Improving Hispanic children’s early language environments

Dr. Melissa Baralt (linguist)
Dr. Ashley Darcy Mahoney (nurse practitioner)
Dr. Natalie Brito (developmental psychologist)
Dr. Anne Larson (speech language pathologist)
Annalyn Velasquez (nurse practitioner)
Introduction

- Early language exposure is critical for the development of foundational brain circuitry required for higher learning
- A child’s early language exposure sets the foundation for cognitive ability, literacy, school readiness, and ultimately, educational achievement
- The best language interaction happens when caregivers speak their home language to their infants and children
- The Language Nutrition solution
Study rationale

• Our precision home-visiting approach
• The problem:
  • Disparities facing low-income Hispanics
  • Low-income Hispanic children’s developmental and language-related delays identified significantly later
  • The language ideology problem in the US (Baralt, Darcy Mahoney, & Brito, in press)
  • A striking absence of accessible, culturally acceptable, and evidence-based interventions that teach about the role of bilingual language development for low-income Hispanic families
• Our hypothesis
• Nurse-Family Partnership
Role of an Háblame Bebé Coach

• Nurses at Nurse-Family Partnership in Miami-Dade County will be trained to educate and coach expectant and new mothers about why and how to talk with their babies.
PARENT GUIDE

**TALK**
with your baby, paying attention to his or her social and verbal communication

- Talk about everything.
- Ask your baby questions.
- Answer for your baby.
- Respond to your baby’s expressions, vocalizations, and movements.

**INTERACTIONS**
will grow your baby’s brain

- Feed your baby words.
- Be a “sportscaster.” Narrate what you do all day long.

**PRACTICE**

- Talk with your baby all the time!
- Talk with your baby everywhere you go!

**SING**
read, and tell stories

- Sing songs.
- Read books to your baby.
- Tell your baby stories.
HÁBLAME BEBÉ (Talk to me Baby)

1. U.S. Learn the Signs, Act Early
Developmental milestones in Spanish
HÁBLAME BEBÉ (Talk to me Baby)

1. **U.S. Learn the Signs, Act Early**
   Developmental milestones in **Spanish**

2. **Bilingual vocabulary tracker in Spanish and in English**
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3. **Videos and educational modules**

4. **Motivational push notifications**

Háblame Bebé App:
¡Buenos días! Esta mañana mientras su hijo se levanta y mientras lo viste, narre y describa todo lo que usted hace con él o con ella.
Recuerde- ¡alimentarle con muchas palabras amorosas es la única manera para hacer que su vocabulario aumente! ¡Usted está haciendo un buen trabajo!
Objectives

**OUR AIM:** To improve the Language Nutrition of low-income Hispanic children enrolled in Nurse-Family Partnership.

**OUR MEASURES:** We will measure outcomes for nurses, mothers, and children. These may change as we progress across our PSDA cycles and as determined by the nurses and team.

**OUR IDEAS:** Ideas, or the changes made to meet our aim, will be determined as they will be generated from the rapid cycle testing, where each cycle is guided by the Plan-Study-Do-Act (PSDA) method.

Our Theory of Change:

**AIM: 80% children will have improved language outcomes**

**Primary Driver 1:** Competent and skilled workforce to support Hispanic mothers’ Language Nutrition

1. Training of nurse home visitors in Language Nutrition coaching
2. Training of nurse home visitors in how to use Háblame Bebé app
3. Supporting mothers’ Language Nutrition
4. Supporting mothers’ sociolinguistic pride

**Primary Driver 2:** High levels of sociolinguistic pride to drive Hispanic mothers’ use of Spanish to promote bilingualism

1. Coaching of mothers on importance of sociolinguistic pride (nurse, app)
2. Coaching of mothers on benefits of bilingualism (nurse, app)
3. Explicitly acknowledging linguistic racism, how to overcome it (nurse, app)
Methods

• **Step 1: Team formation**
Methods

• **Step 2: PSDA cycles (CQI Model for Improvement)**

Following the Breakthrough Series Collaborative Model (Arbour et al., 2019), we will use a rapid-cycle evaluation framework that allows for continuous adjustments and new ideas to be added to our intervention based on team-based ideas that are generated from iterations of data feedback. We will do this across three Plan-Study-Do-Act cycles.
Methods

- **Step 3: Team-based ideation** (with the nurses as the frontline leaders!) to generate strategies affiliated with our drivers
  - Nurse home visitors collect the weekly/biweekly measures
  - Nurse home visitors also complete their own assessments anonymously (self-efficacy, etc.)
  - Faculty analyzes all measures, prepare report to the team
  - **Team meets again face-to-face** to assess our data, devise next Plan-Study-Do Act cycle 1.0

- Nurse home visitors implement new plan across the next eight weeks
Experimental design

CONTROL GROUP: BROWARD NFP

"Business as usual" control

CONTROL GROUP: BROWARD NFP

EXPERIMENTAL GROUP: MIAMI-DADE NFP

Team meeting. Language Nutrition, Háblame Bebé app training. Data collection training. Team studies ToC driver diagram, come up with plan, puts first PSDA cycle plan into action.

10 weeks: 8 weeks for PSDA, 2 weeks for Faculty to analyze and prepare data

EXPERIMENTAL GROUP: MIAMI-DADE NFP

Team meeting. Faculty present data from first PSDA. Team brainstorms new ideas, puts second PSDA cycle plan into action.

10 weeks: 8 weeks for PSDA, 2 weeks for Faculty to analyze and prepare data

EXPERIMENTAL GROUP: MIAMI-DADE NFP

Team meeting. Faculty present data from second PSDA. Team brainstorms new ideas, puts third PSDA cycle plan into action.

10 weeks: 8 weeks for PSDA, 2 weeks for Faculty to analyze and prepare data

Final team meeting. Faculty present data from third PSDA. Team confirms what works best, finalizes ToC driver diagram for NFP.
Measures

**PRE-INTERVENTION MEASURES**

FOR EXPERIMENTAL AND CONTROL:

Nurses:
- Language Nutrition Knowledge Test

Mothers:
- Demographic survey
- Early Communication Indicator (ECI) video
- Language Nutrition Knowledge test
- Sociolinguistic pride survey
- Karitane Parenting Confidence Scale
- Oral interview about Child-language interactions

Children:
- Early Communication Indicator (ECI) video

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**POST-INTERVENTION MEASURES**

MEASURES FOR EXPERIMENTAL GROUP ONLY, TO BE COLLECTED DURING EACH PDSA CYCLE:

These will inform data to be presented at team meetings via a visual run chart to inform next PDSA.

Nurses:
- Weekly: Nurse Háblame Bebé questionnaire on provider experience, social validity, comfort using/recommending app
- Once during PDSA cycle: Oral interview
- Once during PDSA cycle: Qualitative data from Team meeting (ideas, etc. – from the video-recordings and researcher’s notes during team meetings)

Mothers:
- Weekly: Survey on Language Nutrition provision to child, sociolinguistic pride, and efficacy
- Weekly: Data on home visitation attendance (collected by nurse home visitor)
- Daily: App use analytics (collected by the researcher via Firebase)

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For each PDSA cycle! We will analyze this together as a team
Discussion

• Our team-based, CQI plan’s use of precision home visiting aims to shed light on the key ingredients in the nurse-client relationship
  • And use of a free ancillary tool to deliver health information to Hispanic families
• By working closely with nurses, families, and key stake-holders, and by using iterative feedback, this project will shed light on how PHV can:
  • → Help low-income Hispanic mothers in NFP talk more to their baby in their home language
  • → Improve low-income Hispanic children’s early language environments to ensure kindergarten readiness