

# Intervention IP-059: SI! Program for Cardiovascular Health Promotion in Early Childhood

## Summary

The SI! Program (Salud Integral–Comprehensive Health) is a preschool-based health education intervention delivered at Head Start preschools in Harlem, New York. The goal of the intervention was to improve children’s knowledge, attitudes, and habits related to diet, physical activity, body/heart awareness, and emotion management. The intervention was delivered by trained teachers over a 4-month period, with 37 hours of content. Compared with the control group, children’s knowledge, attitudes, and habits scores were 2.2 times higher in the intervention group.

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## Overview

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### **Purpose of Intervention:**

The SI! Program (Salud Integral–Comprehensive Health) is a multilevel and multicomponent school-based intervention for the promotion of cardiovascular health, aimed at achieving lasting lifestyle changes among preschool-age children.

### **Intervention Type:**

Research-Tested — *Interventions with strong methodological rigor that have demonstrated short-term or long-term positive effects on one or more targeted health outcomes to improve minority health and/or health disparities through quantitative measures; Studies have a control or comparison group and are published in a peer-review journal; No pilot, demonstration or feasibility studies.*

## Intervention Details

### **Intervention was Primarily Driven, Led, or Managed by:**

Academic/Clinical Researchers Only

### **Citations:**

- Fernandez-Jimenez R, Jaslow R, Bansilal S, Santana M, Diaz-Munoz R, Latina J, Soto AV, Vedanthan R, Al-Kazaz M, Giannarelli C, Kovacic JC, Bagiella E, Kasarskis A, Fayad ZA, Hajjar RJ, Fuster V. Child Health Promotion in Underserved Communities: The FAMILIA Trial. *Journal of the American College of Cardiology*. 2019 Apr 30;73(16):2011-2021.

### **Adaptation of Another Research-based Intervention:**

Yes

**Name of Original Intervention:**

Colombian Initiative for Healthy Heart Study

**URL to original Intervention:**

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4365993/>

**Citations:**

- Céspedes J, Briceño G, Farkouh ME, Vedanthan R, Baxter J, Leal M, Boffetta P, Woodward M, Hunn M, Dennis R, Fuster V. Targeting preschool children to promote cardiovascular health: cluster randomized trial. *The American journal of medicine*. 2013 Jan;126(1):27-35.e3. Epub 2012 Oct 9.
- Peñalvo JL, Santos-Beneit G, Sotos-Prieto M, Bodega P, Oliva B, Orrit X, Rodríguez C, Fernández-Alvira JM, Redondo J, Vedanthan R, Bansilal S, Gómez E, Fuster V. The SI! Program for Cardiovascular Health Promotion in Early Childhood: A Cluster-Randomized Trial. *Journal of the American College of Cardiology*. 2015 Oct 6;66(14):1525-1534.

**Intervention Primary Outcomes were comparable to the original:**

Yes

**Contact Information**

**Primary Contact Affiliation:**

Icahn School of Medicine at Mount Sinai, New York, New York

**Intervention URL:**

<https://www.sciencedirect.com/science/article/pii/S0735109719336903?via%3Dihub>

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**Results**

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**Intention**

**Improve minority health or the health of other populations with health disparities (e.g. rural populations, populations with low SES)**

**Intervention Primary Outcome:**

Overall knowledge, attitudes, and habits

**Intervention Secondary Outcome:**

Emotion comprehension and change in body mass index

**Key Findings:**

Mean relative change from baseline in the overall knowledge, attitudes and habits (KAH) score was ~2.2 fold higher in the intervention group (average absolute difference of 2.86 points; 95% confidence interval: 0.58 to 5.14;  $p = 0.014$ ). Maximal effect was observed in children who received >75% of the curriculum. Physical activity and body/heart awareness components, and knowledge and attitudes, were the main drivers of the effect ( $p$  values <0.05). Changes in emotion comprehension trended toward favoring intervened children.

**Statistical Method Used:**

Multilevel linear mixed-effects models that account for the hierarchical cluster randomized design were used to test for the adjusted intervention effect

**Was statistical method used to analyze data from original Intervention comparable to the original:**

Yes

**Evaluations and Assessments**

**Were Any of the Following Assessments Conducted (Economic Evaluation, Needs Assessment, Process Evaluation)?:**

No

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**Demographic and Implementation Description**

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**Diseases, Disorders, or Conditions:**

Cardiovascular Diseases

**Race/Ethnicity:**

African American or Black, Hispanic or Latino

**Populations with Health Disparities:**

People with Lower Socioeconomic Status (SES), Racial and Ethnic Minority Populations

**Age:**

Children (1 - 9 years)

**Socio-demographics / Population Characteristics**

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**Community Type:**

Urban / Inner City

**Other Populations with Health Disparities:**

Unspecified

**Geographic Location:**

New York, New York

**Socio-Economic Status:**

Low SES

**Minority Health and Health Disparities Research Framework**

		Levels of Influence			
		Individual	Interpersonal	Community	Societal
<b>Determinant Types</b>	<b>Biological</b>		✓		
	<b>Behavioral</b>	✓	✓		
	<b>Physical / Built Environment</b>	✓	✓		
	<b>Sociocultural Environment</b>	✓	✓		
	<b>Health Care System</b>				

**Community Involvement**

The community's role in different areas of the Intervention (Choices are "No Role", "Participation", and "Leadership"):

**Design:**

No Role

**Dissemination:**

Participation

**Evaluation:**

No Role

**Implementation:**

Participation

**Outreach:**

Participation

**Planning :**

No Role

**Recruitment:**

Participation

**Sustainability:**

No Role

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## Characteristics and Implementation

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**Intervention Focus Area:**

Behavior Change

**Disease Continuum:**

Primary Prevention

**Delivery Setting:**

Daycare / Preschool

**Mode of Delivery:**

In-person

**Who delivered the Intervention?:**

Skilled Professional (n/a)

## Conceptual Framework

**Intervention Theory:**

Transtheoretical Model

**Intervention Framework:**

None

## Implementation

**Intervention Study Design:**

Cluster Randomized Controlled Trial

**Targeted Intervention Sample Size:**

562

**Actual Intervention Sample Size:**

562

**Start Year:**

2015

**End Year:**

2017

## **Intervention Exposures**

**Duration of Intervention/How Long it Lasted:**

4-6 months

**Frequency of Intervention Delivery:**

Daily

**Number of Sessions/Meetings/Visits/Interactions:**

More than 10 Sessions

**Average Length of Each Session/Meeting/Visit/Interaction:**

1-2 Hours

**Format of Delivery:**

Group (e.g. Community leaders)

**Highest Reading Level of Intervention Materials Provided to Participants:**

Unspecified

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## **Adaptations and Modifications**

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**Were modifications made?**

<b>Intervention Elements</b>	<b>Modified</b>
Content	Yes
Context	No
Implementation	No
Funding	No
Organization	No
Participants	No
Providers	No
Sociopolitical	No
Stages of Occurrence	Yes

## **Modification Details**

	<b>Explanation</b>
<b>Content</b>	
Shortening, Tailoring	Culturally adapted the questionnaire in terms of language format and style; We also introduced a slight modification in the section related to dietary habits by eliminating 1 item that was not suitable in the study context and by considering the child as regularly having breakfast unless otherwise specified, given that Head Start program preschools provide breakfast for all children.
<b>Stages of Occurrence</b>	
Planning/Pre-implementation/Pilot	A pilot phase with teachers and parents was conducted to culturally adapt the curriculum and questionnaires.

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## **Impact, Lessons, Components**

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**Produced an impact or change beyond the primary or secondary outcome:**

No

### **Essential Aspects for Success:**

There might be teacher-related factors affecting implementation and efficacy of school-based health promotion programs which warrants future research. Teachers are one of the cornerstones in children's behavior development as they educate and shape views and habits, especially in preschool children.

### **Intervention Impact:**

Not available

## **Lessons Learned**

### **Key Lessons Learned and/or Things That Could be Changed or Done Differently:**

The integration of multidisciplinary teams for design and implementation and local researchers and coordinators are important to tailor the intervention and achieve the community engagement needed for achieving sustained lifestyle changes.

## **Insights Gained During Implementation**

<b>Insight Category</b>	<b>Insight Description</b>
Cost of Implementing or Sustaining	Some considerations should be taken to plan for supplying materials such as crafting materials or AV equipment to sites that have little or nonfunctioning equipment.
Logistics	Building profiles for each site/school allowed us to understand how the intervention will work in their school, what types of resources and training they will need to make it run, as well as an idea of the physical space and time allotment for the intervention activities.
Administrative Resources	Deploying the intervention at multiple sites requires a high level of administrative coordination between school administration and project staff.
Equipment / Technologies	Some considerations should be taken to plan for supplying AV equipment to sites that have little or nonfunctioning equipment. Some teachers are more familiar/comfortable with technology than others and schools may differ in age of technology and IT capabilities.
Training / Technical Assistance	There were at times issues with sound and technological understanding. Some teachers are more familiar/comfortable with technology than others and schools may differ in age of technology and IT capabilities.
Transportation	Not necessarily for the intervention itself, but the assessments that were used to display efficacy of the intervention required a lot of equipment that had to be transported back and forth to schools and personnel to travel to and from schools as well.
Staffing	We utilized the schools' own teachers to deploy the intervention and trained them on the curriculum ahead of time. It is really important to engage the teachers and empower them to use the curriculum to benefit their health and their classrooms.
Recruitment	Recruitment is always difficult especially in longitudinal studies. The enthusiasm shown on behalf of the school staff toward the project definitely helped motivate parents to participate and also allowed us to have more opportunity to meet with the parents/prospective participants.

## **Intervention Components**

**Intervention Has Multiple Components:**

Yes

**Assessed Each Unique Contribution:**

Yes

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**Products, Materials, and Funding**

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**Expertise, Partnerships, and Funding Sources**

	<b>Used for Implementation</b>	<b>Needed for Sustainability</b>
<b>Expertise</b>		
<b>Health Education / Health Literacy</b>	Yes	Yes
<b>Partnerships</b>		
<b>School system (e.g. school administrators, health educators, daycares, preschools, private &amp; public schools)</b>	Yes	Yes
<b>Funding Sources</b>		
<b>Private funding (e.g., foundations, corporations, institutions, facilities)</b>	Yes	Yes

**Product/Material/Tools**

	<b>Tailored For Language</b>	<b>Language(s) if other than English</b>	<b>Material</b>
<b>Outreach/Recruitment Tools</b>			
Videos	Yes	Spanish	Please contact the researcher directly to inquire about this material.
<b>Participant Educational Tools</b>			
Questionnaires	Yes	Spanish	Please contact the researcher directly to inquire about this material.
<b>Measurement Tools</b>			
Standardized Instrument/Measures	Yes	Spanish	Please contact the researcher directly to inquire about this material.

## Implementation Materials and Products

	Material
<b>Implementation/Delivery Materials</b>	
Curricula	Attachment available for request at the bottom of the page.
<b>Implementation/Output Materials</b>	
No Implementation/Output Materials provided.	

## Articles Related to Submitted Intervention

	Article
<b>Reports/Monographs</b>	
No Reports/Monographs provided.	
<b>Additional Articles</b>	
Qualitative findings	Attachment available for request at the bottom of the page.
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Methodology	Attachment available for request at the bottom of the page.
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Qualitative findings	Attachment available for request at the bottom of the page.

## Materials Available for Request

- FAMILIA Project- Body and Heart unit sample.pdf
- Peñalvo et al 2013B\_1year results.pdf
- Fernandez-Jimenez 2019 FAMILIA results.pdf
- Céspedes et al. 2013A\_FU1.pdf
- Peñalvo et al 2013A\_design.pdf
- Peñalvo et al. JACC 2015.pdf
- Rationale and Design of FAMILIA\_AHJ 2017.pdf
- Céspedes et al. 2013B\_3years results.pdf