

The Impact of Early Childhood Interventions on Mothers

David K. Evans, Pamela Jakiela, and Heather Knauer¹

Failure to measure the impacts on women's time and other maternal outcomes implicitly sets their value at zero.

Over 250 million children in low- and middle-income countries (LMICs) are at risk of failing to meet their developmental potential, primarily because of a lack of adequate nutrition and stimulation in early childhood (1). Well-designed early childhood development (ECD) interventions can have substantial impacts on children's physical, cognitive, and socioemotional development, as well as their eventual schooling attainment, wages, and other outcomes (1–3). Although the potential indirect effects of interventions on mothers and other household members are generally acknowledged, few studies explicitly quantify outcomes related to labor market activities, health, or wellbeing of household members other than young children. This may lead policymakers to overinvest in programs that impose substantial costs on women, and to underinvest in those that improve women's wellbeing. Systematically ignoring impacts on specific subgroups – particularly vulnerable groups such as women in LMICs – risks exacerbating inequalities in the name of evidence-based policy.

Many ECD interventions have significant implications for mothers and other caregivers. Center-based care may give mothers more time for outside labor force opportunities, whereas parent education and home visit programs impose on mothers' time. Parent education programs may improve maternal mental health by equipping mothers with skills to better handle stressful situations, but they may also change parents' beliefs about the extent to which they are taking adequate care of their children. Child-targeted cash transfer programs may reduce stress by loosening household budget constraints.

Research examining the costs and benefits of different approaches to ECD and childcare rarely highlights the value of women's time or measures the costs and benefits of programs that change women's time use. Even if the primary objective of an ECD intervention is to improve outcomes for children, failing to measure the impact of women's time and other maternal outcomes implicitly sets their value at zero.

¹ Evans (Center for Global Development; devans@cgdev.org); Jakiela (Williams College; pj5@williams.edu); Knauer (University of Michigan). This is the authors' version of the work at the time of acceptance at Science. It is posted here by permission of the AAAS for personal use, not for redistribution. The definitive version was published in Science, 372 (6544): pp. 794-796, doi: 10.1126/science.abg0132.

THE PAUCITY OF EVIDENCE

We examined 3,716 studies from databases that cover medical, psychological, economic, and other social science research, and we supplemented the results of this systematic review with 27 additional papers that met our inclusion criteria. We identified a total of 478 studies published between 2005 and 2019 that evaluated ECD-related interventions in LMICs using an experimental or quasi-experimental research design (see supplementary materials for details on all analyses).

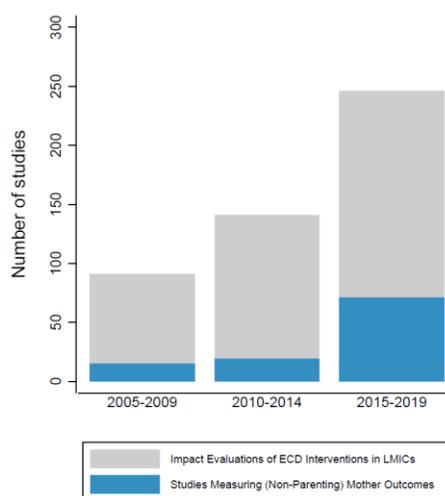
Of those studies, the overwhelming majority (91 percent) include either outcomes for children aged 0-5 years or parenting outcomes relevant for young children. However, only 22 percent (105 studies) report any mother-specific outcomes that are not exclusively focused on parenting practices. Though both the number of ECD studies and the proportion reporting impacts on mothers have grown over time, the latter proportion remains quite small (Figure 1). Only 19 studies (four percent) examined maternal labor market outcomes, and only six (one percent) report outcomes related to other aspects of women's empowerment. Studies documenting impacts on women's health are slightly more common (though still relatively rare): 55 studies (12 percent) report impacts on maternal mental health, while 47 studies (10 percent) report impacts on women's physical health.

A further 23 studies (five percent) report any household-level outcomes beyond parenting practices (e.g., food security or sanitation practices). Only 12 studies (three percent) report any father-specific outcomes – including father-specific measures of parenting

practices – and only seven (one percent) report impacts on older siblings in middle childhood or adolescence. In total, only 119 studies (25 percent) report outcomes related to the labor market activities, health, or wellbeing of household members other than young children.

This pattern of selective reporting might make sense if ECD interventions do not impact older household members: if all relevant costs and benefits of programs are captured in child and parenting

Figure 1: The growth of ECD studies and those that report impacts on mothers over time



The figure shows growth over time in the total number of quantitative studies measuring the impact of early child development interventions in low- and middle-income countries (gray) and the number of studies that report non-parenting mother outcomes (blue). While more studies are measuring mothers' outcomes now relative to ten years ago, most studies (71%) still do not measure mother outcomes other than those exclusively focused on parenting.

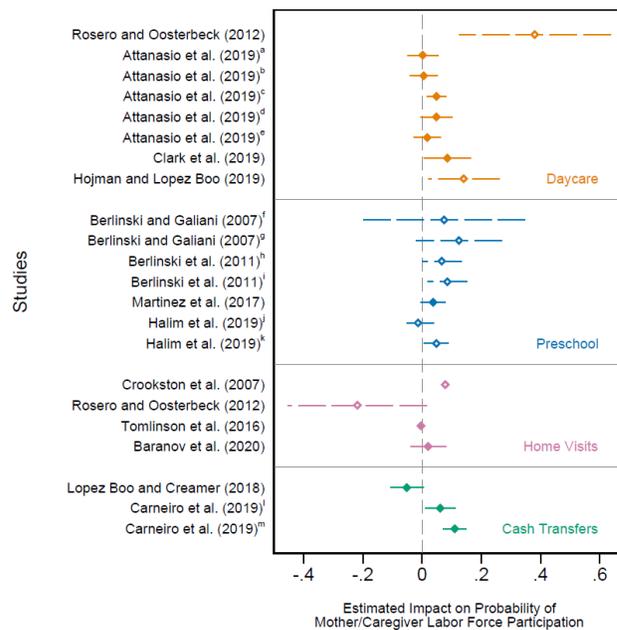
outcomes, then there is no reason to report impacts on other household members. However, ECD interventions like childcare have obvious, direct implications for household labor supply, while many other interventions rely on parents to mediate impacts by changing their behavior (for example, by attending parent education classes or engaging in more stimulating activities with young children). Thus, there is a strong theoretical basis for measuring and reporting impacts on mothers, in particular – even when these impacts are null or imprecise. Moreover, among those studies that measure effects on mothers and other caregivers, many report statistically significant impacts.

IMPACTS ON WOMEN’S LABOR FORCE PARTICIPATION

Women – particularly mothers but also grandmothers, older sisters, and other relatives – do most of the childcare in most societies (4, 5), and the theoretical and empirical relationship between parenting effort, access to childcare, and female labor force participation is well-documented in both low-income and high-income settings (6–8). Nevertheless, only 4 percent of the impact evaluations in our sample report impacts on women’s labor force participation, income, or time use. Fortunately, there is substantial overlap across studies in terms of both the interventions being evaluated and the outcomes reported, making it possible to draw tentative conclusions from the existing evidence base (Figure 2)—though caution is clearly warranted, particularly in regard to sample selection if null results are less likely to be reported.

All four studies that measure the impact of access to daycare on women’s employment (in Brazil, Ecuador, Kenya, and Nicaragua) report some positive impacts – from a 5 percentage point increase in the employment of a child’s primary

Figure 2: The impact of early childhood development interventions on women’s labor force participation



Estimated impacts and 95% confidence intervals reported in different studies in low- and middle-income countries are shown. Solid diamonds and lines indicate estimates from randomized controlled trials; hollow diamonds and dashed lines indicate quasi-experimental estimates. While too few studies measure these outcomes, those that do suggest that daycare and preschool interventions tend to have either no impact or a positive impact on women’s labor force participation. (For details on sources and estimates, see the supplementary materials.)

caregiver in Brazil (though in that setting the child's primary caregiver is often a grandmother or adult sister rather than the child's mother) to a 31 percentage point increase in maternal employment in Ecuador. Differences in the size of effects across settings may depend on differences in job opportunities and other contextual factors (see supplementary materials for details on all studies analyzed for this article).

Existing evidence also suggests that access to daycare has a positive impact on women's income and overall household income. In Kenya, access to daycare increased mothers' income. In Brazil, access to daycare increased household income and had a marginally significant impact on the income of a child's primary caregiver, though it did not increase maternal income significantly. In Ecuador, childcare centers had a significant positive impact on both mother's income and the income of the household head. All four studies estimating the impact of preschool on women's labor force participation also report some weakly positive impacts, though the evidence is less robust than in the case of access to daycare.

Thus, the existing evidence base suggests that expanding access to daycare and preschool is likely to increase women's employment and household income in many settings - but less than half of the evaluations of such interventions in our sample report impacts on these outcomes. Many evaluations may be ignoring important program impacts. Moreover, while interventions such as daycare that reduce women's carework burden tend to increase female labor force participation, ECD programs that encourage parents to increase their parenting effort might have the opposite effect. A home visiting intervention in Ecuador decreased maternal labor force participation, although a similar program in South Africa did not. Though interventions involving home visits are increasingly common, impacts on mothers' time use and labor supply are almost never measured - making it impossible to know whether these programs alter women's domestic burden. Studies that do not measure the impacts of ECD interventions on women's time use and labor supply cannot fully account for the costs and benefits of such policy interventions.

IMPACTS ON MATERNAL MENTAL HEALTH

ECD interventions have the potential to impact maternal mental health in several ways. Since women do most of the childcare in LMIC contexts, any intervention targeting young children has the potential to bring mothers into contact with implementing partners (e.g., child development specialists or government healthcare workers) and other mothers participating in the intervention. These interactions may reduce feelings of isolation and strengthen social support networks. This is particularly true of home visiting interventions and parent education classes which work by engaging primary caregivers in regular interactions with individuals outside their own household. At the same time, these interventions impose on mothers' time, which could increase stress or reduce time available for income generation.

Interventions like cash transfers are often targeted to women, sometimes with the explicit objective of increasing mothers' autonomy and decision-making power, while daycare and other

interventions that impact women's labor force participation may improve women's bargaining power and strengthen their social networks outside the home.

Existing empirical evidence supports the hypothesis that many ECD interventions in LMICs have positive impacts on mothers' mental health and wellbeing. In our sample of 478 impact evaluations of ECD interventions, 55 (12 percent) report impacts on any outcomes related to maternal mental health – and 27 of those report positive (in the sense of improving women's wellbeing), statistically significant impacts. Only three find negative, statistically significant impacts.

Group-based parent education interventions reduced maternal depression in Bangladesh, Guatemala, Pakistan, South Africa, Uganda, and Zambia; while home visits from child development professionals reduced maternal depression in Bangladesh, Jamaica, Iran, and Pakistan. In other settings, similar interventions improved maternal self-confidence and parental efficacy – even when impacts on overall mental health were not statistically significant. Evaluations of these interventions were also more likely to report impacts on maternal mental health: 80 percent of studies reporting impacts on maternal mental health are evaluations of either home visit programs or group-based parent education, even though these types of interventions do not account for 80 percent of all studies in our sample. Studies of cash transfers rarely report impacts on maternal mental health, and those that do have typically not found statistically significant positive impacts – though cash transfers have been shown to improve overall wellbeing in other contexts (9) – and evaluations of other ECD interventions (including daycare and preschool programs) that report impacts on maternal mental health are exceedingly rare.

Group-based parent education programs and interventions involving home visits are both common, and it is impossible to tell whether the papers that report maternal mental health outcomes are representative of the overall distribution of impacts. Caution is warranted – we should not conclude that these programs automatically improve women's mental health. However, the number of impact evaluations of home visits and group-based parenting classes that find positive impacts on maternal mental health is higher than we would expect if these results were spurious. Evaluations that do not capture potential impacts on maternal mental health cannot fully evaluate program costs and benefits.

OTHER MEASURES OF EMPOWERMENT

While female labor force participation and mental health are both entwined with women's empowerment, only six studies evaluate the impacts of ECD interventions on women's autonomy or decision-making power within the household – but five of the six find some evidence of positive impacts. In contrast to the cases discussed above, there is not evidence that studies of one specific class of intervention are more likely to report impacts on empowerment: the six studies that measure empowerment include evaluations of a program to treat postpartum depression, an intervention intended to promote fathers' involvement in childrearing, a cash transfer program targeting parents of young children, and a program providing vouchers for daycare.

This range of interventions – all of which appear to increase women’s financial autonomy or involvement in household decision-making – highlights the connections between women’s childcare responsibilities, their sense of social support, their financial independence and agency, and their mental wellbeing. Evaluations that ignore these impacts cannot trace out the mechanisms that explain why interventions work in some contexts and not in others.

IMPLICATIONS

Households – and especially mothers – invest substantial time and energy in their young children, and ECD interventions often have large impacts on childrearing practices. Research that ignores impacts on caregivers can only provide a partial characterization of program effects. Relatively few evaluations of ECD interventions in LMICs report impacts on mothers, and even fewer report impacts for other caregivers such as fathers or older siblings. Beyond interventions intended to boost child outcomes, other studies demonstrate the adverse impacts of negative experiences like early childhood illnesses on parents and older siblings (10).

The expected link between ECD interventions and women’s outcomes varies across interventions. Providing daycare or preschool has obvious implications for women’s labor force participation. Purely medical interventions for young children—which we have excluded from our review—have less obvious implications, as do some health and nutrition interventions such as vitamin supplements. However, many studies fall between those two extremes. Specifically, interventions such as parenting education intended to change mothers’ behavior are increasingly common. When an intervention’s theory of change involves changing the behavioral practices of mothers (or other caregivers), it makes sense to ask how mothers will be impacted by treatment. Yet, many researchers who study ECD interventions are primarily interested in improving outcomes for children, and this may predispose them to focus on child rather than mother outcomes.

There can be no evidence-based policy regarding caregiving interventions without evidence on the caregivers. Our findings point to the urgent need to routinely incorporate measures of caregivers’ productivity and wellbeing into evaluations of early child development interventions. They also suggest the importance of evaluating ECD programs against multiple objectives. A program that delivers gains for both mothers and children may be much more cost-effective than a program that delivers similar gains for children alone.

This has real-world policy implications. A 2015 study published by the Inter-American Development Bank found much higher benefit-cost ratios for home visiting programs relative to daycare programs, but only factored benefits to children into the calculations (11). Incorporating benefits to women shifts those calculations, even if it does not overturn them (12, 13). These kinds of calculations can influence national investment programs.

Ultimately, the evidence from those few studies that do measure impacts of ECD interventions on women suggest that many programs that are good for children also yield benefits for women’s financial well-being, mental health, and overall empowerment. The case for ECD interventions may

be even stronger than previously believed and may open to door to financing these programs from a wider range of sources. More of this measurement may shift emphasis from ECD interventions that are best for children to those that are best for children and for their caregivers. Policy makers can only identify these tradeoffs and interdependencies if they have information about all the gains that programs deliver.

REFERENCES AND NOTES

1. M. M. Black *et al.*, *The Lancet* **389**, 77–90 (2017).
2. P. L. Engle *et al.*, *The Lancet* **378**, 1339–1353 (2011).
3. P. Gertler *et al.*, *Science* **344**, 998–1001 (2014).
4. S. B. Hrdy, *Mothers and Others: The Evolutionary Origins of Mutual Understanding* (Belknap Press). (available at <https://www.hup.harvard.edu/catalog.php?isbn=9780674060326>)
5. D. F. Lancy, *The Anthropology of Childhood: Cherubs, Chattel, Changelings* (Cambridge University Press, Cambridge, ed. 2, 2014; <https://www.cambridge.org/core/books/anthropology-of-childhood/B34D307F81527FC3C91AE9D0B02D48D7>).
6. J. J. Heckman, “Effects of Child-Care Programs on Women’s Work Effort” (c3687, National Bureau of Economic Research, 1974), (available at <https://www.nber.org/books-and-chapters/marriage-family-human-capital-and-fertility/effects-child-care-programs-womens-work-effort>).
7. E. U. Cascio, *J. Human Resources*. **44**, 140–170 (2009).
8. D. Del Boca, Childcare arrangements and labor supply (2015), (available at <https://publications.iadb.org/en/publication/12189/child-care-arrangements-and-labor-supply>).
9. J. Haushofer, J. Shapiro, *Q J Econ.* **131**, 1973–2042 (2016).
10. M. Alsan *et al.*, *Pediatrics* **140**, e20163175 (2017).
11. S. Berlinski, N. Schady, Eds., *The Early Years: Child Well-Being and the Role of Public Policy* (2015), (available at https://publications.iadb.org/publications/english/document/The_Early_Years_Child_Well-being_and_the_Role_of_Public_Policy.pdf).
12. M. Díaz *et al.*, *Cashing in on Education: Women, Childcare, and Prosperity in Latin America and the Caribbean* (2016), (available at <https://publications.iadb.org/en/cashing-education-women-childcare-and-prosperity-latin-america-and-caribbean>).
13. Sandefur, Justin, Is Daycare a Bad Investment for Latin America? (2017), (available at <https://www.cgdev.org/blog/is-daycare-bad-investment-latin-america>).

ACKNOWLEDGMENTS

The authors thank Echidna Giving, the Hewlett Foundation, and the Bill & Melinda Gates Foundation for financing this project. Authors are listed alphabetically. Amina Mendez Acosta

provided extensive research assistance. Emanuela Galasso, Megan O'Donnell, and Owen Ozier provided helpful comments. All errors are our own.