



Findings from Subgroup Analyses in Head Start

Estimating average impacts across a study population is one method to assess program effectiveness, but relying on this analysis alone may miss important nuances for vulnerable groups of children. Programs serving diverse populations, such as Head Start, may not affect different types of participants in the same way or to the same degree. For this reason, it is useful to re-examine the data by subgroup to uncover additional positive impacts or unintended negative impacts that may not be captured in the overall ‘average’ effect. Although assessing program effects by subgroup may present data and methodological challenges which should be addressed,¹ understanding effects on particular subgroups is essential for programs that have the potential – or the intention – to reduce longstanding inequities in outcomes. Below are examples of subgroup trends or impact findings in a number of Head Start studies that highlight how specific groups of children experience the program differently. This table does not represent an exhaustive list of all subgroup differences, but rather examples of statistically significant findings for subgroups (unless otherwise noted).

Data Source or Study	Subgroup Analysis
Program Information Report (PIR)	PIR data allows for an examination of program enrollment by race/ethnicity, type of eligibility, primary home language and child special needs status. This data can be examined in the aggregate form at the program, state or national level. However, given PIR data is collected at the program/agency level, no sub-group analyses at the center, classroom or individual level can be conducted.
Family and Child Experiences Survey (FACES)²	<p>In FACES, a non-experimental, recurring, nationally representative survey of Head Start programs, centers, classrooms, families and children, various descriptive statistics and associations were analyzed by child-level subgroups. This data source does not include Migrant or Seasonal Head Start or American Indian/Native Alaskan programs which precludes the analyses of these participants. Below are examples of statistically significant differences in child outcomes by subgroup including race/ethnicity and language. Additional subgroup results by family risk level and family poverty status can be found in the cited literature.</p> <p>Results by Race/Ethnicity:³</p> <ul style="list-style-type: none"> • Twenty-two percent of children in their first year of Head Start (FACES 2009 cohort) were white, 34% were black and 36% were

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FACES, continued

Hispanic/Latino.

- Cognitive: On average, children of all races scored below national norms across measures of language, literacy and math at both the beginning and end of the Head Start year, with the exception of letter-word knowledge. All children on average scored at or above same-age peer norms in letter-word knowledge by the end of the Head Start year, but Hispanic/Latino children and black children made greater gains in this measure than white children or children of other races. Of all race groups, black children made the most progress in early writing, while Hispanic/Latino children were the only racial/ethnic group to increase their scores in applied problems in their first year of Head Start.
- Social-emotional: On average, after one year of Head Start, teachers report that Hispanic/Latino children had more social skills compared to black children and fewer problem behaviors, hyperactive behaviors, and withdrawn behaviors compared to both black and white children by the end of their first year in Head Start.
- Health: There were no statistically significant changes in obesity rates for any race groups across the first year of Head Start. However, at the end of their first year in Head Start, more Hispanic/Latino children were considered obese than white or black children.

Results by Primary Language Spoken and Dual Language Learner (DLL) status:

FACES 2009 cohort:⁴

- Twenty-six percent of children in their first year of Head Start were considered dual language learners (DLLs) at the 2009 baseline interview. Ninety-two percent of DLLs are from Spanish-speaking families.
- Overall, DLLs in the FACES 2009 cohort trailed their monolingual English peers in many developmental areas. As a specific subset of the Head Start DLL population, some Spanish-speaking children were assessed in Spanish because they did not have the language proficiency to be assessed in English. These children scored lower in all cognitive development categories compared to their English-speaking peers in Head Start at both baseline and at the end of their first year in Head Start and made progress in only letter-word knowledge by the end of their first year in Head Start.

FACES 2006 cohort:⁵

- DLLs in the FACES 2006 cohort as a whole made greater improvements than their peers from monolingual English homes in some developmental areas such as English vocabulary development. However, DLLs were more likely to be overweight or obese than their English monolingual peers and the prevalence of overweight among DLLs increased during Head Start. The relevant report did not specify whether these findings were statistically significant.

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- DLLs experience similar classroom features and quality as children from monolingual English homes.

Head Start Impact Study (HSIS)⁶

In the Head Start Impact Study, which assessed the impact of an offer of Head Start services (treatment) compared to no offer of Head Start Services (control) on child school readiness, researchers analyzed results by seven subgroups: home language, urban/non-urban location, pre-academic skills, household risk, child special needs status, parents’ levels of depression and biological mother’s race/ethnicity. Below is a list of some of the impact findings within subgroups, organized by the timing of the intervention and age cohort. This list focuses on statistically significant impacts for Head Start treatment group compared to the control group within subgroups of race/ethnicity, home language and special needs status. For example, a statistically significant impact on a cognitive outcome for Hispanic children means that Hispanic children in the Head Start treatment group had a higher average score on a cognitive test compared to Hispanic children in the control group. There were a limited number of differential impacts of participating in Head Start between race/ethnic, language and special needs subgroups (for example, there are no differences in the cognitive impact of Head Start treatment for Hispanic children compared to White children), therefore we do not report the statistically significant between-group impacts.

During the Intervention (Pre-Kindergarten Entry):⁷

Four-year old cohort

- Cognitive: Head Start had positive impacts in language and literacy for white, black, and Hispanic children in the Head Start group compared to the non-Head Start group. There were no significant positive impacts for children with special needs or children from Spanish-speaking families.
- Social-emotional: Head Start was found to significantly reduce parent-reported total problem behavior and aggressive behavior in four-year old black children. There were no impacts for children of other race/ethnic groups, children with special needs or children from families whose home language is not English (e.g. Dual Language Learners).
- Health: For white and Hispanic children, Head Start significantly improved access to dental care. For Dual Language Learners (DLLs), Head Start had a significant positive impact on children’s receipt of health insurance and access to dental care; however, it had a negative impact on parents’ ratings of child health status. Head Start also had a negative impact on parents’ ratings of child health status for children with special needs.

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Head Start Impact Study (HSIS), continued

Three-year old cohort

- Cognitive: White, black, and Hispanic children in the Head Start treatment group experienced positive impacts across several cognitive domains compared to the control group. For Spanish-speaking children, the Head Start group experienced positive impacts in parent perceptions of children's emerging literacy as well as significant gains in vocabulary, which represent a 13% reduction in the gap from national norms on the Peabody Picture Vocabulary Test (PPVT-III). There were no significant impacts for children with special needs.
- Social-emotional: Hispanic and white children and children whose home language is not English benefited from Head Start through a reduction in parent-reported hyperactive behavior. White children in Head Start also benefited from a significant reduction in aggressive and problem behaviors relative to white children in the control group. No positive impacts were found for black children – to the contrary, parents of black three-year olds in Head Start reported less social competence for their children compared to parents in the control group. There were no significant social-emotional impacts of Head Start for children with special needs.
- Health: Head Start was found to positively impact the parent-reported health status and receipt of dental care of three-year old children whose home language is not English, children with special needs, and Hispanic children. Head Start had positive impacts on dental care and receipt of care for an injury for white children but negative impacts on receipt of care for an injury for Hispanic children.

After the Intervention (Post-Kindergarten Entry):

Four-year old cohort

- At the end of kindergarten, black children in the Head Start treatment group demonstrated beneficial social-emotional impacts (such as reduced inattentiveness and fewer problems with peer interactions) relative to black children in the control group. For Dual Language Learners (DLLs), Head Start's significant positive impact on children's receipt of health insurance was maintained through the kindergarten years.⁸
- At the end of first grade, Dual Language Learners had increased access to dental care. At the same time, negative impacts were also found, for example, white children experienced unfavorable teacher reported social-emotional impacts. There were no patterns of cognitive impacts by race/ethnicity, DLL status or special needs status.⁹
- At the end of third grade, compared to the control group, black children in Head Start demonstrated positive social-emotional impacts such as less aggressive, hyperactive and problem behaviors. Black children also reported significantly more favorable school experiences. In

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Head Start Impact Study (HSIS), continued

contrast, white and Hispanic children in the Head Start treatment group showed mixed impacts, with increased internalizing behavior for Hispanics and poorer self-reported peer relationships for white children. There were no significant impacts children with special needs, and only one for DLLs (increased parent reports of a supportive school environment).¹⁰

Three-year old cohort

- At the end of first grade, children with special needs in the Head Start treatment group demonstrated favorable impacts in cognitive and social-emotional domains compared to those in the control group. Black children in the Head Start treatment group also experienced favorable social-emotional impacts. The favorable cognitive impacts for DLLs detected at the end of the intervention did not persist to the end of first grade.¹¹
- At the end of third grade, DLL children in the Head Start group sustained the statistically favorable impacts in parent-reported health status that were originally detected in the first year findings. There was one unfavorable statistically significant Head Start impact for black children: teachers report less closeness to children in the Head Start group than in the control group. White children in the Head Start group had mixed impacts on social-emotional outcomes. Hispanic children in the Head Start group reported favorable school experiences compared to their counterparts in the control group. There were no significant Head Start impacts for children with special needs.¹²

Head Start Research-Based, Developmentally Informed (REDI) Intervention

In the REDI program, which assessed the impacts on child social-emotional, language and emergent literacy skills of (1) a research-based enrichment curriculum and (2) professional development for teachers in Head Start programs, it appears that no subgroup analyses by child race/ethnicity or other demographic characteristics were conducted.

However, a study of the sustainability of REDI intervention effects one year after program participation examined the outcomes of children who went on to attend higher quality or lower quality kindergarten contexts. Quality was measured through classroom observations and teacher ratings, as well as using school student achievement levels. The study found that at the end of kindergarten, sustained intervention positive impacts on child social competence and attention problems were statistically significant only for children who received the intervention and were attending elementary schools with low student achievement. The authors suggested two possible theories for this finding: (1) in high-quality schools, children who did not receive REDI treatment (the control group) were able to catch up with children who did receive the treatment, and (2) in low-quality schools, the REDI treatment developed greater resilience among children who were then able to more effectively handle learning and social

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	<p>challenges than the control group children.¹³</p>
<p>Head Start Hip-Hop to Health Jr. Intervention</p>	<p>In the Head Start Hip-Hop to Health Jr. intervention, which assessed the impact of “a culturally proficient dietary/physical activity intervention on changes in body mass index” in Head Start children, no subgroup analyses were conducted by individual-level child characteristics. However, the intervention was conducted in two separate cohorts, the first consisted of 12 Head Start centers serving predominately black children and the second consisted of 12 Head Start centers serving predominately Latino children. The analyses of program impacts were conducted separately for the two cohorts.</p> <p>Researchers found that Head Start Hip-Hop to Health Jr. significantly reduced subsequent increases in preschoolers’ BMI in predominantly black centers, but had no significant impacts on child BMI in predominantly Latino centers.¹⁴ The researchers speculated on various reasons for the lack of impacts in predominantly Latino Head Start centers, including:</p> <ul style="list-style-type: none"> • A higher prevalence of overweight at baseline among Latino children than black children. According to their BMI scores, 15% of black children and 28% of Latino children were considered overweight at baseline.¹⁵ • The intervention may not have been sufficiently culturally tailored for Latino families.¹⁶
<p>I Am Moving, I Am Learning – Head Start Implementation Evaluation Project</p>	<p>In the I Am Moving, I Am Learning (IM/IL) implementation evaluation, which assessed the degree to which Head Start grantees who received IM/IL training implemented the IM/IL approach in their programs, no subgroup analyses by child characteristics were conducted. This is because the purpose of the study was to investigate the degree of IM/IL implementation among participating programs, it was not a child outcomes evaluation.</p>
<p>Head Start Classroom-based Approaches and Resources for Emotion and Social skill promotion (CARES)</p>	<p>In the Head Start CARES demonstration, which is assessing the impacts on child outcomes of three different types of social-emotional program enhancements in Head Start, no sub-analysis findings have been released to-date.</p>

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Sources & notes:

- ¹ For more information on potential data and methodological challenges inherent in subgroup analysis, see: *Interagency meeting on subgroup analysis*. Child Care & Early Education, Research Connections. Retrieved from <http://www.researchconnections.org/childcare/datamethods/interagency-meeting.jsp>. Also see Bloom, H.S. & Michalopoulos, C. (2010). *When is the story in the subgroups? Strategies for interpreting and reporting intervention effects for subgroups*. New York, NY: MDRC. Retrieved from <http://www.mdrc.org/publications/551/full.pdf>.
- ² Readers should note that this table presents a summary of descriptive subgroup findings from the main FACES reports submitted to the Office of Planning, Research and Evaluation. This summary may not capture every finding from FACES data as it does not include subgroup findings from other FACES analyses in the academic literature.
- ³ Moiduddin, E., Aikens, N., Tarullo, L., West J., & Xue, Y. (2012). *Child outcomes and classroom quality in FACES 2009* (OPRE Repot 2012-37a). Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/faces_2009.pdf.
- ⁴ Ibid.
- ⁵ *Report to Congress on Dual Language Learners in Head Start and Early Head Start programs*. (2013). Administration for Children and Families, U.S. Department of Health and Human Services. Retrieved from <http://www.acf.hhs.gov/programs/opre/resource/report-to-congress-on-dual-language-learners-in-head-start-and-early-head>.
- ⁶ Readers should note that this table presents a summary of the experimental subgroup findings from the main HSIS reports submitted to the Office of Planning, Research and Evaluation. This summary may not capture every analysis as it does not include subgroup findings from other studies of HSIS findings in the academic literature.
- ⁷ Puma, M., Bell, S., Cook, R., Heid, C. & Lopez, M. (2005). *Head Start Impact Study: First year findings*. Washington, DC: Administration for Children and Families, U.S. Department of Health and Human Services. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/first_yr_finds.pdf.
- ⁸ Puma, M., Bell, S., Cook, R., Heid, C. (2010). *Head Start Impact Study. Final Report*. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families. Retrieved from http://eclkc.o.acf.hhs.gov/hslc/mr/opre/hs_impact_study_final.pdf; Puma, M., Bell, S., Cook, R., Heid, C., Broene, P., Jenkins, F.,..., Downer, J. (2012). *Third grade follow-up to the Head Start Impact Study final report*. (OPRE Report 2012-45). Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services. Retrieved from http://www.acf.hhs.gov/sites/default/files/opre/head_start_report.pdf.
- ⁹ Ibid.
- ¹⁰ Puma, et al, (2012), op. cit.
- ¹¹ Puma, et al, (2010), op. cit.; Puma, et al, (2012), op. cit.
- ¹² Puma, et al, (2012), op. cit.
- ¹³ Bierman, K.L., Nix, R.L., Heinrichs, B.S., Domitrovich, C.E., Gest, S.D., Welsh, J.A., & Gill, S. (2014). Effects of Head Start REDI on Children's Outcomes 1 Year Later in Different Kindergarten Contexts. *Child Development*, 85(1), 140-159. doi: 10.1111/cdev.12117.
- ¹⁴ Fitzgibbon, M. L., Stolley, M. R., Schiffer, L., VanHorn, L., KauferChristoffel, K. & Dyer, A. R. (2005). Two-year follow-up results for Hip-Hop to Health Jr.: A randomized controlled trial overweight prevention in preschool minority children. *Journal of Pediatrics*, 145(5), 618-625; Fitzgibbon, M. L., Stolley, M. R., Schiffer, L., VanHorn, L., KauferChristoffel, K. & Dyer, A. R. (2006). Hip-Hop to Health Jr. for Latino preschool children. *Obesity*, 14(9) 1616-1625.
- ¹⁵ Stolley, M.R., Fitzgibbon, M.L., Dyer, A., Van Horn, L., KauferChristoffel, K., & Schiffer, L. (2003). Hip-Hop to Health Jr., an obesity prevention program for minority preschool children: baseline characteristics of participants. *Preventive Medicine* 36, 320-329.
- ¹⁶ Fitzgibbon et al. (2006), op cit.