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Jamaica: Can Disadvantaged Kids Ever Catch up with Better-Off Peers?

What's the best way to help disadvantaged children reach their potential? What do they need to succeed in school, in work and in a family? How can they receive the necessary building blocks for a happy and productive life, one free of poverty?

For policymakers and development experts, the answers lie in early childhood development, when children's brains and bodies are still developing. Proper healthcare, nutrition, psychosocial

stimulation, and emotional support all play a role in giving children the foundation they need to do well later on. But what happens after? Do programs designed to bolster disadvantaged children's cognitive, emotional and physical development really help over the long term? Or are gains seen in the early years lost by adulthood?

The World Bank is focused on developing and supporting programs that help children reach their potential and live lives free of poverty. To help build a body of evidence of what works, the World Bank financed an evaluation of a program in Jamaica that targeted mothers of babies stunted due to malnutrition. The mothers received either support and guidance on how to encourage their babies' development through play and language, or nutritional supplements, or a combination of the two. Twenty years later, the evaluation found that children that received the extra stimulation, whether with nutritional supplements or not, were earning more money than similarly stunted babies whose mothers received just nutritional supplements or no intervention. These children whose mothers had received the extra guidance in stimulating their babies also were doing as well financially as the less disadvantaged (and non-stunted) children. This study, a rare look at the effects of early childhood intervention over the decades, gives policymakers and development experts tangible proof of the potential effects of early childhood development programs.

Context

The importance of early childhood development is well-known. Children who don't receive the proper nutrition, stimulation, and emotional support in early years are more likely to lag behind more advantaged peers even before they start school. Once in school, they are

Did you know...

85 percent of the human brain is developed by age 5

50 percent of a child's cognitive capacity is influenced by environment

EARLY CHILDHOOD DEVELOPMENT

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Evaluation

In 1986-1987, a Jamaican study enrolled 129 children aged 9-24 months who were living in poor neighborhoods of the capital, Kingston. The children, who were all stunted based on height-for-age measurements, were stratified by age and sex, and then split into four groups. One group received psychosocial stimulation, one group received nutritional supplements, one received both, and the fourth group, the control group, received nothing. The treatment continued for two years. Children in all groups received access to free health care. During the two-year program, households in the psychosocial stimulation treatment group received weekly, hour-long visits from trained community healthworkers, who taught mothers how to play educational games with their children and encouraged them to converse with their children. They also were encouraged to praise their children and improve the self-esteem of the child. Homemade toys were brought to each visit and exchanged the next week for other toys. Families that qualified for the nutritional supplement received one kilogram of fortified

formula. To reduce the chances that the formula would be shared with other family members, families also were given supplementary milk powder and cornmeal.

Participants were surveyed at baseline, after two years, and again at aged 7, 11, and 18. In 2007-2008, when the original participants were around 22 years old, they were interviewed again. In the last survey, researchers were able to find and interview 105 out of the original 129 stunted children in the program.

When the study started, the research team identified a comparison group of 84 non-stunted children who were from the same neighborhoods as those in the program. These children were deemed less disadvantaged based on a variety of measurements: they had taller mothers with higher vocabulary scores, higher birth weights, larger head circumferences, and higher developmental scores on initial tests. At the 20-year mark, 65 out of 84 of the original non-stunted children were located and surveyed. For more details on methods used, please see the full paper.*

Findings

Nearly 20 years after poor mothers were shown how to play and interact with their children in ways that promote cognitive, physical, and emotional development, the gains were apparent.

Children in this treatment group—stimulation or stimulation plus nutritional supplements—had significantly higher earnings as young adults than the control group, regardless of whether they held a part-time, full-time or permanent job. They were doing equally better when compared with

children whose families received nutritional supplements alone. In fact, they were doing so well that their earnings had caught up with earnings of their less-disadvantaged peers.

While giving mothers parenting support to aid early childhood development had a big impact, the nutritional supplements alone didn't have any long-term effect.

The supplements were designed to help offset nutritional deficiencies that may have led to the stunting and contained 66

* *Science* 30 May 2014: 344 (6187), 998-1001. [DOI:10.1126/science.1251178]; and NBER Working Paper No. 19185. "Labor market returns to an early childhood stimulation intervention in Jamaica," Paul Gertler, James Heckman, Rodrigo Pinto, Arianna Zanolini, Christel Vermeersch, Susan Walker, Susan M. Chang, Sally Grantham-McGregor. Issued in June 2013.

percent of daily recommended calories and 100 percent of daily recommended protein. Although families also received extra milk powder and cornmeal, in hopes of minimizing sharing of the formula, the supplements were shared, diffusing their effect. But the follow-up surveys did not show that children in families that received nutritional supplements were doing any better than the control group.

Children in the stimulation treatment groups earned more money than the control group and the group that received only nutritional supplements, even after the effect of relatively higher wages for those who had migrated was removed. They also managed to catch up to their non-stunted peers on earnings.

The differences in earnings of children in the stimulation treatment groups compared with the control group were marked (because the nutritional supplement-only group didn't show any long-term differences with the control group, the authors group both together). Average monthly lifetime earnings for young adults in permanent jobs (as opposed to temporary workers) were 25 percent higher than that of the control group and they had completely caught up with the earnings of the non-stunted comparison group.

Children in the treatment group also were more educated and did better on cognitive tests, two areas that help with earnings.

Young adults whose mothers received advice on how to interact with their children did much better based on tests of cognitive function than those in the control group—in fact, they did as well as children who were not stunted as babies. Based on an analysis of earlier surveys at age 18, the now-young adults scored higher on tests measuring cognitive abilities, including math, reading, verbal skills, and socio-emotional skills, giving them the tools needed for doing well in school, jobs, and relationships.

These children—now young adults—had more schooling than the control group and did better on the exams that students in Jamaica take in high school and

those taken to attend college. They were three times more likely to have some college education and, at the time of the survey, they were twice as likely to still be in school and three times more likely to be a full-time student.

As was the case with earnings, the treatment group caught up with their less disadvantaged peers in education and socio-emotional skills, even though they didn't completely catch up in cognitive skills.



Courtesy of Susan Walker

Children in the study were also more likely to have emigrated to the U.S. or to Britain, which may have affected earnings (as described earlier).

Compared with the control group, children in the treatment group were 10 percentage points more likely to have emigrated, according to the baseline sample. When only the follow-up sample is considered, the rate of migration was the same as that for the non-stunted children in the comparison group. Migration clearly is a way to attain better earnings.

The treatment was designed to improve mother-child interaction during the critical early years. It succeeded and that early success appears to be the reason behind the gains later in life.

Using the infant toddler HOME measure, which relies on home observation of various activities re-

lated to stimulation, including verbal engagement of caregiver and availability of play materials, the treatment intervention did raise scores. At baseline, the HOME score of the treatment and control groups was the same, while the score of the stunted group was significantly lower than the non-stunted. At the end of the two-year treatment period, the HOME score of the treatment group was higher than the

control group, and had caught up that of the non-stunted group.

By ages 7 and 11, there was no difference between the treatment and control groups in terms of home environments and mother's activities. Given the differences in earnings and education that appeared later between the two groups, it appears that it's the early childhood intervention that made an impact.

Conclusion

A rare long-term study of the effects of an early childhood development program shows that children's lives can be improved by ensuring that they have the right stimulation and emotional support as babies and toddler. A simple, two year intervention gave children the foundation to develop the skills that allowed them to earn more later on, catching up even to their less disadvantaged peers.

For policymakers and development experts looking to improve people's lives and reduce poverty, the message is clear: Parental training groups that engage mothers in activities to promote development can succeed. What's key is setting the framework for children to receive the support and skills they need to succeed as students and young adults. As the Jamaica study showed, the pay-off is forever.

The Human Development Network, part of the World Bank Group, supports and disseminates research evaluating the impact of development projects to help alleviate poverty. **The goal is to collect and build empirical evidence that can help governments and development organizations design and implement the most appropriate and effective policies for better educational, health and job opportunities for people in developing countries.** For more information about who we are and what we do, go to: <http://www.worldbank.org/sief>.

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