Sequencing Two Early Childhood Interventions Back-to-Back in India

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Sector(s): Education

Fieldwork: Morsel Research and Development

Location: Salipur, Bolangir, and Cuttack Districts

Sample: 1,298 children, 433 Anganwadi centers, 192 villages

Target group: Children Civil servants Teachers Rural population

Outcome of interest: Enrollment and attendance Student learning Cognitive development

Intervention type: Coaching and mentoring Early childhood development Training Child care Early childhood education School-based inputs

AEA RCT registration number: AEARCTR-0003161

Research Papers: Early Stimulation and Enhanced Preschool: A Randomized Trial, Group Sessions or Home Visits for Early Childhood Development in India: A Clust...

Partner organization(s): Pratham, Center for Early Childhood Education and Development, European Research Council (ERC), Economic and Social Research Council (ESRC), Yale University Cowles Foundation for Research in Economics, Government of Odisha, World Bank, Integrated Child Development Services, Jacobs Foundation, Dubai Cares, National Institutes of Health (NIH), The University of Pennsylvania, Millenium Institute for Research in Market Imperfections and Public Policy (MIPP)

Exposure to poverty very early in life can harm children's cognitive and socio-emotional development. Interventions that promote early-life stimulation can counteract these deficits and lay a foundation for success throughout life. Researchers evaluated the impact of immediately following up an early childhood development intervention for one-to-three-year-old children with a second

intervention for three-to-six-year-olds. The early and late interventions each increased IQ and school readiness for children, although there was not enough evidence to determine whether offering both programs was more effective than offering one.

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Children's interaction with their environment, both at home and at school, affect child development in fundamental ways. Exposure to poverty in the early years can harm brain development leading to cognitive and socio-emotional deficits. Interventions that encourage adults to actively stimulate and engage with young children at home and in preschool can counteract these deficits and, in the long run, improve educational achievements, lower crime rates, and raise incomes in those children over time. However, there is limited information on the optimal timing and duration of Early Childhood Development (ECD) stimulation interventions. What are the effects of an ECD program on children ages 3–6, typical preschool age? Does administering an ECD program to children ages 3–6 have a different impact on their development than an intervention administered at ages 1–3? Can complementing one ECD intervention with a subsequent intervention sustain and reinforce the effectiveness of the individual interventions?

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In India, pre-school services for poor households are mostly provided through the Integrated Child Development Scheme (ICDS), which was started by the Indian government in 1975 as part of an effort to combat child hunger and malnutrition. Anganwadi childcare centers, a key component of ICDS, are run by women from the local communities and provide a range of services including supplementary nutrition, non-formal pre-school education, nutrition and health education, immunization, and health check-up and referral services. The centers are usually one room and host between eight and twenty children a day. They include a pre-school education component for children ages three to six, which focuses on school readiness and the development of positive attitudes toward education. However, these services are implemented inconsistently and are often not well known in the communities.

The ECD interventions implemented during the evaluation served as a complement to the existing Anganwadi pre-school education program in three rural districts in the state of Odisha in India. The Anganwadi workers in this evaluation were on average 38 years old and held 13 years of experience in their job; 39 percent had bachelor's degrees and 58 percent had secondary or higher-secondary education. In the sample, 75 percent of household heads were literate and 32 percent of mothers had not completed primary education.



Young student studies a chart in India

Photo: Pratham

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From 2018 to 2020, researchers conducted a randomized evaluation to test the impact of an enhanced preschool curriculum parent engagement intervention on 3-6 year-old children's cognition, language, executive functioning, and school readiness. Researchers build upon an earlier (2015-2017) home visiting stimulation intervention with the same children when they were ages 0-2, focusing on cognition, language, physical development, and infant death. In January 2018, researchers randomly allocated villages from the original study to one of four evaluation groups:

1. *Only early stimulation group* (48 villages): Trained local women visited homes weekly to deliver a nutritional and psychosocial stimulation curriculum to mothers and their 7- to 16-moth-old children, using games, toys, books, stories, and demonstrations. Facilitators either held individual or group sessions of seven to eight children with their mothers. Children did not receive the enhanced curriculum as they entered preschool age.
2. *Only enhanced preschool group* (48 villages): Pratham-trained Anganwadi workers and helpers delivered an enhanced preschool curriculum to children ages 3 and up, which promoted socio-emotional development and early literacy and numeracy through play, social interactions, and structured learning. Parents were also invited to join their children at these Anganwadi centers as well as engage with and learn from center workers. Some families in this group had previously received the nutritional training, but none received the early stimulation visits.

3. *Early stimulation and enhanced preschool group* (48 villages): Households in this group received both the early stimulation and enhanced preschool interventions back to back in a child's development.
4. *Comparison group* (48 villages): received no ECD interventions

The evaluation's midline impacts were measured in April 2019, nine months after the preschool intervention began. The intervention continued until March 2020, however, a follow-up is still in progress after the pandemic delayed final data collection.

Researchers measured the impacts of the intervention aimed at improving Anganwadi centers on two key outcomes, an IQ score and a school readiness score, by compiling data from several surveys and tests into indices. A child's IQ score is based on their verbal comprehension, working memory, visual-spatial skills, and matrix reasoning. Their school readiness score is based on the knowledge they have before entering school, including body parts, color and numbers, prepositions, following directions, general knowledge, visual perception, gross-motor skills, and categories.

Various independent ethics review boards oversaw and reviewed the evaluation protocols. The research team considered potentially vulnerable people or groups, especially children, and the evaluation partners' staff acquired informed consent protocols that adhered to privacy, confidentiality and risk management from all parents of participating children before the commencement of any data collection. Parents were informed that they could stop participating at any time without providing a reason. The study did not pose potential harm to participants or non-participants.

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Both of the interventions, the early stimulation and the enhanced preschool, increased cognitive development and school readiness for children. School readiness was indistinguishable between those who received either intervention or both together. Further research is required with larger samples to better understand the optimal timing and duration of early childhood interventions.

Sustained benefits of early stimulation:
Children who received the early stimulation intervention in the first study saw increases in cognition and language of 0.24-0.32 standard deviations at the end of the evaluation. Fifteen months later, despite not receiving the enhanced preschool, children in the early stimulation only group had higher IQ scores and school readiness scores (0.18 and 0.13 standard deviations) compared to children who had no interventions.

Catch-up benefits of enhanced preschool:
Nine months after the later-childhood preschool program started, children who only received the enhanced preschool had similarly boosted IQ scores as the early stimulation only group (a 0.17 SD increase from the comparison group). Additionally, the children who only received the enhanced preschool were more ready for primary school (a 0.24 SD increase from the comparison group) than the group that only received early stimulation, although not statistically significantly so. This suggests that stimulation-deprived children can catch up to their early-stimulated peers if they attend a quality preschool and their peers do not.

Limited additional benefits of combining early and later ECD interventions:
Children who received both interventions increased their IQ by 0.24 SDs and their school readiness by 0.21 SDs. However, the size of the increase was not statistically different from the children who received just one intervention.

Children who are stimulated early in life have better cognitive outcomes, and this effect can last for years after the guided stimulation intervention ends. Additionally, providing quality preschool education can similarly improve children's IQ and school readiness. IQ improved most for those who were exposed to both interventions, although the difference from those who received both interventions and those who received either intervention was not statistically significant. Evaluations with larger samples are

needed to investigate further which early programs to invest in and at what point in a child's development.

In response to these results, the implementing partner, Pratham has been implementing a simplified version of the preschool intervention in more schools.

Meghir, Costas, Orazio Attanasio, Pamela Jervis, Monimalika Day, Prerna Makkar, Jere Behrman, Prachi Gupta, et al. 2023. "Early Stimulation and Enhanced Preschool: A Randomized Trial." Pediatrics 151 (Supplement 2). https://doi.org/10.1542/peds.2023-060221h.