The PHIT Project: Pilot Study of a Childhood Obesity Intervention

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Project Partners

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We know children.

Childhood Obesity

- Estimated medical costs associated with obesity-related morbidity are 209.7 billion and rising (Cawley & Meyerhoefer, 2012).
- Obese children are more likely to become obese adults and the cumulative effect of decades of obesity is severe (Freedman, Dietz, Srinivasan, & Berenson, 2009).
- Although prevalence rates among our youngest children have improved, overall, obesity rates continue to rise as children get older (Biro & Wien, 2010).
- Treating obesity in childhood may have lasting health and economic impacts.

Obesity Intervention

- Childhood obesity results from dynamic interactions among genetic, behavioral, and environmental factors (Spruijt-Metz, 2011).

- Interventions that support behavioral and environmental changes are needed.

- The early formative years of a child's life may be *crucial* to impacting health trajectories as this is the period when habits are formed, contingencies established, and early relationships are developed.

Partners in **H**ealth: **I**n It **T**ogether (PHIT)

- ***PHIT*** is an innovative approach that utilizes a patient-centered, problem solving model delivered via home-visitation for preschoolers (3-5 y.o.) who are overweight or obese (BMI ≥ 85%ile).

- Based on an ecological- behavioral consultation approach (Sheridan & Kratochwill, 2008) that promotes environmental and behavioral changes across settings through an integrated implementation of evidence-based interventions.

PHIT Process

- Pediatric behavioral consultants work with families to promote children's healthy habit formation via 6 biweekly, one-hour home visits.
- Structured, databased problem solving process includes individualized goal-setting and treatment planning to address specific obesity related behaviors (dietary intake, activity level, and sleep).
- Treatment plans include:
  - Environmental control (e.g., access to food options)
  - Positive behavior management (e.g., modeling, monitoring)
  - Cross-setting linkages (communication with physicians, treatment planning with care providers when possible)

Project Aims

- Determine the efficacy of PHIT for improving standardized BMI levels (zBMI) for overweight or obese preschoolers immediately and over time.

- Determine the efficacy of PHIT at improving dietary behavior and physical activity for overweight or obese preschoolers immediately and over time.

- Ascertain the efficacy of PHIT for (a) improving parents' (and caregivers') practices, (b) altering environmental contexts, and (c) enhancing cross-system integration for overweight and obese preschoolers immediately and over time.

Research Plan

- 70 preschool children identified by pediatricians and other health providers with BMIs ≥ 85%ile.
- Children are randomized to the PHIT intervention or control condition (monitoring typical care, basic educational information).
- Measures of children's health status, health behaviors (dietary intake, physical activity, and sleep), and parent surveys are collected at 4 time-points (baseline, mid-point, post-treatment, and 6-month follow-up).

Preliminary Glance

Sample

- 21 families participating in the control (*n* = 13) and treatment (*n* = 8) conditions of the PHIT intervention project
  - 67% of families are Latino; 33% White
  - 95% of parents are mothers; on average age 34; median education level of 12th grade, but no diploma
  - 67% of children are female; on average age 4

Preliminary Glance

Measures

- Body mass index (*BMI*) calculated from child height and weight
  - Normal or Healthy Weight: 5th percentile to less than 85th percentile
  - Overweight: 85th to less than the 95th percentile
  - Obese: 95th percentile or greater

- Children's *physical activity* levels measured in minutes by accelerometer over 7 day period

- Children's *food consumption* as reported by parents through dietary recall questions adapted from The Early Childhood Longitudinal Study- averaged over three days in a week
  - Fast Food: 0 = no fast food in the past 24 hours to 4 = 4 or more times per day
  - Vegetables: 0 = none to 7 = 3 cups or more

Method

Analytic Approach

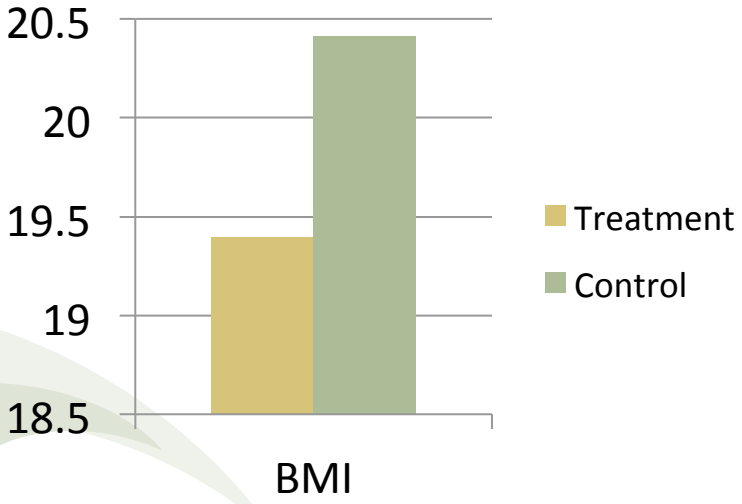
- Analysis of Covariance (ANCOVA)
- Examined differences between the control and treatment groups at mid-point (1.5 months into treatment)
- Covariates (Pretest)
  - Child gender
  - Pretest levels of outcomes

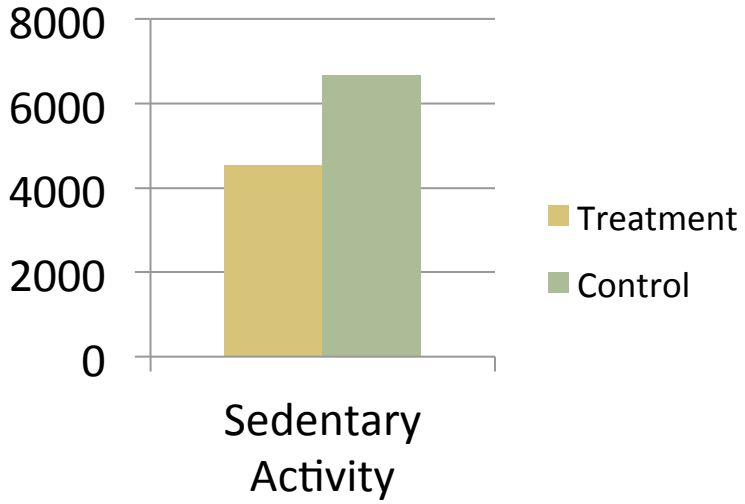
Results

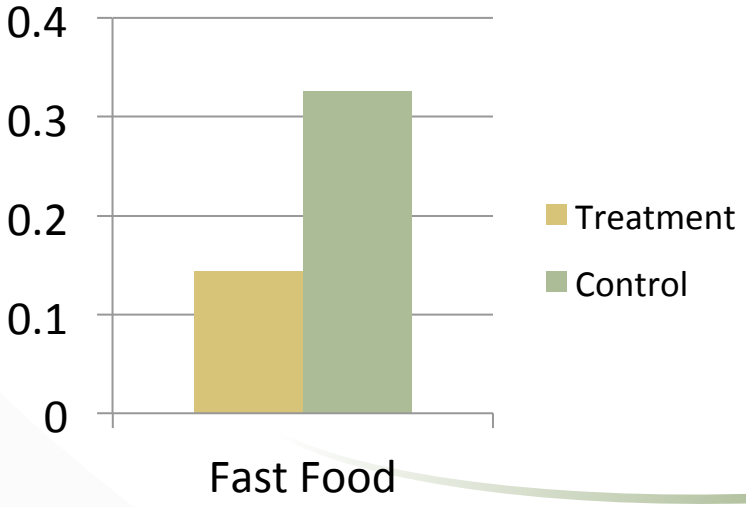
	Treatment		Control		*F*-test	Effect Size
	Adjusted *M*	*SE*	Adjusted *M*	*SE*		
Raw BMI	19.40	0.20	20.41	0.22	10.53*	0.54
Z-BMI	1.96	0.08	2.34	0.08	10.63*	0.54
Weight for age Percentile BMI	93.96	0.68	96.47	0.74	18.21*	0.40
Sedentary activity	4549.18	434.72	6680.46	479.45	25.10**	0.49
Light physical activity	1221.26	249.79	330.69	269.96	5.82*	0.39
Parent report fast food intake	0.14	0.04	.33	0.04	9.77*	0.62
Parent report vegetables	3.79	0.83	1.44	1.03	3.01	0.33

Note. Effect size: small = .10, medium = .25, large = .40
*$p < .05$. **$p < .01$.

Results


20.5
20
19.5
19
18.5
Treatment
Control
BMI


8000
6000
4000
2000
0
Treatment
Control
Sedentary Activity


0.4
0.3
0.2
0.1
0
Treatment
Control
Fast Food

Implications

- Results are preliminary and participants are still being recruited to study.
- Children in PHIT intervention are making significant improvements in healthy habits leading to improvements in health status compared to children in control group.
- Further analysis is needed to determine efficacy of PHIT intervention and long-term effects on health trajectory.

Take Away Points

- Treating obesity in childhood may have lasting health and economic impacts.
- A family-centered, problem-solving model can promote environmental and behavioral changes that impact children's health.
- Collaboration across early care systems is important to addressing childhood obesity.

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