



A natural experiment to promote obesity prevention behaviors among low-income pregnant women



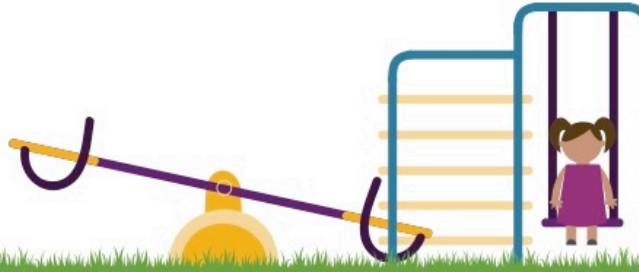
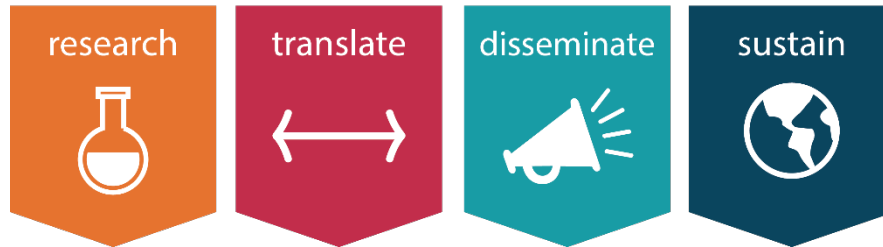


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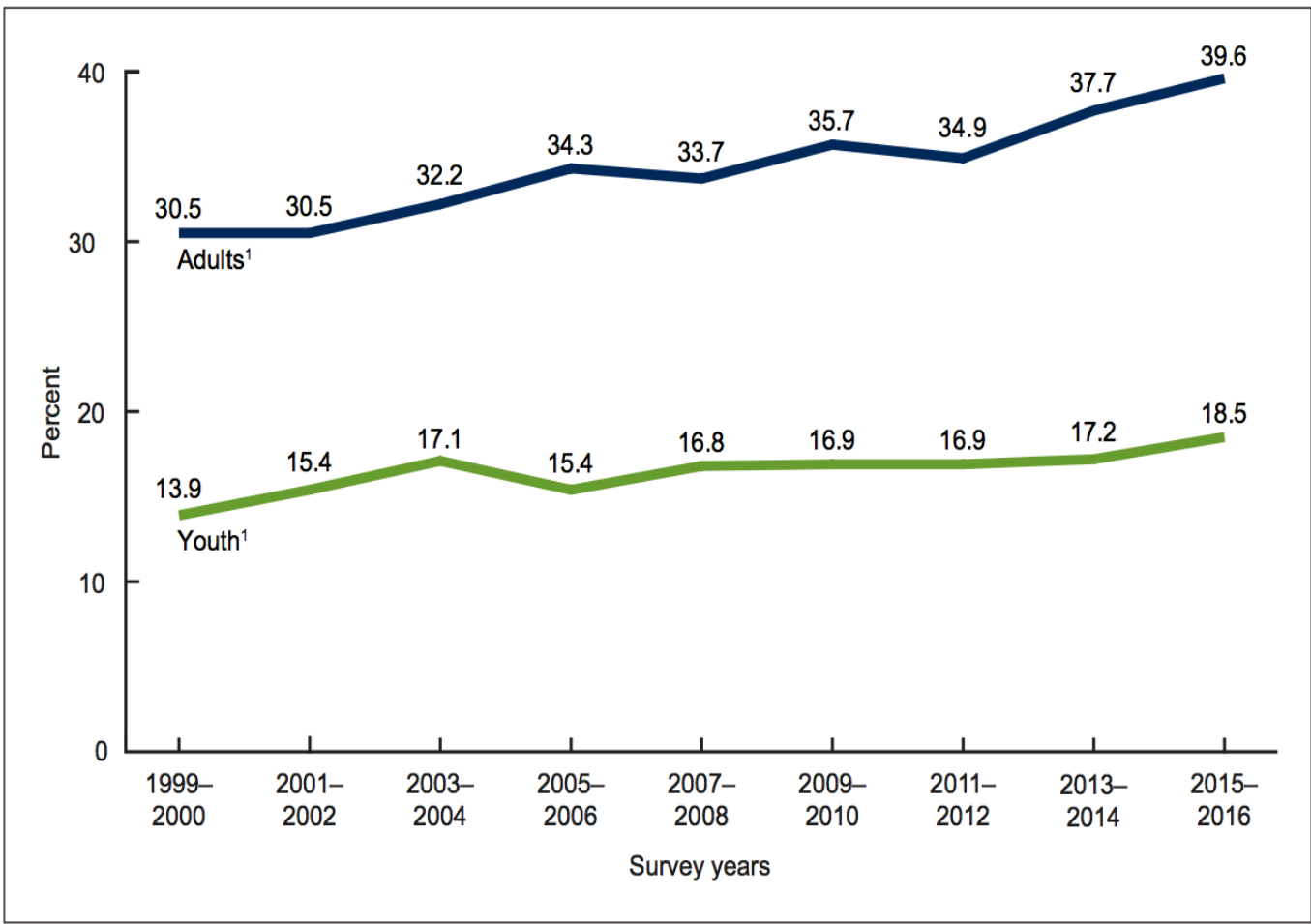
STRATEGIC PLAN GOALS



Childhood Overweight & Obesity Prevalence in Selected Countries



Figure 5. Trends in obesity prevalence among adults aged 20 and over (age adjusted) and youth aged 2–19 years: United States, 1999–2000 through 2015–2016



The national childhood obesity rate is 18.5 percent.

13.9 percent of 2- to 5-year-olds.

Obesity increases with increasing age.

Racial and ethnic disparities.

¹Significant increasing linear trend from 1999–2000 through 2015–2016.

NOTES: All estimates for adults are age adjusted by the direct method to the 2000 U.S. census population using the age groups 20–39, 40–59, and 60 and over.

Access data table for Figure 5 at: https://www.cdc.gov/nchs/data/databriefs/db288_table.pdf#5.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2016.

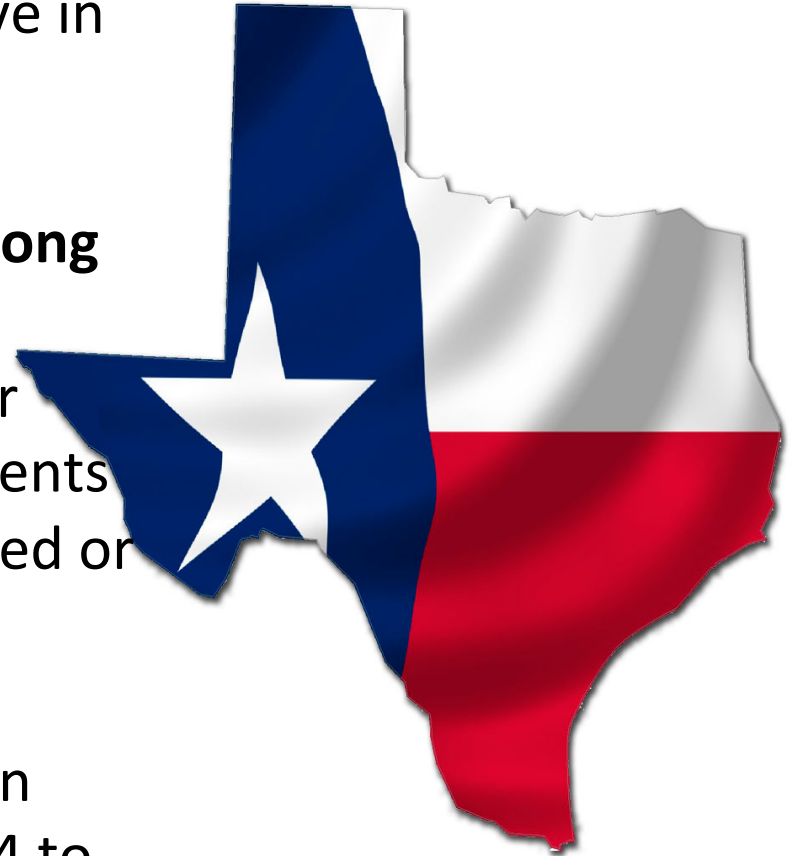


State of Texas

One out of 11 U.S. children currently live in the state of Texas

Maternal mortality rate in Texas is among the highest in the nation, and the industrialized world, with 30 deaths per 100,000 due to pregnancy-related ailments including obesity which can be prevented or cured.

Maternal pre-pregnancy obesity rates in Texas have doubled from 13.0% in 1994 to 24.8% in 2014.

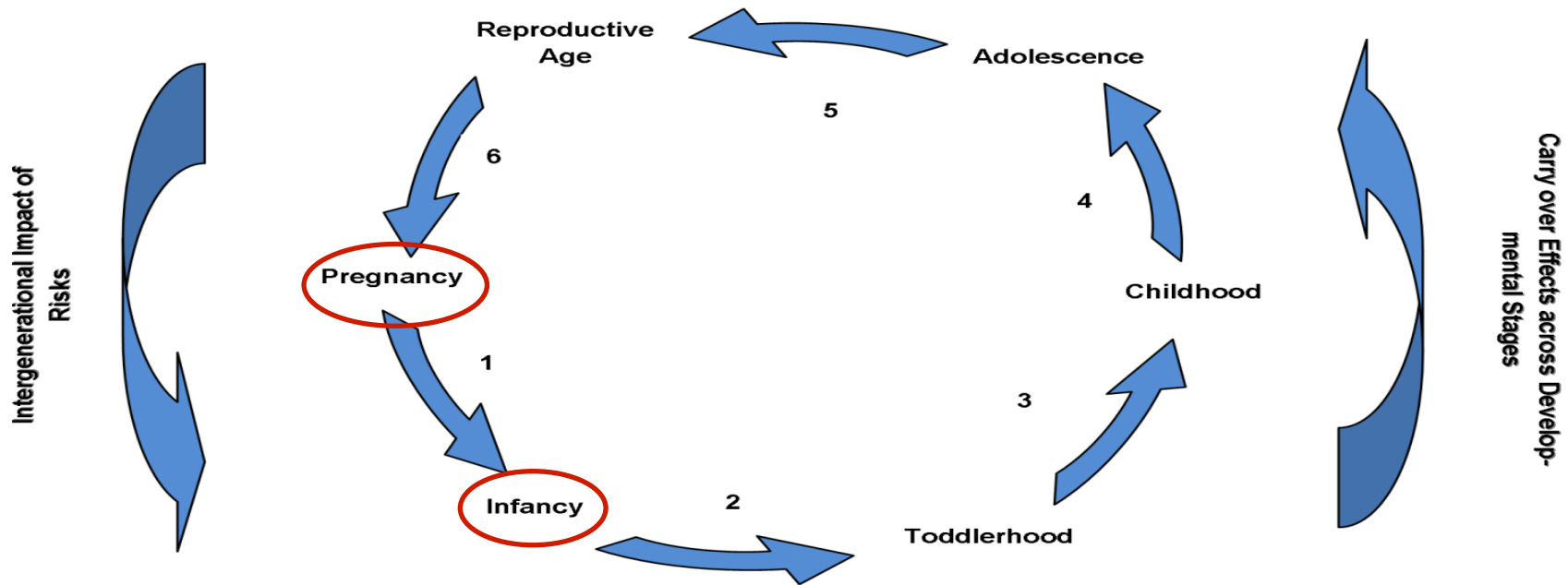


Early Lifecycle Approach to Obesity Prevention

(*Childhood Obesity 2012:8,3*)



Figure 1.



Significant inter-stage events include: 1. Intrauterine Programming; 2. Breastfeeding, early food exposure, attachment stage; 3. Early childhood growth, childcare, habit formation; 4. Brain maturation, self-management, puberty, health behavior change, increased salience of peer effects and school effects; 5. Independence, increasing life stress; 6. Pre-conception health, parental health status, prenatal care

Overweight adults have LGA babies who become overweight infants and toddlers who become overweight school age and adolescents and the cycle continues.

The Intervention



The partnerships

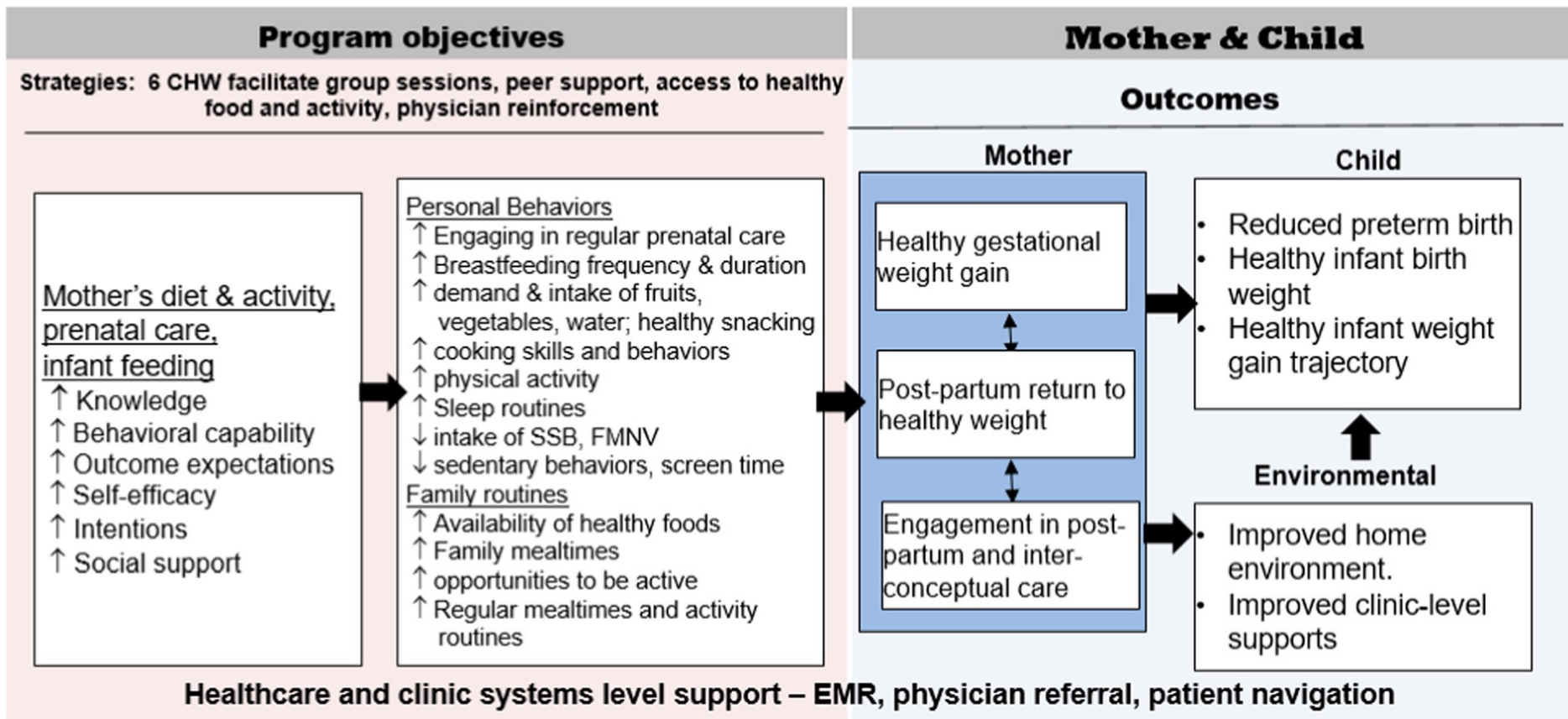


- HEAL is a collaboration between three University of Texas Health Science Center entities:



- The pilot initiative funded in 2014 through the 1115 Medicaid Transformation Waiver program to address gaps in service(Delivery System Reform Incentive Payment Program or DSRIP)

HEAL Logic Model



NOTE: SSB = sugar-sweetened beverages; CHW – Community Health Worker; EMR – electronic medical record; FMNV – foods of minimal nutritional value

HEAL primary behavioral targets



Patients are more likely to follow provider recommendations.
Provider engagement is the key to program success.

Three steps:

- HEAL program awareness in the clinic
- Patient eligibility and referral to the program (HEAL is embedded within the EMR)
- Patient enrolled to HEAL
 - pregnant < 28 weeks
 - BMI of ≥ 25 at first prenatal visit
 - Medicaid participant or Medicaid eligible

Table 1. Early Life Systems: Key Behavior Intervention Targets

Pregnancy

- Engage in early prenatal, post-natal, and inter-conceptual care
- Achieve healthy gestational weight gain
- Post-partum return towards a healthy weight
- Prepare to breast feed

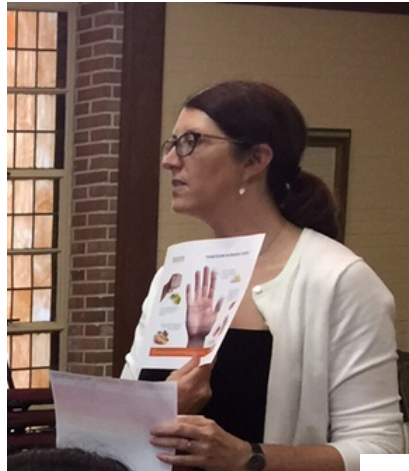
Infancy

- Initiate and maintain breast feeding
- Appropriate introduction of other beverages and foods
- Support for healthy sleep patterns
- Support for appropriate soothing, not always using food
- Support for motor development
- Avoid excessive weight gain in infancy
- Avoid screen time

Healthy Eating-Active Living formula

- *“One-on-one” session with a dietitian*
 - *5 weeks group sessions*

Health literacy+ Cooking and Exercise + Produce Distribution



HEAL Program components



- One-on-one session with a Registered Dietitian
- Five Community Health Worker (CHW)-led group sessions (occurring weekly) covering four health topics
 - Non-didactic
 - Motivational Interviewing techniques
 - Open-ended questions
 - Affirm positive behaviors
 - Reflective listening
 - Summarizing

Health Literacy – CHW-facilitated group discussions



- Weekly, 90 minutes
- Health topics
 - Making the most of prenatal appointments (provider engagement)
 - Preparing for breastfeeding
 - Physical activity during pregnancy
 - Understanding the food environment to make healthier choices



Cooking skills

- Recipe Demonstration
 - Related to produce that is later distributed
 - Includes review of the recipe of the day
- Topics discussed during food demo can include
 - Food safety
 - Healthy meal planning
 - Knife skills
 - Cooking techniques
 - Healthier desserts



Physical Activity



- 15-20 minutes per session
- Pre-natal physical activities
- Yoga, stretching, resistance bands, aerobics
- Family members are encouraged to join in



Produce Distribution

- Partnership with the Houston Food Bank and Brighter Bites, a local non-profit
- Two bags of fresh produce
 - ≈ 25 lbs. / 50 servings of fresh, seasonal produce
 - 8-10 different varieties, some familiar and some new
 - Recipe aligned with the produce item in the bag
 - Healthy, tasty recipes and tips/tools on how to clean, store and use the produce



Goal Setting



- Participants are given “Healthy Goals Tracking Sheets” weekly where they can track
 - Fruit and vegetable consumption
 - Water consumption
 - Minutes of walking / physical activity performed
- Incentive is provided at the end of group for the person(s) who consistently tracked goals

Evaluation



HEAL pilot evaluation

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Pilot evaluation of HEAL – A natural experiment to promote obesity prevention behaviors among low-income pregnant women

Shreela V. Sharma^{a,*}, Ru-Jye Chuang^a, Courtney Byrd-Williams^b, Melisa Danho^c,
Mudita Upadhyaya^d, Pam Berens^e, Deanna M. Hoelscher^b

^a Department of Epidemiology, Human Genetics & Environmental Sciences, Michael & Susan Dell Center for Healthy Living, University of Texas Health Science Center at Houston, School of Public Health, Houston, TX, United States

^b Department of Health Promotion & Behavioral Sciences, Michael & Susan Dell Center for Healthy Living, University of Texas Health Science Center at Houston, School of Public Health in Austin, Austin, TX, United States

^c Maternal Neonatal/Healthy Eating Active Living Program, University of Texas McGovern Medical School, Houston, TX, United States

^d Department of Epidemiology, Human Genetics & Environmental Sciences, University of Texas Health Science Center at Houston, School of Public Health, Houston, TX, United States

^e Department of Obstetrics & Gynecology, University of Texas McGovern Medical School, Houston, TX, United States

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ABSTRACT

Instituting interventions during the prenatal period is optimal for early obesity prevention in the child. Healthy Eating Active Living (HEAL) is a six-week, multi-component program to promote breastfeeding, healthy dietary habits, cooking skills and physical activity among Medicaid-eligible pregnant-women in Texas. HEAL is integrated into the healthcare system and offered as a standard-of-care for eligible patients. Methods: Preliminary evaluation of this natural experiment conducted from March 2015 through October 2016 informs the initial feasibility, acceptability and effects of the program on participant diet, home nutrition environment, physical activity, and breastfeeding self-efficacy and intentions measured using self-report surveys. Analysis of covariance (ANCOVA) was conducted to evaluate pre- and post-intervention changes, controlling for participants' ethnicity, age, and income level. Interaction effects of session attendance on the outcomes were further assessed. Results: Of the 329 women who enrolled in HEAL, 210 women completed the pre-post assessment (64% retention rate). Pre-to-post intervention, there were significant increases in availability and intake of fruits and vegetables, self-efficacy towards consuming more fruits and vegetables, and cooking frequency and skills ($p < 0.05$), and decreased frequency of eating heat and serve foods ($p < 0.05$). Significant improvements in physical activity, duration of breastfeeding, perceived benefits and intentions to breastfeed were also observed ($p < 0.05$). Higher attendance of HEAL sessions was associated with better outcomes. Process evaluation demonstrated 95% fidelity of program implementation. Conclusion: HEAL operationalizes clinic-community linkages and shows promise in improving behaviors during pregnancy. Future research warrants the use of a stringent study design with a control group to determine program efficacy.

Design and Analysis



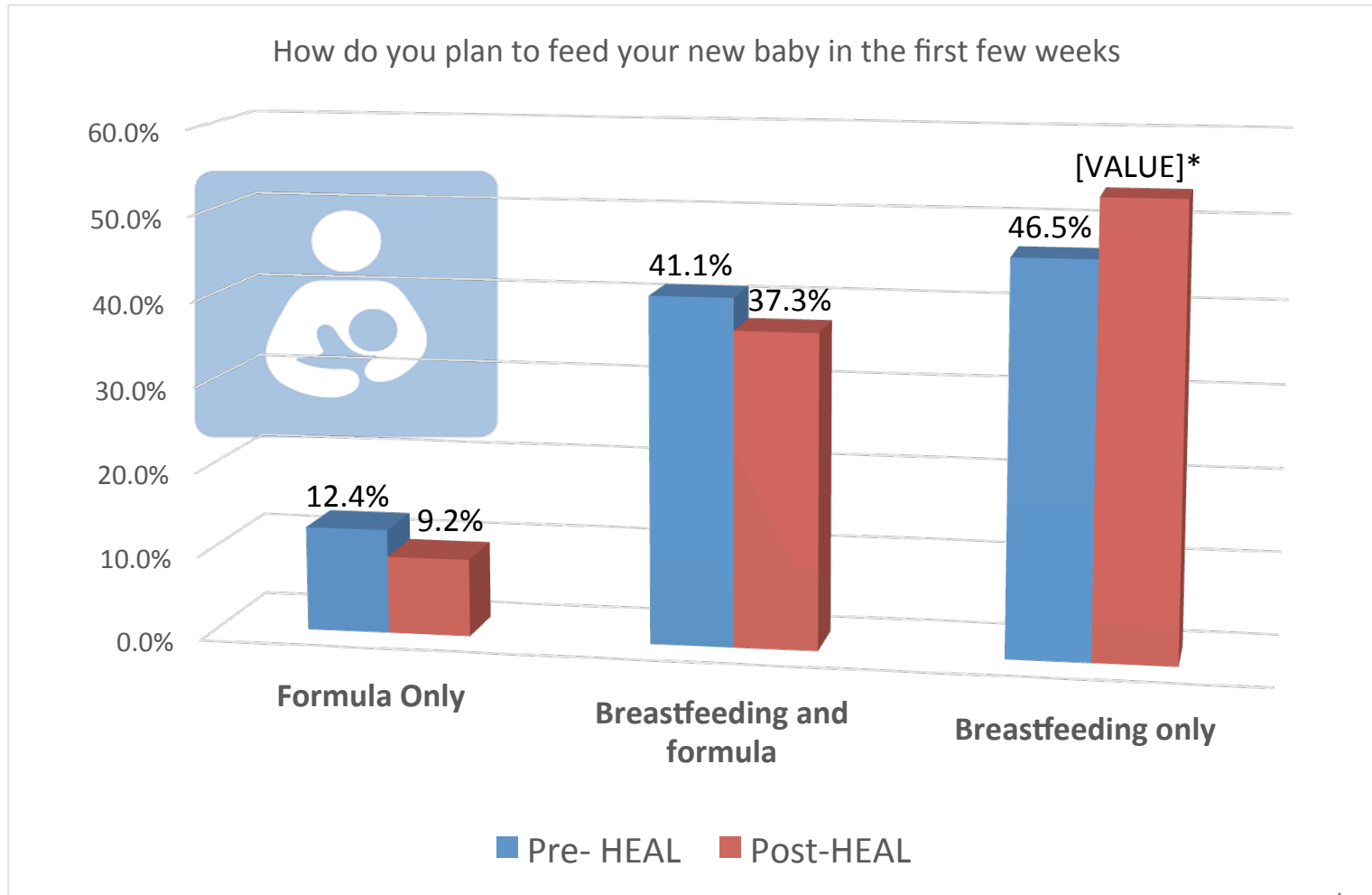
- Preliminary evaluation of this natural experiment conducted from March 2015 through October 2016
- One-group, pre-post evaluation design.
- Of the 329 women who enrolled in HEAL, 210 women completed the pre-post assessment (64% retention rate).
- ANCOVA was conducted to evaluate pre- and post-intervention changes, controlling for participants' ethnicity, age, and income level.
- Interaction effects of session attendance on the outcomes were further assessed

Demographics



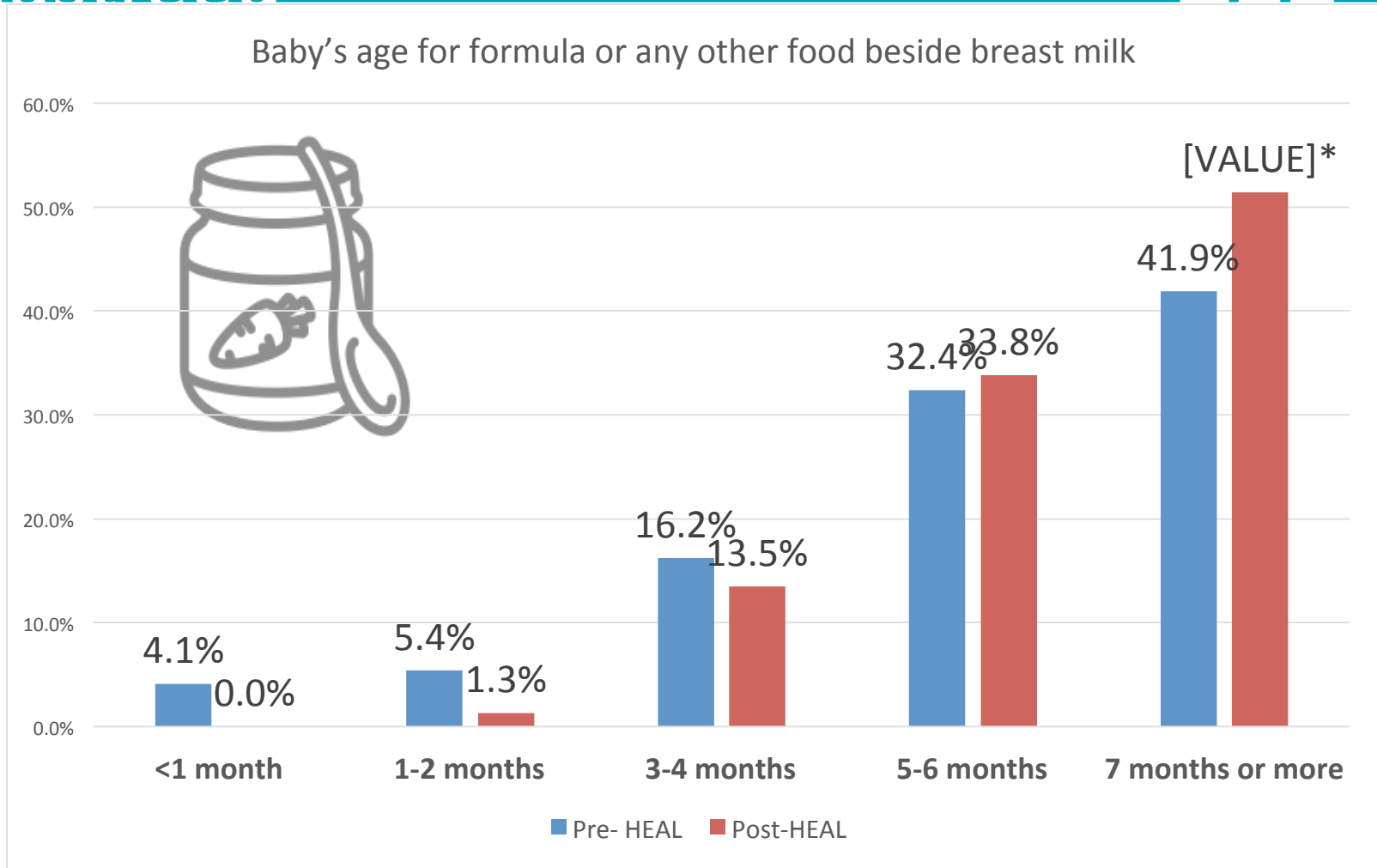
	n	Mean±SD
Age in years	328	28.04 ± 5.74
Gestational age	328	21.61 ± 6.56
Weight before pregnancy, self-reported (lbs)	305	195.00 ± 98.61
BMI before pregnancy	289	32.32 ± 8.42
Height (inches)	312	63.96 ± 3.02
Weight at baseline (kgs)	316	92.25 ± 23.86
	n	Mean±SD
Baseline BMI (All participants)	312	34.87± 7.97
Baseline BMI (Dyads)	207	34.41 ± 7.80
Distance to Clinic (km)	307	21.25 ± 12.40
Distance to Group (km)	307	21.13 ± 12.20

↑ Intention to breastfeed



*p<0.05

↑ Intention to exclusively breastfeed

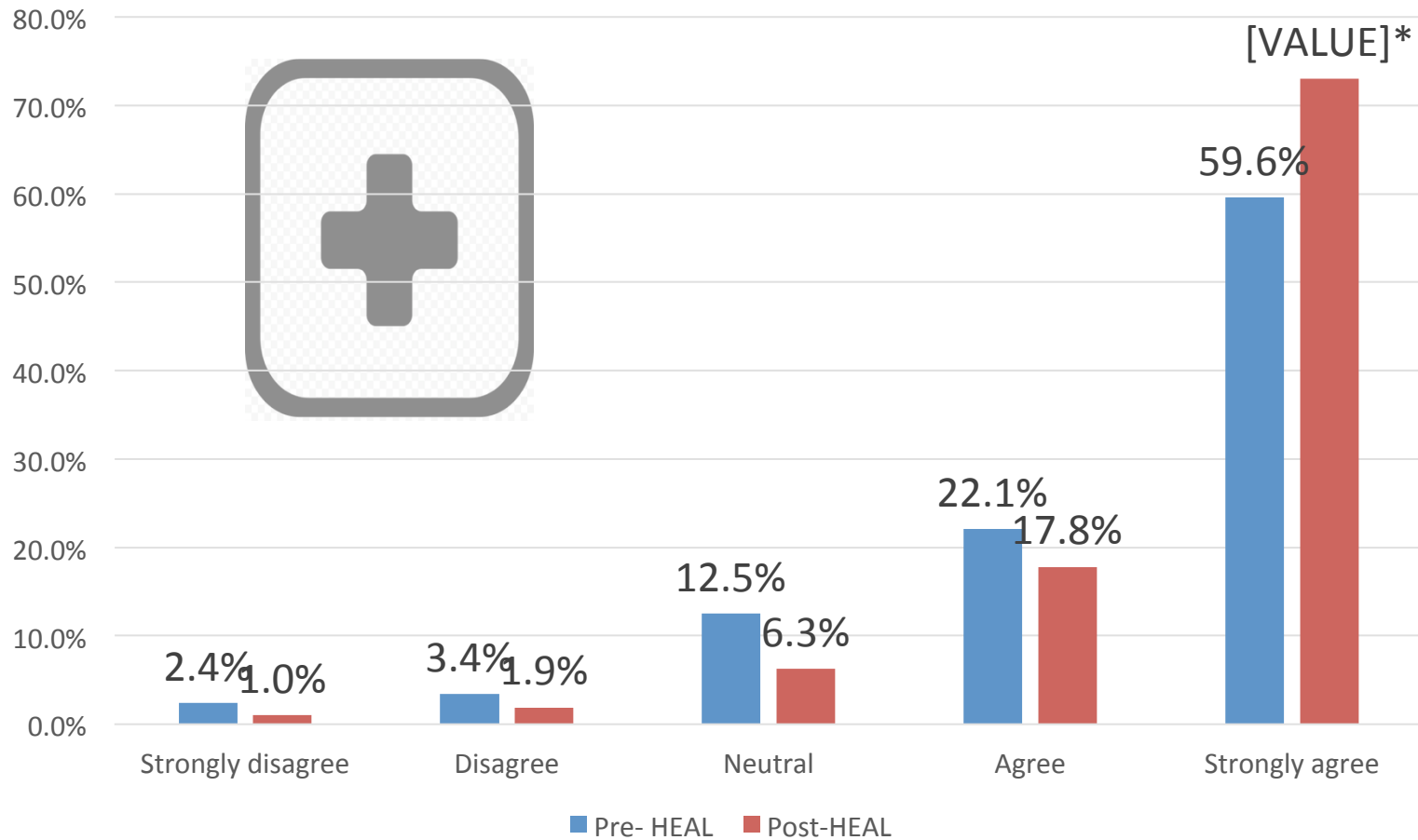


* $p < 0.05$

↑ Perceived Benefit of Breastfeeding



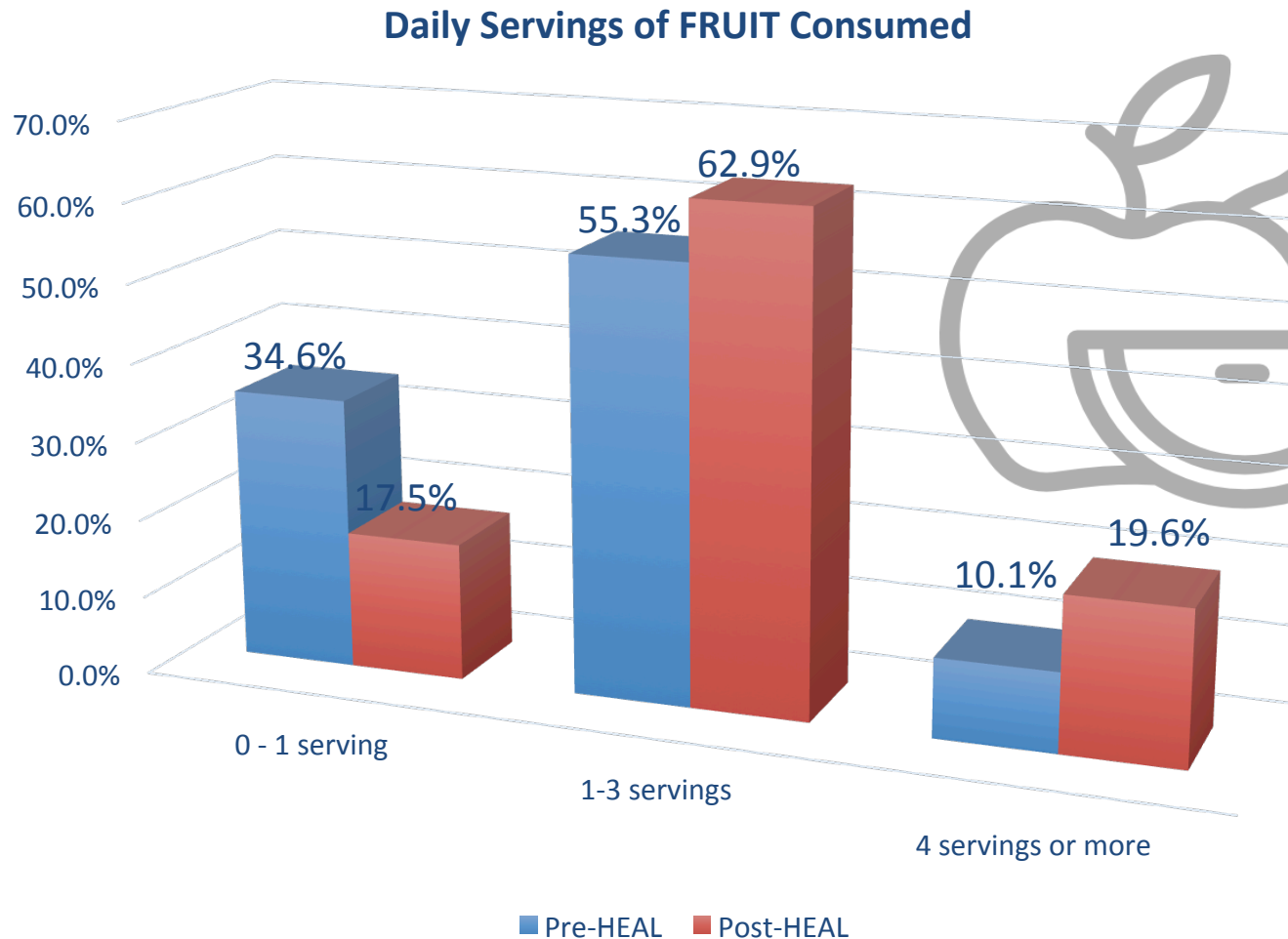
If a baby is breastfed, he or she will be healthier



Higher attendance in HEAL sessions was associated with higher perceived benefits

*p<0.05

↑ Daily servings of FRUIT consumed

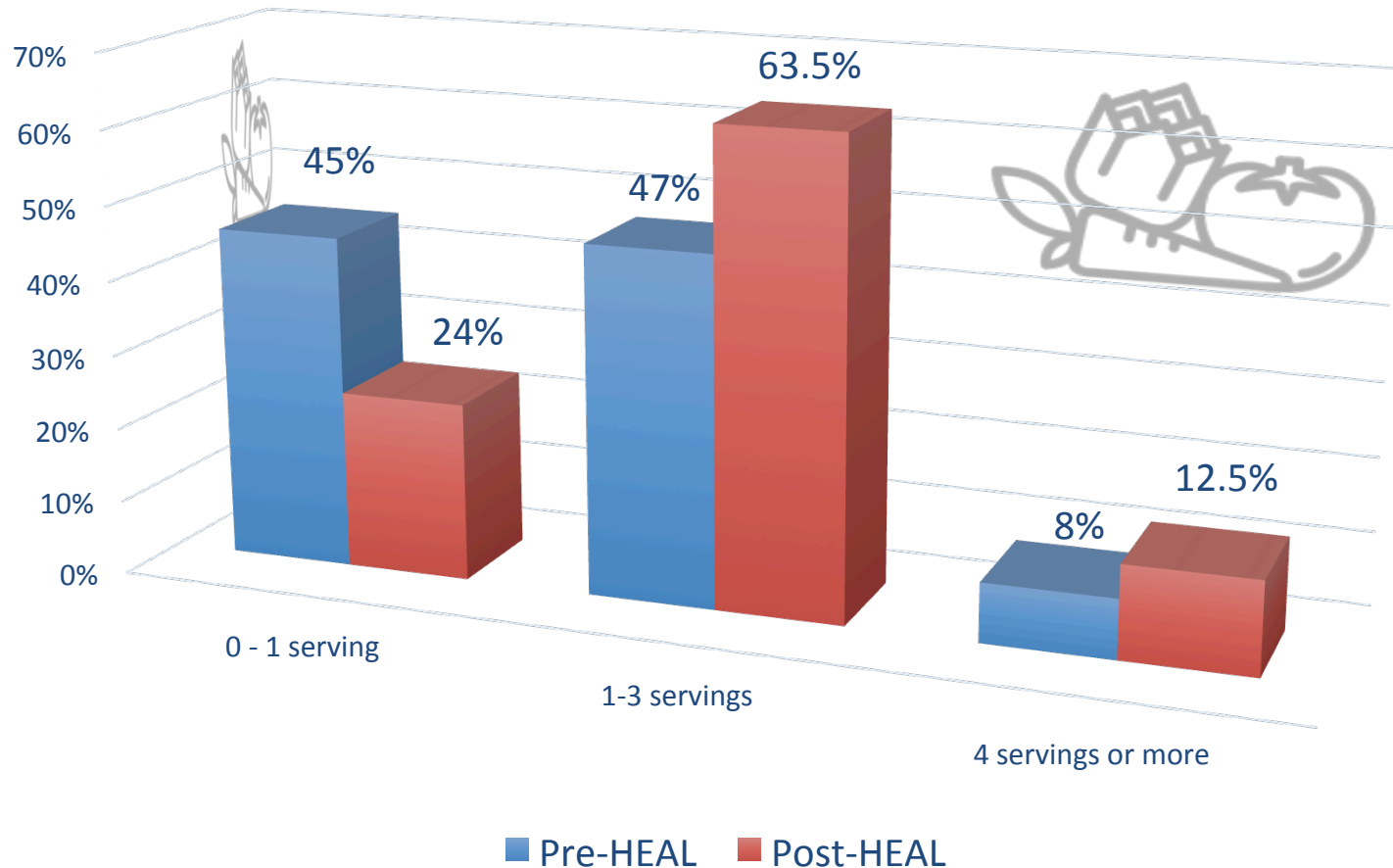


Higher attendance in HEAL sessions was associated with higher daily servings of fruit consumed

* $p < 0.001$

↑ Daily servings of VEGETABLES consumed

Daily Servings of VEGETABLES consumed



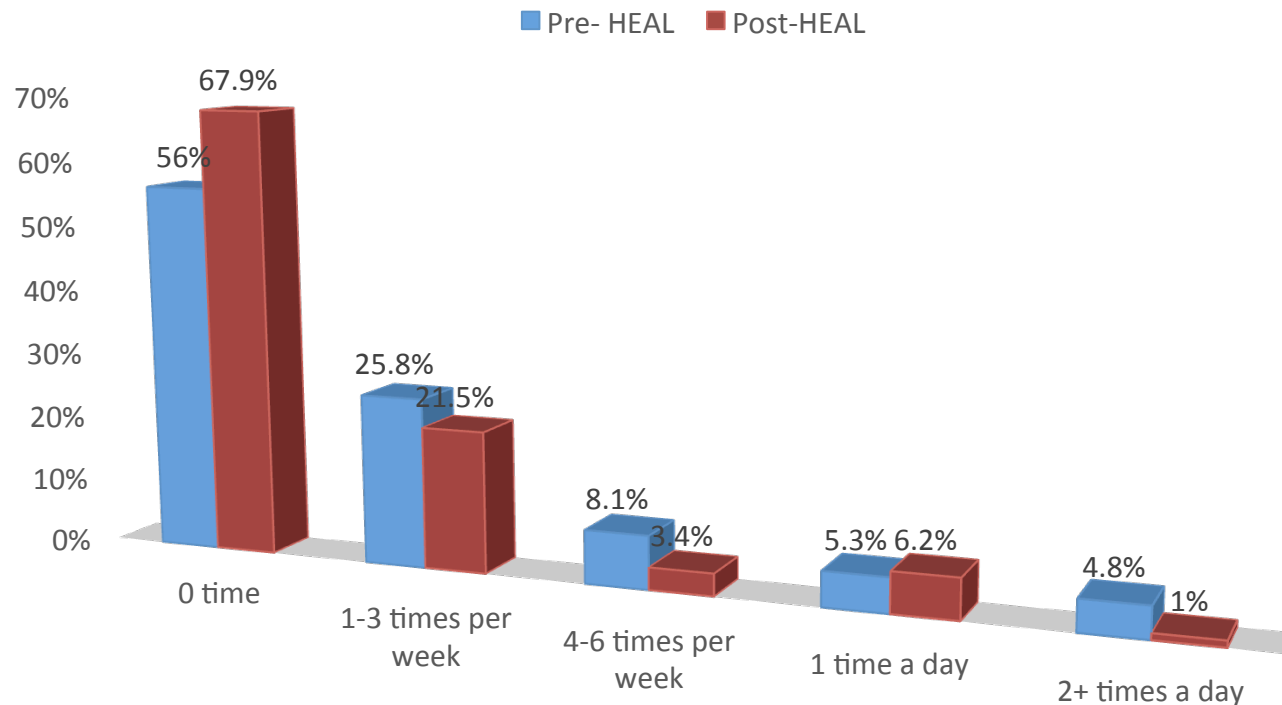
Higher attendance in HEAL sessions was associated with higher daily servings of vegetables consumed

*p<0.001

↓ Intake of Heat and Serve Foods

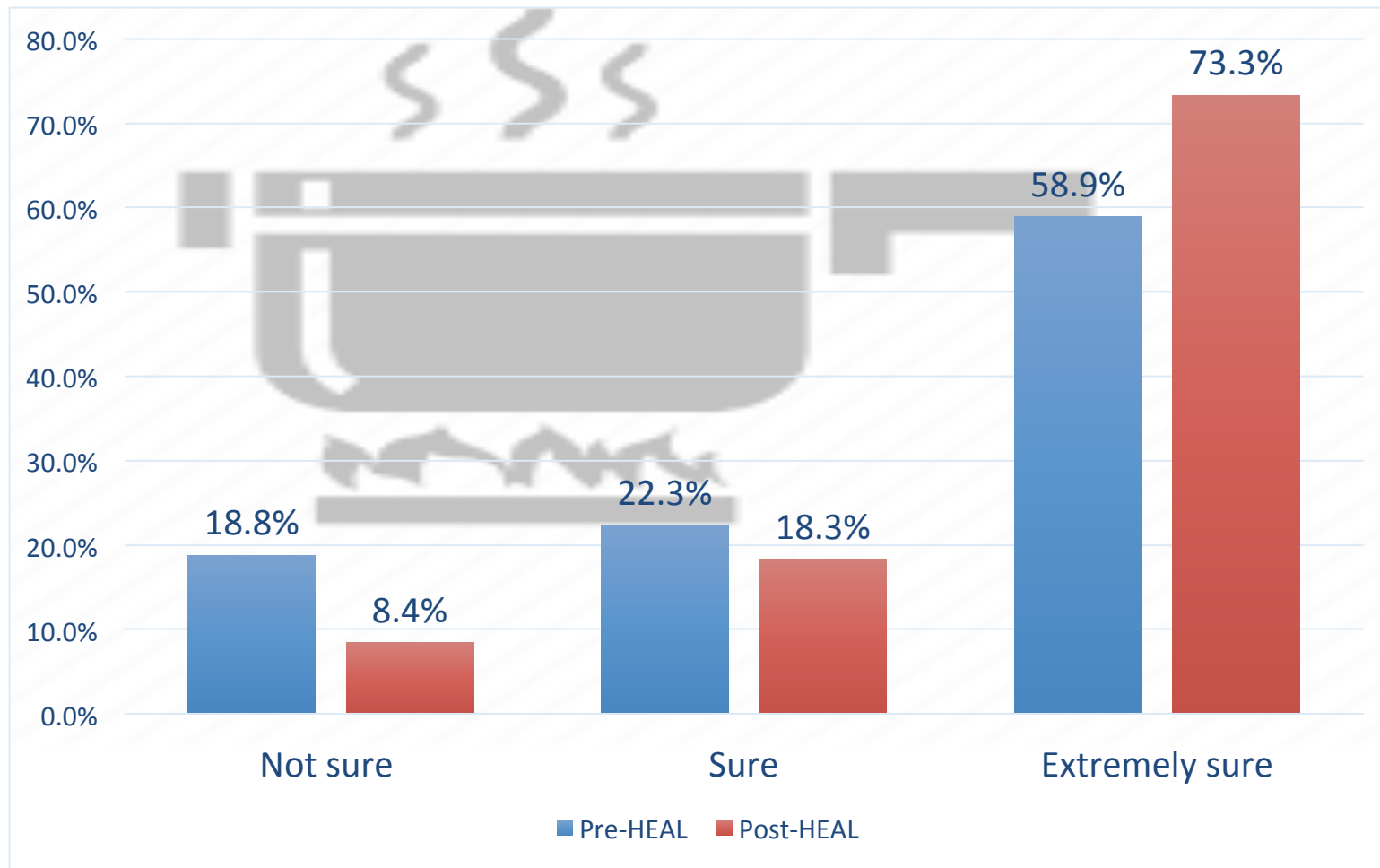


FREQUENCY OF CONSUMPTION HEAT & SERVE FOODS IN LAST 7 DAYS



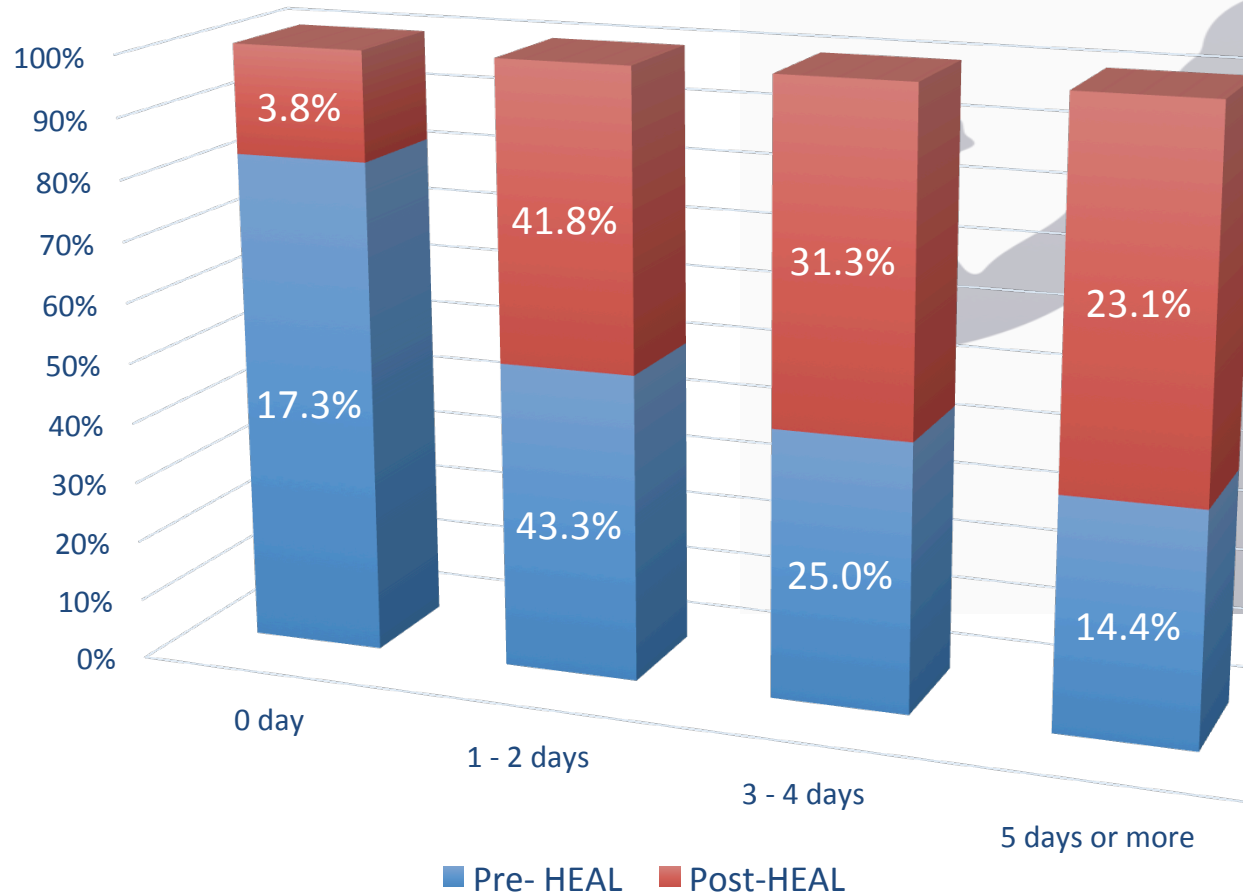
Higher attendance in HEAL sessions was associated with decreased intake of heat and serve foods ($p=0.003$)

↑ Self-efficacy in using basic cooking techniques



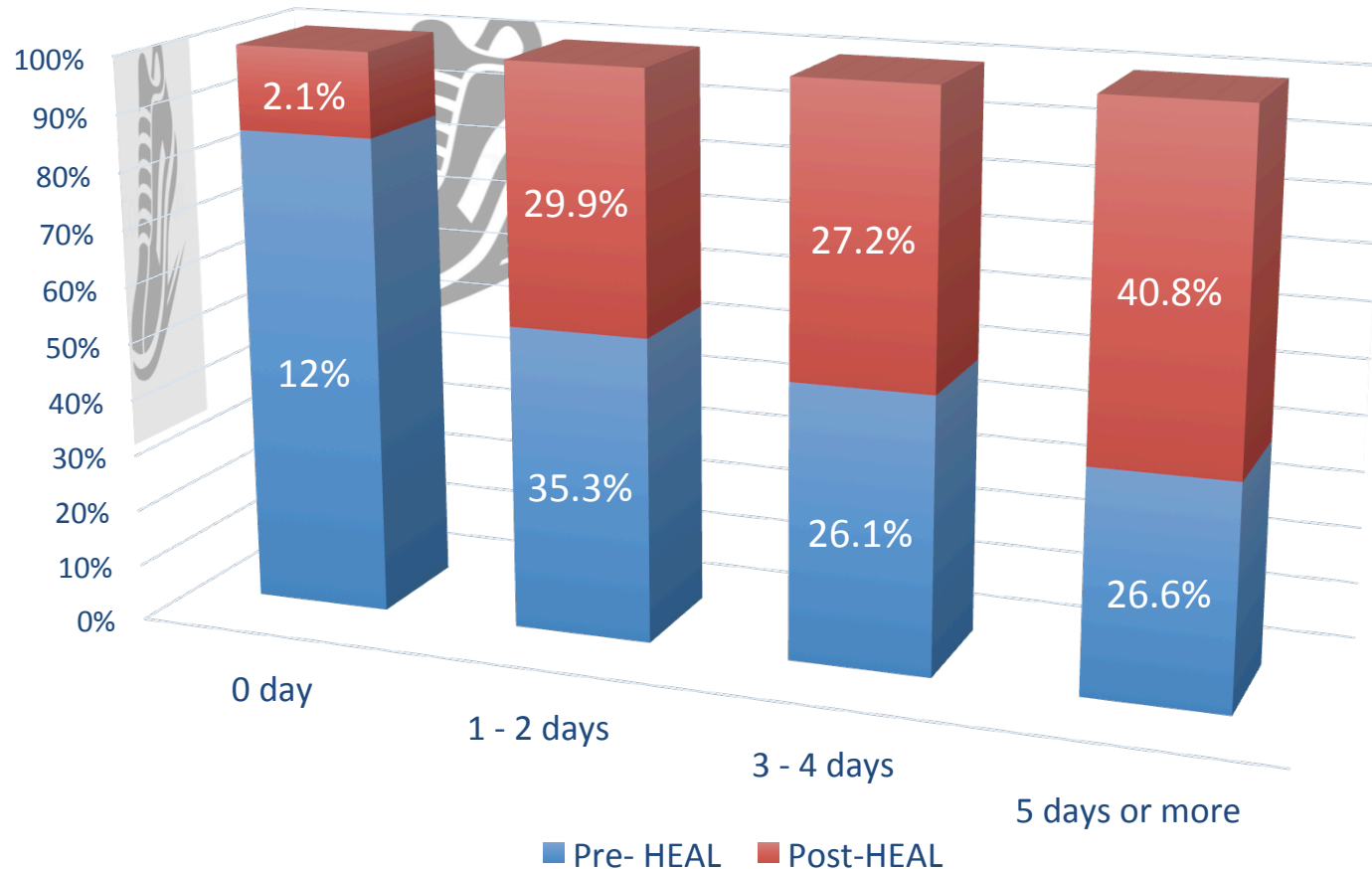
Higher attendance in HEAL sessions was associated with self-efficacy in cooking using basic ingredients * $p=0.022$

↑ Physical activity for at least 30 minutes during the past 7 days



Higher attendance in HEAL sessions was associated with higher time spent being physically active ($p=0.004$)

↑ Walking for at least 10 minutes at a time during the past 7 days



Higher attendance in HEAL sessions was associated with higher time spent being physically active ($p=0.010$)

The Feedback: Participants



What kept you coming to class?



- **“Meeting the other women and interacting with them.** The yoga class I liked so much!”
- **“Very warm supportive environment.** Program rich of information and lots of social interaction with other people in the same position. If I have to pick one, I really pick the support and care above everything.”
- **“To hear peoples thoughts .”**



What were the highlights of the class?



- **“I learned how to stay away from the wrong food, read labels that contain high sodium/ salt, how to use different vegetables such as beets, how to include and like veggies.”**
- **“I loved the **Lactation Consultant** and how she educated the group about breastfeeding.”**
- **“I enjoyed the exercising tips and sessions. I was (previously) afraid to work out because I was pregnant and I did not want to hurt the baby.”**



List one healthy habit you have improved during class



- “I have added more fruits and incorporated vegetables I was not familiar with; I have increased the level of my activity/ exercise and drink more water.”
- “Switching to wheat and less salt!”
- “Cook with vegetables at every meal.”
- “I make it a priority to walk everyday now.”



The Feedback: Providers



Provider feedback



"I was concerned about a patient's weight gain trajectory because she had put on a significant number of pounds before her third trimester. She came back several weeks later and the weight gain had stopped. When I asked what she was doing differently she said she had joined the HEAL program."

What's Next



- DSRIP 2.0 – potential for scaling the program to 10 clinics.
- Rigorous evaluation using a RCT design
- Developing a train-the-trainer platform
- Strengthen collaborations

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THANK YOU



Shreela Sharma, PhD, RD, LD

Associate Professor of Epidemiology

Email: Shreela.V.Sharma@uth.tmc.edu

Melisa Danho, MPH, RD, LD

Program Coordinator

Email: Melisa.P.Danho@uth.tmc.edu

UTHealth | The University of Texas Health Science Center at Houston
School of Public Health in Austin

Michael & Susan Dell Center for Healthy Living

1616 Guadalupe | Suite 6.300 | Austin, TX 78701



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