column is constructed from the first principal component of a principal components analysis (PCA) of the standardized parenting practices and the index itself is standardized (see section 3.4 for more details on the estimation strategy). Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.

TABLE A7. Impact of reported parenting practices—ages 36–72 months

	Reported Parenting Index	Told Stories at Least Once a Week	The Child had More than One Book	There was a Magazine at Home	The Child has an Instrument to Listen to Music	The Child Could Listen to Tapes	Helped Learn Numbers	Helped Learn Letters	Helped Learn Colors	Helped Learn Shapes and Dimensions	Allowed the Child to Choose Food	Took the Child Out Several Times a Week	Took the Child to a Historic Place or Museum Last Year
Treatment * Year 1	0.00	−0.09	−0.01	0.06	−0.29*	−0.43	−0.29	−0.22	−0.12	−0.01	0.08	−0.18	−0.13
	(0.28)	(0.17)	(0.16)	(0.17)	(0.18)	(0.28)	(0.21)	(0.21)	(0.22)	(0.21)	(0.20)	(0.20)	(0.22)
Treatment * Year 2	−0.07	−0.16	−0.27*	0.02	−0.21	−0.30	−0.20	−0.23	−0.21	−0.14	0.18	−0.21	−0.08
	(0.30)	(0.15)	(0.15)	(0.17)	(0.18)	(0.25)	(0.18)	(0.18)	(0.19)	(0.20)	(0.18)	(0.19)	(0.20)
Year 1	0.55**	0.26**	0.27**	0.03	0.23**	0.42**	0.33*	0.31*	0.30	0.38**	0.00	0.03	−0.04
	(0.22)	(0.12)	(0.12)	(0.12)	(0.11)	(0.20)	(0.18)	(0.16)	(0.18)	(0.16)	(0.11)	(0.15)	(0.15)
Year 2	0.55**	0.40***	0.45***	0.06	0.15	0.30	0.36**	0.45***	0.44***	0.66***	−0.07	0.17	0.01
	(0.25)	(0.11)	(0.11)	(0.12)	(0.13)	(0.19)	(0.15)	(0.15)	(0.16)	(0.16)	(0.10)	(0.14)	(0.14)
Constant	−0.43***	−0.23***	−0.25***	−0.02	−0.02	−0.14	−0.17**	−0.22***	−0.23***	−0.45***	−0.03	−0.02	0.07
	(0.12)	(0.06)	(0.06)	(0.07)	(0.07)	(0.11)	(0.08)	(0.08)	(0.09)	(0.09)	(0.08)	(0.08)	(0.08)
Observations	550	1,386	1,390	1,383	1,378	584	1,383	1,383	1,383	1,383	1,384	1,383	1,382
Number of communities	119	126	126	126	126	119	126	126	126	126	126	126	126

TABLE A7. (Continued)

	How Much TV Watched at Home on Weekdays?	How Much TV Watched Somewhere Else on Weekdays?	How Much TV Watched at Home on Weekends?	How Much TV Watched Somewhere Else on Weekend?	How Much is TV on? (Hours)	Parents Lived Together	The Child Saw Father Every Day	The Child ate with Parents More than Once a Day	The Child was Very Attached to Father	Responded to Children When they Required Attention Even if Busy	The Child was Very Attached to Mother	Fewer Incidents of Corporal Punishment in the Last Week
Treatment * Year 1	−0.08	−0.09	0.10	0.09	−0.03	−0.12	0.02	0.19	−0.29	−0.24	−0.10	0.30*
	(0.18)	(0.15)	(0.15)	(0.16)	(0.07)	(0.14)	(0.20)	(0.20)	(0.19)	(0.18)	(0.19)	(0.18)
Treatment * Year 2	−0.02	−0.04	0.07	0.13	−0.02	−0.25*	−0.02	0.06	−0.06	−0.11	0.02	0.04
	(0.16)	(0.15)	(0.15)	(0.15)	(0.12)	(0.15)	(0.19)	(0.17)	(0.18)	(0.17)	(0.16)	(0.15)
Year 1	0.22	0.16	0.03	−0.10	0.01	0.14	0.11	0.07	0.33**	0.00	−0.13	−0.16
	(0.14)	(0.10)	(0.12)	(0.14)	(0.06)	(0.11)	(0.17)	(0.14)	(0.14)	(0.13)	(0.13)	(0.14)
Year 2	0.07	0.02	0.03	−0.10	0.38***	0.19	0.14	0.13	0.26*	−0.02	−0.31**	0.06
	(0.11)	(0.13)	(0.12)	(0.13)	(0.10)	(0.12)	(0.16)	(0.13)	(0.14)	(0.13)	(0.13)	(0.11)
Constant	−0.05	−0.04	−0.06	0.03	−0.24***	−0.04	−0.12	−0.14*	−0.19**	0.12*	0.24***	−0.04
	(0.07)	(0.06)	(0.06)	(0.07)	(0.04)	(0.06)	(0.08)	(0.08)	(0.08)	(0.07)	(0.07)	(0.06)
Observations	1,388	1,390	1,389	1,390	1,355	1,393	1,335	1,339	1,339	1,383	1,389	1,385
Number of communities	126	126	126	126	126	126	126	126	126	126	126	126

Notes: All individual practices are standardized. The index in the first column is constructed from the first principal component of a principal components analysis (PCA) of the standardized parenting practices and the index itself is standardized (see section 3.4 for more details on the estimation strategy). Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.

TABLE A8. Impact on child development (full sample of children, aged 0–72 months) (Treatment-on-the-treated estimates)

	Total	Communication	Gross Motor	Fine Motor	Problem Solving	Social
Attended at least one session * Year 1	0.16	0.19*	0.20*	0.10	0.01	0.05
	(0.12)	(0.11)	(0.12)	(0.11)	(0.11)	(0.11)
Attended at least one session * Year 2	0.01	0.13	0.11	−0.08	−0.11	−0.00
	(0.13)	(0.12)	(0.11)	(0.12)	(0.12)	(0.13)
Year 1	−0.01	0.03	0.13	−0.23***	−0.04	0.06
	(0.09)	(0.09)	(0.08)	(0.09)	(0.09)	(0.09)
Year 2	0.19**	0.17**	0.39***	0.03	−0.18**	0.26***
	(0.08)	(0.08)	(0.09)	(0.08)	(0.08)	(0.09)
Constant	−0.08***	−0.10***	−0.19***	0.05**	0.08***	−0.10***
	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	3,880	3,880	3,880	3,880	3,880	3,880
Number of communities	126	126	126	126	126	126

Notes: All individual practices are standardized. The index in the first column is the simple sum of the standardized parenting practices which we then standardized. Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.

TABLE A9. Impact on child development (full sample of children, aged 0–72 months) by intensity of participation

	Total Child Development Score		
Attended at least one session	0.06		
	(0.05)		
At least the median number of sessions (excluding 0s)		0.06	
		(0.06)	
Total number of sessions attended			0.00
			(0.00)
Year 1	0.08*	0.08*	0.08
	(0.05)	(0.05)	(0.05)
Year 2	0.20***	0.20***	0.20***
	(0.05)	(0.05)	(0.05)
Constant	−0.11***	−0.09***	−0.10***
	(0.04)	(0.03)	(0.03)
Observations	3,880	3,880	3,880
Number of communities	126	126	126

Notes: The child development score here is the standardized sum of the standardized individual components of the ASQ. Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.

TABLE A10. Heterogeneous effects on child development based on gender of child

	Total	Communication	Gross Motor	Fine Motor	Problem Solving	Social
Girl * Year 1 * Treatment	0.06	−0.01	0.08	0.01	0.04	0.08
	(0.08)	(0.08)	(0.08)	(0.10)	(0.08)	(0.08)
Girl * Year 2 * Treatment	0.05	0.00	0.03	0.22**	0.01	−0.07
	(0.08)	(0.09)	(0.07)	(0.09)	(0.08)	(0.09)
Girl	0.12***	0.15***	−0.02	0.09**	0.06	0.15***
	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)
Year 1	0.03	0.07	0.18***	−0.21***	−0.03	0.08
	(0.07)	(0.07)	(0.06)	(0.07)	(0.07)	(0.07)
Year 2	0.20***	0.20***	0.42***	0.01	−0.20***	0.27***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.07)
Treatment year 1	0.10	0.15	0.12	0.07	−0.01	−0.00
	(0.10)	(0.10)	(0.10)	(0.10)	(0.09)	(0.10)
Treatment year 2	−0.01	0.09	0.07	−0.16	−0.08	0.03
	(0.10)	(0.10)	(0.09)	(0.10)	(0.09)	(0.10)
Constant	−0.14***	−0.18***	−0.18***	0.01	0.05	−0.18***
	(0.04)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)
Number of children	1,583	1,583	1,583	1,583	1,583	1,583

Notes: All individual practices are standardized. The index in the first column is the simple sum of the standardized parenting practices which we then standardized. Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.

TABLE A11. Heterogeneous effects on child development based on baseline age of child (divided at 36 months)

	Total	Communication	Gross Motor	Fine Motor	Problem Solving	Social
Younger * Year 1 * Treatment	0.12	−0.07	0.14	−0.00	0.26*	0.09
	(0.11)	(0.11)	(0.10)	(0.12)	(0.13)	(0.09)
Younger * Year 2 * Treatment	0.12	0.35***	0.20**	−0.17	0.15	−0.10
	(0.08)	(0.11)	(0.08)	(0.11)	(0.12)	(0.08)
Younger	−0.31***	−0.29***	−0.48***	−0.16***	−0.00	−0.16***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)
Year 1	0.02	0.07	0.17***	−0.21***	−0.04	0.07
	(0.07)	(0.07)	(0.06)	(0.07)	(0.07)	(0.07)
Year 2	0.21***	0.21***	0.43***	0.02	−0.20***	0.27***
	(0.06)	(0.06)	(0.07)	(0.06)	(0.06)	(0.07)
Treatment year 1	0.03	0.21	0.06	0.08	−0.20	−0.03
	(0.14)	(0.13)	(0.12)	(0.13)	(0.14)	(0.11)
Treatment year 2	−0.09	−0.20	−0.08	0.09	−0.21	0.09
	(0.12)	(0.14)	(0.11)	(0.13)	(0.14)	(0.10)
Constant	0.17***	0.13***	0.19***	0.18***	0.08	0.02
	(0.05)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
Number of children	1,583	1,583	1,583	1,583	1,583	1,583

Notes: All individual practices are standardized. The index in the first column is the simple sum of the standardized parenting practices which we then standardized. Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.

TABLE A12. Heterogeneous effects on child development based on baseline age of child (divided at 22 months)

	Total	Communication	Gross Motor	Fine Motor	Problem Solving	Social
Younger * Year 1 * Treatment	−0.15*	−0.45***	0.09	0.05	−0.08	−0.13
	(0.08)	(0.09)	(0.10)	(0.09)	(0.08)	(0.09)
Younger * Year 2 * Treatment	−0.05	0.03	0.08	−0.27**	0.12	−0.13
	(0.08)	(0.09)	(0.07)	(0.12)	(0.09)	(0.08)
Younger	−0.18***	−0.20***	−0.42***	−0.02	0.07*	−0.07*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Year 1	0.02	0.07	0.17***	−0.21***	−0.04	0.07
	(0.07)	(0.07)	(0.06)	(0.07)	(0.07)	(0.07)
Year 2	0.20***	0.20***	0.43***	0.01	−0.20***	0.27***
	(0.06)	(0.06)	(0.07)	(0.06)	(0.06)	(0.07)
Older effect year 1	0.19*	0.35***	0.12	0.06	0.05	0.09
	(0.10)	(0.09)	(0.10)	(0.09)	(0.10)	(0.10)
Older effect year 2	0.03	0.08	0.05	0.06	−0.14	0.06
	(0.10)	(0.10)	(0.08)	(0.12)	(0.10)	(0.10)
Constant	0.00	−0.01	−0.00	0.06*	0.04	−0.07**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Number of children	1,583	1,583	1,583	1,583	1,583	1,583

Notes: All individual practices are standardized. The index in the first column is the simple sum of the standardized parenting practices which we then standardized. Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.

TABLE A13. Child development statistics of different ASQ implementation modes

	Mean	Standard Deviation	Minimum	Maximum	Observations
Wave 1					
Reported	7.60	2.12	0	10	1,583
Judged	7.68	2.05	0	10	1,583
Observed	7.15	2.13	0	10	1,583
Wave 2					
Reported	7.76	2.15	0	10	1,369
Judged	8.00	2.25	0	10	1,368
Observed	7.24	2.12	0	10	1,366
Wave 3					
Reported	8.01	2.04	0	10	1,454
Judged	8.54	2.25	0	10	1,454
Observed	7.38	1.67	0	10	1,454

TABLE A14. Regression analysis of ASQ implementation modes

	Total		Communication		Gross Motor		Fine Motor		Problem Solving		Social	
	Reported & Judged	Observed	Reported & Judged	Observed	Reported & Judged	Observed	Reported & Judged	Observed	Reported & Judged	Observed	Reported & Judged	Observed
Treatment * Year 1	0.06	0.11	0.11	0.14	0.13*	0.10	0.11	0.02	−0.05	−0.00	0.02	0.00
	(0.13)	(0.10)	(0.08)	(0.09)	(0.08)	(0.08)	(0.11)	(0.08)	(0.11)	(0.08)	(0.09)	(0.10)
Treatment * Year 2	−0.09	−0.03	0.09	0.03	0.08	0.07	−0.10	−0.06	−0.15	−0.05	0.01	−0.12
	(0.15)	(0.11)	(0.07)	(0.09)	(0.08)	(0.09)	(0.14)	(0.09)	(0.12)	(0.08)	(0.09)	(0.10)
Year 1	0.08	−0.01	−0.04	−0.00	−0.02	−0.08	0.01	−0.06	0.09	0.09	0.01	0.05
	(0.10)	(0.08)	(0.05)	(0.06)	(0.05)	(0.06)	(0.09)	(0.06)	(0.08)	(0.06)	(0.06)	(0.07)
Year 2	0.17*	0.06	0.07	−0.06	−0.04	−0.00	0.08	0.05	0.15*	0.00	0.03	0.25***
	(0.10)	(0.08)	(0.05)	(0.07)	(0.05)	(0.07)	(0.09)	(0.06)	(0.08)	(0.06)	(0.06)	(0.07)
Constant	−0.06**	−0.03	−0.04**	−0.00	−0.02	−0.00	−0.02	0.01	−0.04*	−0.02	−0.01	−0.10***
	(0.03)	(0.04)	(0.02)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)
Observations	1,673	3,026	4,405	3,948	4,068	4,406	1,802	4,406	2,112	4,403	4,406	3,133
Number of communities	126	126	126	126	126	126	126	126	126	126	126	126

Notes: All individual practices are standardized. The indices in the first two columns are the simple sum of the standardized parenting practices which we then standardized. Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.

TABLE A15. Regression analysis of ASQ and caregiver questionnaire implementation order

	Observed Parenting Practices Index (Ages 0–35 Months)	Observed Parenting Practices Index (Ages 36–72 Months)	Communication	Gross Motor	Fine Motor	Problem Solving	Social	Treatment
ASQ First	0.08	−0.20**	0.06	−0.00	−0.09	−0.03	−0.06	
	(0.08)	(0.09)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	
Treatment								−0.00
								(0.01)
Constant	0.01	0.03	0.00	0.02	0.00	−0.00	0.01	0.09***
	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)
Observations	1,901	1,289	3,880	3,880	3,880	3,880	3,880	3,880

Notes: The indices in the first two columns are constructed from the first principal component of a principal components analysis (PCA) of the standardized parenting practices and the indices themselves are standardized (see section 3.4 for more details on the estimation strategy). The individual development scores are standardized. ***p<0.01, **p<0.05, *p<0.1.

TABLE A16. Impact on child development for children who participated in all three waves

	Total	Communication	Gross Motor	Fine Motor	Problem Solving	Social
Treatment * Year 1	0.14	0.13	0.25**	0.05	−0.01	0.07
	(0.11)	(0.10)	(0.11)	(0.10)	(0.10)	(0.11)
Treatment * Year 2	0.03	0.12	0.14	−0.05	−0.14	0.03
	(0.11)	(0.10)	(0.10)	(0.11)	(0.10)	(0.12)
Year 1	0.04	0.11	0.15*	−0.21***	−0.01	0.11
	(0.09)	(0.08)	(0.08)	(0.07)	(0.07)	(0.08)
Year 2	0.23***	0.21**	0.46***	−0.00	−0.20***	0.35***
	(0.07)	(0.08)	(0.07)	(0.07)	(0.06)	(0.08)
Constant	−0.12***	−0.14***	−0.26***	0.07**	0.09***	−0.17***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)
Observations	2,694	2,694	2,694	2,694	2,694	2,694
Number of communities	123	123	123	123	123	123

Notes: All individual practices are standardized. The index in the first column is the simple sum of the standardized parenting practices which we then standardized. Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.

TABLE A17. Impact on observed parenting practices for caregivers who participated in all three waves—9 practices + an index—ages 0–35 months

	Observed Parenting Practice Index	Together with Child	Spoke to Child	Responded to Child	Hugged/ Kissed Child	No Incidents of Corporal Punishment	Did not Interfere w/Child's Actions	Gave Games	Kept Child in Sight	Safe Play Place
Treatment * Year 1	0.30**	0.16	0.13	0.28**	0.05	0.11	0.05	0.14	0.14	0.15
	(0.14)	(0.14)	(0.12)	(0.14)	(0.14)	(0.13)	(0.15)	(0.14)	(0.14)	(0.14)
Treatment * Year 2	0.02	0.10	−0.03	−0.25	0.23	−0.23	−0.01	0.18	−0.03	−0.18
	(0.21)	(0.20)	(0.19)	(0.17)	(0.21)	(0.15)	(0.15)	(0.19)	(0.15)	(0.15)
Year 1	−0.09	−0.27**	0.09	−0.09	−0.01	−0.11	0.11	−0.15	0.15	0.05
	(0.10)	(0.10)	(0.09)	(0.09)	(0.08)	(0.09)	(0.11)	(0.10)	(0.10)	(0.10)
Year 2	−0.05	−0.41***	0.11	0.10	−0.25*	0.07	0.30***	−0.21	0.28***	0.29***
	(0.14)	(0.14)	(0.12)	(0.09)	(0.15)	(0.08)	(0.11)	(0.13)	(0.09)	(0.10)
Constant	−0.00	0.12***	−0.05	−0.00	0.02	0.04*	−0.09***	0.05	−0.10***	−0.07**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Observations	1,303	1,337	1,331	1,336	1,334	1,333	1,318	1,315	1,317	1,314
Number of communities	122	122	122	122	122	122	122	122	122	122

Notes: All individual practices are standardized. The index in the first column is constructed from the first principal component of a principal components analysis (PCA) of the standardized parenting practices and the index itself is standardized (see section 3.4 for more details on the estimation strategy). Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.

TABLE A18. Impact on observed parenting practices for caregivers who participated in all three waves—12 practices + an index—ages 36–72 months

	Observed Practice Index	Together with Child	Spoke to Child 2x	Responded to Child	Hugged/ Kissed Child	Introduced Children	Did not Restrict Child's Actions	No Incidents of Corporal Punishment	Positive Attitude	Safe Play Place	House has Adequate Interior Lighting	Clean Rooms	House is Packed
Treatment * Year 1	−0.03	−0.13	0.11	−0.03	−0.08	0.09	−0.13	0.14	−0.23	−0.05	−0.13	−0.26	−0.19
	(0.25)	(0.22)	(0.24)	(0.23)	(0.24)	(0.24)	(0.22)	(0.34)	(0.26)	(0.23)	(0.26)	(0.25)	(0.22)
Treatment * Year 2	−0.23	−0.34	−0.16	−0.07	−0.07	0.03	0.05	0.29	−0.41*	−0.31	−0.11	−0.11	−0.04
	(0.25)	(0.22)	(0.25)	(0.24)	(0.24)	(0.22)	(0.20)	(0.33)	(0.24)	(0.20)	(0.23)	(0.25)	(0.22)
Year 1	0.12	0.18	−0.06	−0.05	0.03	0.12	0.22	−0.31	0.35**	0.10	−0.31	0.32	0.24
	(0.15)	(0.17)	(0.16)	(0.11)	(0.16)	(0.16)	(0.17)	(0.26)	(0.17)	(0.19)	(0.19)	(0.21)	(0.16)
Year 2	0.24	0.20	0.10	−0.14	0.02	0.29*	0.01	−0.48*	0.34**	0.42***	−0.37**	0.40**	0.51***
	(0.16)	(0.16)	(0.16)	(0.14)	(0.18)	(0.16)	(0.12)	(0.26)	(0.15)	(0.15)	(0.17)	(0.18)	(0.16)
Constant	−0.12	−0.04	−0.01	0.11	−0.01	−0.25**	−0.09	0.27*	−0.16	−0.21**	0.37***	−0.28***	−0.33***
	(0.11)	(0.09)	(0.10)	(0.10)	(0.10)	(0.10)	(0.09)	(0.15)	(0.11)	(0.09)	(0.11)	(0.11)	(0.09)
Observations	1,012	1,074	1,068	1,067	1,075	1,062	1,060	1,072	1,061	1,063	1,020	1,019	1,020
Number of communities	120	120	120	120	120	120	120	120	120	120	120	120	120

Notes: All individual practices are standardized. The index in the first column is constructed from the first principal component of a principal components analysis (PCA) of the standardized parenting practices and the index itself is standardized (see section 3.4 for more details on the estimation strategy). Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.

TABLE A19. Impact on observed parenting practices—9 practices—ages 0–35 months across alternative indices

	Observed Practice Index (9 Practices)		
	Main Specification (PCA)	ICW Index	SW Index
Treatment * Year 1	0.32**	0.27**	0.28**
	(0.13)	(0.12)	(0.12)
Treatment * Year 2	0.18	0.12	0.12
	(0.17)	(0.16)	(0.17)
Year 1	−0.10	−0.04	−0.04
	(0.09)	(0.09)	(0.09)
Year 2	−0.08	0.08	0.08
	(0.12)	(0.11)	(0.11)
Constant	0.00	−0.03	−0.04*
	(0.02)	(0.02)	(0.02)
Observations	1,901	1,943	1,943
Number of communities	126	0.01	0.01

Notes: The index in the first column is constructed from the first principal component of a principal components analysis (PCA) of the standardized parenting practices and the index itself is standardized (same as used in Table 6). The ICW index is an inverse covariance weighted average constructed according to Bouguen et al. (2020) which we also standardize. The SW index is an inverse covariance weighted average constructed according to Schwab et al. (2020). Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.

TABLE A20. Impact on observed parenting practices—7 practices—ages 0–72 months across alternative indices

	Observed Practice Index (7 Practices)		
	Main Specification (PCA)	ICW Index	SW Index
Treatment * Year 1	0.20*	0.24**	0.24**
	(0.11)	(0.11)	(0.11)
Treatment * Year 2	0.02	−0.00	−0.01
	(0.15)	(0.12)	(0.13)
Year 1	−0.14**	−0.04	−0.04
	(0.07)	(0.08)	(0.08)
Year 2	−0.15	0.15*	0.15*
	(0.10)	(0.08)	(0.09)
Constant	0.07**	−0.06**	−0.06**
	(0.03)	(0.03)	(0.03)
Observations	3,234	3,308	3,308
Number of communities	126	126	126

Notes: The first column shows the estimates for the index which is also used in Table 7. Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1. PCA is an index consisting of the first principal component from a principal components analysis. The ICW index is an inverse covariance weighted average constructed according to Bouguen et al. (2020) which we also standardize. The SW index is an inverse covariance weighted average constructed according to Schwab et al. (2020).

TABLE A21. Impact on reported parenting practices—ages 0–35 months across alternative indices

	Reported Parenting Index		
	Main Specification (PCA)	ICW Index	SW Index
Treatment * Year 1	−0.14	−0.09	−0.08
	(0.09)	(0.09)	(0.09)
Treatment * Year 2	−0.08	0.07	0.08
	(0.12)	(0.14)	(0.15)
Year 1	0.60***	0.38***	0.36***
	(0.08)	(0.06)	(0.06)
Year 2	0.65***	0.61***	0.62***
	(0.08)	(0.10)	(0.11)
Constant	−0.23***	−0.18***	−0.17***
	(0.02)	(0.02)	(0.02)
Observations	1,726	1,944	1,944
Number of communities	126	126	126

Notes: The first column shows the estimates for the index which is also used in Table 8. Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1. PCA is an index consisting of the first principal component from a principal components analysis. The ICW index is an inverse covariance weighted average constructed according to Bouguen et al. (2020) which we also standardize. The SW index is an inverse covariance weighted average constructed according to Schwab et al. (2020).

TABLE A22. Impact on child development (full sample of children, ages 0–72 months) across alternative indices

	Child Development Indicators (ASQ)				
	ASQ Total (Standardized)	ASQ Total	PCA	ICW Index	SW Index
Treatment * Year 1	0.12	0.43	0.12	0.13	0.13
	(0.09)	(0.33)	(0.09)	(0.09)	(0.09)
Treatment * Year 2	0.01	0.03	0.01	0.02	0.02
	(0.09)	(0.33)	(0.09)	(0.09)	(0.09)
Year 1	0.02	0.08	0.01	0.03	0.03
	(0.07)	(0.25)	(0.07)	(0.07)	(0.07)
Year 2	0.20***	0.68***	0.18***	0.22***	0.22***
	(0.06)	(0.22)	(0.06)	(0.06)	(0.06)
Constant	−0.08***	−0.27***	−0.07***	−0.09***	−0.09***
	(0.03)	(0.09)	(0.03)	(0.03)	(0.03)
Observations	3,880	3,880	3,880	3,880	3,880
Number of communities	126	126	126	126	126

Notes: The first column shows the estimates for the index which is also used in Table 9. The second column, labeled "ASQ Total," simply sums the different components of the ASQ instrument. PCA is an index consisting of the first principal component from a principal components analysis which we then standardize by subtracting from the mean and dividing by the standard deviation. The ICW index is an inverse covariance weighted average constructed according to Bouguen et al. (2020) which we also standardize. The SW index is an inverse covariance weighted average constructed according to Schwab et al. (2020) and is also standardized by default when computed using Stata. Community fixed effects included. Standard errors clustered at community level. ***p<0.01, **p<0.05, *p<0.1.