

A Family Approach to Address Lifestyle Decision in Obesity and Diabetes

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Background

- Obesity ranks the most prevalent chronic conditions of children.
- In Chelsea, Massachusetts, 75% of children are Latino, 30% of all elementary school children are obese or at risk of obesity BMI >85%.
- Obesity has family-wide influences and effects.

Background (contd.)

- Psychosocial stress may influence obesity by potential pathways affecting diet and activity
- Obesity constitutes a chronic stressful state that causes HPA axis dysfunction*
- Obesity associated with adipose tissue expansion and macrophage recruitment, both important sources of inflammatory cytokines (IL-6 and TNF-alpha)**

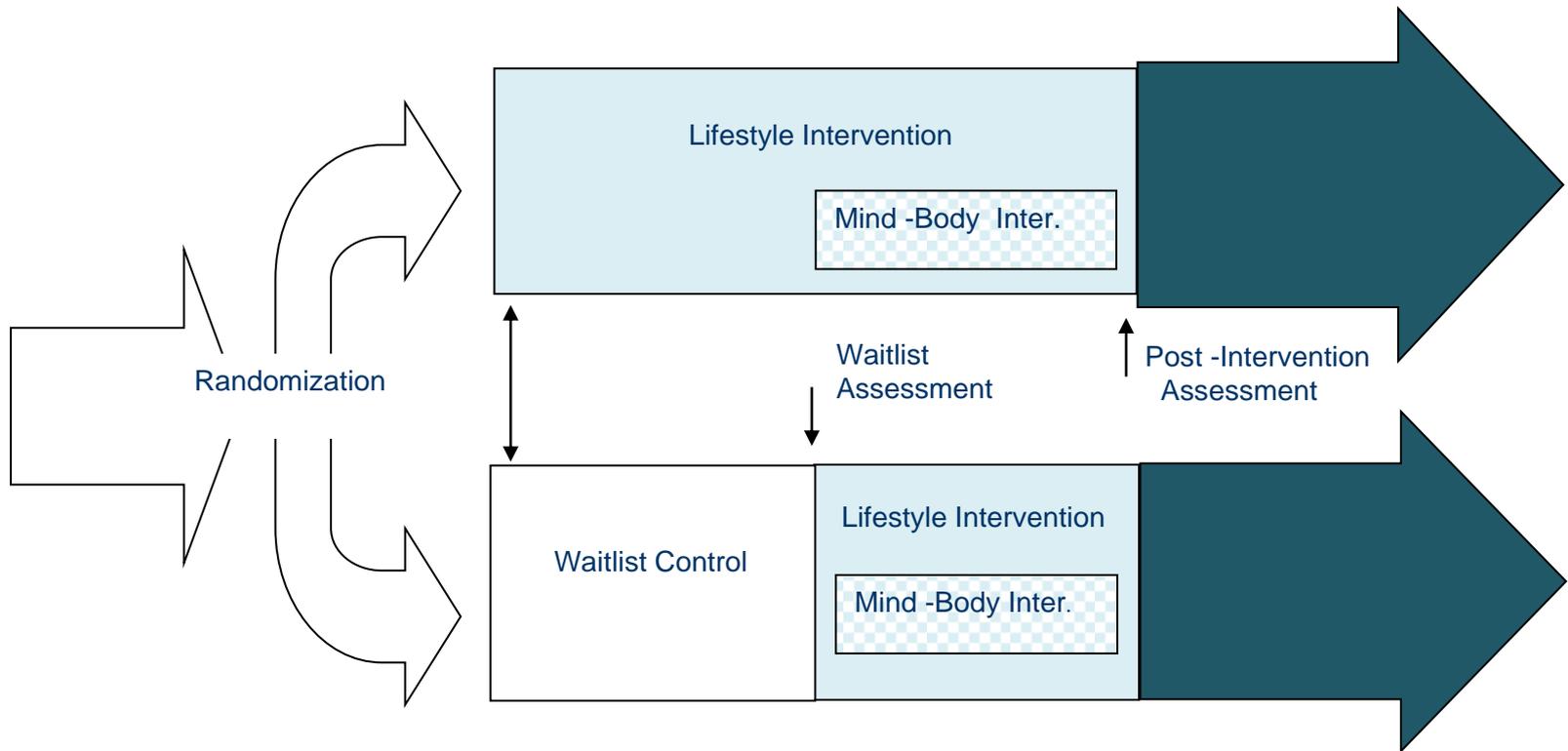
* Kyrou I, Chrousos GP, Tsigos C. Stress, visceral obesity, and metabolic complications. *Ann N Y Acad Sci.* 2006;1083:77-110.

** Weisberg SP, McCann D, Desai M, Rosenbaum M, Leibel RL, Ferrante AW, Jr. Obesity is associated with macrophage accumulation in adipose tissue. *J Clin Invest.* 2003;112:1796-1808.

Purpose

- To assess whether a childhood lifestyle intervention can improve child nutrition and physical activity, when addressing the family unit.
 - Culturally sensitive family and individual coaching,
 - Assisting to incorporate learned family lifestyles
 - Grocery Counseling
 - Interactive group classes for caregiver and child
 - Focusing on nutrition, exercise and stress management
- To further explore the relationship between stress and obesity.
 - Teaching mind-body techniques

Study Design



Preliminary Studies-Coaching Data

- Disparities Solution Center (DSC) at Massachusetts General Hospital used culturally competent health coaches to counsel Latino adults with diabetes on healthy eating and physical activity.
- Results:
 - Reduction in people with Diabetes
 - Latinos Δ 37% to 29%
 - Whites Δ 24% to 20%
 - Reduction in LDL levels
 - Reduction in HbA1c level
 - Δ 10.4 to 8.9
 - Reduction in mean score of the Problem Areas in Diabetes Scale
 - 16 point reduction

Preliminary Studies- Power Up

- Month-long curriculum for overweight children and their parents to educate and model healthy lifestyles to reduce obesity
- Implemented at the Chelsea Healthcare Center 3 times to 28 children (in 25 families)
- Results:

Outcome	Pre-intervention	Post-intervention
More children reported : <ul style="list-style-type: none">• eating at least 5 fruits and vegetables/day• drinking no more than one glass of juice a day	38% 81%	74% 26%
Fewer children reported: <ul style="list-style-type: none">• watching TV with dinner• spending more than 2 hrs of screen time/day• having a TV in their bedroom	76% 57% 57%	16% 26% 32%

Preliminary Studies- Relaxation Response

- Successfully used by the Benson-Henry Institute for Mind Body Medicine at MGH.
 1. Improvement seen in academic scores over the course of a two-year period in children {{241 Benson, H., et al. 2000}}
 2. Increases in self-esteem and greater internal locus of control **SCORES** {{240 Benson, H., et al. 1994}}
 3. Significant reductions in psychological distress, anxiety, and perceived stress in college students. {{239 Deckro,G.R. 2002}}
 4. Reductions in BMI in the women seen, which were mediated primarily by reductions in binge eating. {{224 Tapper,K. 2009}}

Aims

- **AIM 1: To assess the feasibility of using family-focused chronic disease management to address childhood obesity that includes education and health coaches to address lifestyle changes in a multicultural community health center.**
- **AIM 2: To assess the effectiveness of family-based chronic disease management program in changing child and family lifestyles associated with childhood obesity.**
- **AIM 3: To assess the effectiveness of family-based chronic disease management to change obese children's quality of life, anthropometric measures, and metabolic signs of obesity that put them at risk for future chronic diseases, such as diabetes and cardiovascular disease.**
- **Aim 4: To explore how stress moderates and mediates the feasibility and effectiveness of the intervention.**

Measures

Outcome	Measures
Daily Physical Activity	ActiGraph accelerometer
Food Intake	Glycemic index of grocery receipts
Quality of Life Score	PedsQL™ inventory
Anthropometric Measures	Waist circumference, Z-BMI, and skin fold
Metabolic Markers	Fasting lipids, HgA1C, glucose, insulin, AST/ALT and C-reactive protein
Stress and Inflammatory Markers	Salivary Cortisol, Il-6, TNF alpha

Program/Policy Impact

- Disparities Solution Center will incorporate the results as a quality improvement strategy through two of its programs, targeting leaders from hospitals, health plans and other health care organizations:
 - 1) The Disparities Leadership Program (DLP) and
 - 2) Web Seminar Series
- Use the results to influence third party payer's decisions to cover chronic disease management models and interdisciplinary teams (health coaches, patient navigators, etc...) to address childhood obesity.

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