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ABSTRACT

This follow-up study examined the long-term effects of providing 5 years of high-quality childcare for low-income mothers participating in the Abecedarian study, a randomized trial of early childhood educational intervention for children from low-income families. Participating in the age-21 follow-up were 100 of the original 109 biological mothers; 51 were mothers of treated children and 49 were mothers of control children. Ninety-eight percent of children were African American. Findings indicated that about twice as many teen mothers of treated children as teen mothers of control children attained post-high school education. There were no treatment effects on employment. However, mothers of treated children had a higher average Hollingshead score than mothers of control children. It was concluded that high-quality childcare can have long-lasting benefits for teen mothers. (KB)

Benefits of High Quality Childcare for Low-Income Mothers: The Abecedarian Study

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We examined long-term benefits of high-quality childcare for parents. Longitudinal child and parent data were collected as part of the Abecedarian study, a randomized trial of early childhood educational intervention for children from low-income families. One-hundred-eleven infants born to 109 families were randomly assigned to the treatment and control groups. Maternal age averaged 20 years, and maternal education averaged tenth grade when the infants were born. Ninety-eight percent of the children were African American. Treated children had an educational program from early infancy through age 5, delivered in a high-quality, full-time (full-days, year-round) childcare setting. Treated children were found to have higher average cognitive test scores than control children from the age of 18 months through age 15 and higher achievement scores from kindergarten through age 15 (Campbell & Ramey, 1994, 1995; Ramey & Campbell, 1984, 1991). The age-21 follow-up study recently completed found these gains persisted into young adulthood (Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, under review).

One of the ancillary outcomes of this study was the ability to assess the effects of having five years of high-quality childcare on the low-income mothers who received it. When the children were 4.5 years old, having had the free childcare appeared to benefit younger mothers somewhat more than older mothers (Campbell, Breitmayer, & Ramey, 1986). If they were still in school when the target child was born, they were more likely to complete high school. Those out of school were more likely to be off welfare and working. When the children were in middle adolescence, the relative benefits for younger mothers were still apparent (Ramey et al., 2000). Having had the childcare benefit, younger mothers of treated children still showed greater educational gains and were more likely to be employed than younger mothers of control children. For women who were older when the target children were born, the differences between the treated and control groups were less striking.

At the age-21 follow-up point, 100 of the original 109 biological mothers were interviewed, and educational and vocational data were collected. A total of 28 mothers were age 17 or under when the target child was born (i.e., the "teen mothers"); 12 were mothers of treated children, and 16 were mothers of control children. A total of 72 mothers were age 18 or older when the target child was born (i.e., "the older mothers"); 39 were mothers of treated children and 33 were mothers of control children.

Concerning total number of years of education, general linear models (GLM) analysis did not find a main effect for preschool group or mother's age, but did find a strong trend for the preschool group by mother's age interaction, $\underline{F}$ (1, 94) = 3.87, $\underline{p}$ = .052. Whereas the means for the older mothers of treated and control children were about the same; the means for the teen mothers of treated and control children differed by approximately 1.5 years (see Table 1 and Figure 1). When education was recoded into two categories, high-school education or less vs. any years more than high-school, the chi-square associating these categories with preschool treatment was non-significant, and when only older mothers were included in the analyses, the chi-square was non-significant (see Table 2). However, when only teen mothers were included in the analyses, the result was significant, X^2 (1, N = 28) = 3.9, $\underline{p}$ = .049; about twice as many teen mothers of treated children than teen mothers of control children attained post high school education (see Table 2 and Figure 2).

Concerning employment, chi-square analyses associated preschool treatment group with whether or not the mothers were employed. The results were non-significant when all mothers, only older mothers, and only teen mothers were included in the analyses (see Table 2). However, significant results were found when mothers occupations were coded into Hollingshead scores. None of the mothers in the entire sample obtained the highest score of 9; the scores ranged from 1 to 8. GLM analysis found a significant main effect for preschool group (F (1, 96) = 4.74, p = .032); the main effect for mother's age and the interaction for preschool group by mother's age were not significant (see Table 1). As can be seen in Figure 3, mothers of treated children had a higher average score than mothers of control children. Next, mothers were divided into two groups, those with a Hollingshead score of 4 and above (4 is equivalent to a skilled worked such as an electrician) and those with a score below 4. The chi-square associating these categories with preschool group was significant, X^2 (1, N = 100) = 4.1, p = .042 (see Table 2 and Figure 4). When only older mothers were included in the analysis, the chi-square was not significant. When only teen mothers were included in the analysis, the result approached significance, X^2 (1, N = 28) = 3.5, p = .063 (see Table 2 and Figure 5).

The results of the Abecedarian study demonstrate that high-quality childcare can have long-lasting benefits for children (Campbell et al., under review). The results also demonstrate that the provision of such care can have both educational and vocational benefits for teen mothers. Whereas the early intervention itself appears to affect the developmental trajectories of the young children, having reliable full-time care appears to affect the developmental trajectories of teen mothers as well.

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Table 1
Means and Standard Deviations for Mothers' Years of Education and Holligshead Occupation Scores

	n	Years of Education [a]		Occupation Score [b]	
		M	SD	M	SD
Preschool Group					
Treatment	51	12.9	2.2	4.1	2.2
Control	49	12.2	1.8	3.1	1.7
Mother's Age					
Teen	28	12.8	2.2	3.8	2.2
Older	72	12.3	1.9	3.4	1.9
Preschool Group * Mother's Age					
Teen / Treatment	12	13.6	2.4	4.7	2.2
Teen / Control	16	12.0	1.9	3.0	2.1
Older / Treatment	39	12.2	2.0	3.5	2.1
Older / Control	33	12.4	1.8	3.2	1.5

[a] The main effects for preschool group and mother's age were non-significant; the interaction between the two approached significance, F (1, 94) = 3.87, p = .052.
[b] The main effect for preschool group was significant (F (1, 96) = 4.74, p = .032); the main effect for mother's age and the interaction for preschool group by mother's age were not significant.

Table 2
Educational and Employment Outcomes for Mothers of Treated Children and of Control Children: Percent of Mothers in Each Group

Outcome	Treatment	Control	X^2 (1)
All mothers	n = 51	n = 49	
Post high school educational attainment	51	45	.37
Employed	73	78	.33
Skilled job	55	35	4.12*
Teen mothers	n = 12	n = 16	
Post high school educational attainment	75	38	3.88*
Employed	92	69	2.14
Skilled job	67	31	3.46+
Older mothers	n = 39	n = 33	
Post high school educational attainment	44	48	0.17
Employed	67	82	2.11
Skilled job	51	36	1.61

+ $p < .10$; *$p < .05$

Figure 1: Average Number of Years of Education by Mother's Age and Preschool Group

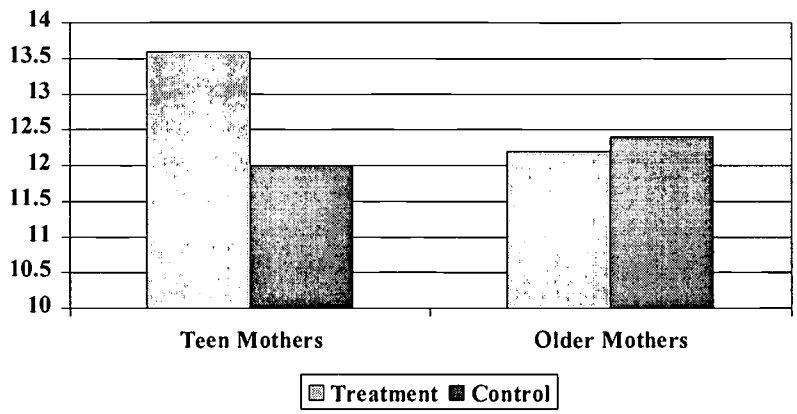


Figure 2: Percent of Teen Mothers that had Post High School Educational Attainment by Preschool Group

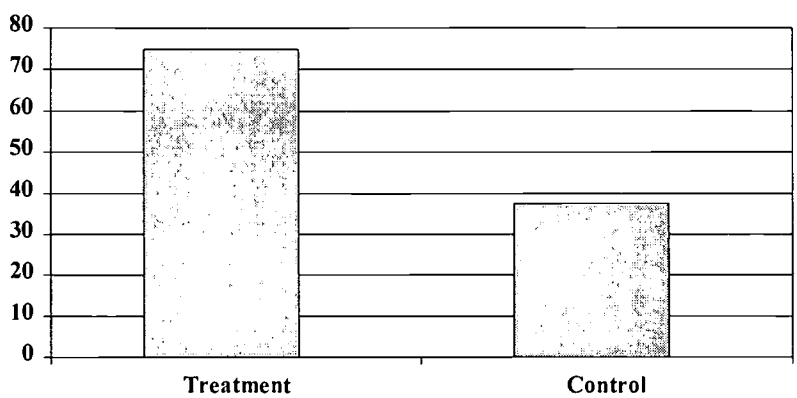


Figure 3: Average Hollingshead Scores for Mother's Occupation by Preschool Group

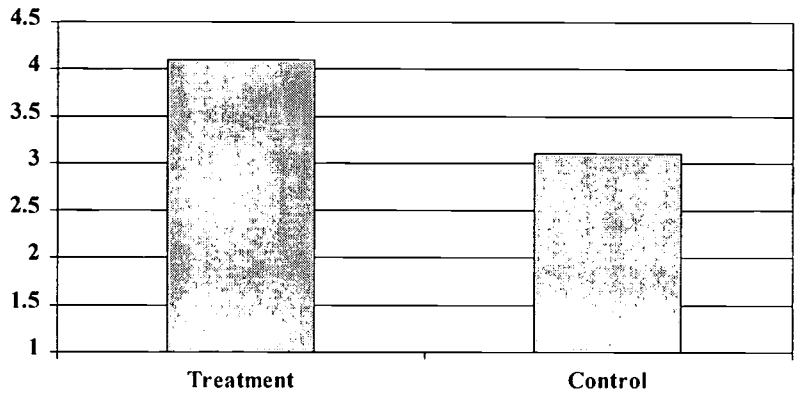


Figure 4: Percent of Mothers with a Skilled Job by Preschool Group

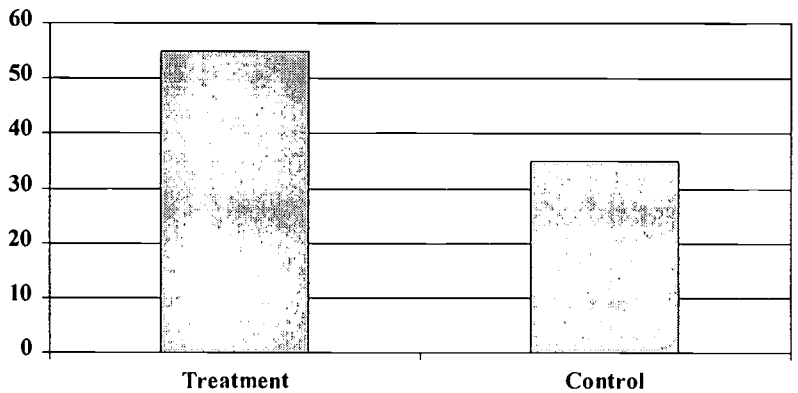
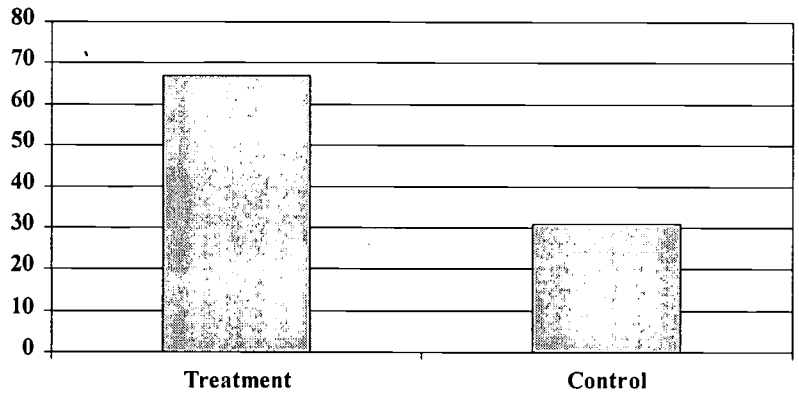


Figure 5: Percent of Teen Mothers with a Skilled Job by Preschool Group



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