



FOOD SYSTEMS, FOOD SOVEREIGNTY, AND CBPR WITH NATIVE POPULATIONS

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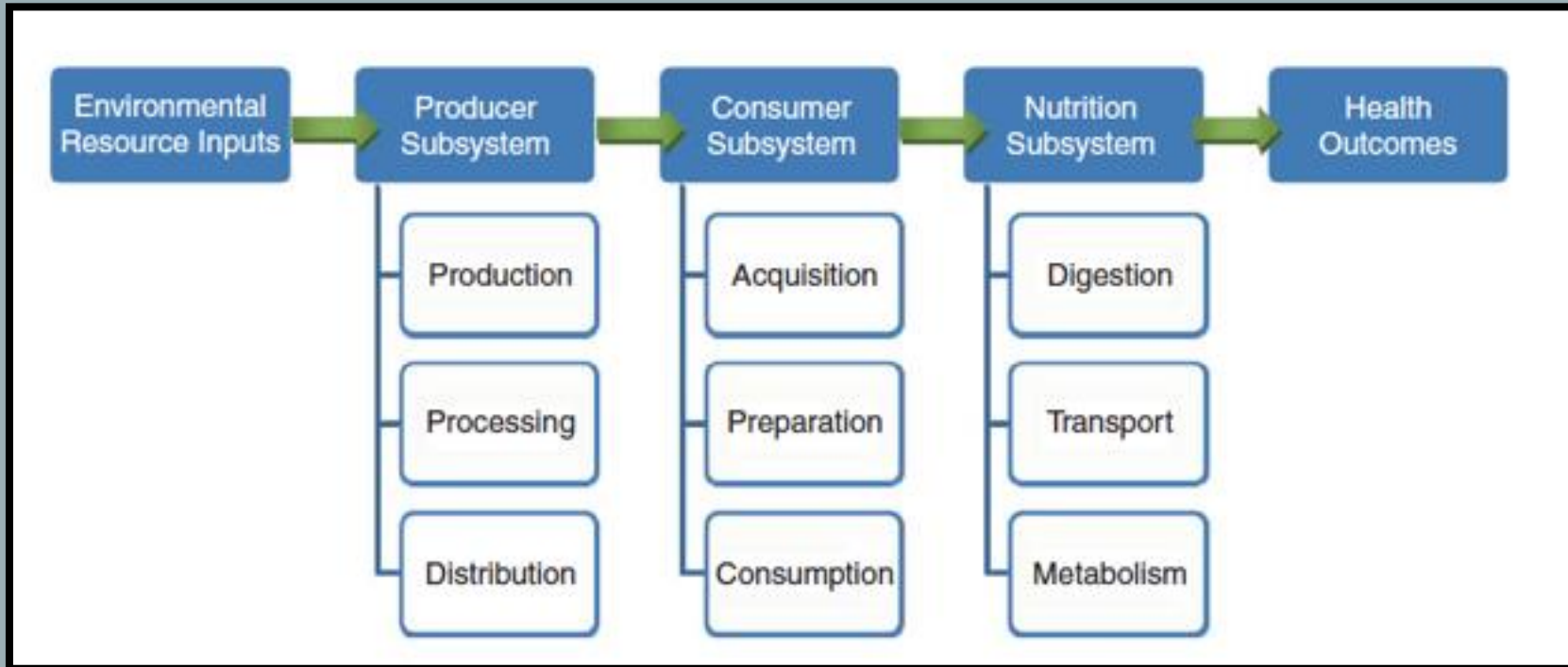
CENTER FOR
**INDIGENOUS HEALTH
RESEARCH AND POLICY**
OSU Center for Health Sciences

INTRODUCTION AND PRESENTATION OVERVIEW

- Research
 - Intervention
 - Structural/systems change
 - CBPR
- Reconnection/Restoration of Indigenous Knowledge for Health
- Case study examples



FOOD SYSTEM CONCEPTUAL MODEL



System Factors

- Organizational
- Financial
- Technological
- Regulatory/Policy

Community/Individual Factors

- Resources
- Awareness
- Access
- Skills

INDIGENOUS FOOD SOVEREIGNTY



- The right and responsibility of Indigenous people to healthy and culturally appropriate foods produced through traditional Indigenous practices¹
- Supports communities in taking greater control over their food systems by increasing traditional and healthy food access and reducing dependence on packaged and fast foods²
- Mirrors public health efforts to address diet-related disparities through food system change in other populations

¹Settee P, Shukla, S. *Indigenous Food Systems: Concepts, Cases, and Conversations*. Toronto Ontario: Canadian Scholars; 2020.

²Jernigan VBB. Addressing food security and food sovereignty in Native American communities. *Health and Social Issues of Native American Women*. 2012:113-132.

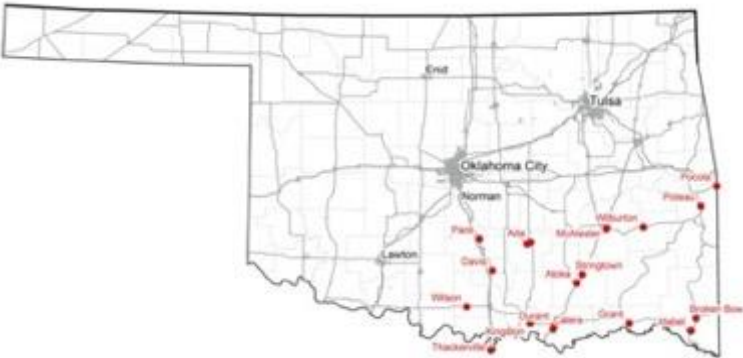


OUR APPROACH TO RESEARCH WITH NATIVE COMMUNITIES/NATIONS

- Community-based participatory research (CBPR)¹
- A partnership approach that:
- Equitably involves all members of a community in all aspects of the research process
- Supports all partners to contribute expertise and sharing in the decision-making and ownership
- Aims to increase knowledge and understanding of a given issue and integrate that knowledge with interventions for policy or social change **benefiting the community members**

¹Israel, Barbara A.; Schulz, Amy J.; Parker, Edith A.; Becker, Adam B. (1998). "REVIEW OF COMMUNITY-BASED RESEARCH: Assessing Partnership Approaches to Improve Public Health". *Annual Review of Public Health*. **19**: 173–202. doi:10.1146/annurev.publhealth.19.1.173. PMID 9611617

CASE STUDY: INCREASING HEALTHY FOOD ACCESS IN TRIBAL CONVENIENCE STORES



PRELIMINARY STUDY/INVITATION: FOOD INSECURITY AND CHRONIC DISEASE IN CHOCTAW AND CHICKASAW NATIONS

- Conducted cross sectional survey of 513 Natives
- Administered USDA 6-item short form Household Food Security Scale
- 58% of Natives surveyed were food insecure**
- Among those who were food insecure, the prevalence of **diabetes** (27.3% vs 18.8%), **obesity** (60.7% vs 45.8%), and **hypertension** (52.5% vs 42.5%) was higher compared to those who were food secure, even after adjustment for age, gender, education, income, and study site
- More than 60% of Natives surveyed reported shopping for food at tribal convenience stores 3 or more times per week**

STUDY DESIGN AND METHODS

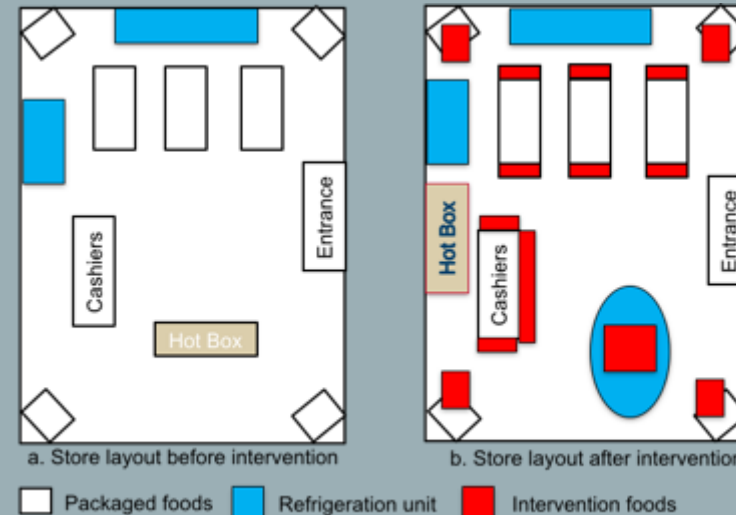
- Participatory research orientation
- Cluster control trial with eight stores (4 intervention/4 control)
- Longitudinal cohort study surveying Native shoppers (n= 1637) before and after the intervention
- Intervention strategies: **product, placement, promotion, and pricing**
 - Nation A: July 2016-April 2017 (9mos)
 - Nation B: June 2016-May 2017 (12mos)
- **Outcomes:**
 - Store: increased fruit/vegetable availability
 - store inventory and sales; nutrition environment measures scores
 - Individual: increased fruit/vegetable purchasing and intake
 - eating behaviors, self-efficacy, perceived nutrition environment, sociodemographics and exposure to intervention

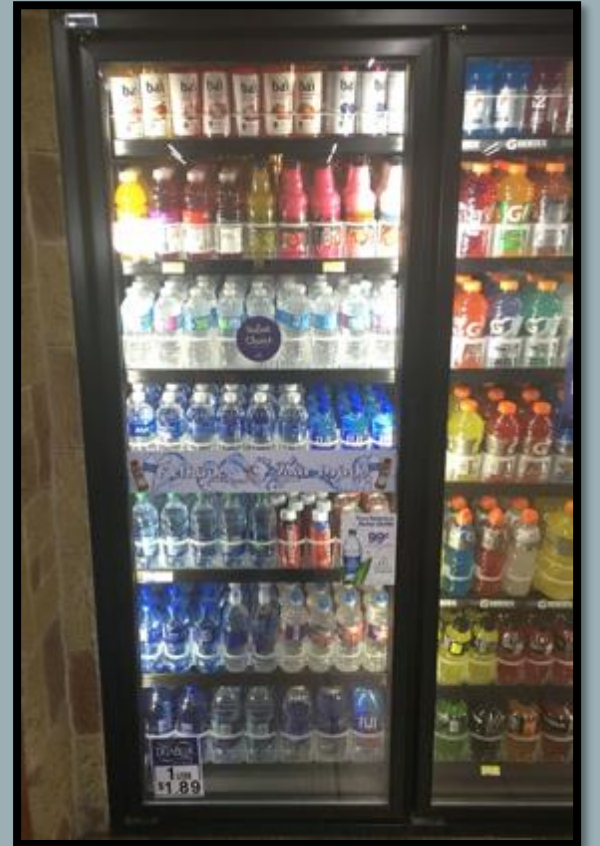
PHASE ONE: PRODUCT AVAILABILITY; BASELINE MEASURE OF STORE NUTRITION ENVIRONMENTS



Wetherill, M. et al.. (2018).Adaption and validation of the Nutrition Environment Measures Survey (NEMS) to assess tribal convenience stores in rural Oklahoma: the THRIVE study. *Health Promotion Practice*; E-pub head of print September 21, 2018.

PHASE TWO: INTERVENTION STRATEGIES (PLACEMENT, PROMOTION, PRICING)







FINDINGS AND SUSTAINABILITY

The intervention:

- Increased healthy food options (perceived and objective NEMS measures)
- Increased purchases of healthy foods
- Increased self-report of healthy food intake**
- Like other studies that only target the environment, we did not see significant changes in **overall** dietary intake, **but we did change purchasing decisions, especially among those shopping more often**

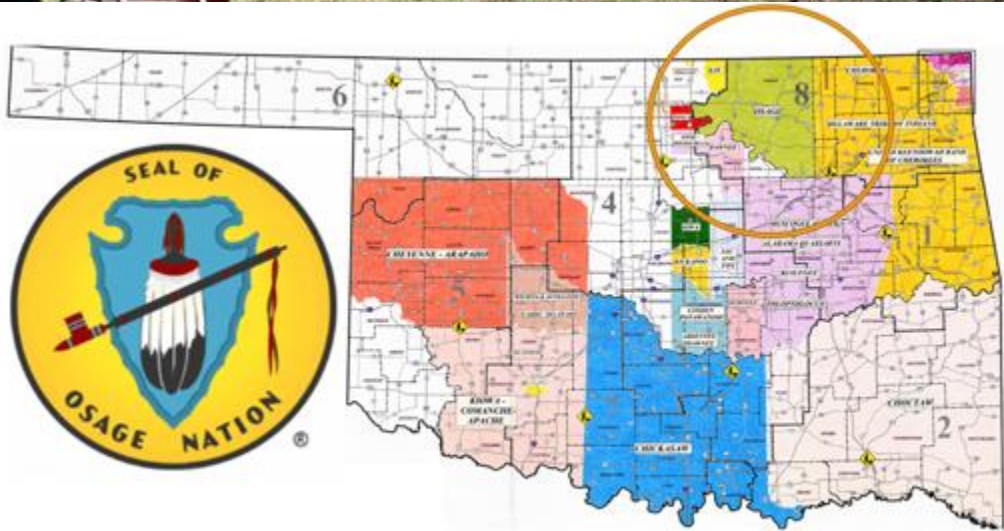
Resulted in important policy changes: distributors for both Nations expanded suppliers and options

Next steps: expand intervention strategies, include behavioral change and traditional foods focus, increase local food options

Bird Jernigan, V. B., Salvatore, A. L., Williams, M., Wetherill, M., Taniguchi, T., Jacob, T., ... & Noonan, C. (2019). A healthy retail intervention in Native American convenience stores: the THRIVE community-based participatory research study. American Journal of Public Health, 109(1), 132-139.



CASE STUDY: FARM-TO-HEAD START PROGRAM TO INCREASE HEALTHY EATING IN CHILDREN



“Finally, we have a way to do
what we did 200 years ago...feed
our own people.”

— Raymond Red Corn, Osage Nation Assistant Principal Chief

Preliminary study/invitation: builds upon Bird Creek Farm Initiative and Osage Nation’s vision to create a sustainable food system/ Indigenous food sovereignty; conducted preliminary readiness and feasibility assessment

Develop a culturally relevant, multilevel, multicomponent farm-to-school intervention and evaluate its efficacy in increasing vegetable and fruit intake and reducing food insecurity, BMI, and blood pressure (adults only) among Osage families

Jernigan, V. B. B., Boe, G., Noonan, C., Carroll, L., & Buchwald, D. (2016). Assessing feasibility and readiness to address obesity through policy in American Indian reservations. *Journal of health disparities research and practice*, 9(3), 168.

MULTI-LEVEL MULTI-COMPONENT INTERVENTION

Environment/
Policy
Bird Creek Farm

School/
Community
Curriculum
Staff Feeding Practices
Menu Changes

Family (Passive)
Weekly meal kits
Web-based parent
curriculum
Monthly family nights

STUDY DESIGN, SETTING, AND OUTCOMES



- Study Design: Multi-level, multi-component wait-list controlled trial
- Setting: Early Childhood Education (ECE) centers in 4 communities, total of 9 ECEs
- Inclusion criteria: American Indian, with a child enrolled in one of the ECEs, aged 3-5, and no plans of moving within the next year
- Intervention from Jan 2018-Dec 2018
 - 2 communities randomized to intervention group (5 ECEs) - Received intervention in Spring 2018
 - 2 communities randomized to control group (4 ECEs) - Received intervention in Fall 2018
 - Total participants: 369 (176 parent/caregivers; 193 children aged 3-6)
- Primary Outcomes:
 - Increase fruit and vegetable willingness to try and intake in children
- Secondary Outcomes:
 - Reduce food insecurity, Body Mass Index (BMI), and blood pressure (BP) (adults only), and increase vegetable and fruit intake in adults

Community outcomes: Launch farm to feed children and inform policy

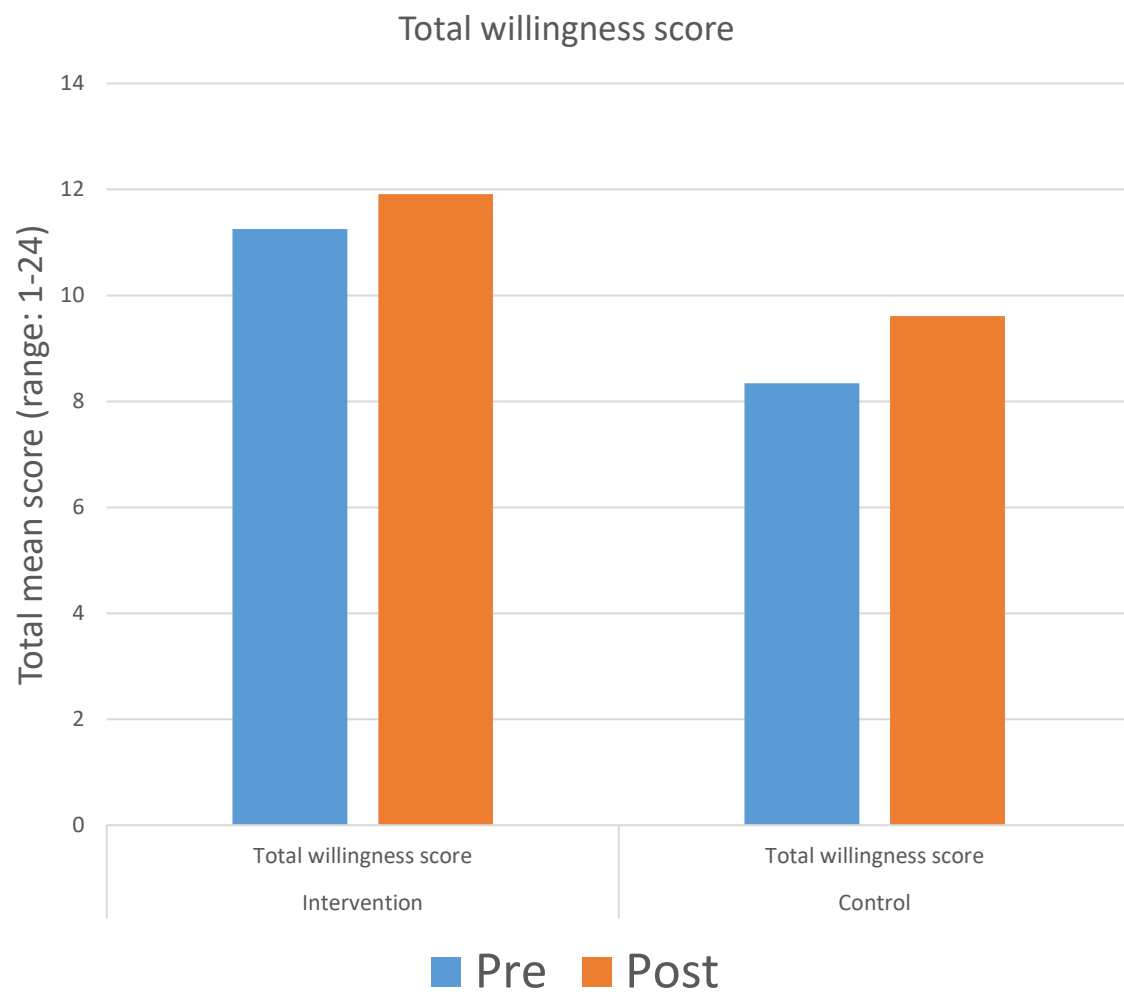


FINDINGS

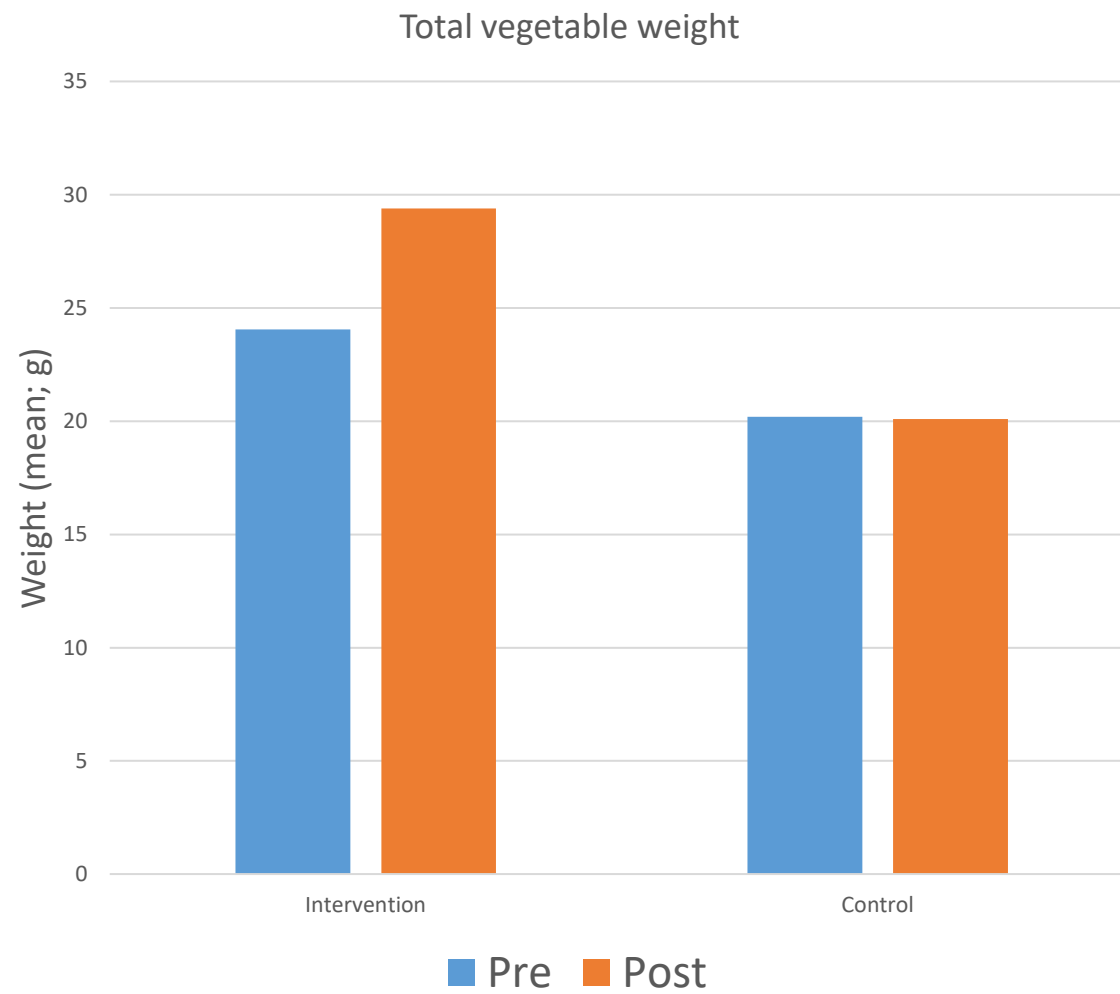
	Overall (N=176)	Intervention (N=94)	Control (N=82)	P-value
Age, years, mean (SD)	33.2 (7.1)	34.0 (7.3)	32.2 (6.8)	0.11
Female, %	91.8	90.3	93.5	0.64
Native American, %	56.5	66.7	44.2	0.005
Education, %				0.08
Some high school	4.1	4.3	3.9	
High school graduate/GED	41.2	35.5	48.1	
Technical/Vocational school	30.6	28.0	33.8	
College graduate or higher	24.1	32.3	14.3	
Annual household income, %				0.09
≤ \$15,000	15.0	16.2	13.3	
\$15,001-30,000	25.6	18.3	34.5	
\$30,001-50,000	30.5	24.7	40.0	
> \$50,000	28.0	40.8	12.0	
Employed full or part time, %	67.1	75.3	57.2	
Marital status, %				0.94
Married	59.4	60.2	58.4	
Divorced/Separated	15.9	17.2	14.3	
Never married	14.7	12.9	16.9	
Partner/significant other	10.0	9.7	10.4	
Food assistance program participation, %				
Food Stamp benefits	10.8	12.8	8.5	0.47
Food Distribution benefits	2.3	2.1	2.4	1.0
Women, Infants, and Children	30.1	29.8	30.5	1.0

CAREGIVER FINDINGS: DEMOGRAPHICS

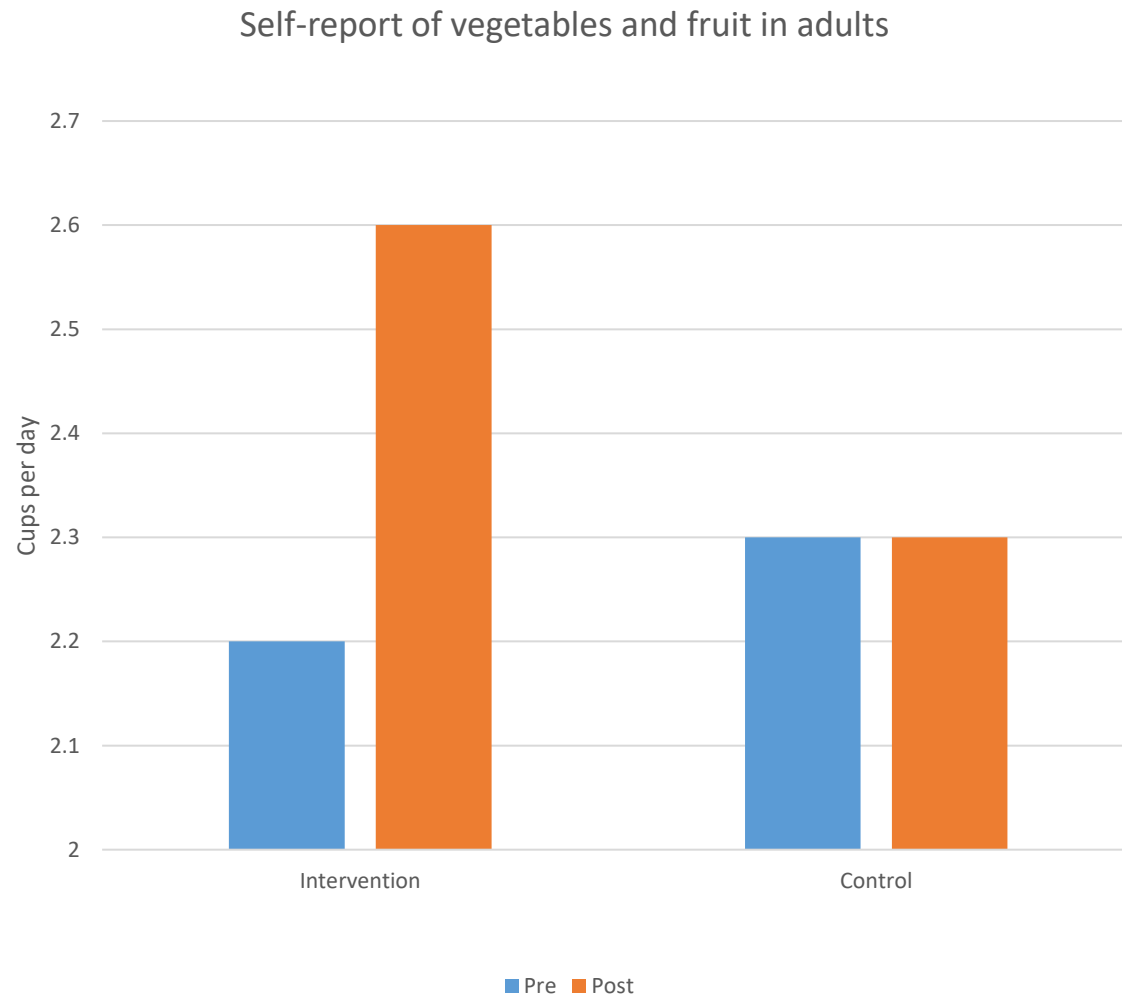
CHILD WILLINGNESS TO TRY

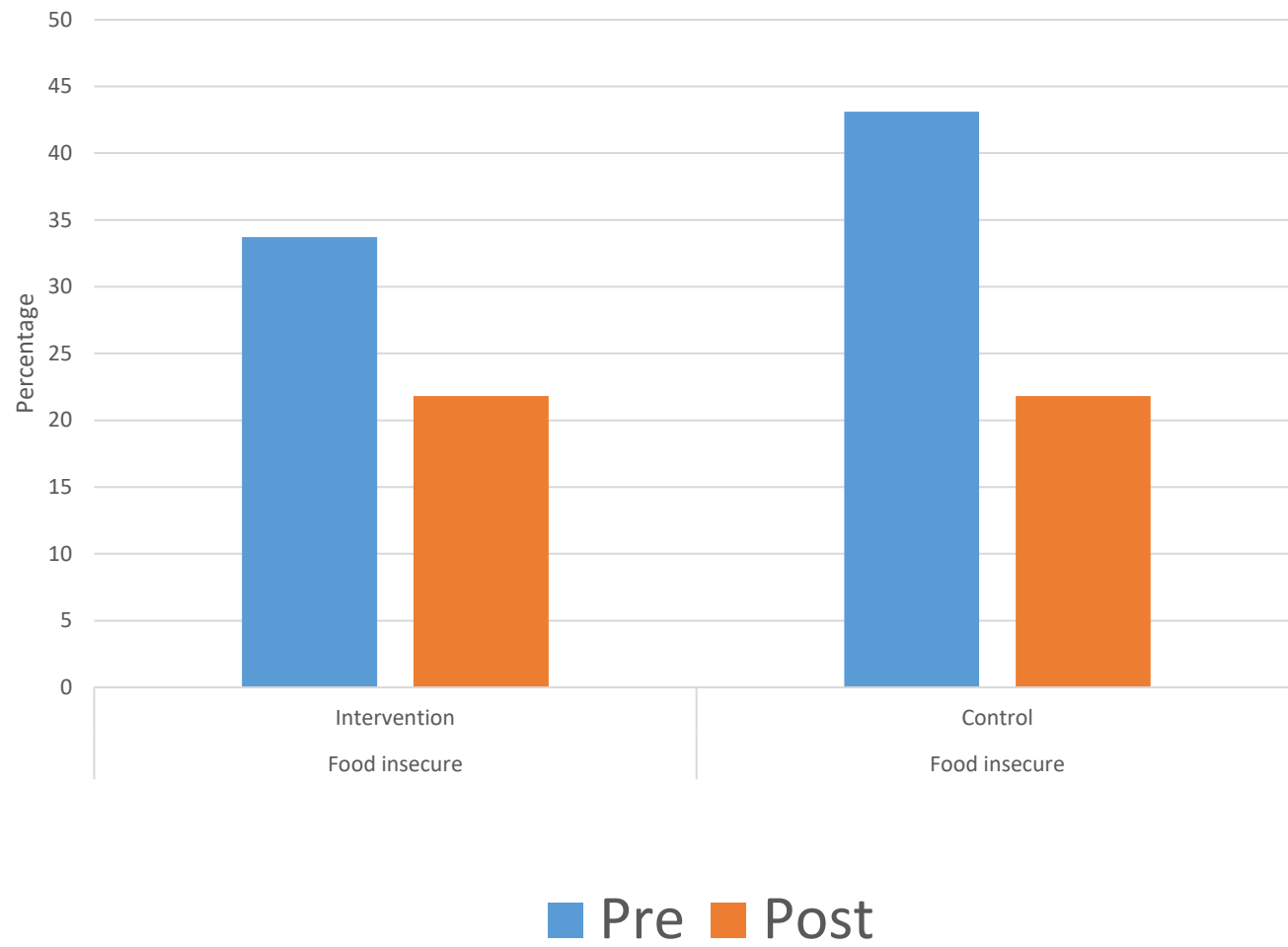


CHILD PLATE WASTE



SELF-REPORTED
VEGETABLES AND FRUIT
AT BASELINE AND
FOLLOW-UP IN
CAREGIVERS
(N=152)





SELF-REPORTED
FOOD
INSECURITY AT
BASELINE AND
FOLLOW-UP IN
CAREGIVERS
(N=152)



SUSTAINABILITY/NEXT STEPS

- Used data to advocate for policy and BCF was expanded by Osage Nation Congress in 2019
- We developed and disseminated the study information through a PBS series called “Blood Sugar Rising,” which premiered on PBS April 15, 2020
- Expanded farm-to-school to a Community Supported Agriculture Program

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