

# **What Makes a Difference? Early Head Start, Head Start, and More: The Cumulative Effects of Program Participation, Birth to 5, on Children and Families Living in Poverty**

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**Discussant:** Deborah A. Phillips

**Presenters:** John M. Love, Mary M. Klute, Rachel Chazan Cohen

- **Where did the Children Go? Children's Head Start and Other Program Experiences Following Early Head Start**  
John M. Love
- **Impacts of Early Head Start (Birth to Age 3) on Child and Family Outcomes in Children's Prekindergarten Year**  
John M. Love
- **36 Month Mediators of Early Head Start Impacts at Prekindergarten**  
Mary M. Klute
- **Influences of Early Care and Education Experiences Birth to Age 5 on Prekindergarten Outcomes**  
Rachel Chazan Cohen

**Love:** Out-of-home early education program settings and care arrangements of EHS and control group children were traced, from the time they were 3 years of age through the time of the prekindergarten interviews and through observations at 5 years of age. The *Where Did the Children Go?* Study began with three main hypotheses: (a) Early Head Start would increase children's use of formal care beyond Early Head Start, formal care and education programs in general; (b) program participation after Early Head Start would be moderated by a number of items including characteristics of the programs children were in during Early Head Start, the communities the programs are in, and the family demographics; and (c) Early Head Start participation would increase the likelihood of children attending good quality formal programs after Early Head Start.

Using data from the tracking interviews and prekindergarten parent interview, the number, types, and duration of program settings the EHS children experienced at different points after leaving EHS are described. Children with different EHS experiences went on to have different patterns of program participation after EHS. Between the ages of 3 and 4 years, 48 percent of children who had been in EHS were in some type of formal program, and this enrollment increased to 77 percent between ages 4 and 5 years; 88 percent enrolled in a formal program at some point between ages 3 and 5 years. Fifty-two percent of EHS children were in Head Start at some point during this period.

Children from sites that offered home-based programs from birth to age 3 years had higher rates of formal program enrollments at some time between 3 and 5 years, compared to children who had enrolled in other EHS programs, but the differences were small. In addition, African

American children were more likely than children from other racial or ethnic groups to enroll in Head Start and experience any formal programs between ages 3 and 5 years. Children whose families ranked lowest in demographic risks were least likely to enroll in Head Start and access formal care and education programs after EHS. Enrollment in formal programs after EHS was also influenced by community circumstances.

Although participation in an EHS program from birth to age 3 years resulted in differential use of various formal program arrangements after EHS, being in EHS did not affect the probability of children enrolling in programs of good quality during their prekindergarten year. A substantial 60 percent of EHS children were in a formal prekindergarten program with an Early Childhood Environment Rating Scale, Revised (ECERS-R) score of 5 or better, but about the same percentage of 61 percent of control group children also were in good-quality centers.

On average, quality was good for all types of programs from which observational quality data was obtained, with mean ECERS-R scores of 5.3 for both children in the former EHS group and the control group. Regardless of which experimental group children had been in, the quality of the Head Start centers observed where children attended during the prekindergarten year, was higher than the quality of other formal programs, with an ECERS-R score of 5.6 versus 5.0.

Almost 90 percent of the Early Head Start children were in some kind of formal care at some time after they left Early Head Start and before they started kindergarten. In rural settings, participation in Early Head Start made it more likely that a child would attend Head Start for prekindergarten. In urban settings, attendance at Early Head Start did not have that impact, probably due to the availability of the programs. The Early Head Start children were more likely to enroll in Head Start or prekindergarten than the control group, but the overall rates of formal program enrollment were not different from the control groups. In some situations, overall enrollment in formal programs was higher for Early Head Start than the control group children. There was a particular Early Head Start program impact if the children had been in a center-based program, in urban settings, or where early care and education programs were difficult to find, and if they were in a family with a low level of risk.

Three main questions were posed regarding impacts that Early Head Start had on children and families functioning at the point of prekindergarten. What were the impacts of Early Head Start on children and the parents when the children were at prekindergarten age? How did the program characteristic moderate those impacts? How did family demographics moderate those impacts?

The EHS evaluation followed 3,001 families from the time they enrolled in the program, or were assigned to the control group, to the prekindergarten period when children were about 5 years of age, at an average age of 63 months. After leaving EHS, many children participated in Head Start, prekindergarten programs, and other formal programs. Many children from the control group also entered formal programs after age 3 years, but EHS increased children's enrollment rates in Head Start and other formal programs relative to the control group. Analyses of impacts of EHS at the prekindergarten period found that a number of impacts on children and parenting seen at 3 years of age are still present when children are 5 years of age, while some impacts seen at 3 years of age are no longer observed. The overall impacts are modest in size.

For children observed two years after the EHS program ended, although no impact was found on the aggressive behavior scale used at 36 months, EHS significantly reduced behavior problems and enhanced positive social skills and approaches to learning, according to scales used in the Head Start Family and Child Experiences Survey (FACES). No impacts were seen on vocabulary, except for Spanish speaking children, or achievement-related outcomes. Additionally, no impacts were observed on parent-child interaction outcomes.

For parents, EHS continued to have significant impacts on support for children's learning, for example daily reading and the home environment. A new benefit also emerged for parents—a reduction in their risk of depression.

However, the patterns of impacts for subgroups based on family and program characteristics are somewhat different than at age 3 years. Examining impacts for families with different levels of demographic and economic risk, there were still impacts for low and moderate risk groups. Among the highest risk families, some favorable impacts on parenting and the home environment emerged by the time children were about age 5 years of age. But for the high-risk group, children demonstrated higher scores in approaches to learning and cognitive stimulation, the parents' cognitive stimulation, and play. Children were also less likely to witness violence in the past year or live in a household with alcohol or drug problems, and the parent was less likely to have been abused in the past year. A number of findings in that high-risk group show that certain trends maintained themselves after the families left the Early Head Start program.

When impacts were examined by race and ethnicity, African American children continued to show the greatest benefits of EHS, and were particularly likely to be enrolled in formal programs following EHS.

Program characteristics were still important for moderating impacts, but in different ways than were found at 36 months of age. Implementation of the Head Start Program Performance Standards was no longer an important factor, but the EHS program's approach to providing services was an important factor. However, the pattern evolved so that it now appears to be the 0-3 years of age home-based programs that produced more and stronger impacts on both children and parents at prekindergarten, whereas it was the mixed-approach programs that resulted in stronger effects at 36 months of age.

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**Klute:** Do EHS impacts at 36 months of age and out-of-home experiences between 36 months of age and prekindergarten mediate the associations between participation in EHS and prekindergarten outcomes? Seven mediators were examined covering a range of outcomes observed at 36 months of age as well as out-of-home experiences between 36 months of age and prekindergarten: (a) children's experiences in the home at 36 months of age (HOME); (b) children's cognitive and language abilities at 36 months of age (Bayley Scales of Infant Development Mental Development Index [MDI] and Peabody Picture Vocabulary Test [PPVT]), (c) children's behavior problems at 36 months of age (Child Behavior Check List-Achenbach System of

Empirically Based Assessment [CBCL-ASEBA], (d) parent-child interactions as demonstrated by child's engagement of the mother during play at 36 months of age, (e) children's out-of-home experiences between 36 months of age and prekindergarten, as in enrolled in formal care during both periods and ever enrolled in Head Start.

Analyses focused on social-emotional outcomes, based on parent-reported child behavior problems and scores from examiner-rated cognitive/social and cognitive/language outcomes using the Woodcock Johnson Letter-Word Identification [LWI] and Leiter Attention Sustained tests. Structural equation models using Mplus were used; we used missing data features of Mplus so that we could use all the available data. The significance of indirect effects was examined to determine whether there was significant evidence for mediation.

For behavior problems, program is significantly and positively related to HOME, Bayley scales, child engagement, and Head Start participation measured at 36 months of age. There is also a trend for continuous formal care, and all of these effects are net of the co variants. At prekindergarten, child engagement mediates the relationship between EHS and behavior problems, such that children assigned to EHS engage their mothers more in play at 36 months of age, which may relate to fewer parent-reported behavior problems at prekindergarten. For the Leiter Cognitive-social Rating, both the Bayley MDI and child engagement at age 36 months variables mediate the impact of EHS on the cognitive-social rating at prekindergarten. With respect to LWI, the Bayley score mediates the relationship between program and LWI. Children assigned to EHS had higher Bayley scores at 36 months, and Bayley scores at 36 months were in turn related to higher LWI scores at prekindergarten. There was also a trend for age 36 months HOME scores to mediate LWI scores at prekindergarten.

Finally, children's Bayley MDI scores and child engagement at age 36 months mediated Sustained Attention at prekindergarten. Child engagement mediates the relationship between participation in Early Head Start and behavior problems at prekindergarten such that children who are assigned to Early Head Start engage their parents more in play at 36 months of age, and that, in turn, is related to fewer parent-reported behavior problems at prekindergarten.

In conclusion, children's cognitive abilities at 36 months of age mediated the impact of EHS on both positive social-emotional and cognitive outcomes at prekindergarten, specifically Leiter cognitive-social, Woodcock-Johnson Letter-Word Identification, and Leiter Sustained Attention. Additionally, children's ability to engage their mothers in play at age 36 months mediated the impact of EHS on both social-emotional and cognitive outcomes at prekindergarten, specifically problem behaviors, Leiter cognitive-social, Letter-Word Identification, and Sustained Attention.

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Cohen: When children enter kindergarten, their development and skills reflect cumulative experiences from birth to 5 years of age. This paper investigates the potential effects of formal care experiences between ages 3 and 5 years on parenting practices and children's development and skills at kindergarten entry. The paper also addresses how EHS and formal care experiences together influence low-income children's developmental outcomes. Finally, those families at

highest demographic risk who demonstrate the importance of continuity of comprehensive services are highlighted.

Did children benefit from formal preschool experiences? Nonexperimental, multivariate analyses show that children who were in formal care after age 3 years demonstrated better early reading-related skills, but also more aggressive behavior. These children were more likely to have an individualized education plan (IEP). There were no associations with math skills, vocabulary, or positive social-emotional outcomes. Parents of these children were more likely to read to their children daily, and a trend suggests that these children were less likely to live with someone abusing drugs or alcohol.

How do child development services from birth to age 5 years contribute to school readiness and family functioning at the time of school entry? Four groups based on birth to 5 years of age experiences were compared, including those who received (a) neither EHS nor formal care at ages 3 and 4 years, (b) EHS only, (c) formal care at ages 3 and 4 years only, and (d) both EHS and formal care at ages 3 and 4 years. Across most domains, including children's academic skills, positive social-emotional functioning, and parenting, those with both EHS and formal care at ages 3 and 4 years fared best. However, for children's negative social-emotional development, those with EHS only fared the best; formal care was associated with higher ratings of problem behaviors, but less so for children who got both formal care and EHS. Early Head Start served as a protective factor for those children who later went into formal care settings.

Overall, children and families who participated in both EHS and formal programs from ages 3 to 5 years had the most positive outcomes. Children who experienced both EHS and formal care after age 3 years received both the benefits of EHS and enhanced early reading-related skills associated with formal care, but without the increase in aggressive behavior associated with formal programs.

How did children with four or five demographic risk factors fare? Those families with four or five demographic risk factors showed that for some families, continued comprehensive services, for example EHS followed by any Head Start, are important for optimal outcomes. This group of families was the only group of families studied who had no impacts of EHS when children were age 3 years. By age 5 years, some important positive impacts of EHS had emerged. For this group of families, formal care from ages 3 to 5 years was mostly associated with less optimal outcomes, including more behavior problems, lower vocabulary and math scores, and more IEPs. However, if the child had ever been in Head Start, outcomes were enhanced such as higher letter-word identification scores, more IEPs, more parent reading, higher HOME scores, and lower depression.

In summary, experiences from 0 to 3 years of age and 3 to 5 years of age contribute to child and parent outcomes at prekindergarten in a complementary way. Formal care contributes most to academic skills, Early Head Start to parenting and social-emotional outcomes, and for behavior problems, Early Head Start buffers the negative effect of formal care for those children who transition from Early Head Start into formal care. Zero to 3 years of age experiences should be followed by experiences from 3 to 5 years of age, and for families at highest risk, comprehensive services result in the most benefit.

Phillips: The significant findings on cognitive and social-emotional outcomes from this study extend well beyond Head Start and Early Head Start to what might be called the nonsystem of care, both formal and informal, that children move into during the crucial years between Early Head Start and formal schooling at kindergarten age. These findings describe (a) intersecting trajectories of program participation and child/family outcomes, (b) mediating processes linking EHS to preschool outcomes, and (c) the importance of disaggregating risk when considering program impacts.

The EHS Study provides a unique story about child development against the backdrop of differing patterns of program participation. One extremely important point to keep in mind regarding this set of findings relates to patterning of early services. While children who attended Early Head Start were more likely than children in the control group to attend formal early childhood programs, including Head Start, they were no more likely to attend good quality formal programs. Indeed, 40% of both of the Early Head Start group and control group children were not in high quality formal programs that demonstrate an ECERS-R score of five or above. It would be informative to run these same analyses using only good-quality formal programs.

Within this context of uneven quality during the 3 to 5 year age range, three findings warrant discussion. First, the outcomes associated with differing patterns of program participation depended on the outcome considered. Second, formal care appears to have conferred both benefits and risks to the EHS population. Benefits are seen in the academic realm and risks are seen in the social realm. Indeed, the main effects of EHS on cognitive development at age 3 years were maintained only for those children who attended formal programs. Finally, the outcomes associated with differing patterns of program participation show both similarities and differences for the highest risk children as compared to the sample as a whole, raising interesting issues about how differing levels of risk intersect with different service histories. For example, the many benefits that accrued in the sample as a whole from Early Head Start alone or from moving from Early Head Start to formal care, especially, for the cognitive and parenting outcomes, do not accrue to the high risk children unless enrollment in Early Head Start is followed by enrollment in Head Start. In other words, higher risk families may require a more sustained dose of comprehensive services than do lower risk families within the poverty population.

These findings also inform discussions about what EHS sets in motion within children and families, which in turn, fosters positive developmental outcomes in the preschool years. Notably, attending EHS results in higher Bayley MDI scores and greater capacity of children to engage their parents in play at age 3 years, which appears to lead to positive academic and social outcomes at age 5 years. This may be an early version of the refrain that learning begets learning, and also that brighter children reinforce their parents' involvement in learning that then fosters additional learning.

Finally, the findings highlight the importance of looking at the depth and severity of risk among families who are eligible for services such as EHS and Head Start, and raises the question of what is required to foster the healthy development of children at different points along this spectrum of risk. As at age 3 years, the greatest number of impacts at 5 years of age is found for

the low and moderate risk groups. But at age 5 years, lagged findings emerge for the highest risk subgroup regarding reduced exposure to violence in the community and at home, and increased parent supportiveness.

On the other hand, the negative effect of EHS on high-risk children's letter-word identification scores at age 5 years is cause for concern. A contributing factor may be these children's lower levels of enrollment, relative to the lower risk groups, in formal programs after EHS; or perhaps they were in poorer quality formal programs when enrolled. Outcomes were more positive when high-risk children moved from EHS to Head Start.

By the end of the program, when children were 36 months of age, Early Head Start (EHS) had a pattern of modest-sized impacts across a broad range of child and parent outcomes. These results can be found in the study's final report, available at [http://www.acf.hhs.gov/programs/opre/ehs/ehs\\_research/index.html](http://www.acf.hhs.gov/programs/opre/ehs/ehs_research/index.html) and in *Developmental Psychology* (Love et al., 2005).

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