Long-term follow up of CSR: Understanding students' academic achievement post-treatment

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Introduction

Recent early childhood intervention studies have targeted the improvement of children’s school readiness, where randomized intervention programs have successfully enhanced early socioemotional and academic competence among low-income children (Bierman et al., 2008; Diamond, Barnett, Thomas, & Munro, 2007).

The Chicago School Readiness Project (CSRP), for example, is a multi-component mental health intervention that improved academic skills via increases in self-regulation (i.e., executive functioning, attention and impulse control) among preschoolers attending Head Start programs (Raver et al., 2011). But what happens when children leave randomly assigned and highly controlled intervention contexts for “real world” early elementary classroom contexts where there is tremendous variance in classroom and school quality?

Here, we examine the impact of CSRP on students' academic achievement in elementary school. First, we estimated treatment impact on students’ academic achievement, with and without controlling for baseline characteristics. Second, we tested whether estimates of treatment impact varied for subgroups of children. Third, we examined the extent to which classroom, family, and child characteristics shaped students’ academic achievement.

Methods

Data were drawn from the Chicago School Readiness Project (CSRP), a classroom-based mental health intervention designed to improve preschoolers’ school readiness by fostering their self-regulation. The intervention was conducted across 2 cohorts, with one in 2004-2005, and another in 2005-2006 (n = 602).

The intervention included the following components: 1) teacher training in classroom behavior management strategies, 2) weekly visits by mental health consultants who coached teachers in how to implement the strategies in the classroom, 3) stress reduction workshops for parents, and 4) one-on-one direct services for children with elevated behavior problems.

School records data were obtained to help assess the potential longitudinal impact of the intervention on children’s academic achievement. These data include grades given by teachers for children’s performance in math and reading at 2 years post treatment (T + 2; n = 122), 3 years post treatment (T + 3; n = 294), and 4 years post treatment (T + 4; n = 287), as well as children’s scores on the DIBELS (Dynamic Indicators of Basic Early Literacy Skills) at 1, 2, and 4 years post treatment. Teachers rated children on language, literacy, and math skills at 1 year post treatment (T + 1; n = 356), as well.

Selected Results

Table 1. Selected results for teacher grades

<table>
<thead>
<tr>
<th>Treatment</th>
<th>T + 2</th>
<th>T + 3</th>
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<tbody>
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<td>Math</td>
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<td>Boy</td>
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<td>Externalizing behavior</td>
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<td>Poverty-related risk</td>
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<td>Baseline outcomes</td>
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Reading

Note. + p < .10, * p < .05, ** p < .01, *** p < .001

Covariates also included other child and family characteristics at level 1 (e.g., family size); classroom characteristics such as classroom quality at level 2; and site characteristics such as the number of family support workers on staff at level 3

Main effects models have indicated that preschool teacher ratings of children’s early externalizing behavior problems were significantly linked to elementary school teachers’ assignment of lower grades to children in both math and reading, at all 3 waves of follow up data. Findings have been similar with and without baseline outcomes as covariates. In addition, individually assessed math and vocabulary skills in preschool were related to higher grades in math and reading, respectively, at all follow up waves.

However, we have not detected significant treatment impacts on grades, DIBELS scores, or teachers’ ratings of children’s literacy, language, and math scores, nor have we found consistent treatment impacts for subgroups.

Discussion

Teacher ratings of preschoolers’ externalizing behavior problems were predictive of lower math and reading grades in elementary school, up to 4 years post treatment, net of baseline characteristics and treatment status. These results were consistently detected. Notably, this was found using publicly available school records data, which offers an efficient way to capture children’s academic achievement.

That said, our largely null findings may be attributed to not having enough power to detect significant differences, given our relatively smaller sample sizes, which are due to various factors such as the inclusion of limited school records data and attrition.

Still, we will continue to explore these results. The CSRP team may find, for example, that larger doses of the CSRP intervention program (Zhai et al., in press) did have a significant long-term impact on children’s academic achievement. Moreover, future studies might learn more about where, when, and how gaps in school records data tend to occur, as a step toward gaining access to larger samples of such data, in order to conduct more efficient assessments of potential treatment impact.

References


