Mixed Methods Results: Water Up!@Home Intervention Trial

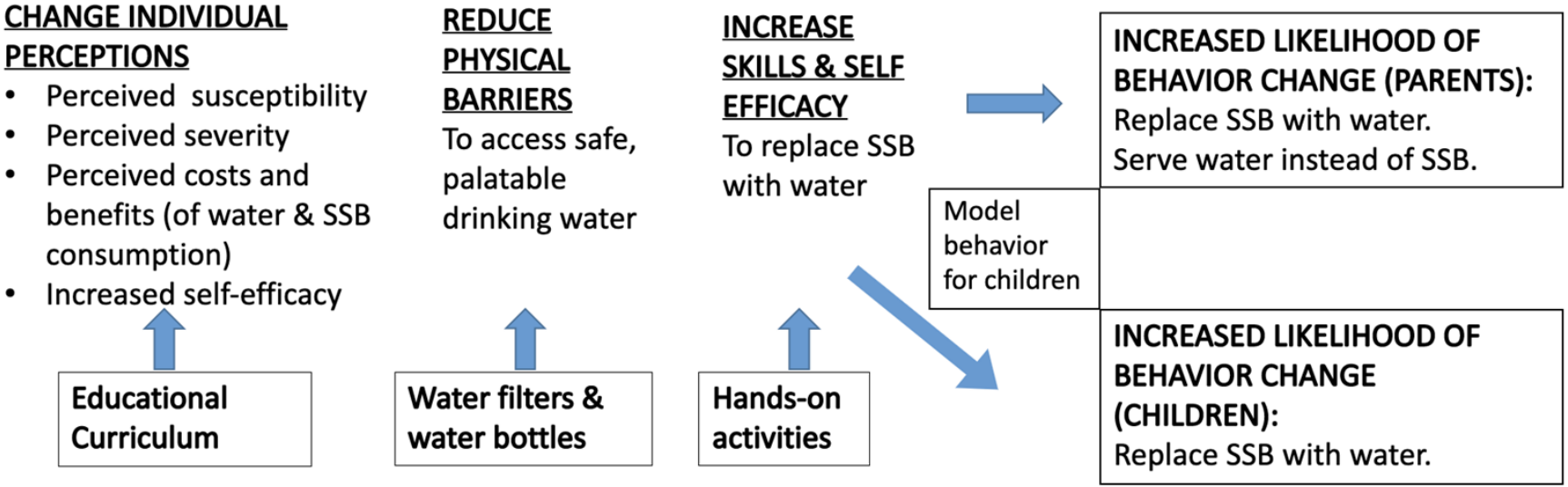
Uriyoán Colón Ramos, Claudia Santillán - Vázquez, Dahiany Zayas Toro, Amanda Reese, Lucero Hernández

CBPR in the Development of Water Up!

- Co-designed with CentroNia EHS
- 12-wk intervention EHS home-visiting programs
- Proof-of-concept pilot tested in 42 parent-child dyads
    - 100% Latino, 68% foreign born, predominantly low income86% retention 6 fl oz (0.5 servings)/ day reduction in SSB in intervention group parent
- Hypothesis: 6 fl oz (0.5 servings)/ day reduction in SSB in intervention group parent
- Curriculum: meet child development goals.
    - Water filter, reusable water bottles, child pitcher
    - Activities to increase theoretical constructs.

Methods

Figure 1: Conceptual Framework for WaterUp! at Home



Randomized Controlled Intervention Trial

Intervention: Water Up! Intervention

1. Water for your health (diabetes/obesity among Latinos)
2. Health benefits of water vs. SSB
3. Sugar content of SSB & juice
4. Safety and affordability of filtered tap water vs. bottled beverages
5. Access and promotion of SSB vs. water in your community
6. Tips for improving water taste, perceived susceptibility, severity, costs and benefits

Control: EHS home visiting curriculum

ALL families: water filter pitcher

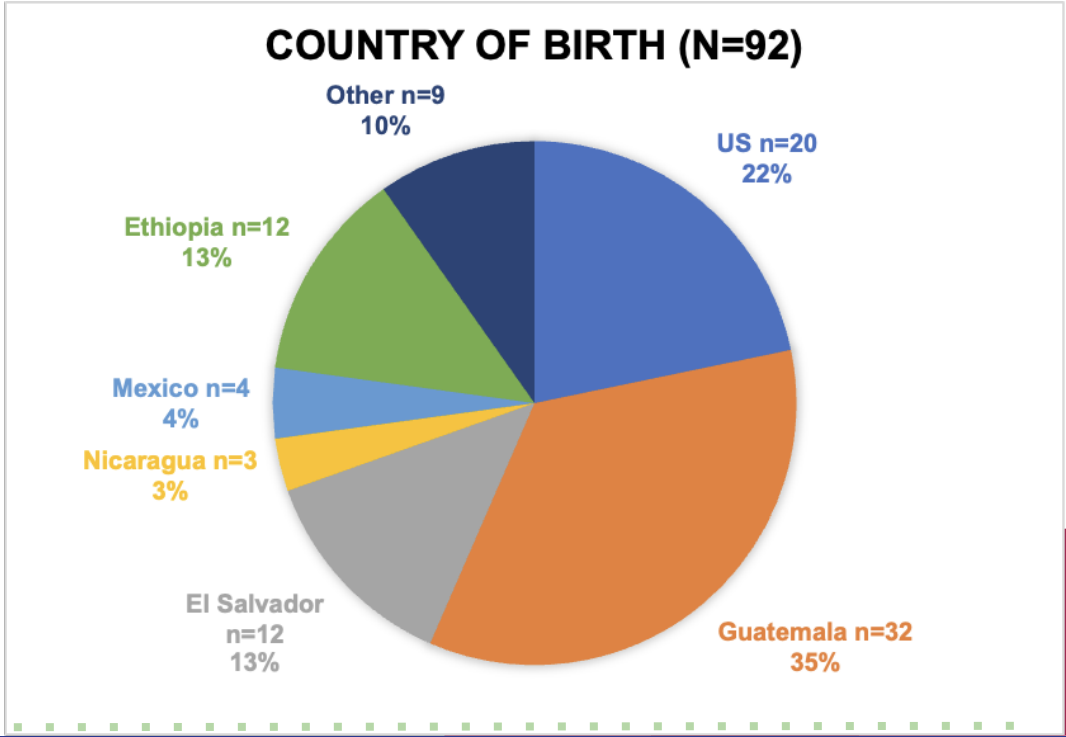
Quantitative Data Collection

- Baseline and follow-up Qualtrics survey administered by a trained, bilingual data collector
- Established, validated beverage intake instruments
  - Adults[1]: BEVQ
  - Children[2]: modified BEVQ-PS
- Modifications
  - Bottled, unfiltered tap, and filtered tap water collected separately
  - 2 “Other” categories included
  - Energy drink variable re-introduced in BEVQ-PS

1.Hedrick VE, Comber DL, Estabrooks PA, Savla J, Davy BM. The beverage intake questionnaire: determining initial validity and reliability. J Am Diet Assoc 2010;110:1227-32.
2. Lora KR, Davy B, Hedrick V, Ferris AM, Anderson MP, Wakefield D. Assessing Initial Validity and Reliability of a Beverage Intake Questionnaire in Hispanic Preschool-Aged Children. J Acad Nutr Diet 2016;116:1951-60.

Sample Characteristics

- 83 of 92 families completed the intervention (90.2% retention)
- Average parent age: 32.0 years
- Average child age: 17.3 months
- 95% respondent parents were female
- 84% Latino



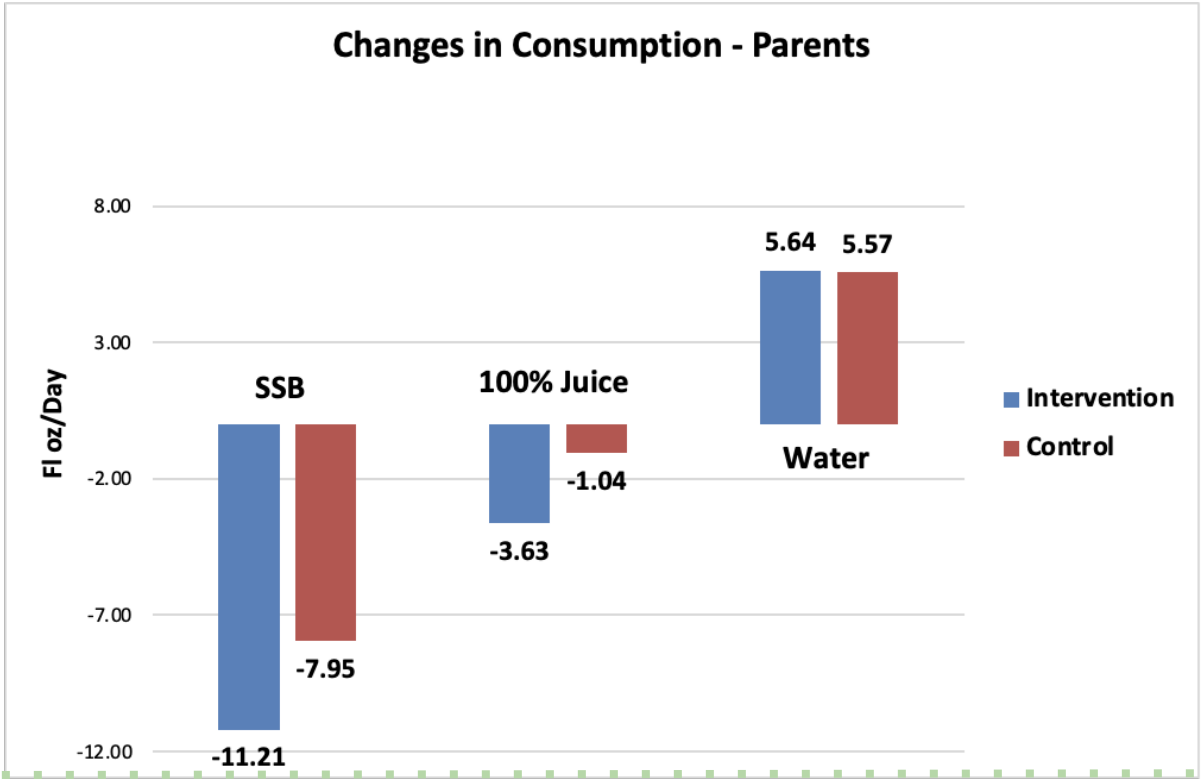
Baseline Consumption

Table 2: Parent and Child Beverage Consumption (fl oz/day) at Baseline (n=92)

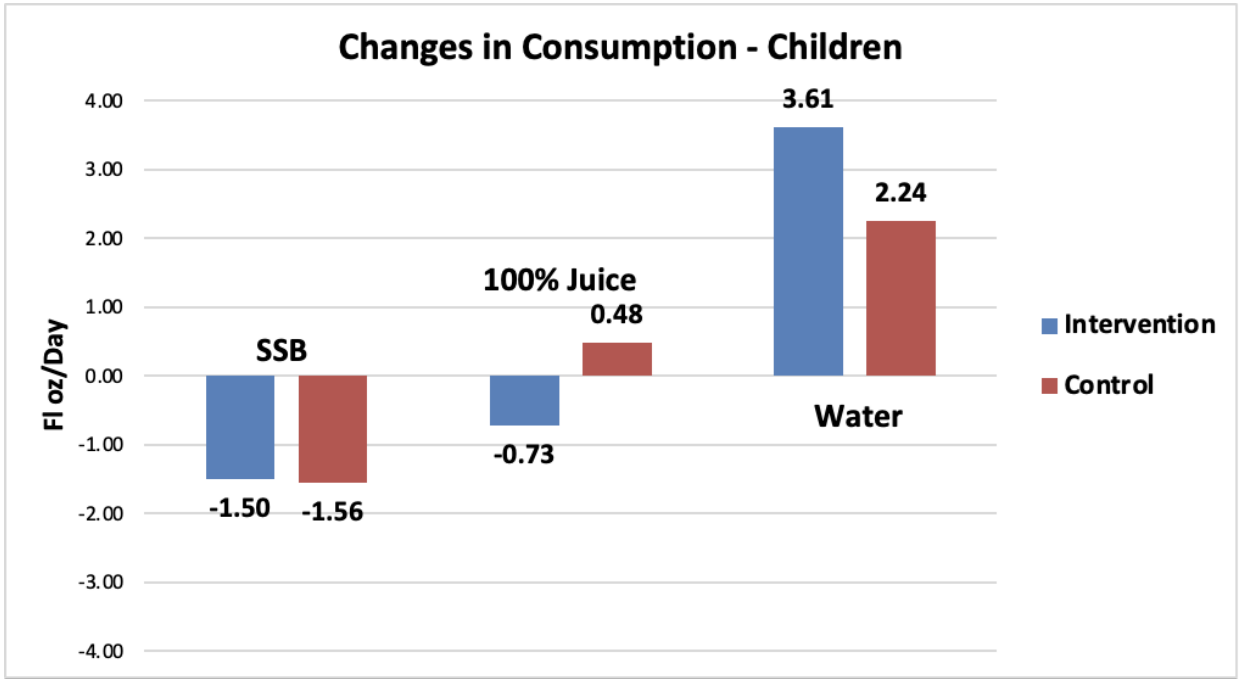
	Intervention (n=45)			Control (n=47)			
	Mean	**Median**	**Range**	**Mean**	**Median**	**Range**	**p-value***
Composite Water							
Parents	32.22	26.86	5.71, 64.00	36.72	48.00	0.86, 60.00	p=0.17
Children	6.68	6.00	0, 36.00	7.02	6.00	0, 19.00	p=0.19
Composite SSB							
Parents	17.86	12.00	0, 96.00	19.73	14.29	0, 88.00	p=0.26
Children	2.60	0	0, 28.50	3.41	0.29	0, 25.72	p=0.45
100% Fruit Juice							
Parents	5.76	2.86	0, 24.00	5.10	2.86	0, 36.00	p=0.96
Children	2.02	0.71	0, 15.00	2.74	1.79	0, 15.00	p=0.54

*Non-parametric tests used to compare baseline consumption values between intervention and control groups

Summary - Parents



Summary - Children



Why the behavior change among control families?

Is the filter enough to reduce SSB?

Explanatory Qualitative Results

- 21 total interviews with intervention parents; 11 interviews with ‘control’ parents
- Each interview around 45 minutes - 1hr long
- Analyzed deductively and inductively using Atlas.ti following a codebook

Is the filter enough to decrease SSB?

- Did parents use the filter?
- Did parents and kids increase water intake via the filter?
- Did providing the filter replace SSBs?
- Did providing the filter reduce 100% fruit juice consumption?

Did participants use the filter?

- 100% consensus that both groups used the water filter to drink water.
- Both groups shared impression that water filter made them feel more safe drinking the tap water
  - Improves taste
  - Seeing the filtering process makes them feel safe.
  - A few negative cases:
    - Not trusting filter

" I feel safer drinking the water from the filter because like my husband says 'do you think that water is really purified' and I tell him 'and how do you know that the water from the filter is fine, ***at least I can see where... what is happening and how the water goes through the filter but with the bottled water who knows"*** *(intervention)*

"I did not even dare to have people visit from outside or some family member and give them water from the filter, who knows they could get an allergy or something so then I would never offer, ***I would only offer them bottled water."*** *(intervention)*

Further probing: perceptions of pure water

- Both groups distrust tap water
  - Because of the taste
  - Perceiving the water as dirty or ‘bad’
  - (specifically control) : compare to their home country where they know it comes from and they get the insecurity for tap water in the US
  - Intervention: not knowing where it comes from

*“If you drink the water **without filter it feels like it tastes a bit like chlorine**” (intervention)*

*

*“**Water from the river, from the natural sources** we would collect water with jugs” (control)*

*

*“One does not know about the pipe systems where they live and how old they may be, **so then for me it was very important to have the filter and even the taste of the water is better**” (intervention)*

How did they increase water intake?

- Saves money
- Cue to action: seeing the filter motivated/reminded some to drink water.

*"**With the filter…one saves money** on having to buy water because a lot of times we have to buy water bottles and we don't use tap water" (intervention)*

*

*"I knew that I had to fill up the pitcher and have pure water on the table, I had to come and drink water. **It was like I had it in front of me and it said 'it's time for water"** (intervention)*

*

*"**[my family] gets excited** when they see the [water filter] with cold water in the fridge" (control)*

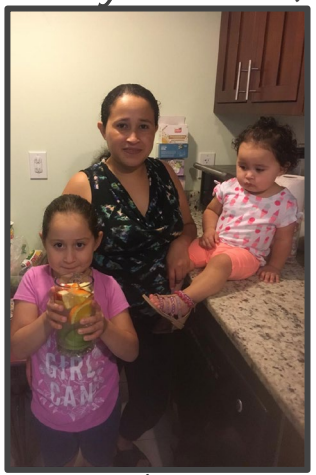
*

*"I feel like **[the filter] draws your attention** to drink the water" (control)*

Replacing Water and SSB

- **Intervention parents:**
  - Less sugar in coffee or home made beverages, stopping SSB consumption
  - A few (3/21 parents) explicitly described water consumption as a strategy to decrease SSB
- **Control parents:** unable to describe behavior change
  - Drank more water
  - They knew about benefits of drinking water and reducing SSB consumption already

*I used to put three spoonfuls of sugar into my coffee and **now I only add one.** (Intervention)*



*

*"I think so because one can feel that it is more fresh the…**we drink more water"** (control)*

Further probing about theoretical constructs

- **Intervention families**
  - Increased knowledge about the benefits of water and the costs of SSBs
  - Increased susceptibility and severity to the costs of SSBs
  - Increased self efficacy
- **Control families**
  - Described they had existing knowledge but more vague

*…before I would just grab drinks and now I **have started to measure how many ounces [of sugar] is one portion.** (intervention)*

*

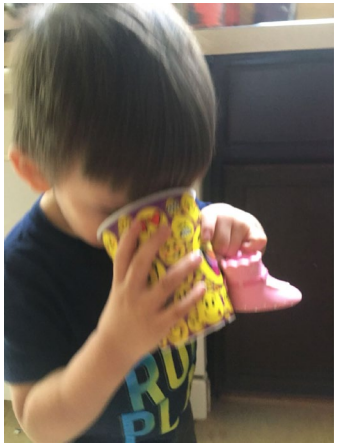
*That the sugar goes up or down, is what I have heard **which is why I prefer to drink water so we don't get that illness [diabetes and cholesterol].** (control)*

*

*There are plenty things, to begin with, there are various…**there is a lot of information on the internet.** (control)*

Further probing homemade drinks

- **Intervention families:** some participants spoke about how they preferred to make drinks at home as ‘natural’ perhaps with less regard to sugar levels than to process of making beverage .
- **Control families:** pre packaged beverages are artificial. Prepared beverages at home are ‘natural’ and healthy, regardless of sugar level?



*“I stopped buying sodas, I stopped buying all of that. **I replaced them, I bought things in powdered form. Like the Iced Tea.”** (intervention)*

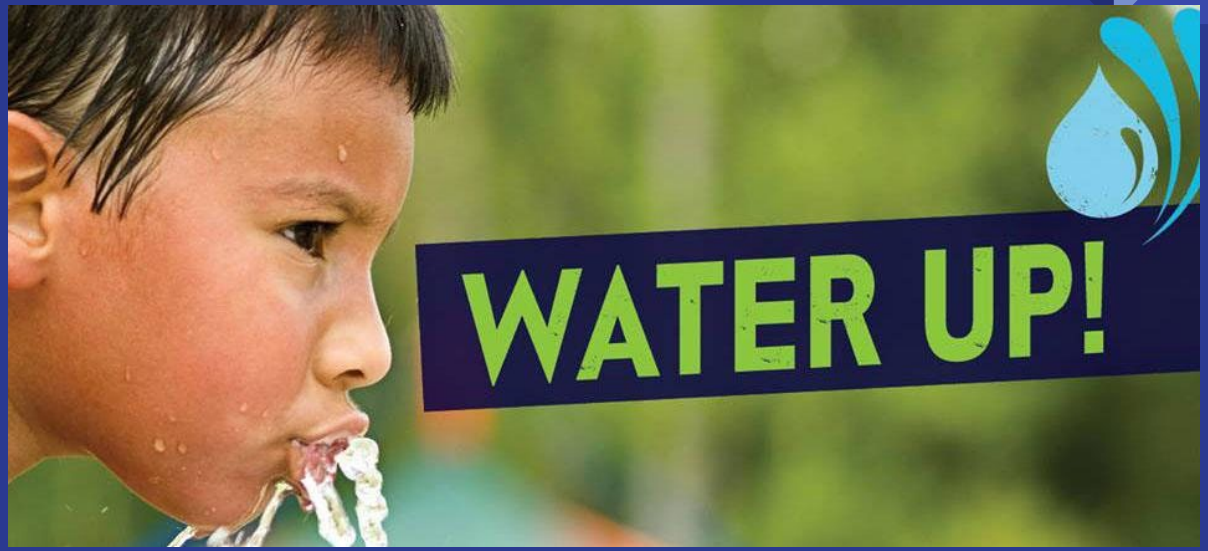
*

*“There is everything in the store, there is everything but I have avoided buying sodas and sometimes **I make juices but natural ones like Kool-aid”** (control)*

SUMMARY and unanswered questions

- Filter helped, but still persistent mistrust of tap water in both groups.
- Did participants explicitly replace SSB with filtered tap water?
  - Yes, we have some examples of replacement in the intervention group, mostly because we probed deeply, but not the overwhelming conclusion.
  - Among control families, no consensus on explicit replacement, and some active negative cases that they did not replace it.
  - It's still possible that individuals are replacing unconsciously?
- The theme of 'natural' and home-made seemed to be present in directing their behavior choices... perhaps more than the use of a water filter (or as long as 'water' was natural/pura)? To be discussed....

Thank you



Funders: Redstone Center, NIDDK, Healthy Eating Research, Institute for International Economic Policy

*

Co-investigators: Rosalina Burgos Gil (CentroNia Early Head Start), Mark Edberg, Sean D Cleary