Intervention IP-127: "Every Little Step Counts": A Community-Based Lifestyle Intervention for Diabetes Prevention and Quality of Life Improvement in Latino Adolescents with Obesity

This health intervention was a culturally tailored, community-based diabetes prevention program for Latino adolescents with obesity that combined weekly family-centered nutrition and health education classes, supervised exercise sessions three times per week, behavior-change strategies such as goal setting and self-monitoring, and ongoing social and emotional support. The findings suggest that culturally relevant, family-focused lifestyle interventions can effectively improve both metabolic and psychosocial health among Latino youth at high risk for type 2 diabetes.

Overview

Purpose of Intervention:

To evaluate short- and long-term effects of a culturally grounded, community-based lifestyle intervention on insulin sensitivity and quality of life in Latino adolescents with obesity.

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:

Both Community and Academic/Clinical Researchers

Citations:

- Soltero EG, Olson ML, Williams AN, Konopken YP, Castro FG, Arcoleo KJ, Keller CS, Patrick DL, Ayers SL, Barraza E, Shaibi GQ. Effects of a Community-Based Diabetes Prevention Program for Latino Youth with Obesity: A Randomized Controlled Trial. Obesity (Silver Spring, Md.). 2018 Dec;26(12):1856-1865. Epub 2018 Nov 14.
  Relevance: Main Intervention

Adaptation of Another Research-based Intervention:

Yes

Name of Original Intervention:

The Diabetes Prevention Program (DPP)

URL to original Intervention:

https://www.niddk.nih.gov/about-niddk/research-areas/diabetes/diabetes-prevention-program-dpp

Citations:

- Diabetes Prevention Program (DPP) Research Group. The Diabetes Prevention Program (DPP): description of lifestyle intervention. Diabetes care. 2002 Dec;25(12):2165-71.

Intervention Primary Outcomes were comparable to the original:

Yes

Contact Information

Primary Contact Affiliation:

Arizona State University

Intervention URL:

https://sirc.asu.edu/every-little-step-counts-efficacy-trial

Results

Intention

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

Intervention Primary Outcome:

Insulin sensitivity and weight-specific quality of life.

Intervention Secondary Outcome:

BMI percentile (BMI%), waist circumference, and percent body fat.

Key Findings:

Significant short-term increases in total weight-specific QoL were observed among INT youth (from 63.9 ± 2.9 to 79.6 ± 2.2; $P < 0.001$) but not in COMP youth (from 64.6 ± 3.1 to 67.1 ± 2.8; $P > 0.05$), and the between-group difference in change at 3 months was significant ($\Delta = 13.1$; $P < 0.001$). Furthermore, within- and between-group differences in total weight-specific QoL were maintained at 12 months ($\Delta = 13.0$; $P < 0.001$). All subdomains of weight-specific QoL were significantly increased in the short and long term among INT youth compared with

COMP youth (all $P \leq 0.002$). Significant short-term increases in insulin sensitivity were observed among INT youth (from 1.8 ± 0.1 to 2.2 ± 0.1; $P < 0.01$) in contrast with COMP youth who did not change (1.7 ± 0.2 to 1.7 ± 0.1; $P > 0.05$). The between-group difference in change at 3 months was significant ($\Delta = 0.37$; $P < 0.05$). By 12 months, there were no significant within- or between-group effects on insulin sensitivity ($\Delta = 0.21$; $P > 0.05$).

Statistical Method Used:

Latent-change modeling was used to assess changes in insulin sensitivity and QoL across T1 (pretest), T2 (posttest), and T4 (12 months) among randomized youth. Latent-change models adjust for measurement error and reduce estimate bias and allow for the simultaneous assessment of changes between INT and COMP groups from T1 to T2 and from T1 to T4.

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)?:

Yes

- **Process Evaluation:** Mediation analysis examined the mechanisms by which the intervention led to improvements in outcomes.

Demographic and Implementation Description

Diseases, Disorders, or Conditions:

Obesity, Type 2 Diabetes

Race/Ethnicity:

Hispanic or Latino

Populations with Health Disparities:

Racial and Ethnic Minority Populations

Age:

Adolescents (10 - 17 years)

Socio-demographics / Population Characteristics

Community Type:

Urban / Inner City

Other Populations with Health Disparities:

Unspecified

Geographic Location:

Arizona

Socio-Economic Status:

Unspecified

Research Framework

		Levels of Influence			
		Individual	**Interpersonal**	**Community**	**Societal**
Determinant Types	**Biological**	✔			
	Behavioral	✔	✔	✔	
	Physical / Built Environment			✔	
	Sociocultural Environment	✔	✔	✔	
	Health Care System	✔	✔	✔	

Community Involvement

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

Design:

Participation

Dissemination:

Participation

Evaluation:

Participation

Implementation:

Leadership

Outreach:

Participation

Planning :

Participation

Recruitment:

Participation

Sustainability:

Participation

Characteristics and Implementation

Intervention Focus Area:

Behavior Change

Disease Continuum:

Primary Prevention

Delivery Setting:

Local Community (e.g. Barbershops, Beauty / Hair Salon, Laundromats, Food Markets, Community Centers)

Mode of Delivery:

In-person

Who delivered the Intervention?:

Community Health Worker/Promoters, Health Educator, YMCA Fitness Instructors

Conceptual Framework

Intervention Theory:

Social Cognitive / Social Learning Theory

Intervention Framework:

Social Ecological Model

Implementation

Intervention Study Design:

Individual Randomized Controlled Trial/Comparative (requires random assignment, a control/comparison group, and pre and post intervention outcome assessments)

Targeted Intervention Sample Size:

160

Actual Intervention Sample Size:

136

Start Year:

2012

End Year:

2016

Intervention Exposures

Duration of Intervention/How Long it Lasted:

1-3 months

Frequency of Intervention Delivery:

Weekly

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:

Grade 6-7

Adaptations and Modifications

Were modifications made?

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

Modification Details

	Explanation
Content	
Adding Elements, Tailoring	The intervention curriculum was tailored to the priority population.
Context	
Format, Personnel, Population, Setting	The intervention was delivered in the community, by the community, and for the community.
Implementation	
Delivery, Study Design	Community stakeholders within the partnership have worked to develop a diabetes-prevention program that integrates Latino cultural values such as familismo (familism) and respeto (respect). The construct of familismo is leveraged by encouraging the entire family, including extended members living in the household, to attend the program and make healthy lifestyle changes as a family. The construct of respeto is leveraged to discuss roles and responsibilities of parents and children for making decisions about health, modeling healthy behaviors, selecting, preparing, and consuming healthy foods, communicating within and outside of the family, and honoring traditional gender roles as well as cultural and religious celebrations. The program is delivered by bilingual and bicultural health educators who appreciate the cultural norms within the local community and use examples from their lives to establish rapport, foster dialogue, and discuss challenges and opportunities around health.
Funding	
Federal Government	The research was supported by the NIMHD.
Organization	
Availability of Staffing / Technology / Space, Culture / Climate / Leadership Support, Location	The intervention was delivered at a local YMCA.
Participants	
Ethnicity, Race, None	The Diabetes Prevention Program (DPP) demonstrated that comprehensive lifestyle intervention that includes nutrition education, physical activity, and behavior change strategies can prevent or delay the onset of T2D in adults with prediabetes. The DPP has been successfully adapted for a variety of adult populations (e.g., elderly, minority, pregnant women). This intervention adapts the DPP to specifically focus on a pediatric Hispanic and Latino population.
Providers	
Ethnicity, Training / Skills	The intervention was delivered by bilingual/bicultural health educators and trainers.

	Explanation
Stages of Occurrence	
Implementation, Planning/Pre-implementation/Pilot	This study adapted the DPP by tailoring the implementation to Latino youth and families in a community setting. Specifically by providing both parents and youth with the skills and resources needed to support behavior change. At the community level, this study adapted the DPP's implementaiton by bringing together key clinical and community partners with strong ties to the Latino community.

Impact, Lessons, Components

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

Not Tested

Essential Aspects for Success:

Being culturally grounded and integrating family support.

Lessons Learned

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

Sustaining improvements in cardiometabolic risk factors may require longer duration and higher intensity interventions.

Insights Gained During Implementation

Insight Category	Insight Description
Transportation	Family's needed help with transportation to attend intervention sessions.

Intervention Components

Intervention Has Multiple Components:

Yes

Assessed Each Unique Contribution:

No

Products, Materials, and Funding

Expertise, Partnerships, and Funding Sources

	Used for Implementation	Needed for Sustainability
Expertise		
Clinical Care	Yes	Yes
Partnerships		
Community groups (e.g. faith-based organizations, barbershops, beauty-salons, laundromats, food markets, community centers, cultural associations, tribal groups)	Yes	Yes
Funding Sources		
Public funding (e.g., federal, state or local government)	Yes	Yes

Product/Material/Tools

	Tailored For Language	Language(s) if other than English	Material
Outreach/Recruitment Tools			
Publicity Materials (e.g. Posters, Flyers, Press Releases)	Yes	Spanish	Attachment available for request at the bottom of the page.
Videos	No		https://youtu.be/aGe5DnFZFrE?si=9TxkTz8e7C_KqDq4
Participant Educational Tools			
Brochures/Factsheets/Pamphlets	No		https://www.norc.org/content/dam/norc-org/pdfs/ELSC%20Handouts.pdf
Measurement Tools			
Not available	No		These materials are not available.

Implementation Materials and Products

	Material
Implementation/Delivery Materials	
Guidebooks/Workbooks/Participant Manual	https://www.norc.org/content/dam/norc-org/pdfs/ELSC%20Handouts.pdf
Coordinator or Facilitator's Guides	https://www.norc.org/content/dam/norc-org/pdfs/ELSC%20Session%20Materials.pdf
Implementation/Output Materials	
No Implementation/Output Materials provided.	

Articles Related to Submitted Intervention

	Article
Reports/Monographs	
No Reports/Monographs provided.	
Additional Articles	
Evaluation	https://pubmed.ncbi.nlm.nih.gov/33949215/
Moderating factors	https://pubmed.ncbi.nlm.nih.gov/32072749/
Methodology	https://pubmed.ncbi.nlm.nih.gov/32939893/

Materials Available for Request

- ELSC Flyer Full page ASU 7.3.4.pdf