Children's Hospital of Philadelphia PolicyLab

How Early is Early? Poverty's Effects on Infant Development

Health Equity

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For several decades, our country and world have witnessed poverty's damaging influence on child health and development. We've seen how malnutrition, lead poisoning and poor access to quality health care — all ripple effects of financial insecurity — influence a child's ability to think, learn and interact with those around them. We've seen how the stress of growing up in a household strapped for resources leads to chronic behavioral health conditions. And despite best efforts, we've seen the cyclical nature of poverty in which parents pass on their income status to their children.

One in five, or 15 million, children in the United States live below the federal poverty line, which itself has long been criticized for underestimating a livable wage. As these young people carry the weight of their impoverished background with them into adulthood, the health disparities between low- and higher-income Americans widens deeper. More than 40 percent of those growing up in poverty never climb above the federal poverty line.

As researchers and providers of child health, we are positioned to look beyond the statistics and understand the nuances of poverty's influences on child development. Though income level itself paints a picture for how a child will develop, certain characteristics and their associated risk factors can also predict developmental disadvantage, including:

- **Caregiver characteristics:** nonverbal reasoning and vocabulary skills, symptoms of depression, response to stress, level of social support

- **Household factors:** food insecurity, household organization, presence of learning materials, opportunities for nurturing interactions
- **Neighborhood factors:** percentage of households in the neighborhood living below the poverty line, receiving public assistance or with unemployed caregivers

Filling the Research Gap

Though a plethora of other studies have examined how these factors impact child development, no other study, to our knowledge, has comprehensively looked at as many factors and examined their effects on children during the first year of life. And so, we designed a mixed-methods investigation to fill this gap. If we could see the effects of poverty change how a child develops by age one, then it would stand to reason that it's never too soon to start combatting these effects with services and interventions.

Our study cohort was made up of 30 infants of low socioeconomic status (SES) and 30 of higher SES from a large East Coast city. To eliminate other factors such as race, gender, complex medical needs and urban vs. rural environments, we only enrolled healthy American-born, African American mothers and their healthy infants. Over the course of the study, we sent highly trained research staff to evaluate the study participants' home environments using widely accepted measurement tools. We also evaluated maternal cognitive, social and emotional functioning as they are important resources that shape a child's environment. We measured child outcomes through both MRI scans of the infant's brain and standardized evaluations of infant cognitive and language skills.

The results were consistent and disheartening: **lower-income infants performed worse on evaluations of cognitive and language skills at age one year compared with higher-income infants.** Lower-income infants also faced early environmental disadvantage across the board. They experienced higher rates of food insecurity, had fewer age appropriate toys to play with, and were less likely to have a space dedicated to their books and toys than their higher-income counterparts. Their caregivers were less likely to interact with them and struggled to positively respond to stressors related to parenting, such as difficult but typical child behaviors. It should come as no surprise that, individually, each of these risk factors are cause for concern. However, when combined, the disparity widens, which should cause those invested in child well-being to be even more alarmed.

What's more, our designated higher-SES group was actually relatively low-SES: 60 percent of the higher-SES families fell into the "near poor" category, and only 40 percent were above "low income." One could reasonably assume that the developmental disadvantage would be even more stark if we compared our low-SES children to children from middle-income and wealthy classes.

The Path Forward

Though lower-SES children in our study were at higher risk for developmental disadvantage than higher-SES children, their scores actually were still within the average developmental range compared to the general population. As researchers, this gives us hope that proper interventions and strategies could level the playing field for kids from low-income backgrounds. It also tells us that interventions should begin as early as possible. While services such as Head Start and universal pre-K, starting at age three, are invaluable to many children, our study shows that there is an opportunity for interventions to begin early in the first year of life for infants and mothers facing disadvantage.

PolicyLab is also exploring other interventions that can help families and young children like those in our study. As the evaluator of the Maternal, Infant, and Early Childhood Visiting Program (MIECHV)-funded expansion of home visiting services in Pennsylvania, PolicyLab has been exploring the impact that evidence-based home visiting programs have on lower-SES families. Home visitors work in the home with families to support child development and learning, often providing books and toys, as well as valuable parental support. They can help identify child- and family-specific needs and connect families to additional health and social resources. Age of

initiation depends on the type of home visiting program offered, and some even begin before the child is born. This intervention is well placed to minimize inequities and help economically disadvantaged families succeed.

For us, the implications for this research are clear: it's never too early to start combatting childhood poverty. Early investment in young infants and their caregivers will lead to more optimal outcomes for children and help to alleviate the burden of poverty on society as a whole.

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