

# Reducing Barriers to Health through Early Education

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## Introduction

Noncommunicable diseases, like cardiovascular disease and diabetes, are responsible for about two-thirds of worldwide deaths.<sup>1</sup> The current policies in place that work to combat these diseases primarily focus on treating a disease that has already occurred or on reducing disease risk factors in adult life. However, a complimentary approach is to prevent the disease from occurring entirely or by delaying its onset. In order to prevent the occurrence of disease, it's important to pinpoint upstream pathways that influence health as targets for intervention. Five factors that contribute to a person's state of health are: biology and genetics; individual behavior; social environment;

physical environment; and access to health services.<sup>2</sup> Educational attainment has been one focus with increasing evidence of having a notable influence on these factors, with the exception of genetics. In fact, lifelong educational attainment has been found to be one of the most important determinants of long-term health.<sup>3</sup>

Consider, for instance, the pivotal role education can play in one's position in the stratification system; it shapes the likelihood of being unemployed, the kind of job a person can get, and income—all of which influence health.<sup>4</sup> Conversely, an incomplete or poor-quality education can jeopardize one's prospects for health.

Early childhood education (ECE) is one tool that has the potential to provide a strong foundation for children's academic success because ECE programs are designed to improve the cognitive and social development of 3- and 4-year-old children prior to kindergarten enrollment.<sup>3</sup>

Preschool-aged children undergo great cognitive and behavioral growth, with the addition of emerging psychological skills and abilities. Furthermore, the preschool-aged brain will experience a period of

“blossoming” where anatomical and physiological substrates show some of their most dynamic and elaborative developmental changes.<sup>5</sup> Children who do not have experiences that support healthy brain development during this age are at risk for lifelong setbacks. Conversely, a strong academic foundation can translate into future health and general-wellbeing across the life-span.

This policy brief will analyze what is known about the link between ECE and health by first reviewing the relationship between ECE and educational outcomes and then by discussing ECE’s impact on health. Lastly, this brief will review what is currently known about the economic impact of implementing early education for young children.

## Literature Review

Children with higher levels of early vocabulary, reading, mathematics, and executive functioning have repeatedly shown greater levels of academic success in elementary and middle school.<sup>6</sup> Three general types of ECE programs established

in the research literature include state and district programs, the federal Head Start program, and model programs. A systematic review of these three types of ECE programs and their impact on educational outcomes found that each program type led to statistically significant improvements in standardized achievement tests.<sup>3</sup> Additionally, a review on one of the district pre-kindergarten (pre-k) programs in Boston, MA, revealed children participation led to statistically significant improvements in mathematics, literacy, and language skills. They also found statistically significant, positive impacts on most measures of executive function and on one measure of emotional development—both of which are important components of school readiness.<sup>6</sup> Beyond elementary and middle school outcomes, the federal Head Start program showed statistically significant positive effects on high-school graduation rates. Several other noteworthy outcomes from these programs, though not statistically significant, were reduced grade retention and reduced assignment to special education.<sup>3</sup> While the majority of studies on ECE programs show positive outcomes on educational attainment, one

recent review of Tennessee's pre-kindergarten program showed that the gains in education may not persist throughout the duration of a child's education. Like other ECE studies, they found the children who were randomized to participate in pre-k performed better than control children on a battery of achievement tests at the end of the program. However, during kindergarten and thereafter, the control children caught up to the pre-k participants and generally surpassed them.<sup>7</sup> One explanation for this may be that the Tennessee ECE program is not as high-quality as the Boston program or other model programs of which did find statistically significant long-term outcomes. However, the definition of "high-quality" early education remains ambiguous. The search for an evidence-based definition of high-quality ECE programs would better inform both the short and long-term positive effects of ECE on educational attainment.

There is relatively less information in the literature about the relationship between early education opportunities and health, but the findings are noteworthy,

nonetheless. Starting around the mid 1960's two model ECE programs, the Perry Preschool program (PPP) and the Abecedarian project (ABC), sought to better understand this relationship. The PPP and ABC programs were implemented as federally-funded randomized control trials targeted toward low-income and at-risk children. ABC aimed to deliver a high-quality, intensive intervention as a social-experiment to investigate whether a stimulating early childhood environment could prevent the development of mild mental retardation in disadvantaged children.<sup>8</sup> Similarly, the PPP aimed to understand the relationship between early education and health behavioral risk factors and health outcomes.<sup>9</sup> In a 30-year follow-up, the ABC project found that children who were randomly assigned to the early education treatment group had a significantly lower prevalence of risk factors for cardiovascular and metabolic diseases in their mid – 30s. They also found that treated males had a healthier body mass in their childhood that persisted into adulthood.<sup>8</sup> As for the PPP, the children receiving early education had statistically significant improvements in health status

compared to the control children by the time they were in their 40s. These findings are attributed to the effects of PPP that led to increased educational attainment, stable family environments, health insurance coverage, and higher earnings which led to healthier behavior engagement.<sup>9</sup> Given that behavioral risk factors are strong determinants of health in later life, it is likely that the large reductions in such risk factors observed in the PPP participants ultimately translated into improved health outcomes for this cohort. Although, it is difficult to infer causality from the data in both the ABC and PPP program, there is sufficient evidence that supports the importance of intervening in the first years of life and suggests that early childhood programs can make a substantial contribution to improving the health of American adults.

One last consideration is the economic impact of early education intervention. ECE programs not only benefit individual health but also benefit the economy by cost savings from reduction in crime, welfare dependency, health care costs, and grade retention. A recent systematic economic

review found that the economic benefits exceed costs for the three different types of ECE programs. Based on earnings gains alone, the benefit-to-cost ratios were on average:<sup>10</sup>

- 4.13 : 1 for State and District programs
- 2.05 : 1 for Federal Head Start programs
- 3.08 : 1 for model programs

Although economic evidence suggests that ECE programs offer substantial economic payoff and are a good societal investment, benefits vary depending on the specific perspectives of different stakeholders. Government health care programs and private health insurers could benefit from realized healthcare cost savings throughout a participant's life time. The primary beneficiaries—the children participating in these programs—ultimately benefit the society by being more productive in the labor force during their adulthood and contributing to taxes. State and local governments may realize benefits through reduction in welfare payments and crime over time but may be concerned that they have to bear intervention costs immediately. Though the upfront costs of

implementing the programs may constitute a barrier for program adoption, there is sufficient evidence of major downstream benefits in the long term and a return on investment such that policies that provide opportunities for early education would be worthwhile.

## Policy Implications and Recommendations

The positive findings of the small-scale preschool interventions have led to public discussion of implementing early education opportunities for all children in the United States. Since the 1970s, several Nordic countries have offered high-quality childcare at a low price to all families, regardless of need. By the 1990s, many countries across the world were following suit, either by extending public education systems downward to include younger children or by using government subsidies to promote the growth of the childcare sector.<sup>11</sup> Studies on the impacts of universal pre-kindergarten reveal that the benefits of high-quality early education are larger for disadvantaged children and such

programs can promote a more equitable distribution of outcomes. Furthermore, the benefits for the most advantaged children participating in a universal pre-k program may be lower than the costs of their participation.<sup>11</sup> Therefore, I recommend we focus on implementing income-targeted policies that provide disadvantaged children with an early education opportunity regardless of their family's ability to pay. Further research on the quality level of early education and its impact on educational attainment, as well as the link between ECE and health can better inform the merit of this policy recommendation.

## Further Interest

- **U.S. Department of Education, Early Learning Programs**  
(<https://www.ed.gov/early-learning/programs>)
- **CDC on Child Development**  
(<https://www.cdc.gov/ncbddd/child-development/index.html>)
- **Pay for Success, Early Childhood**  
(<https://www.payforsuccess.org/lea>)

[rn/issues#early-childhood-education\)](#)

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