

**Supporting Early Learning:
An Audio-Video Program for
Low-Literate Parents of Young
Children in Urban India**

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This policy brief is based on the IJER publication “Supporting early learning: An audio-video program for low-literate parents of young children in urban India,” by Anahita Kumar, Sharon Wolf, Berta Bartoli, Jasmine Bala, Vishvesh Varma, and Elaine Zanutto

Executive Summary

Early learning inequalities are established well before children enter formal schooling and exert long-lasting effects on their cognitive, socioemotional, and health outcomes, extending into adulthood. Across low and middle-income countries (LMICs), and particularly in rapidly urbanizing contexts, these inequalities are shaped not only by income inequalities but by systematic differences in the quality of early learning environments to which children are exposed. A large body of evidence demonstrates that caregivers play a central role in shaping early cognitive and socioemotional development. Yet public policy has struggled to identify delivery models that can reach caregivers in LMICs who face binding constraints related to low literacy, time scarcity, insecure livelihoods, and limited access to institutional services.

This policy brief presents an in-depth analysis of evidence from a pre-registered randomized controlled trial (RCT) conducted in Mumbai, India, evaluating an audio-video parenting intervention designed specifically for low-literacy caregivers of young children. The program targeted caregivers of children aged three to seven and delivered structured guidance through short audio and video messages sent directly to mobile phones via WhatsApp. Rather than relying on written instructions, the intervention modeled simple learning and interaction activities that caregivers could incorporate into daily routines using readily available household materials. The program was implemented during COVID-19, related school closures, a period in which families were required to shoulder an unusually large share of responsibility for children's learning.



Executive Summary

The evaluation provides rigorous evidence on both the promise and the limitations of this approach. It demonstrates that audio-video delivery is feasible and accessible for low-literacy families residing in dense urban environments, and that caregivers can engage with and understand content without external assistance. The intervention generated modest but meaningful changes in caregiver-reported practices and produced small to moderate improvements in children's socioemotional skills. At the same time, the study found no statistically significant impacts on parental cognitive stimulation as measured in the evaluation, or on children's academic outcomes (literacy and numeracy skills), over the study period.

These findings have important implications for governments, international organizations, and philanthropic funders. Audio-video parenting interventions should not be framed as stand-alone solutions to early learning inequality. Rather, they should be understood as scalable and equitable complements to existing early childhood and education systems. When embedded within public infrastructure, reinforced through light human interaction, and aligned with broader foundational learning strategies, such programs can play a meaningful role in strengthening early learning environments for families that are currently underserved.



Overview

Why early learning in urban India matters now

Structural barriers limit parental investment

COVID-19 widened early learning gaps

Why early learning in urban India demands immediate policy attention

India is home to 1 in 5 of the world's young children (World Bank, 2021). What happens in Indian households and communities in the first years of life will shape not only children's developmental outcomes, but global progress on education, health, and inequality. Yet early childhood education and care remains one of the most underinvested areas of India's social policy landscape (Motkuri & Revathi, 2023).

Public spending on education has remained at roughly 3-4% of GDP for years, with early childhood education receiving 0.1% of this already limited allocation (Motkuri & Revathi, 2023; Singh et al., 2023). Millions of children enter primary school without ever having had access to structured early learning. Only around one third of children aged five to six attend anganwadis (आंगनवाड़ी, public early childhood centers that provide nutrition, education, and health services across India), and participation among children aged three to five remains closer to one in five (ASER, 2022). These figures are substantially lower in low-income urban areas, where public services are stretched and families are highly mobile (Chaudhury et al., 2023).

This gap matters because early childhood is not simply a preparatory stage. It is a period of rapid brain development during which children acquire foundational language, cognitive, and socioemotional skills that shape how they learn, behave, and participate in society later on (Duncan et al., 2010; Britto et al., 2017). When these early opportunities are missed, the consequences accumulate over time and become increasingly challenging to reverse.

1 in 5 of the world's young children live in India



Education spending: ~3-4% of the GDP, and **early childhood** receives only a fraction of this

Early childhood is a period of rapid brain development, missed opportunities compound and are costly to reverse.



Parenting is Shaped by Structural Constraints

In the absence of accessible early education services, families are expected to carry much of the responsibility for supporting young children's learning at home. Research consistently shows that simple, everyday interactions between caregivers and children such as talking, storytelling, singing, counting, and play are strongly linked to early learning outcomes (Yoshikawa et al., 2020; Dowd & Thomsen, 2021). While these interactions do not require expensive materials or formal instructions, they require time, energy, attention, and knowledge (Wolf & Lichand, 2023).

For many low-income urban families, these resources are limited in short supply. Parents often work long and unpredictable hours in informal employment. Within the context of Mumbai, homes are crowded, space is limited, and daily life is shaped by economic insecurity (Bertrand et al., 2020). Under these conditions, even highly motivated caregivers may struggle to engage regularly in developmentally supportive activities.

Evidence from Malwani, a densely populated neighbourhood in Mumbai, illustrates this reality. A community assessment conducted by Project Balika found that parents reported spending as little as 5 minutes per day interacting with their young children. Caregivers did not describe a lack of interest in their children's development. Instead, they pointed to exhaustion, time pressure, and uncertainty about what activities would actually support learning. These findings suggest that the core challenge is not motivation, but access to practical, usable guidance that fits within the constraints of daily life.





COVID 19 turned a chronic problem into an acute one

The COVID-19 pandemic sharply exposed and intensified these vulnerabilities. Prolonged school and childcare center closures removed one of the few sources of structured learning available to young children in low-income communities. While some families were able to substitute formal schooling with online resources, books, or private support, many households lacked access to digital devices, stable internet, or age appropriate learning materials (Sahni, 2020).

At the same time, the pandemic triggered widespread income losses and food insecurity, increasing stress within households and further reducing parents' capacity to support learning at home (Bertrand et al., 2020; Seth et al., 2024). In neighbourhoods like Malwani, these pressures compounded existing challenges related to poverty, overcrowding, and migration (Singh, 2017).

India experienced prolonged school closures that resulted in significant learning disruptions, especially for children from low-income households who lacked access to digital learning tools. In slum communities like Malwani in Mumbai, formal instruction was halted for extended periods, with little to no educational continuity provided to children. These educational losses were compounded by broader hardships such as household income shocks and food insecurity, which further constrained families' ability to support learning at home (Bertrand et al., 2020).

Globally, COVID-related Early Childhood Care and Education (ECCE) disruptions were estimated to result in over **19 billion person-days** of instruction lost (McCoy et al., 2021), and simulations suggest children could **lose up to 0.9 years of schooling** due to closures (Azevedo et al., 2021). In low-income urban settings in India, where pre-existing access to early education was already severely limited, with only one-third of 5–6 year olds attending anganwadis and just 20% of 3–5-year-olds enrolled in pre-K programs (Choudhury et al., 2023; ASER, 2022), the risk was not only learning loss but learning absence altogether.

Research Overview

Institutional context and implementing agency

The intervention evaluated in this study was implemented by **Project Balika**, a Mumbai-based non-governmental organisation working in low-income migrant communities to support girls' education and early childhood development. Project Balika has an established presence in Malwani, a large informal settlement in suburban Mumbai, where it partners with low fee private schools and community networks to reach families with young children.

This institutional context is central to understanding both the feasibility and the limits of the intervention. Project Balika's long-standing engagement in the area enabled high levels of participation (caregiver buy-in) and sustained contact with caregivers during a period of extreme disruption caused by the COVID-19 pandemic.



Figure 1. Project Balika's Logo

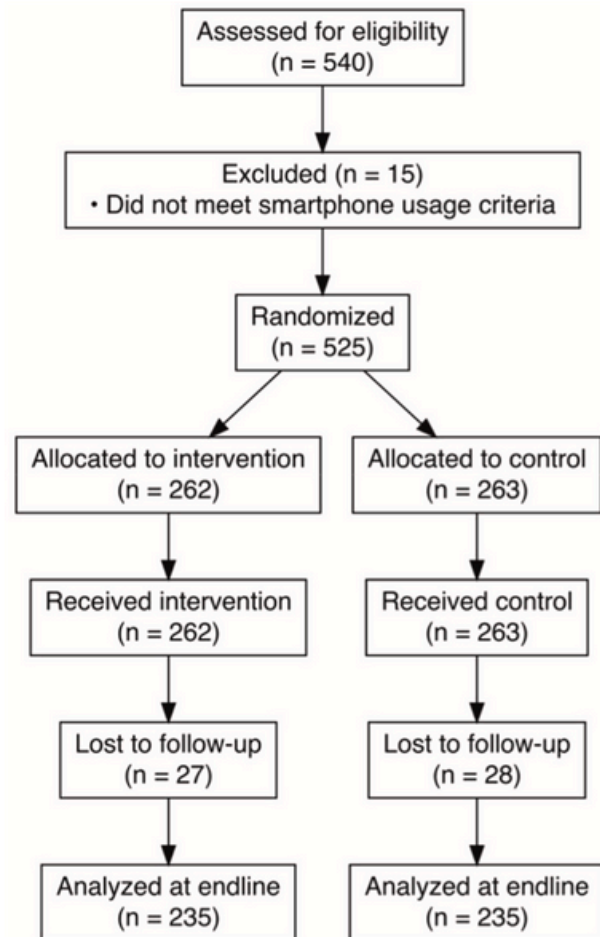
The final sample consisted of 525 caregivers.

- **48%** of children were girls
- The average caregiver age was **36.9 years** and **66% were female**
- A substantial proportion of caregivers had limited formal education (**20.4%** had never been to school in the control group; 26.4% in the treatment group), consistent with the intervention's focus on low-literate parents
- Many households reported food insecurity (mean score of **1.27** in the control group and **1.74** in the treatment group on the Household Food Insecurity Scale)

At the same time, the organisation was operating under the same constraints faced by many urban NGOs during lockdowns: school closures, limited in-person contact, and reliance on mobile communication. The study therefore evaluates a realistic delivery model implemented by a locally embedded organization under crisis conditions. **To our knowledge, this is among the first randomized evaluations of a fully audio and video-based parenting intervention in South Asia, making it novel and highly relevant for policy surrounding literacy-based digital exclusion.**

Project Balika recruited caregivers through 5 partner low-fee private schools operating in Malwani (Kumar et al., 2025). The recruitment process began with community meetings between Project Balika staff and school leaders. Of the 10 low-income schools approached, 5 agreed to participate in the study. From the rosters of these five participating schools, 540 parents were randomly selected, and contact information for 525 families was shared with the research team. Eligibility was limited to households with at least one child aged 3 to 7 years.

Figure 2: Participant Flow Diagram

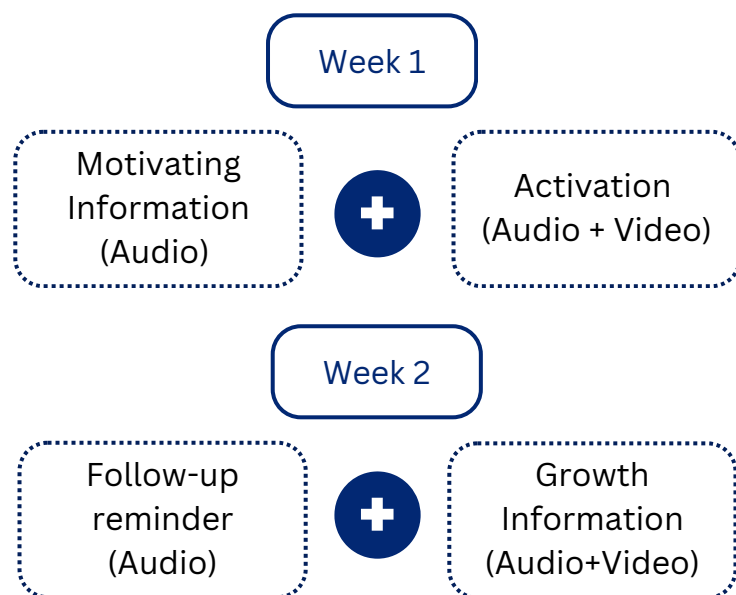


Intervention Design

The intervention was a ~18 week parenting support programme delivered entirely via WhatsApp, designed explicitly for low-literacy caregivers and requiring no reading. WhatsApp was selected deliberately due to its widespread use in urban India and its ability to deliver audio and video content without requiring reading or writing. This design choice was central to the programme's equity rationale, as many caregivers in the target population had limited formal schooling and low confidence in reading-based instructional materials.

Messages were delivered directly to parents' mobile phones via WhatsApp and could be replayed multiple times. No smartphones, data subsidies, or additional materials were provided. See Appendix for the full scripts for the messages covering numeracy skills.

Figure 3: Message dissemination format for a selected topic over two weeks.



Core dosage

- A single topic was delivered across **2 intervention weeks**.

Each participating parent received:

- 1 audio message/week (.mp3)
- 1 video message/week (.mp4)
- Total messages: approximately **32 messages** over the intervention period
- Message length: all messages were under two minutes, based on pilot testing with 18 non-study families to maximise comprehension and engagement.



Content and pedagogical focus

Messages modelled short, play based learning activities that parents could carry out using household materials at no cost. Activities targeted:

- **Early numeracy (e.g. counting, number recognition)**
- **Literacy (reading, storytelling)**
- **Socioemotional skills (e.g. turn-taking, emotional expression)**

For example, one numeracy activity asked children to draw numbered paper slips and jump or clap the corresponding number of times, while the parent observed and guided the activity. Videos explicitly showed parent-child interaction, using local community volunteers and children from Malwani, reinforcing cultural relevance and feasibility.

Message length, pacing, and format were informed by pilot testing with 18 non-study families who met the same eligibility criteria as the study sample, including caregivers with low literacy levels.

Midpoint teacher check-ins

(added component: added mid-implementation in response to feedback from local implementing partners, reflecting a community-informed adaptation.)

- At the midpoint of the intervention (weeks 9–10), parents in the treatment group received a brief phone call from an affiliated teacher.
- Teachers were drawn from the five partner schools but were not actively teaching at the time.
- Calls served as light-touch check-ins to encourage participation, troubleshoot access or implementation challenges, and reinforce engagement with the weekly activities.
- Weekly audio and video messages were paused during this two-week period to accommodate the calls.

Primary Outcome

- Parental cognitive stimulation

Secondary Outcome

- Children's academic skills
- Children's socioemotional (SEL) development
- Children's internalizing and externalizing behaviors
- Engagement with educational materials

Policy Implications

This randomised controlled trial yields several important insights for early childhood policy in low income urban contexts across India and similar settings.

First, while the intervention did not improve parental cognitive stimulation or academic outcomes, it produced meaningful gains in children's socioemotional development. Children in the treatment group showed an improvement of 0.28 standard deviations in socioemotional competencies ($p < .05$; q-value = 0.05–0.07 across models), with older children (above age 5) benefiting more strongly (interaction coefficient = -0.62 , $p < .05$). These gains are noteworthy given the program's modest intensity and the constrained implementation context. Socioemotional skills are foundational for later learning and classroom engagement, particularly in environments with uneven educational quality.

Second, low-intensity, mobile-based interventions alone appear insufficient to generate substantial changes in parenting behaviors. Parental cognitive stimulation, the primary outcome, showed only a small, non-significant increase ($d = 0.10$, q-value = 0.44). Only one-third (33%) of parents reported understanding the messages independently, and 47% could recall specific activities, indicating that most caregivers required support to implement the program content. These findings underscore the importance of sensitive measurement tools and of additional scaffolding for behavior change, even when content is accessible and contextually tailored.

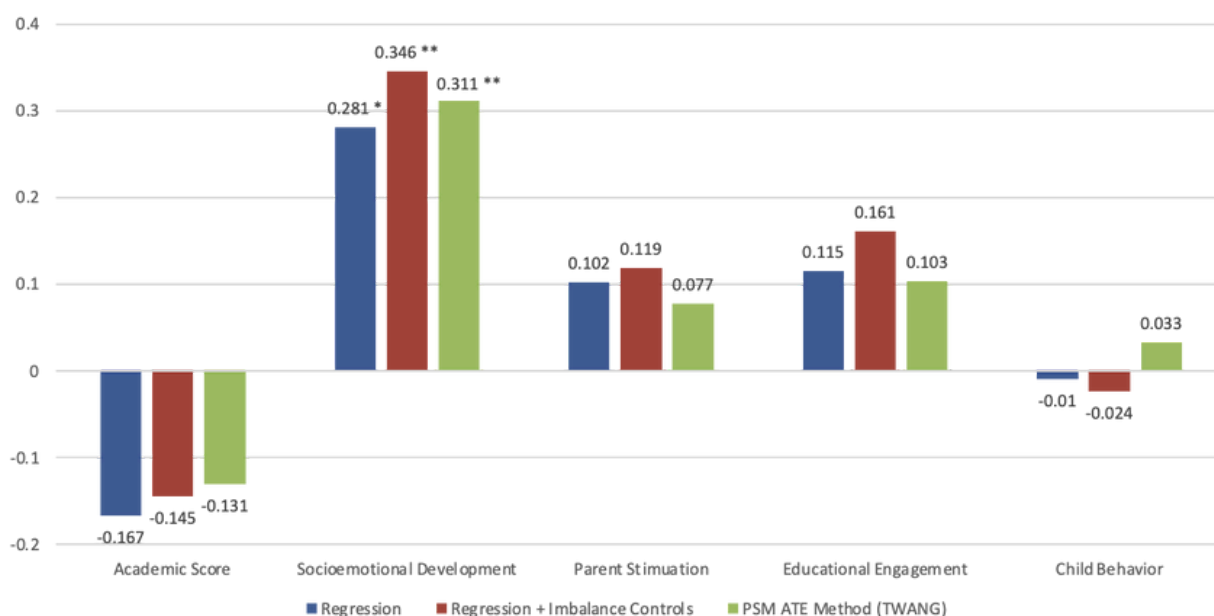


Figure 4: Effects of Parental Cognitive Stimulation on Academic, Socioemotional, and Behavioral Outcomes

Note: Coefficients are standardized by control group mean and SD for ease of interpretation as effect sizes.

Significance code: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Policy Implications

Third, the study demonstrates the potential of audio-visual content to reach low-literacy caregivers without exacerbating inequalities. Engagement and comprehension were consistent across maternal education levels (no significant moderating effects) and household food insecurity (interaction coefficient = 0.21, $p < .10$), suggesting the intervention did not favor higher educated or more food secure households. By removing reading requirements and providing culturally tailored examples, the program made content actionable for caregivers who might otherwise be excluded.

Fourth, minimal human reinforcement limited uptake of parenting practices. The intervention included a single midpoint phone call from a teacher, but this did not produce measurable improvements in parental behavior. Comparable interventions in Botswana and Zambia have shown that repeated teacher engagement or in-person support is often required to produce meaningful effects (Angrist et al., 2020; Ome & Menendez, 2021). This suggests that future programs should integrate structured follow-ups or interactive elements to enhance parental engagement, particularly in low-literacy populations.

Finally, this study demonstrates that fully audio and video based content can reach low-literacy caregivers in urban South Asian contexts, a population that is often excluded from traditional text-based interventions. By removing reading requirements and providing culturally tailored examples, the program offers a scalable and equity oriented model for supporting families in low resource settings. To our knowledge, this is among the first randomized evaluations of a fully audio and video based parenting intervention in South Asia, highlighting its potential relevance for policy initiatives aiming to expand early childhood support through accessible mobile platforms. Future interventions could build on this foundation by integrating interactive elements, sustained human support, or age specific adaptations to enhance both engagement and measurable outcomes.



Policy Recommendations

Refine measurement of parental cognitive stimulation

Invest in more nuanced tools to capture parent-child interactions, including frequency, quality, and emotional attunement. The study found no detectable effect on cognitive stimulation ($d = 0.10$, $q = 0.44$), even though children's socioemotional skills improved (~ 0.28 SD). Accurate measurement will help policymakers understand whether interventions are truly changing parenting behaviors and guide program improvements.

Integrate digital parenting content with existing services

Use audio-visual interventions to augment, not replace, childcare centers, community health workers, or early childhood educators. Minimal contact alone was insufficient to shift parental behaviors in high-poverty urban contexts.

Design interventions for accessibility among low-literacy populations

Deploy audio and video content rather than text-based messaging. Engagement and comprehension were consistent across maternal education levels, ensuring equity in reach and implementation.

Prioritize socioemotional development as a feasible target

Even in light-touch programs, children's socioemotional skills improved (~ 0.28 SD). Policymakers should explicitly target socioemotional learning in mobile or remote parenting interventions, particularly during crises or service disruptions.

Strengthen human engagement to support behavior change

Incorporate structured follow-ups, monthly consultations, or facilitated group sessions. One isolated teacher call was insufficient, suggesting that human support is key to translating content into sustained parenting practices.

Leverage trusted local partnerships for implementation

Engage community-based organizations (e.g., Project Balika) with credibility and contextual knowledge. Trusted intermediaries improved participation and message uptake, which is crucial for scaling interventions in urban low-resource settings.

Pilot and rigorously evaluate enhanced program designs

Test interactive features, age specific content, or longer duration programs before large scale deployment. Evidence shows that modest, unidirectional digital programs have limited impact without complementary support.

Policy Recommendations

Adapting for Local Contexts

Before expanding mobile-based parenting programs, conduct formative research to assess smartphone penetration, WhatsApp usage patterns, and digital literacy in target populations. While this Mumbai intervention benefited from relatively high smartphone access (85.5% household ownership in India), other low resource settings may face greater connectivity barriers.

Further, contextual adaptation, including language, cultural examples, and locally recognized messengers, proved critical to program uptake in Mumbai. National or state level rollouts must resist one size fits all approaches and instead invest in community based piloting, iterative design processes, and ongoing stakeholder engagement to ensure programs are both technically accessible and socially legitimate across India's diverse urban landscapes.



Read full study.

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Themes

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References

ASER Centre, 2022. Annual Status of Education Report (Rural) 2022, Delhi, India.

Angrist, N., Bergman, P., Brewster, C., & Matsheng, M. (2020). Stemming learning loss during the pandemic: A rapid randomized trial of a low-tech intervention in Botswana. Available at SSRN 3663098.

Azevedo, J. P., Hasan, A., Goldemberg, D., Geven, K., & Iqbal, S. A. (2021). Simulating the potential impacts of COVID-19 school closures on schooling and learning outcomes: A set of global estimates. *The World Bank Research Observer*, 36(1), 1-40.

Bertrand, M., Krishnan, K., & Schofield, H. (2020). How Are Indian Households Coping Under The COVID-19 Lockdown? Rustandy Center for Social Sector Innovation blog. <https://www.chicagobooth.edu/research/rustandy/blog/2020/how-are-indianhouseholds-coping-under-the-covid19-lockdown>.

Britto, P. R., Lye, S. J., Proulx, K., Yousafzai, A. K., Matthews, S. G., Vaivada, T., Perez-Escamilla, R., Rao, N., Ip, P., Fernald, L. C. H., MacMillan, H., Hanson, M., Wachs, T. D., Yao, H., Yoshikawa, H., Cerezo, A., Leckman, J. F., & Bhutta, Z. A. (2017). Nurturing care: promoting early childhood development. *The Lancet*, 389(10064), 91-102.

Choudhury, P. K., Joshi, R., & Kumar, A. (2023). Regional and socioeconomic inequalities in access to pre-primary education in India: evidence from a recent household survey. *International journal of childcare and education policy*, 17(1), 13. <https://doi.org/10.1186/s40723-023-00117-4>

Dowd, A. J., & Thomsen, B. S. (2021). Learning through play: Increasing impact, reducing inequality.

Duncan, G. J., Ziol-Guest, K. M., & Kalil, A. (2010). Early-childhood poverty and adult attainment, behavior, and health. *Child Development*, 81(1), 306-325.

Kumar, A., Wolf, S., Bartoli, B., Bala, J., Varma, V., & Zanutto, E. (2026). Supporting early learning: An audio-video program for low-literate parents of young children in urban India. *International Journal of Educational Research*, 137, 102926.

McCoy, D. C., Cuartas, J., Behrman, J., Cappa, C., Heymann, J., López Bóo, F., ... & Fink, G. (2021). Global estimates of the implications of COVID-19-related preprimary school closures for children's instructional access, development, learning, and economic well-being. *Child development*, 92(5), e883-e899.

Motkuri, V., & Revathi, E. (2023). Public Expenditure on Education in India: Centre-State Allocations. *Journal of Development Policy and Practice*, 8(2), 194-208.

Ome, A. & Menendez, A. (2021). Using SMS and parental outreach to improve early reading skills in Zambia. *Education Economics* 30, 384-398

Sahni, U. (2020). COVID-19 in India: Education disrupted and lessons learned. Brookings Institute.

Seth, P., Gupta, S., & Pingali, P. (2024). Did the covid-19 lockdown reverse the nutritional gains in children. *Econ. & Polit. Wkly*, 59, 49.

Singh, D. (2017). City's most populated ward has a long list of woes. Retrieved October 31, 2020, from <https://indianexpress.com/article/cities/mumbai/bmc-polls-2017-citys-most-populated-ward-has-a-long-list-of-woes-4495125/>.

Wolf, S., & Lichand, G. (2023). Nudging parents and teachers to improve learning and reduce child labor in Cote d'Ivoire. *NPJ science of learning*, 8(1), 37. <https://doi.org/10.1038/s41539-023-00180-z>

World Bank Report (2021). World Bank Group Country Survey 2021, India.

Yoshikawa H, Wuermli AJ, Britto PR, Dreyer B, Leckman JF, Lye SJ, Ponguta LA, Richter LM, Stein A. (2020). Effects of the Global COVID-19 Pandemic on Early Childhood Development: Short-and Long-Term Risks and Mitigating Program and Policy Actions *The Journal of Pediatrics*.

About PDRI-DevLab

This brief is produced by the Penn Development Research Initiative – DevLab (PDRI-DevLab).

PDRI-DevLab is an interdisciplinary hub at the University of Pennsylvania that brings together faculty, researchers, and students to address global development challenges, with a focus on forced displacement, governance, climate, and machine learning for peace.

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