

Little Beacons of Change

Targeting Preschool Children to Drive a Culture of Health



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Worldwide, there has been a major shift in the most common etiologies of death and disability from infectious etiologies to chronic diseases, with ischemic heart disease and stroke now the leading causes of mortality. These chronic illnesses are significantly related to unhealthy lifestyle choices. Unhealthy habits that develop during childhood have been shown to persist into adulthood [1,2]. The Bogalusa Heart Study demonstrated that 77% of obese children remained obese as adults, and child overweight predicts adult risk factor levels and cardiovascular disease (CVD) morbidity [2]. The development of CVD may depend on the cumulative effects of risk factors such as obesity; early prevention is integral to the prevention of disease later in life.

To introduce children to lifelong beneficial behaviors, it is critical for health education in schools to target the promotion of healthy dietary and physical activity habits [3]. A Cochrane Review of school-based physical activity programs for children 6 to 18 years of age demonstrated the positive effects of health promotion interventions [4]. These findings led us to the question, “If the intervention can be successful with elementary school children, why not start establishing healthy behaviors at an even younger age?” Indeed, the first signs of atherosclerosis in the form of yellow streaks in the arterial wall have been documented at 3 years of age [5]. Could we reach children when they are forming lifelong behaviors and channel them toward health? If possible, that could be transformative in our quest for healthy communities and a culture of health.

Over the last decade, we have conducted randomized evaluations of such programs in 3 continents. We have shown that targeting very young children can form a foundation for a healthy lifestyle as adults. In the socio-economically disadvantaged neighborhoods of Usaquen, Bogotá, Colombia, we demonstrated that a preschool-based intervention aimed at improving knowledge, attitudes, and habits related to a healthy diet and an active lifestyle is feasible as well as successful in young children 3 to 5 years of age [6]. A long-term pedagogic and communication research program was designed and implemented, aimed at developing an effective strategy for modifying the knowledge, attitudes, and habits (KAH) of preschool children in regard to a healthy diet and active lifestyle. The program involved more than 1,200 children in educational and playful activities in the classroom over a 5-month period. It included a Sesame Street–based curriculum in healthy habits and involves storybooks, posters, videos, games, and songs, as well as a healthy family day

workshop, and weekly health notes [6]. Parents participated in workshops and were provided weekly notes containing positive messages in regard to nutrition and an active lifestyle. Teachers also participated in centralized training sessions, as well as personalized working sessions with a research supervisor, and each received a teacher’s guide. Meanwhile, the control group preschool facilities continued with their usual preschool curriculum. The children in the intervention demonstrated significantly larger gains in their KAH scores after the curriculum, and the results were maintained after 3 years [6]. Not only did the KAH scores of the children improve, but the KAH scores of the parents improved as well [7]. The greatest change toward healthy lifestyles was noted amongst the 3-year-old children, supporting the theory that major lifestyle changes can begin at a very early age [7-9]. The program has since been generalized to a large number of schools in Colombia involving over 50,000 children. We are currently in the process of re-engaging the children from the original study for a booster intervention program.

Based on the Colombian Initiative for Healthy Heart, the SI! Program in Spain was developed to build on the lifestyle components of diet and physical activity, incorporate elements related to the human body and heart, and facilitate emotion management for young children. Diet and physical activity directly target promotion of a healthy lifestyle by encouraging fruit and vegetable intake, educating children about which foods are nutritious, and encouraging as much physical activity as possible. The body and heart component of the curriculum was found to be necessary for preschoolers to understand the concept of health, teaching them about the external parts of the body, the 5 senses, where the heart is located, and how the heart rate changes with physical activity. The emotional management component of the curriculum aims to prevent the development of behavioral disorders [10]. Over 2,000 preschool aged children were studied in 24 public schools in Madrid and cluster-randomized to the educational program versus usual preschool education [11]. Over 3 years of follow-up, the KAH scores among the children in the intervention were significantly higher compared to those in the control group [11]. The main driver of the difference in KAH scores was physical activity. The 3-year intervention group also had a reduction in their triceps skin fold Z-score, a marker of obesity. The SI! Program continues on as an ambitious staggered randomization program, adding new children at various age intervals up to the age of 16. Over time, we will be able to answer

Drs. Latina and Fuster are supported by the American Heart Association under grant numbers 14SFRN20490315.

Dr. Vedanthan is supported by the Fogarty International Center of the National Institutes of Health under Award Number K01 TW 009218. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health or the American Heart Association.

Dr. Bansilal has no disclosures.

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GLOBAL HEART
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VOL. 11, NO. 4, 2016
ISSN 2211-8160/\$36.00.
<http://dx.doi.org/10.1016/j.gheart.2016.10.023>

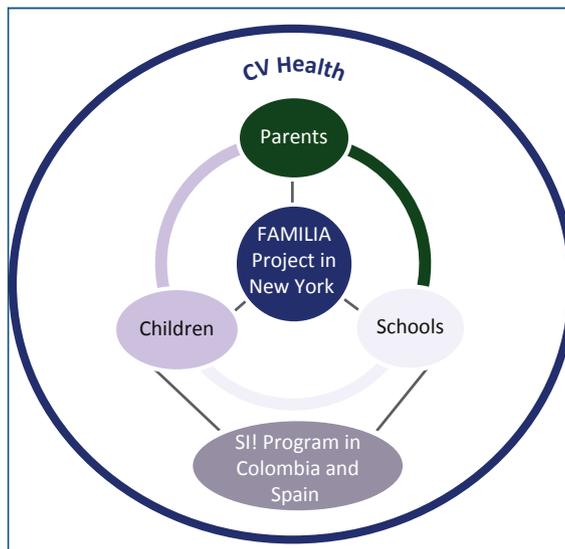


FIGURE 1. Culture of health: the nexus of preschool children, their schools, and their parents/caregivers. CV = cardiovascular; FAMILIA = Family-based Approach to Promotion of Health.

critical questions related to the timing, dose, duration, and nature of a health-related program for children. Similar to Colombia, the success of the SI! Program has led to its replication in schools across Spain, now involving nearly 50,000 children.

Major lifestyle changes can be achieved in young children to shape their habits as an adult. It has been demonstrated that healthy behavior changes in young adults can lower the burden of subclinical atherosclerosis, and may reduce lifelong CVD risk [12]. The involvement of the family is integral to the persistence of healthy behaviors into adulthood [13]. We are now conducting parallel lifestyle modification trials involving preschool children and their parents and caregivers in federally funded Head Start preschools in East Harlem, NY in the American Heart Association funded FAMILIA (Family-based Approach to Promotion of Health) study (Fig. 1) [14]. The ultimate vision of our program is to establish a robust base of

evidence that we can leverage for important policy decisions to impact the health trajectory for our littlest citizens.

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