

Registry of Efficacy and Effectiveness Studies

Study Title:

Head Start REDI Classroom and Home Visiting Programs: Long-Term Follow-up

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Section I: General Study Information

PI name: Karen Bierman

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IRB Name:

Head Start REDI - Research-based, Developmentally Informed

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Study Start Date:

2020-08-01

Study End Date:

2025-07-31

Intervention Start Date:

2008-08-15

Timing of entry:

Retrospective registration

Brief Abstract:

A major goal of publicly funded early childhood education (ECE) programs for low-income families is to address underlying social disparities in order to improve children's long-term educational attainment and health outcomes. Rates of participation in ECE programs and public investment in these programs have grown dramatically over the last 30 years, changing the context for understanding the potential long-term program benefits. Whereas existing long-term studies (Perry Preschool, Abecedarian) compared the benefits of ECE versus home care, the critical question facing ECE programs today is whether improvements in the quality of contemporary ECE programming can have incremental long-term benefits. In order to optimize return on investment, long-term studies evaluating costs and benefits of ECE program enhancements are needed. This study will examine the long-term outcomes and identify the public service and financial costs affected by the two REDI interventions, enhancements to the Head Start classroom and home visit programming respectively, and estimate their likely return on investment. We propose interviews with and administrative data collection for participants in each of two ongoing longitudinal studies, the REDI-Classroom (REDI-C) trial (n=356, retention=80%) and the REDI-Parent (REDI-P) trial (n=200, retention=86%), that have followed children with detailed measurement of adaptive social-emotional and academic functioning from preschool into adolescence. There are three aims: 1) Assess the long-term impact of REDI programs with follow-up assessments that extend to early adulthood (age 23) for participants in the classroom program and through high school completion (age 19) for participants in the parent program; 2) Collect new services and administrative data from education, criminal justice, healthcare, and social service records to estimate the costs linked to program effects and determine the long-term return on investment for the REDI-C and REDI-P programs; and 3) explore the associations between initial REDI-C and REDI-P impacts on social-emotional/ self-regulation skills and later, long-term benefits, and explore possible moderation of intervention effects by the quality of the school contexts experienced by participants in order to illuminate likely mechanisms of action and inform future ECE intervention design.

Keywords:

preschool intervention, parent intervention, school readiness, social-emotional learning, long-term follow-up, longitudinal modeling, cost-effectiveness analyses

Comments:

This study was not considered a clinical trial when it was initiated in 2003 and hence was not registered. This registration focuses on the long term longitudinal follow-up that is a focus of the current grant and planned for participants in the original RCT. There were two RCTs - one that evaluated the REDI classroom intervention enrichment and one that followed that evaluated the additional benefit of adding the REDI parent intervention to the classroom intervention.

Section II starts on the next page.

Section II: Description of Study

Type of Intervention:

Curriculum/Product, Professional Development

Topic Area of Intervention:

Early Childhood Education, Reading and Writing, Social and Behavioral Context for Academic Learning

Number of intervention arms:

1

Target school level:

Kindergarten, Intervention occurred in Pre-K and K, Follow-up assessments took place (or will take place) in grades 1, 2, 3, 5, 7, 9, 12, age 18-19, Pre-K

Target school type:

Rural, Suburban, Urban

Location of Implementation:

United States: United States : Northeast

Further description of location:

This subsection of the registration describes the REDI Parent (REDI-P) trial that was undertaken five years after the initial REDI Classroom (REDI-C) trial. Initial location of intervention was three counties in Pennsylvania. This long-term follow-up includes any locations where participants can now be found.

Brief Description of Intervention Condition:

Designed to complement and extend REDI-C, REDI-P built upon the Head Start commitment to home-visiting by extending and enriching home visits with research-based intervention components aligning the classroom program with home learning support. REDI-P added books, learning activities, and games for parents to use with their children, and included “booster” sessions for parents after children transitioned into kindergarten. Home visitors, hired in collaboration with Head Start, used videotapes and discussions to help parents use PATHS-related parenting practices designed to support social-emotional and self-regulation skills, including sensitive-responsive caregiving, daily routines, emotion coaching, “doing turtle” to calm down, and parent-child joint planning and problem solving. Implementation data revealed that 80% of parents received most of the preschool home visits (at least 8 out of 10) and 65% received most of the kindergarten home visits (at least 5 out of 6). Post-intervention assessments documented improvements in targeted parenting practices including interactive reading ($d = .29$), quality of parent-child conversations ($d = .29$), and parent academic expectations ($d = .32$) (Bierman et al., 2015; Loughlin-Presnal & Bierman, 2017).

Brief Description of Comparison Condition:

The comparison condition were children attending Head Start using REDI-C who received commercially available books and workbooks delivered via postal mail to use with their children at home. The study 2 thus examined children receiving REDI-C plus REDI-P to Head Start enriched with REDI-C only (along with attention control materials).

Comparison condition:

Other

Comments:

There were two separate RCTs with the second one building upon the first. The first compared REDI-C to usual practice Head Start. The purpose was to evaluate the impact of the enriched classroom intervention. The other (described in this subsection) started in 2008 and compared REDI-C with REDI-C + REDI-P. The purpose was to evaluate the added impact of the enriched REDI-P home visiting program beyond the enriched REDI-C classroom program.

Section III: Research Questions**Confirmatory research questions:****Question 1:**

The first study aim is to evaluate the long-term impacts of the REDI intervention programs using follow-up assessments. For REDI-P participants, direct assessments and surveys along with parent and teacher ratings will parallel the high school assessments collected for REDI-C. These measures assess domains targeted by the initial intervention (e.g., social-emotional functioning, learning engagement and executive functions, academic performance) and risky adolescent behaviors (e.g., antisocial behavior, substance use, early sexual activity). Analyses will compare children randomized to receive REDI-P plus REDI-C versus REDI-C alone.

Question 2:

The second aim is to seek new service utilization and administrative data from education, criminal justice, healthcare, and social service (public assistance) records to estimate the cost effectiveness and budgetary impact of the REDI-C and REDI-P programs. A university-based administrative data management system will allow us to link participant data with federal and state databases. Administrative and self-report data will support two economic analyses. First, by comparing the costs to achieve targeted outcomes in the intervention group with the relative costs and outcomes experienced by the control group, we will determine the cost-effectiveness of REDI-P through age 19 (considering the incremental cost of adding REDI-P to REDI-C and the incremental benefits). Second, we will determine the longer-term return on investment for REDI-P represented through monetized outcomes from childhood and projected into early adulthood. These analyses will use existing data (e.g., use of school services) along with new data collected in early adulthood.

Question 3:

The third aim is to explore mediation and moderation of long-term intervention effects in order to inform future ECE intervention design. Analyses will model the associations between initial REDI-P effects on social-emotional /self-regulation and academic skills and later intervention benefits and will explore possible moderation of intervention effects by the quality of the school contexts subsequently experienced.

Exploratory research questions:

No Questions added yet.

Comments:

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Section IV-A: Study Design (Selection)**Study Design:**

Randomized Trial (RT)

Comments:

After the REDI-C RCT was completed, all participating classrooms were trained in REDI-C. In the subsequent REDI-P RCT (initiated after the completion of the REDI-C intervention period), families with children in Head Start classrooms using REDI-C were randomly assigned (at the individual level) to receive the additional REDI-P intervention or a minimal attention control intervention consisting of standard over-the-counter home learning materials (books and workbooks).

Section IV-B: Study Design (Input)

Study Design: Input

Unit of random assignment of intervention:

Student

Assignment within sites or blocks:

No

Probability of assignment to treatment:

50%

Unit outcome data measured:

Student

Intermediate clusters between unit of random assignment and unit of measurement:

No

Comments:

-

Design Classification

Based on the responses above, this study has been classified as:

RT: 1-level

Section V: Sample Characteristics

Approximate number of students in the comparison condition: 105

Approximate number of students in the intervention condition: 95

No No

Comments:

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Section VI: Outcomes (Input)

Confirmatory question 1: Outcome Measure 1

Outcome domain: Student Achievement - Literacy

Minimum detectable effect size: Using measures from consecutive data collection waves to increase accuracy of measurement, and assuming an ICC of .30 for measures within participant (based on our adolescent analyses) and covariate coverage of .30, we will have 70% power to detect $d = .26$ in the REDI-P sample.

Outcome measure: KTEA reading achievement score. Please see additional measures in the REDI study attachment that lists planned measures.

Scale of outcome measure: Continuous

Normed or state test: Yes

Same outcome measure in treatment and comparison groups: Yes

Confirmatory question 2: Outcome Measure 1

Outcome domain: Student Social, Emotional, & Behavior - Social Competence, Emotional Mental Health, Risky Behaviors and Antisocial Behavior

Minimum detectable effect size: Using measures from consecutive data collection waves to increase accuracy of measurement, and assuming an ICC of .30 for measures within participant (based on our adolescent analyses) and covariate coverage of .30, we will have 70% power to detect $d = .26$ in the REDI-P sample.

Outcome measure: Please see attached list of measures.

Scale of outcome measure: Continuous

Normed or state test: Yes

Same outcome measure in treatment and comparison groups: Yes

Confirmatory question 3: Outcome Measure 1

Outcome domain: Student Progress/Completion - GPA, on-time high school graduation

Minimum detectable effect size: Using measures from consecutive data collection waves to increase accuracy of measurement, and assuming an ICC of .30 for measures within participant (based on our adolescent analyses) and covariate coverage of .30, we will have 70% power to detect $d = .26$ in the REDI-P sample.

Outcome measure: Please see attached list of measures.

Scale of outcome measure: Continuous

Normed or state test: No

Test-retest reliability: N/A

Internal consistency: N/A

Inter-rater reliability: N/A

Same outcome measure in treatment and comparison groups: Yes

Comments:

A full list of measures to be collected during the current grant period is listed in the attached file.

Section VII: Analysis Plan

Baseline data collected prior to start of intervention:

Yes

Description of baseline data:

Family and child demographics; parent attitudes and parenting practices; direct assessments of child cognitive and social-cognitive skills, parent and teacher ratings of child behavior.

Covariates you plan to include in the model:

Gender, age, family SES, Race, Student Pretest

Analytic model:

<p>Please see attached file describing the full plan of analyses.</p>

Plan to handle cases with missing outcome data:

Impute missing outcome data

Process description:

Depending upon the analysis, we will use FIML or impute data sets

Comments:

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Section VIII: Additional Information**Links:**

No links have been added yet.

Files:

File Name: [Full list of measures.docx](#)

Description:

File Name: [Full Description of Planned Statistical Analyses.docx](#)

Description:

Comments:

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