

# Intervention IP-086: Family-Based Diabetes Intervention for Hispanic Americans

## Summary

This family-based, culturally-tailored intervention for adult Hispanics with type 2 diabetes (T2D) provided education to patients and their families on risk factors, symptoms, complications, management, self-efficacy, and family support. The educational intervention integrated cultural beliefs and values to provide information on problem solving skills, self-monitoring techniques, and goal setting for T2D-related health behaviors. Bilingual healthcare workers delivered the intervention. Improved glucose control was reported at post-intervention, but not at six-month follow-up.

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## Overview

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### **Purpose of Intervention:**

To test the efficacy of a family-based, culturally-tailored intervention for adult Hispanics with type 2 diabetes and their family members

### **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:**

- Hu J, Amirehsani KA, Wallace DC, McCoy TP, Silva Z. A Family-Based, Culturally Tailored Diabetes Intervention for Hispanics and Their Family Members. *The Diabetes educator*. 2016 Jun;42(3):299-314. Epub 2016 Mar 8.  
Relevance: Main Intervention, Post-Intervention Outcomes
- Amirehsani KA, Hu J, Wallace DC, Silva ZA, Dick S. Hispanic Families' Action Plans for a Healthier Lifestyle for Diabetes Management. *The Diabetes educator*. 2019 Feb;45(1):87-95. Epub 2018 Nov 23.  
Relevance: Post-Intervention Outcomes, Evaluations and Assessments

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

No

## **Contact Information**

### **Primary Contact Affiliation:**

The Ohio State University, College of Nursing

### **Intervention URL:**

Not available

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## **Results**

### **Intentions**

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

### **Intervention Primary Outcome:**

The physiological outcome of glycemic control (A1C %) and the psychological outcomes of physical and mental health-related quality of life among Hispanic American adults with type 2 diabetes

### **Intervention Secondary Outcome:**

The behavioral influences of diabetes knowledge, diabetes self-efficacy, and family support; the behavioral outcomes of self-reported management of diabetes including physical activity, diet, and medications among Hispanic American adults

### **Key Findings:**

There were significant changes over time in A1C ( $p < 0.001$ ) after adjusting for repeated measures and propensity score weighting. Mean A1C in the intervention group was 7.7% at post-intervention and 8.7% in the attention control group ( $p = 0.020$ ), after adjusting for baseline differences. A significant difference between groups at 1-month post-intervention follow-up was found (I mean = 7.7% vs. C mean = 9.0%,  $p = 0.005$ ). There were no significant differences between groups in change over time for either physical or mental health-related quality of life using the physical component summaries ( $p = 0.678$ ) and mental component summaries ( $p = 0.154$ ). Intervention patients improved in diabetes knowledge ( $p = 0.001$ ) and diabetes self-efficacy ( $p = 0.007$ ) over time (but did not sustain at 6-month follow-up). There were no significant changes in behavioral outcomes,

including fruit and vegetable consumption (p=0.934), diabetes medication adherence (p=0.946), and blood sugar testing (p=0.268).

**Statistical Method Used:**

Longitudinal comparisons of change over time between groups were performed using growth curve modeling. Model-based time-point specific differences were interpreted if omnibus tests for any differences in change over time between groups (i.e., group by time interaction) were significant. Baseline participant characteristics were compared between groups using Chi-square or Fisher's exact tests for categorical measures, and t-tests or Wilcoxon rank-sum tests for continuous characteristics.

**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:**

Type 2 Diabetes

**Race/Ethnicity:**

Hispanic or Latino

**Populations with Health Disparities:**

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

**Age:**

Young Adults (18 - 39 years), Middle-Aged Adults (40 - 64 years), Older Adults (65+ years)

**Socio-demographics / Population Characteristics**

**Community Type:**

Rural

**Other Populations with Health Disparities:**

Unspecified, People with Low Education

**Geographic Location:**

North Carolina

**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:**

No Role

**Evaluation:**

No Role

**Implementation:**

No Role

**Outreach:**

Participation

**Planning :**

Participation

**Recruitment:**

Participation

**Sustainability:**

No Role

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# Characteristics and Implementation

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**Intervention Focus Area:**

Behavior Change

**Disease Continuum:**

Secondary Prevention, Tertiary Prevention

**Delivery Setting:**

Clinic / Health Care Facility, Houses of Worship

**Mode of Delivery:**

In-person

**Who delivered the Intervention?:**

Community Health Worker/Promoters, Healthcare Professional (Physician, Nurse, Technician)

## Conceptual Framework

**Intervention Theory:**

Social Cognitive Theory was used to inform study but is not discussed in the publication.

**Intervention Framework:**

None

## Implementation

**Intervention Study Design:**

Propensity Scores, Quasi-Experimental (does not require random assignment, but requires a comparison/control group with pre and post intervention outcome assessments)

**Targeted Intervention Sample Size:**

186

**Actual Intervention Sample Size:**

180

**Start Year:**

2012

**End Year:**

2015

## **Intervention Exposures**

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

1-3 months

**Frequency of Intervention Delivery:**

Weekly

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

7-8 Sessions

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

1-2 Hours

**Format of Delivery:**

Dyad/Group of two (e.g. participant & partner; mother & child)

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

Grade 6-7

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## **Impact, Lessons, Components**

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

Not Tested

**Essential Aspects for Success:**

Engage in the Hispanic community and lay health workers who are trusted by the community and population are essential for intervention success.

**Intervention Impact:**

Not available

## **Lessons Learned**

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

Engage in the Hispanic community, include bicultural and bilingual team; utilize group interactions to share diabetes experiences and identify barriers to self-management; set family goals and action plans for physical activity and healthy eating to promote commitment to behavior change.

## Insights Gained During Implementation

<b>Insight Category</b>	<b>Insight Description</b>
Transportation	Provide transportation or incentives for transportation is important for intervention.
Staffing	Bicultural and bilingual team members play important roles in recruitment and retention of the participants.
Recruitment	Engage in Hispanic community and healthcare providers serving for Hispanic/Latino population is the key in participant recruitment.

## Intervention Components

**Intervention Has Multiple Components:**

No

**Assessed Each Unique Contribution:**

N/A

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## Products, Materials, and Funding

**Expertise, Partnerships, and Funding Sources**

	<b>Used for Implementation</b>	<b>Needed for Sustainability</b>
<b>Expertise</b>		
Health Education / Health Literacy	Yes	Yes
<b>Partnerships</b>		
Health care facilities (local clinics)	Yes	Yes
Community groups (e.g. faith-based organizations, barbershops, beauty-salons, laundromats, food markets, community centers, cultural associations, tribal groups)	Yes	Yes
<b>Funding Sources</b>		
Public funding (e.g., federal, state or local government)	Yes	Unknown

## Product/Material/Tools

	Tailored For Language	Language(s) if other than English	Material
<b>Outreach/Recruitment Tools</b>			
Newsletters	No		Attachment available for request at the bottom of the page.
<b>Participant Educational Tools</b>			
Brochures/Factsheets/Pamphlets	Yes	Spanish	Attachment available for request at the bottom of the page.
<b>Measurement Tools</b>			
Non-Standardized Instruments/Surveys/Questionnaires	Yes	Spanish	Attachment available for request at the bottom of the page.

## Implementation Materials and Products

Material
<b>Implementation/Delivery Materials</b>
No Implementation/Delivery Materials provided.
<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>	
Physical activity in Hispanic adults and their family members	Attachment available for request at the bottom of the page.
Qualitative findings	Attachment available for request at the bottom of the page.
Findings of the Intervention study	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5654382/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5654382/</a>

## Materials Available for Request

- TRIAD2-pressrelease.pdf
- TRIAD study\_Family support and diabetes self-management educational presentations.pdf
- TRIAD family support and diabetes intervention-Instrument\_Spanish.pdf
- Hu\_Wallace et al\_2015 Improving Physical Activity in Hispanics with diabetes and their families-PHN.pdf
- Amirehsani Hu Wallace Silva Dick-2018- Hispanic families' action plans healthier lifestyle for diabetes management\_.pdf