

# **The Family Partners for Health Study: A Randomized Cluster Control Trial for Child and Parent Weight Management**

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# Research Team

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# Funding Source

**National Institutes of Health**

**National Institute of Nursing Research**

**1R0100254-05**

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# Background

- **Overweight and Obesity**
  - **Adults**
  - **Children**
- **Co-Morbidities and Mortality**
  - **Prediabetes**
  - **Diabetes**
  - **Cardiovascular Disease**
- **Economic Burden**
  - **Direct Costs**
  - **Indirect Costs**

# Source of the Problem

- **Genetic Predisposition**
- **Environmental Factors**
  - **Nutrition**
  - **Exercise**
  - **Sedentary Activities**

# Purpose

Examine the effects of a two-phase intervention on the following outcomes in 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> grade children who are overweight or obese and their overweight or obese parents

- Weight Status

(BMI Percentile and BMI)

- Stabilization of weight trajectory and BMI percentile in children

- Weight loss and decreased BMI in parents

- Adiposity Status

(Waist Circumference, Triceps and Subscapular Skinfolds)

- Stabilization of adiposity trajectory in children

- Adiposity loss in parents



# Purpose

- Health Behaviors (Nutrition and Exercise)
  - Child Health Behavior Questionnaire  
(DHHS 2004; NCDHHS, 2004)
  - Adult Health Behavior Questionnaire  
(DHHS, 2004; NCDHHS, 2004)
  - Health Promoting Lifestyle Profile II in parents  
(Walker, Sechrist, & Pender, 1987)
  - Accelerometry for 4 days in children and parents  
(Troost et al., 2005)

# Purpose

- Self-Efficacy

- Child and Adolescent Trial for Cardiovascular Health (CATCH) Questionnaire (Parcel et al., 1995)
- Eating Self-Efficacy Questionnaire in parents (Glynn & Ruderman, 1986)
- Exercise Self-Efficacy Questionnaire in parents (Bandura, 1997)



# Intervention Conceptualization

**Social Cognitive Theory**

**Building Knowledge-Building Self-Efficacy**

**Parenting Skills-Role Modeling**

**Problem-----Intervention-----Outcomes**

# Methods

- **Two group repeated measures experimental design**
- **Test a 12-week intensive intervention (Phase I)**
- **Nine months of monthly follow-up (Phase II)**
- **Six months on their own**
- **Total of 18 months in the study**

# Methods

- **Data Collection**
  - **Time 1 (Baseline)**
  - **Time 2 (Completion of Phase I)**
  - **Time 3 (Completion of Phase II)**
  - **Time 4 (Completion of Follow-up)**

# Settings

- **Community Partners**
  - **2 School Districts**
  - **8 Rural Elementary Schools**
  - **12 Additional Catchment Schools**
  - **Enrollment**
  - **Delivery of the Intervention**
    - Classrooms**
    - Gymnasiums**

# Sample

- **Inclusion criteria for children**
  - **Ability to speak, write, and read in English**
  - **A BMI  $\geq$  85<sup>th</sup> percentile for age and gender in the 2<sup>nd</sup>, 3<sup>rd</sup>, or 4<sup>th</sup> grade**
  - **A parent or guardian with a BMI  $\geq$ 25 kg/m<sup>2</sup>**
  - **Lives with the parent**
  - **Their assent and their parent or guardian's consent to their participation**

# Sample

- **Inclusion criteria for parents**
  - **Ability to speak, write, and read in English**
  - **A BMI  $\geq$  25 kg/m<sup>2</sup>**
  - **A child with a BMI  $\geq$  85<sup>th</sup> percentile for age and gender in the 2<sup>nd</sup>, 3<sup>rd</sup> or 4<sup>th</sup> grade**
  - **Lives with the child**
  - **Their consent and their child's assent to participation in the study**

# Exclusion Criteria

- **Children/Parents were excluded if either had a history of**
  - Heart murmur**
  - Congenital heart disease**
  - Family history of sudden death**
  - History of psychological problems**
  - Participation in another clinical trial**
  - Asian race**



# Phase I Intervention

## Sessions

## Topics

- |                        |  |
|------------------------|--|
| 1. Nutrition Education | Understanding calories, proteins, carbohydrates, and fats              |
| 2. Nutrition Education | How portion control can make a difference                              |
| 3. Nutrition Education | How to make healthy substitutes with food                              |
| 4. Nutrition Education | Choosing healthy food when eating out                                  |
| 5. Exercise Education  | The importance of exercise   |
| 6. Coping Skills       | Increasing exercise<br>(Cognitive Restructuring)                       |
| 7. Coping Skills       | Improving nutrition and exercise behaviors<br>(Social Problem Solving) |
| 8. Coping Skills       | Motivating each other in a positive manner<br>(Assertiveness Training) |
| 9. Coping Skills       | Understanding barriers to healthy choices<br>(Social Problem Solving)  |
| 10. Coping Skills      | Getting back on track after relapse<br>(Assertiveness Training)        |
| 11. Coping Skills      | Working through conflict<br>(Conflict Resolution)                      |
| 12. Final Class        | Putting it all together  |

# Phase II Intervention

## Sessions

1. Nutrition and Exercise Problem Solving
2. Nutrition and Exercise Problem Solving
3. Nutrition and Exercise Problem Solving
4. Nutrition and Exercise Problem Solving
5. Nutrition and Exercise Problem Solving
6. Nutrition and Exercise Problem Solving
7. Nutrition and Exercise Problem Solving
8. Nutrition and Exercise Problem Solving
9. Nutrition and Exercise Problem Solving

# Exercise Intervention

- Basketball
- Soccer
- Walking
- Kick Boxing
- Stretching
- Light Weights
- Stretch Bands



















**INDIVIDUAL**  
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# Data Analysis

- **General Linear Mixed Models**
- **The P-value for experimental versus control comparison was Hochberg-corrected**
- **Fixed effects included indicators for intervention, post-baseline time and pairs of simultaneous intervention and control groups as well as baseline value for the corresponding measure, which adjusted imbalances at baseline and the intervention-by-time interaction**

# Results



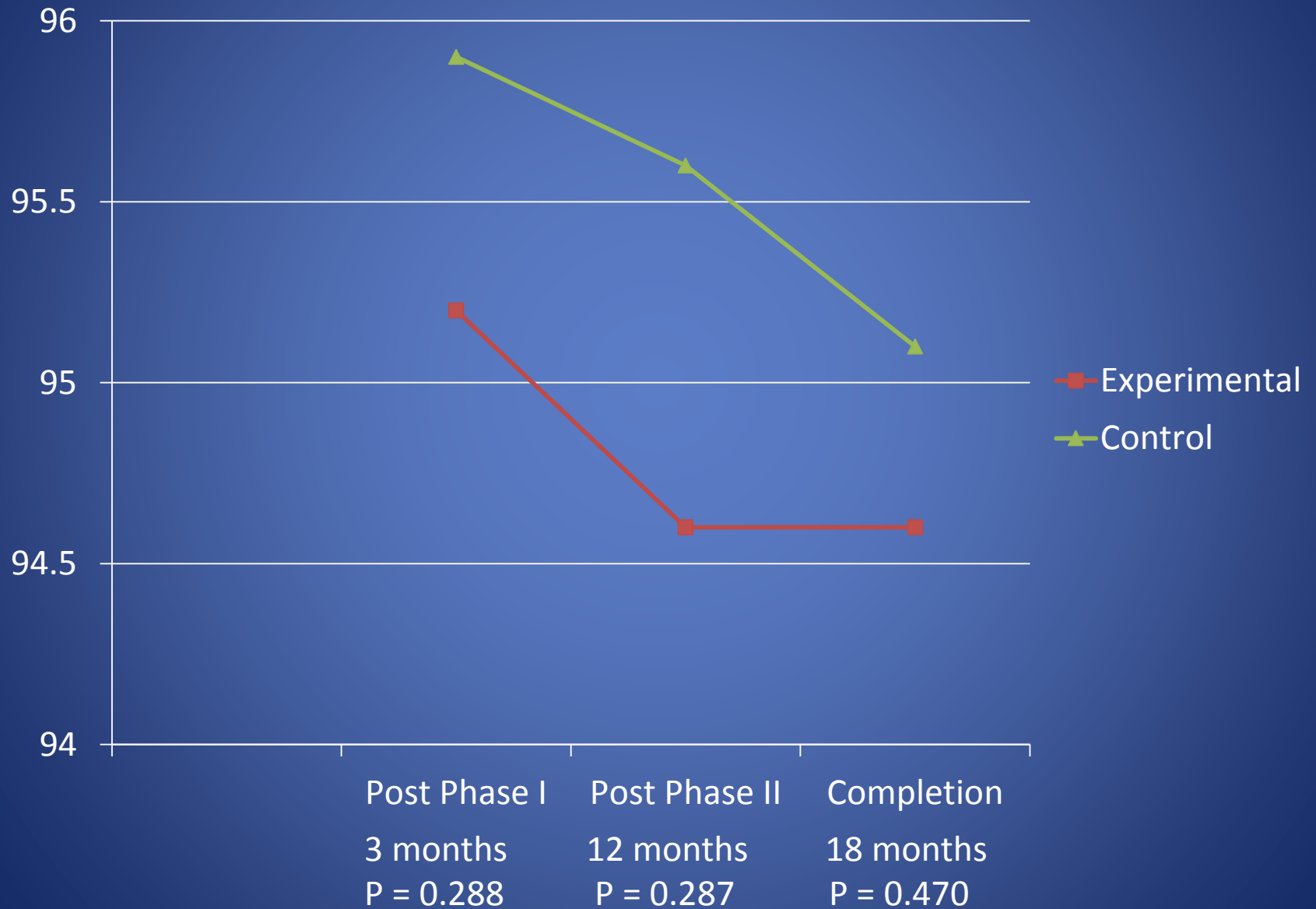
# Parent's Characteristics (n = 358)

<b>Age</b>	<b>36.9 (<math>\pm</math>8.1) years</b>
<b>Gender</b>	<b>93% Female</b>
<b>Married</b>	<b>45%</b>
<b>Education</b>	<b>9% Middle School</b> <b>34% High School</b> <b>57% College Degree</b>
<b>Race</b>	<b>63% African American</b> <b>31% Non-Hispanic White</b> <b>6% Other</b>
<b>Income</b>	<b>33% &lt;\$20,000/year</b> <b>38% \$20,000-\$39,999/year</b> <b>17% <math>\geq</math> \$40,000</b> <b>12% Do not wish to respond</b>
<b>Biological Parent</b>	<b>88% Yes</b> <b>12% No</b>

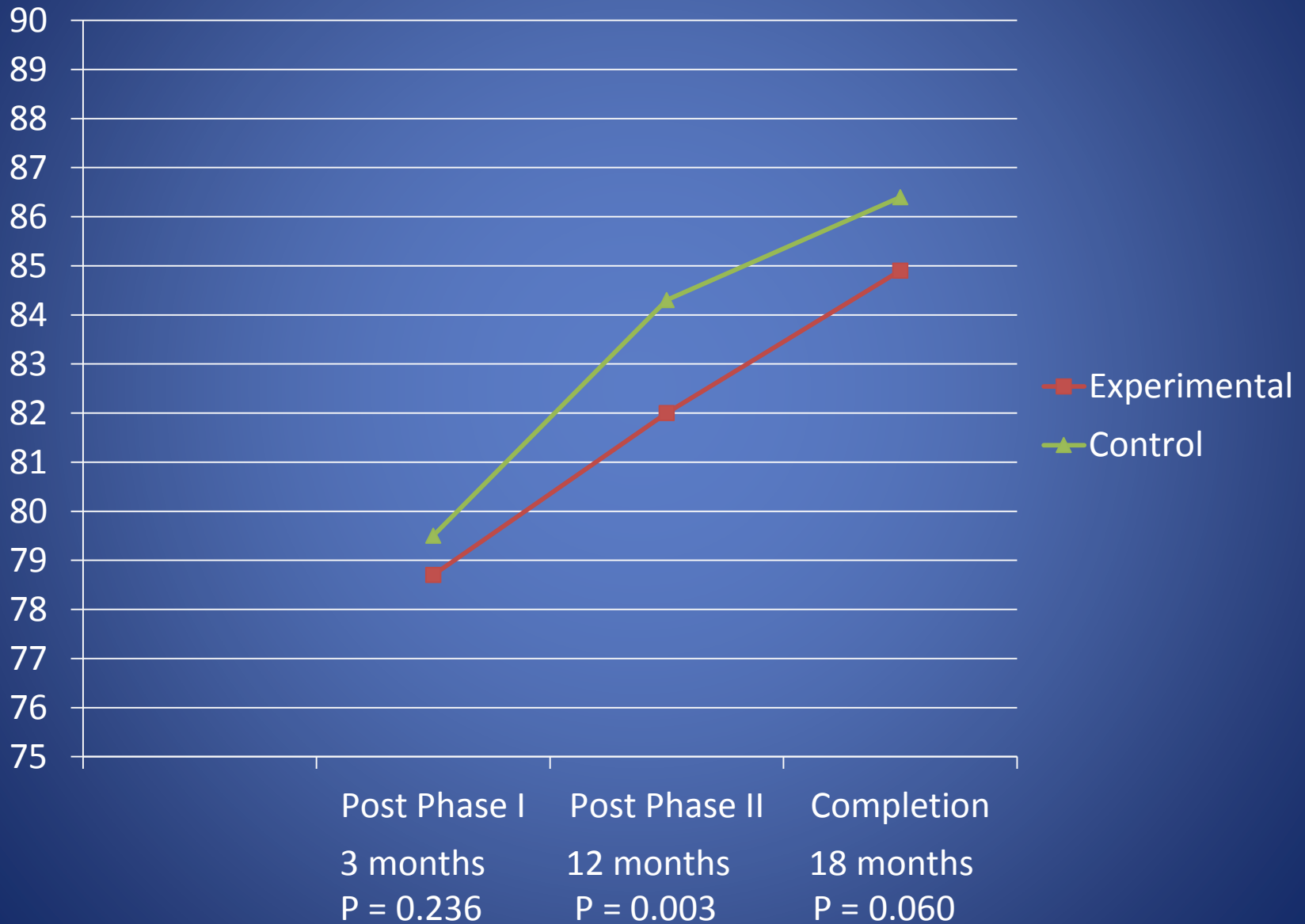
# Children's Characteristics (n = 358)

<b>Age</b>	<b>9.1 (+0.95) years</b>
<b>Gender</b>	<b>56% Female</b>
<b>Education</b>	<b>19% Second Grade</b> <b>42% Third Grade</b> <b>39% Fourth Grade</b>
<b>Race</b>	<b>64% African American</b> <b>27% Non-Hispanic White</b> <b>9% Other</b>
<b>Birth Order</b>	<b>43% First Born</b> <b>34% Second Born</b> <b>15% Third Born</b> <b>6% Fourth Born</b> <b>2% Fifth Born</b>

# Child Body Mass Index Percentile

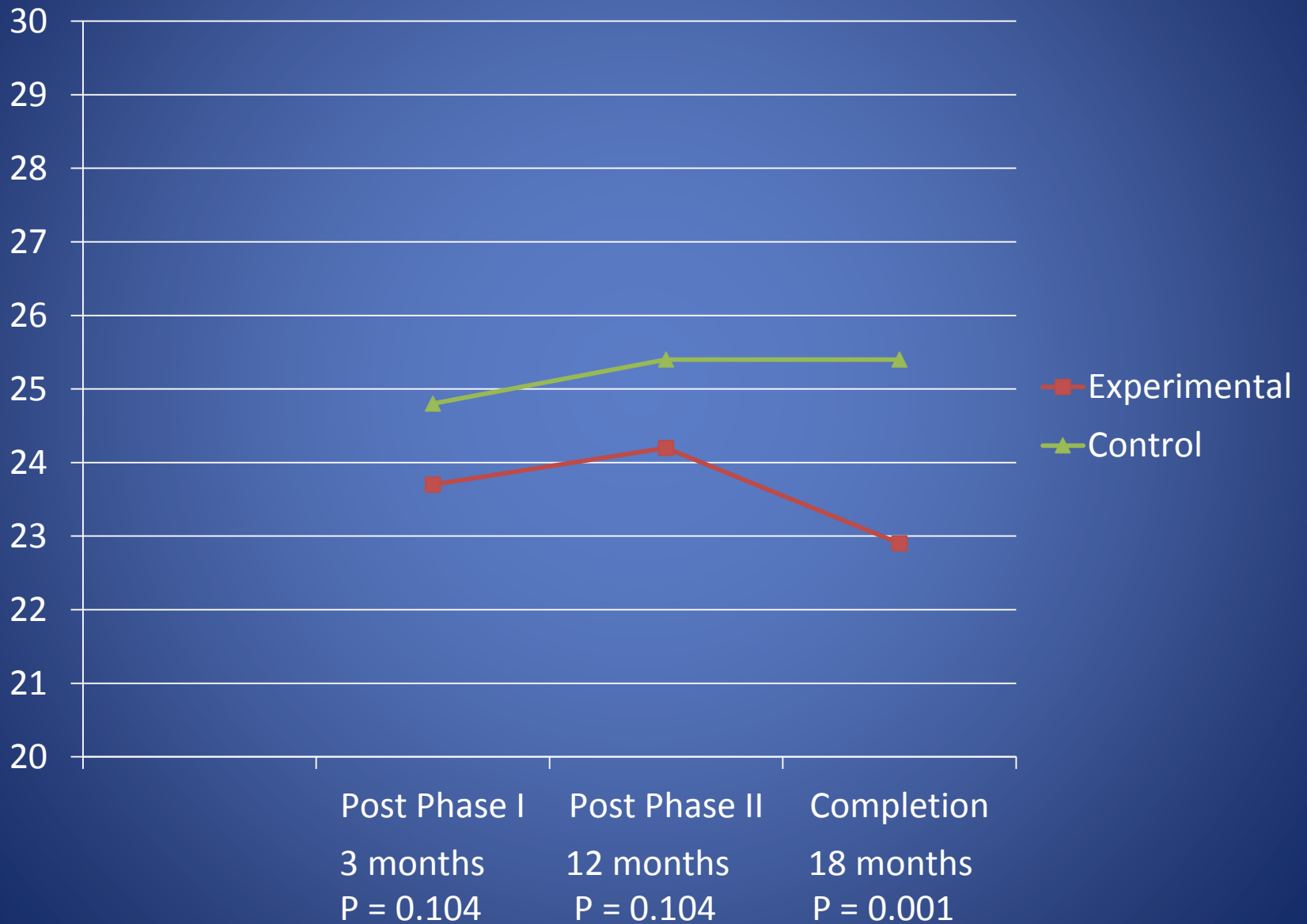


# Children's Waist Circumference (cm)

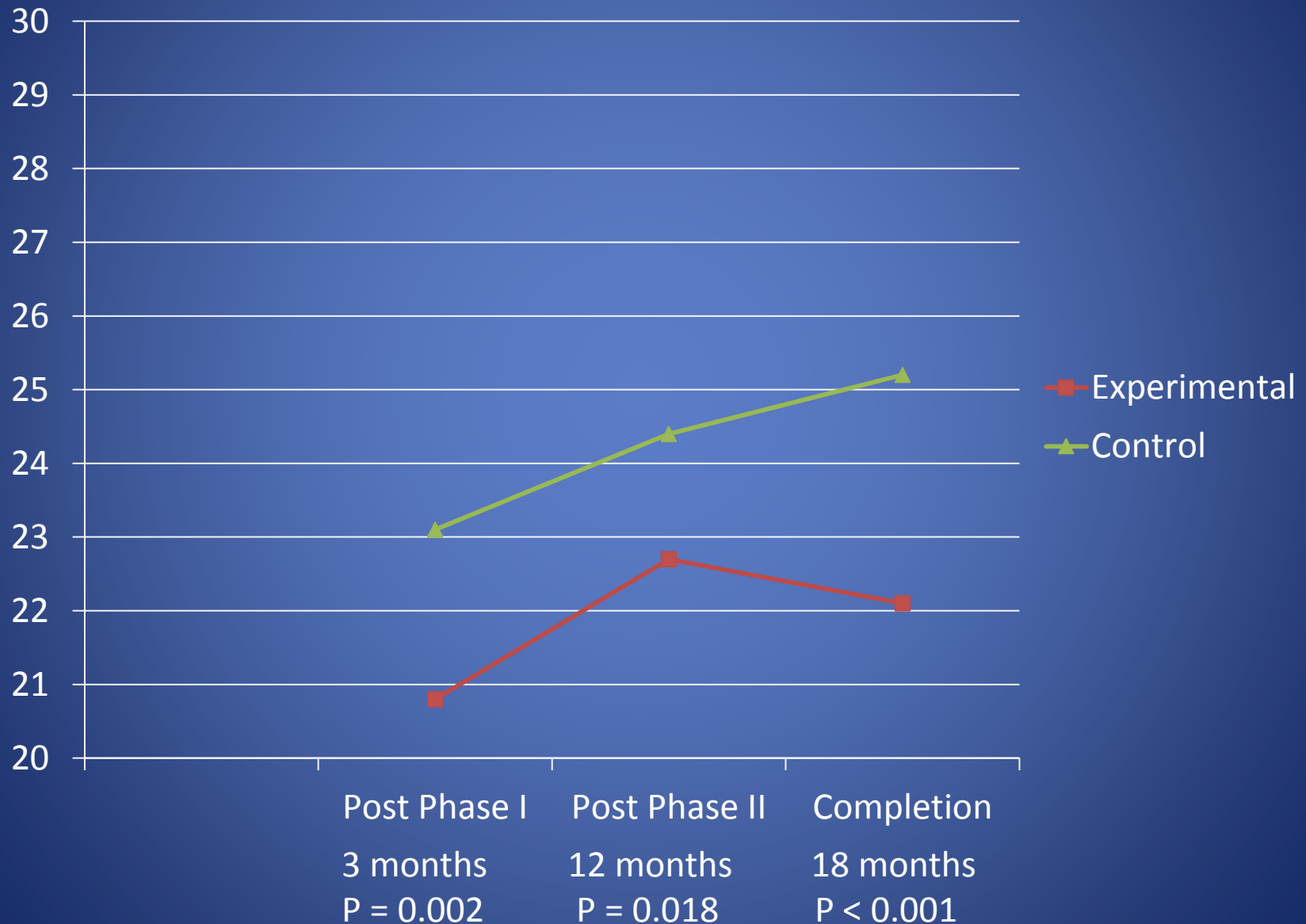




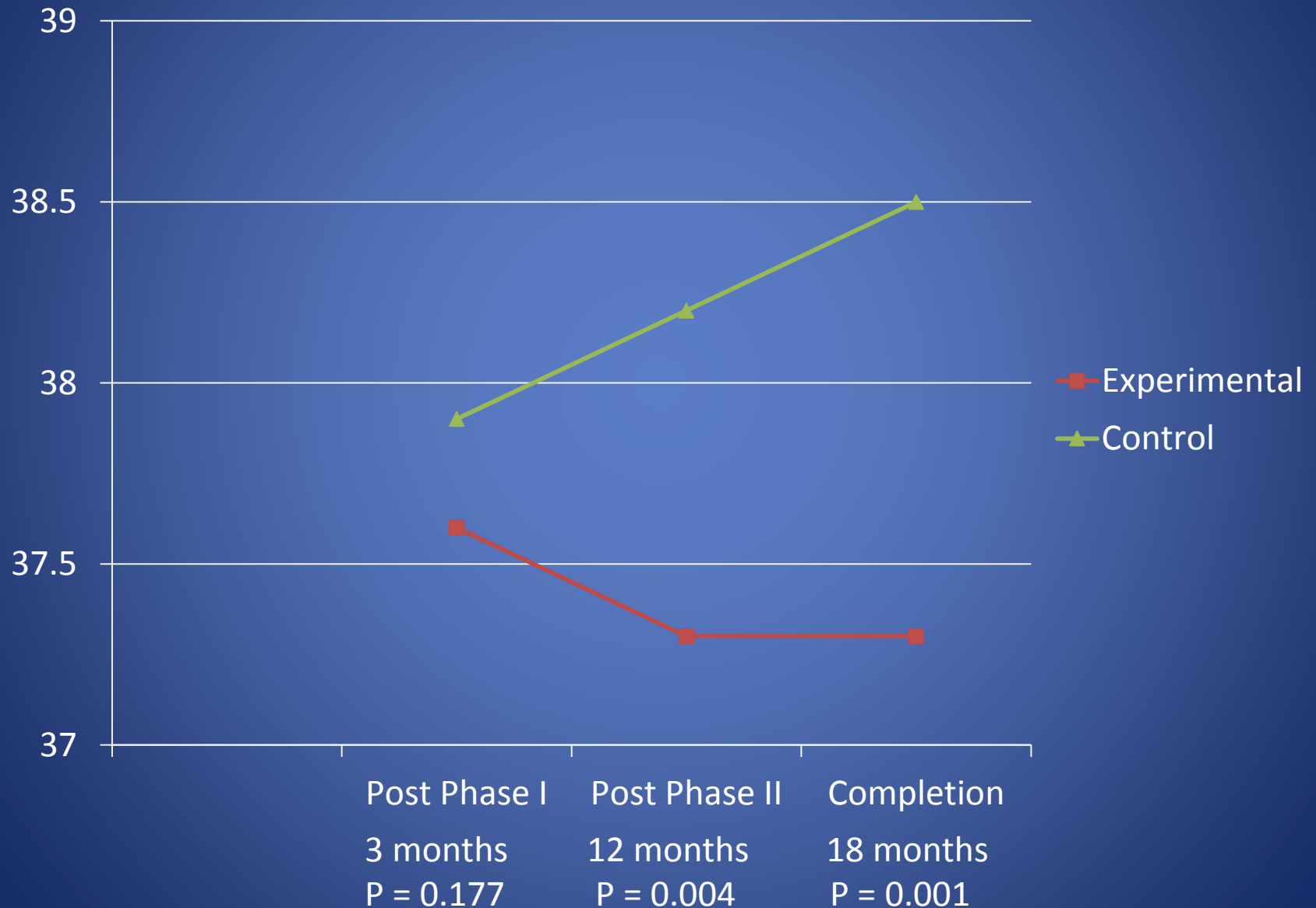
# Children's Triceps Skinfolds (mm)



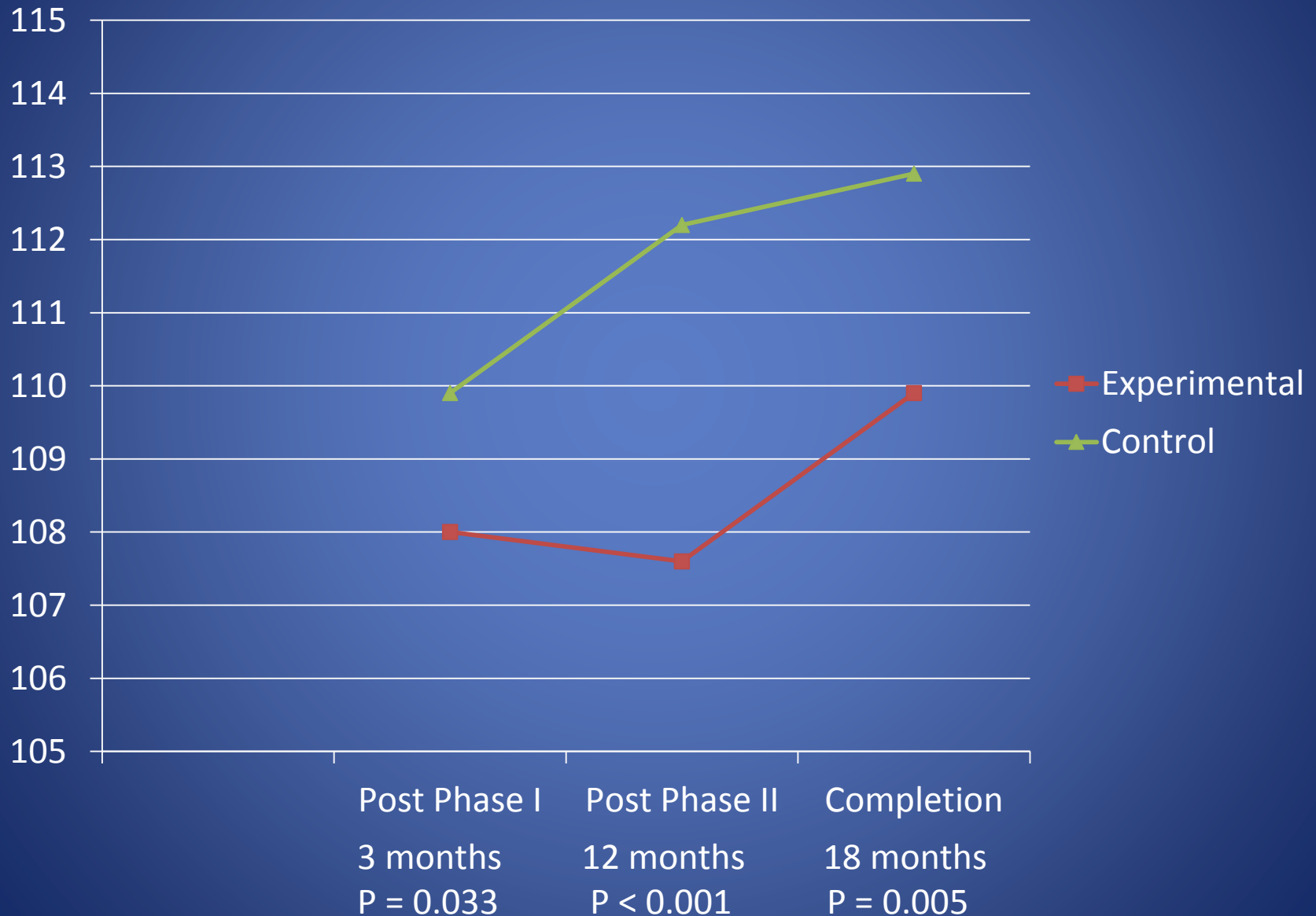
# Children's Subscapular Skinfolds



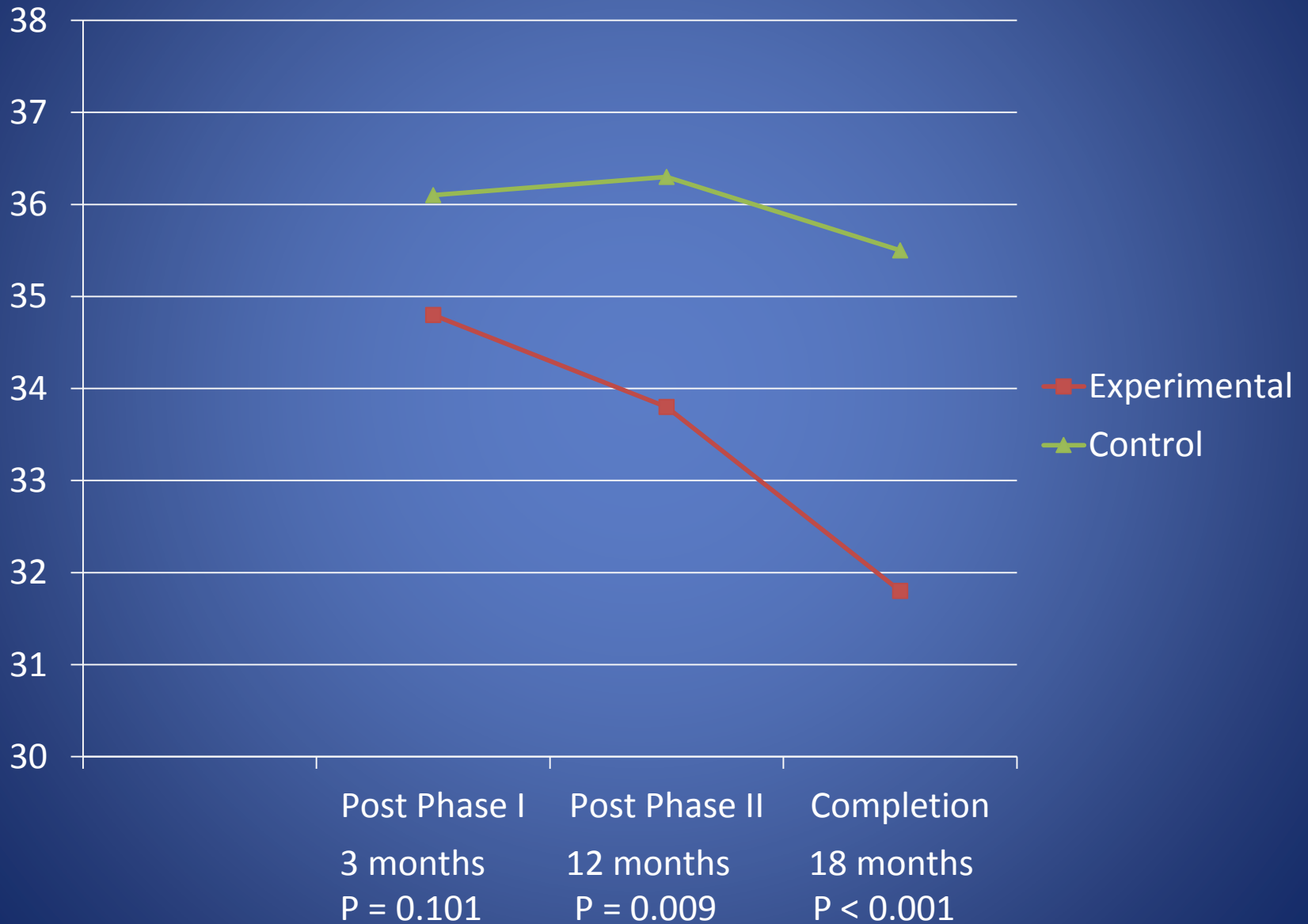
# Parent's Body Mass Index (kg/m<sup>2</sup>)



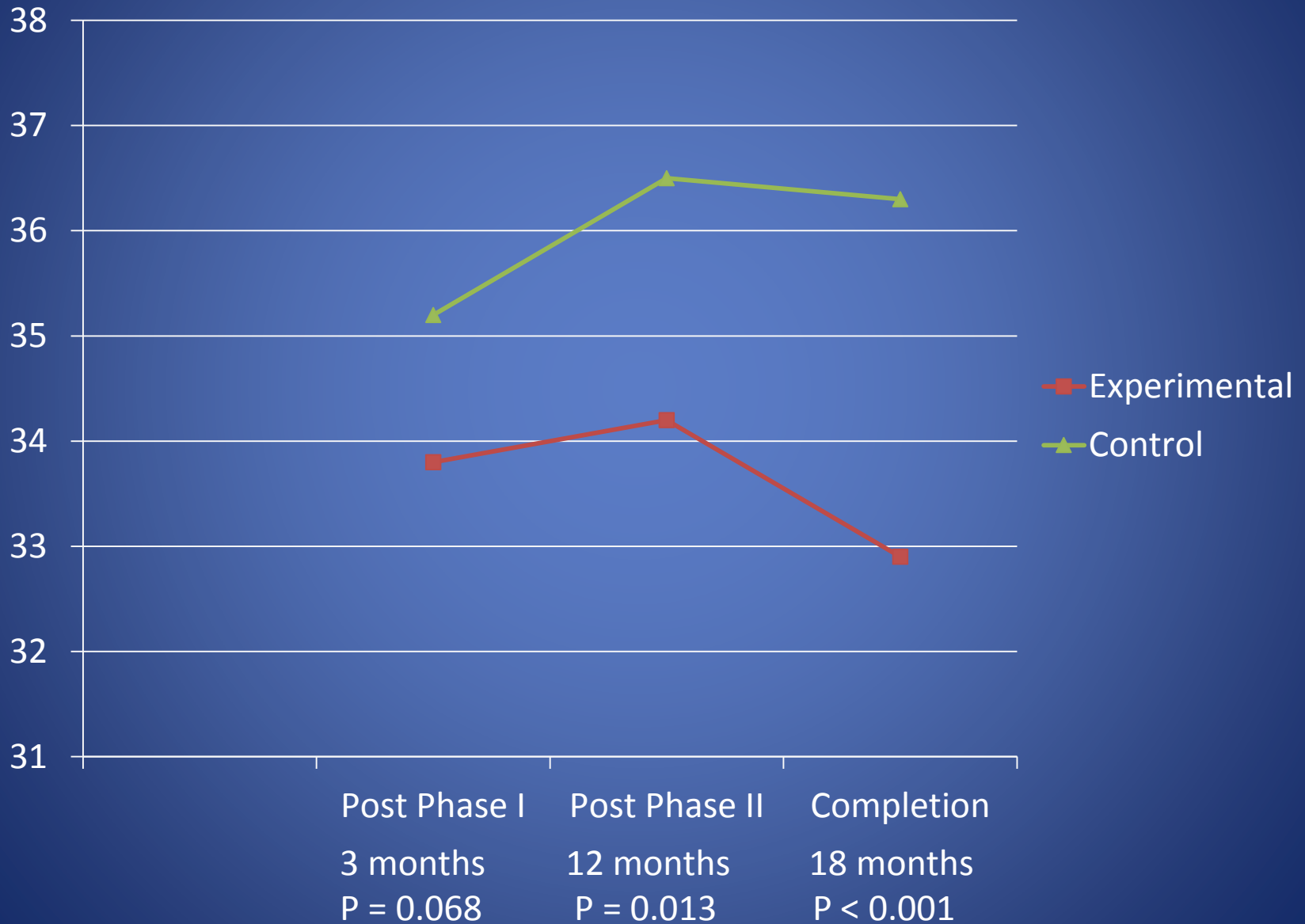
# Parent's Waist Circumference (cm)



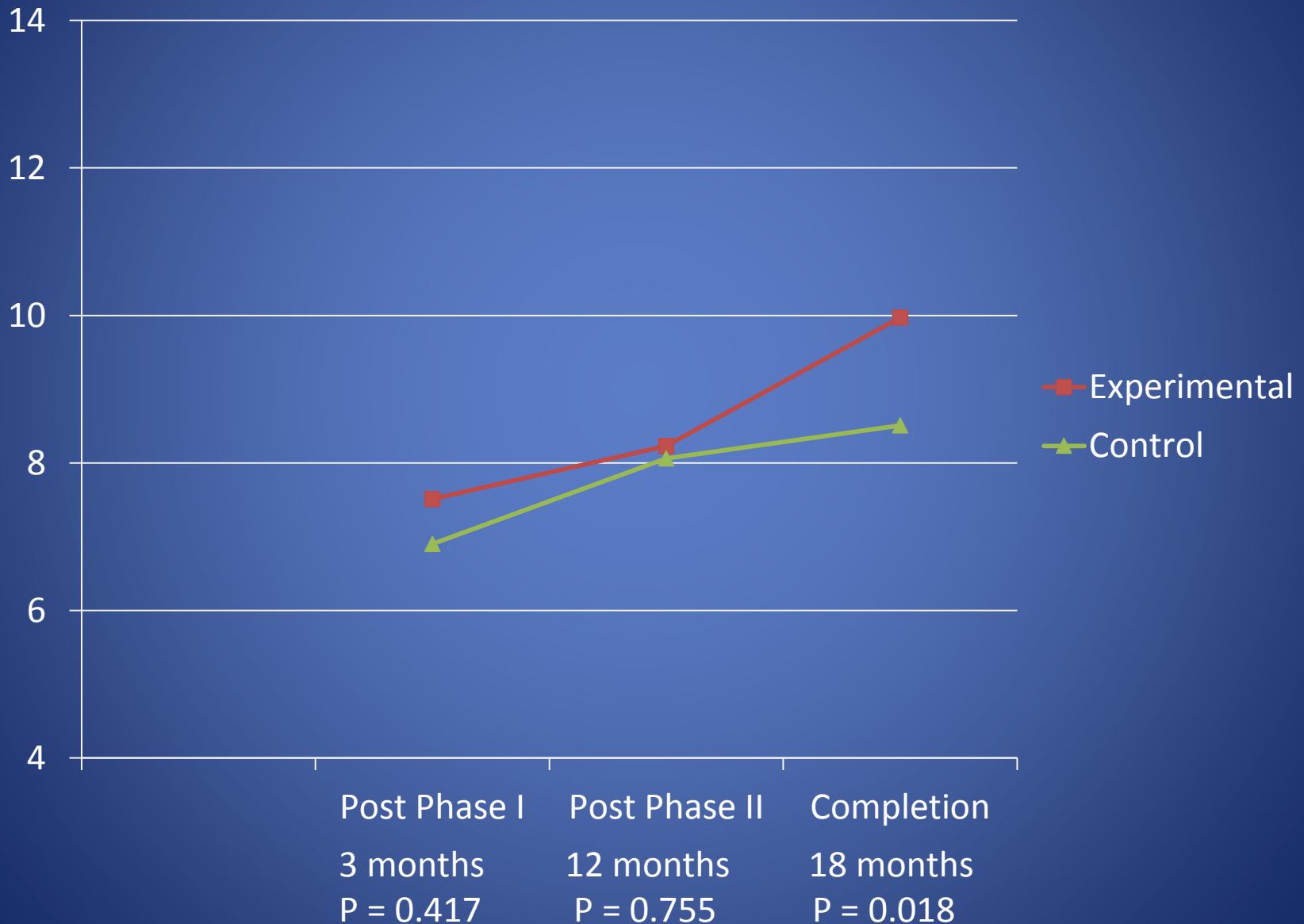
# Parent's Triceps Skinfolds (mm)



# Parent Subscapular Skinfolds (mm)

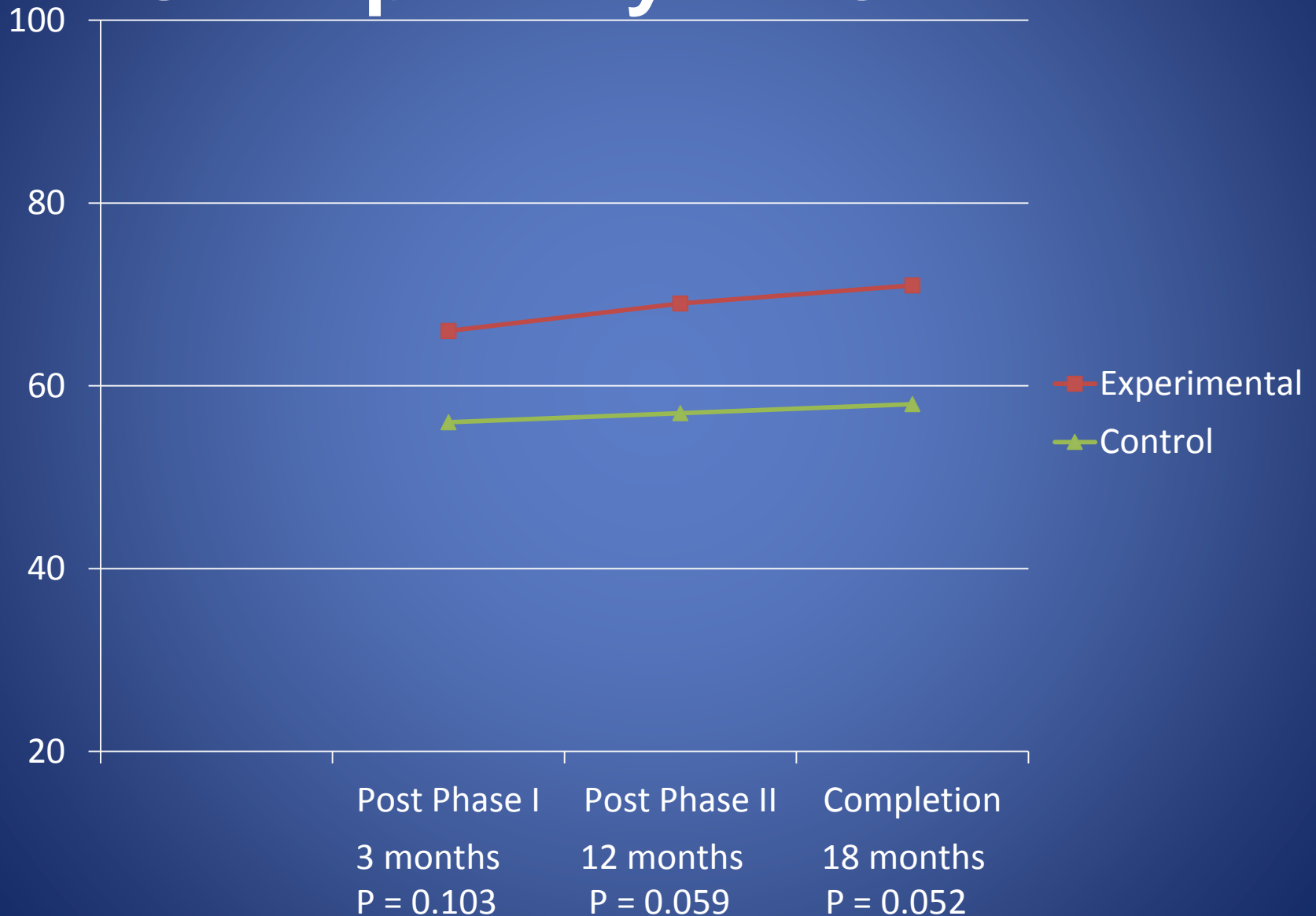


# Children's Dietary Knowledge

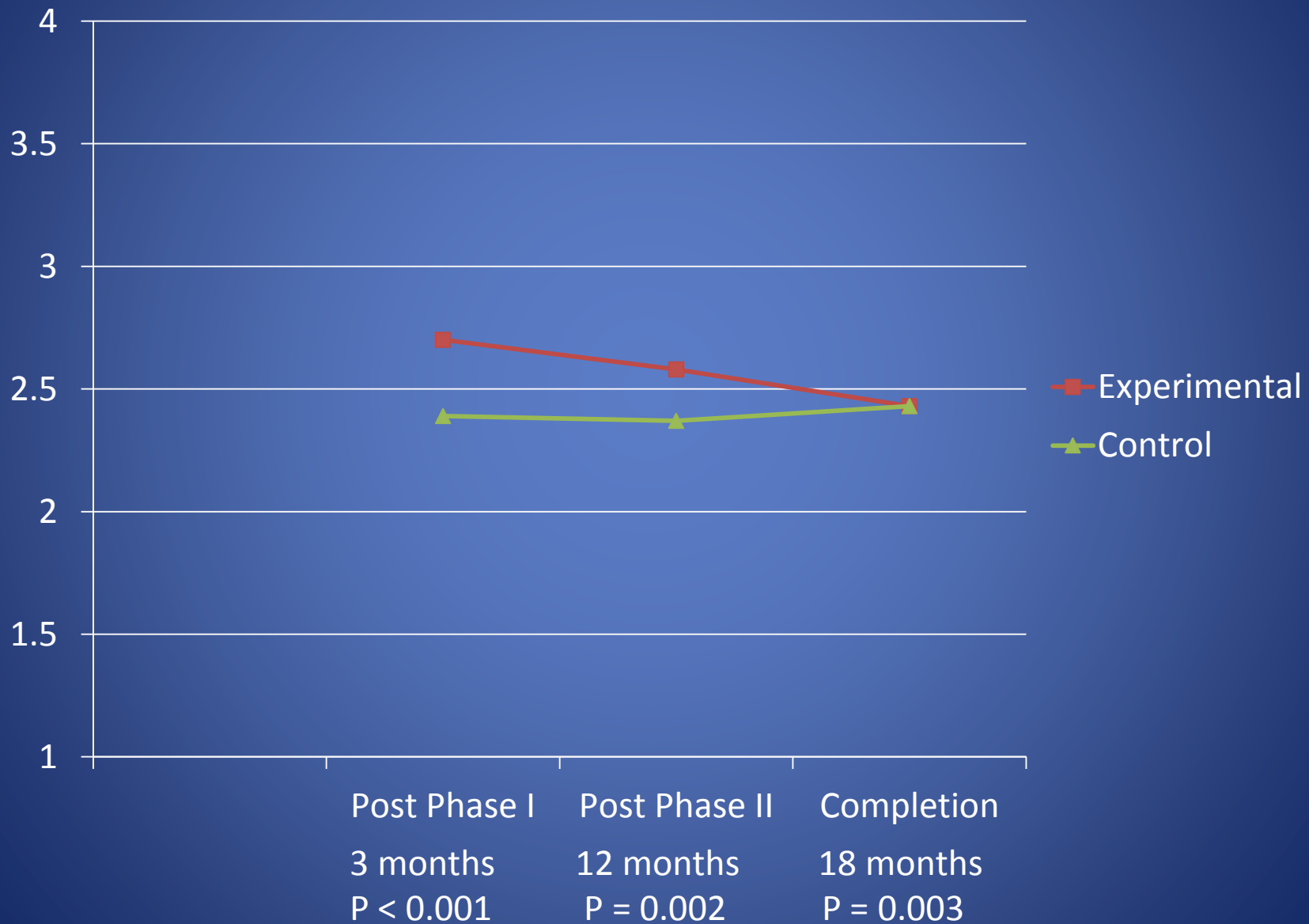




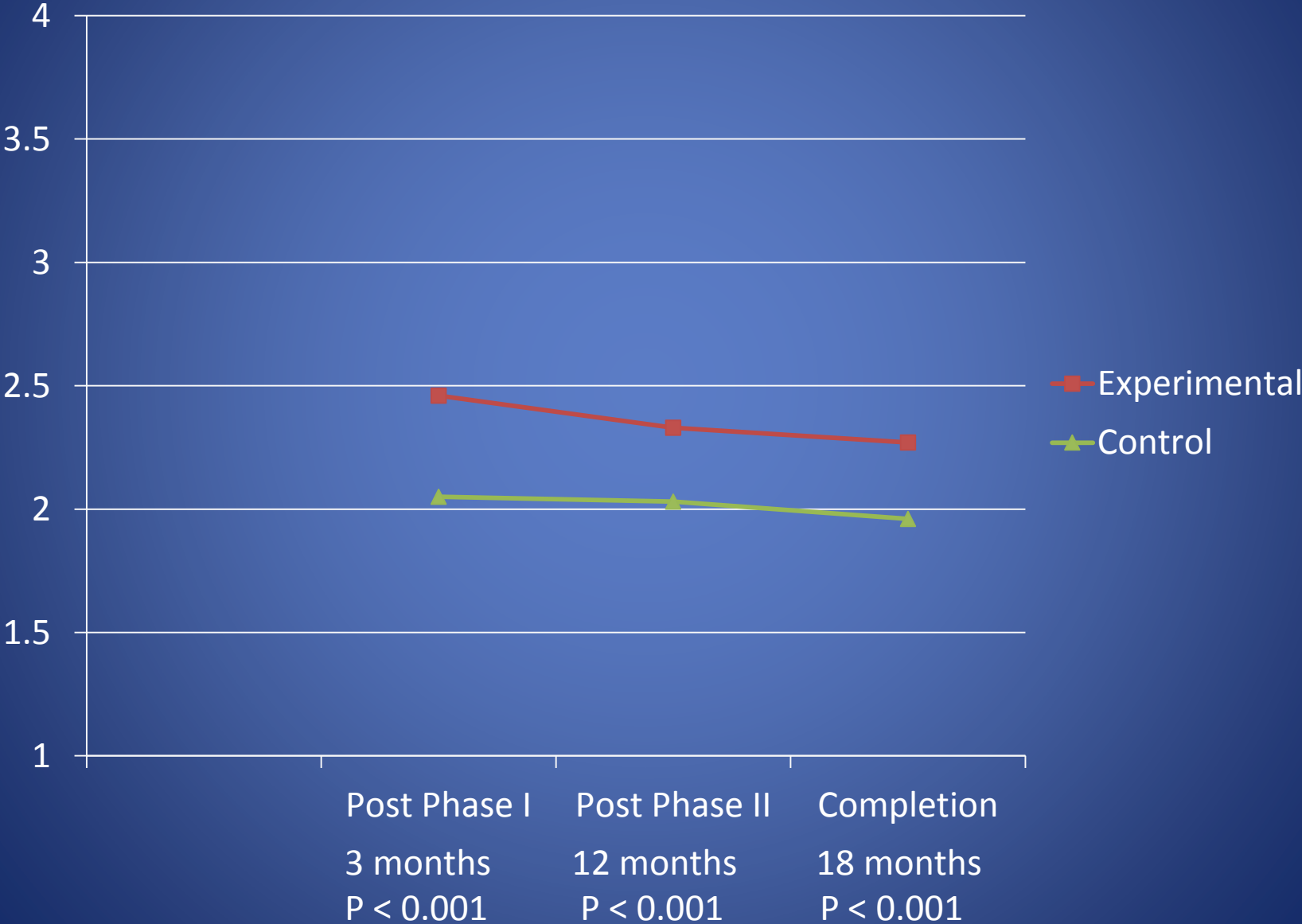
# Drinking Less Than One Glass of Soda per Day for Children



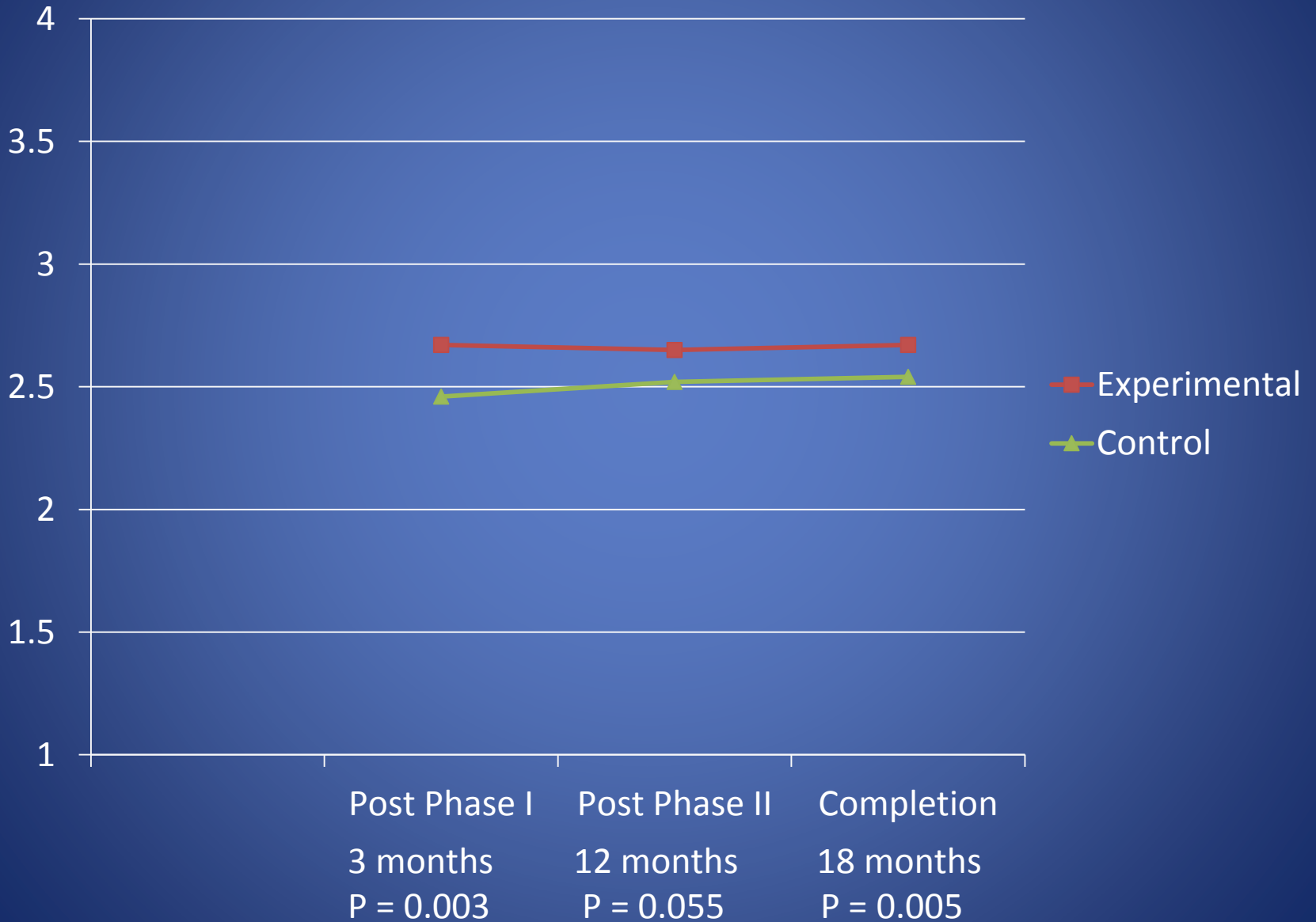
# Parent's Nutrition Knowledge



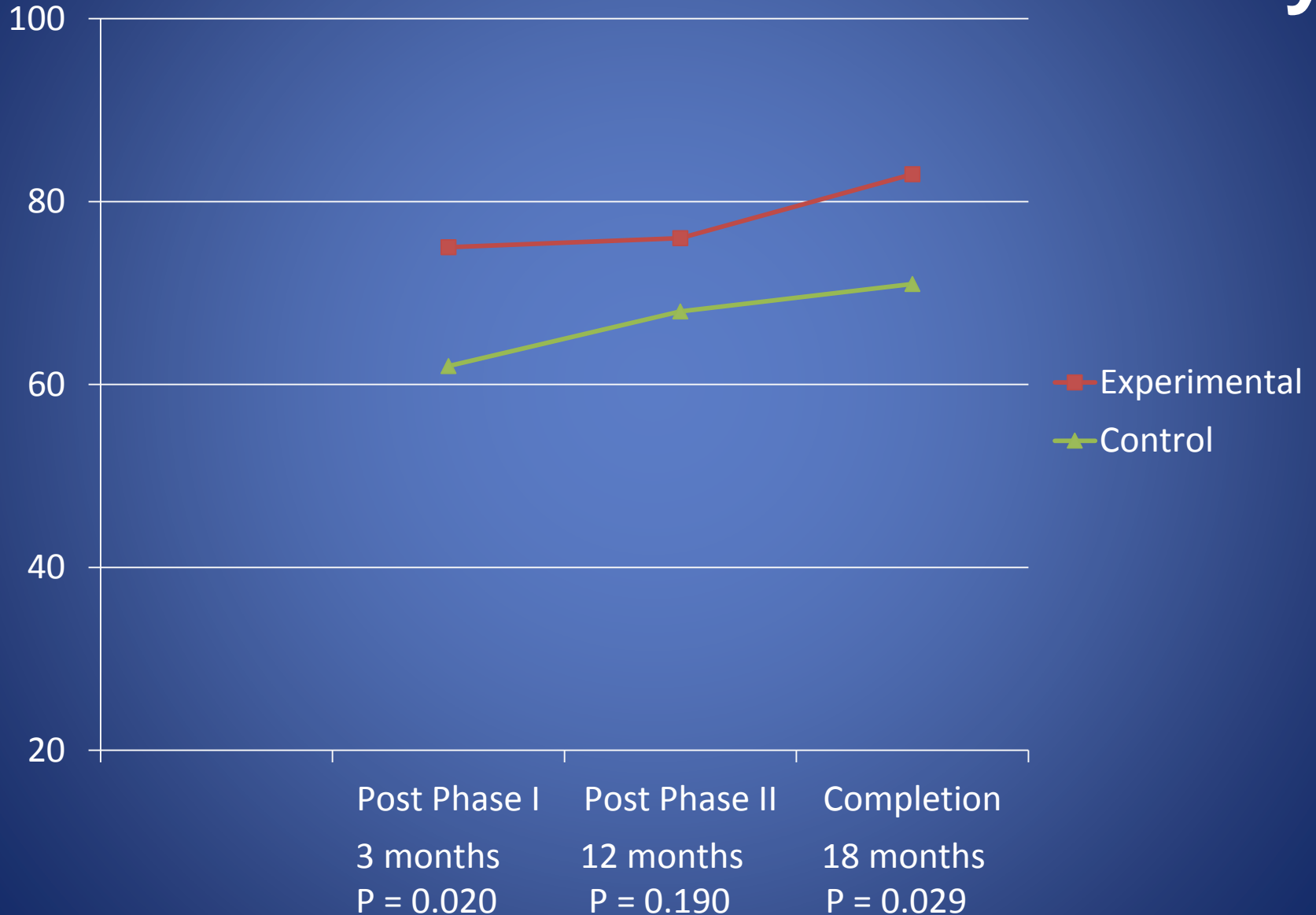
# Parent's Exercise Knowledge



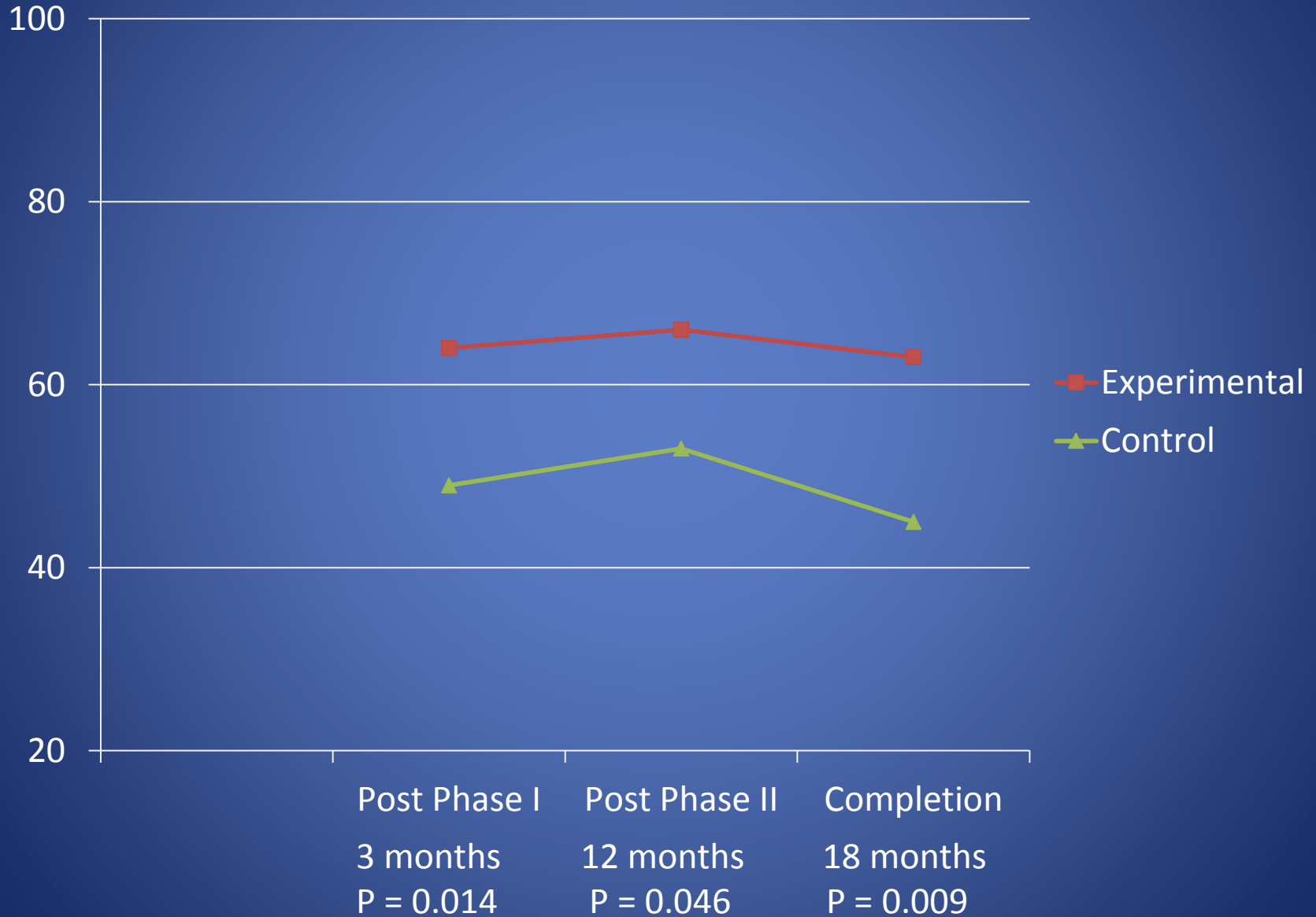
# Parent's Health Responsibility



# Parent's Drinking Water or Unsweetened Drinks when Thirsty



# Parent's Eating Unsweetened Breakfast Cereal





# Self-Efficacy

- **Experimental Children's Eating Self-Efficacy and Exercise Self-Efficacy was not significantly improved compared to the control group**
- **Experimental Parent's Eating Self-Efficacy in the Socially Acceptable Circumstances subscale was significantly ( $p = 0.013$ ) improved compared to the control group**
- **Experimental Parent's Eating Self Efficacy in the Negative Affect subscale and Exercise Self-Efficacy was not significantly increased compared to the control group**

# Parent's Exit Interviews

- **“I have learned so much”**
- **“Our teacher was always helpful answering our questions about food or exercise.”**
- **“I enjoyed taking a class with my son...we both felt very committed to eating healthier and being more active.”**
- **“I feel I have the tools to make good decisions when we go out to eat.”**

# Children's Exit Interviews

- “My mom and me are eating better”
- “We help each other.”
- “I loved playing basketball...kids against the moms and dads.”
- “I liked the sandwiches and fruit we got when we came to class.”
- “I liked my teacher....she helped me understand.”









# Conclusion

- **Experimental children's BMI did not significantly decrease, but it did move from the obese range to the overweight range**
- **Experimental children's adiposity trajectory significantly slowed and in some cases decreased**
- **Experimental children's nutrition knowledge significantly increased and they drank less than 1 glass of soda per day**
- **Experimental children's eating and exercise self-efficacy did not significantly improve**

# Conclusion

- **Experimental parent's BMI and adiposity significantly decreased**
- **Experimental parent's Nutrition and Exercise Knowledge and Health Responsibility significantly increased**
- **Experimental parent's significantly drank more water and unsweetened beverages when thirsty**
- **Experimental parent's significantly ate more unsweetened breakfast cereal**
- **Experimental parent's significantly improved eating self-efficacy**
- **Experimental parent's did not significantly improve exercise self-efficacy**



# Limitations

- Does not reflect a representative sample of all African American, non-Hispanic white and bilingual Hispanic children and parents
- Data were self-reported except for anthropometric measurements
- Some of the measures were unbalanced between groups at baseline, presumably owing to the nature of the cluster randomization and were accounted for in the analysis
- Our study was funded to evaluate self-efficacy measures and behaviors as outcomes; however, we also recognize that others may evaluate them as potential mediators



**Thank You!**

**Questions?**