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## BACKGROUND

### CHILDHOOD OBESITY:

- Childhood obesity is a major public health problem.

### FOOD ADDICTION:

- Overeating may have addictive qualities.
- Yale Food Addiction Questionnaire (YFAS-c) is a tool to identify traits of eating addiction.<sup>1</sup>
- On fMRI food addicted patients have increased activity in the anterior cingulate cortex similar to that seen with substance abuse<sup>2</sup>.
- Few weight management interventions have tested therapeutic techniques founded in addiction medicine principles to date.

### MOBILE HEALTH:

- In person interventions performed in health care settings are expensive, labor intensive, and inefficient.
- W8Loss2Go** is a weight loss intervention via an iPhone application based on the addiction treatment approach of staged, incremental withdrawal from problem foods, snacking/grazing, and excessive amounts of foods at meals<sup>3</sup>.

## OBJECTIVES

- To test whether participants can complete the **W8Loss2Go** App intervention as intended.
- To test whether completion of the W8Loss2Go App results in significant decrease in BMI z-score (zBMI) comparable to contemporary age matched control enrolled in a tertiary care weight management program (**EMPOWER**).

## METHODS

102 Otherwise Healthy Adolescents (12-18 yrs) referred to CHLA **EMPOWER** clinic Screened

42 Eligible with + YFAS

31 **EMPOWER**

18 **W8Loss2Go**

**EMPOWER** Curriculum

Receive iPhone, App, Wireless Body and Food Scale

Monthly Extended Multidisciplinary Clinic Visits

Daily Text Message  
Weekly Phone Meetings  
Clinic Every 3 months

### Primary Outcomes:

- Change in zBMI from baseline assessed at 1, 3 and 6 months.
- % of participants who completed **W8Loss2Go** as intended.

## W8LOSS2GO APP WITH PERSONALIZED COACHING



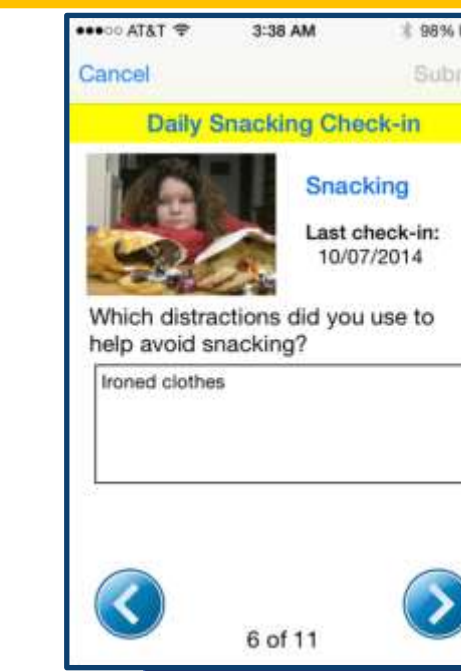
### Problem Food (PF) Withdrawal

- Sequential withdrawal from each PF two at a time
- Goal: resolution of cravings and difficulty resisting self identified PFs



### Food Amount Withdrawal

- The app applied a percent reduction feature to slowly decrease weighed amounts at meals
- Goal: improved portion size eaten at meals



### Snacking Elimination

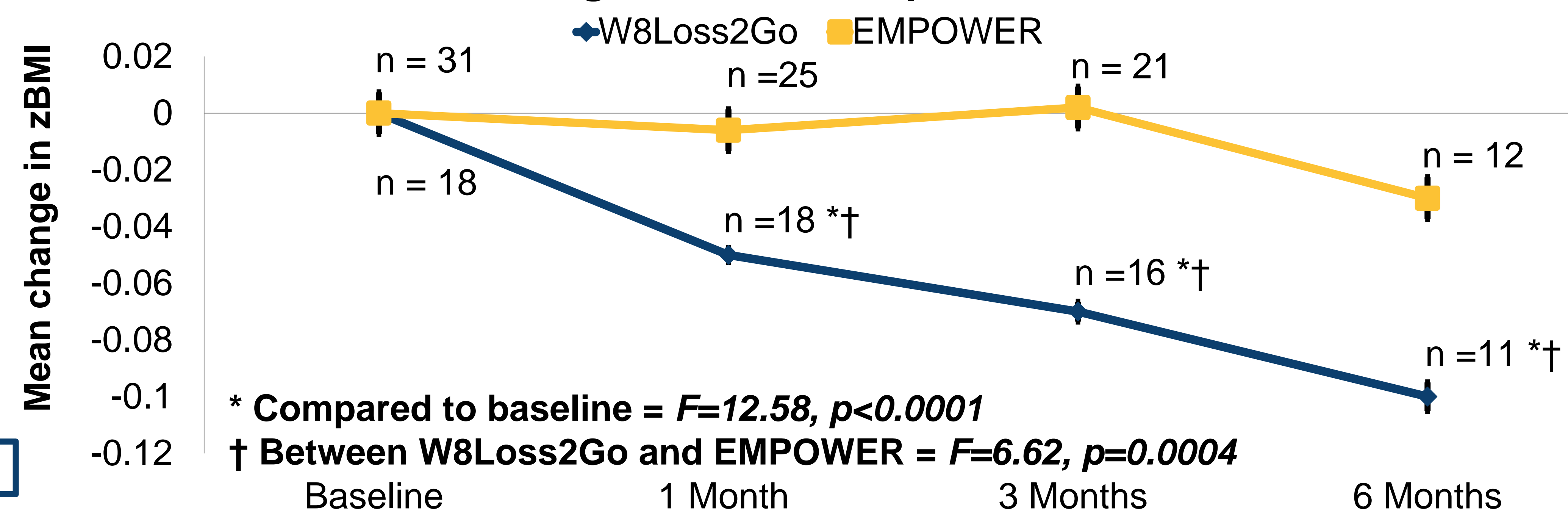
- Sequential elimination of snacking by choosing one time period in which to avoid snacking
- Goal: elimination of snacking (eating between meals) for the entire day



## RESULTS

DEMOGRAPHICS	W8Loss2Go	EMPOWER	RETENTION	
All Participants	18	31	W8Loss2Go	
Age (years), mean (SD)	14.4 (1.7)	14.9 (1.3)	1 Month	100%
Female	70%	75%	3 Months	100%
Weight in kg, mean (SD)	87.9 (20.7)	97.7 (19.6)	6 Months	100%
BMI z-score, mean (SD)	2.2 (0.3)	2.3 (0.3)	>80% of calls	72% (13/18)
Non-Hispanic White	5 (29%)	6 (30%)	ADHERENCE TO APP INTERVENTION	
Hispanic/Latino	9 (53%)	10 (50%)	PF Withdrawal	78% (14/18)
Black	1 (6%)	2 (10%)	Snacking Elimination	89% (16/18)
Other	2 (12%)	2 (10%)	>50% of meals weighed	44% (8/18)

### Mean Change in zBMI Compared to Baseline



### Cost Analysis for 6 Mo Intervention: Estimated Cost/patient: staff expenses – clinical revenue / # encounters

	W8Loss2GO	EMPOWER
Visit Time	Q 3 Month Visit	Monthly Visit
All Staff Cost	\$50/encounter	\$257.10/encounter
Clinician Staff Only	\$26/encounter	\$135.36/encounter
Additional Contact Time	\$260/patient	
Equipment	\$582/patient	0
<b>Total Cost</b>	<b>\$992/pt/6mo</b>	<b>\$1542.6/pt/6mo</b>

## LESSONS LEARNED

### Adherence:

- In-depth initial consent and instruction
- Instructional YouTube videos for reference

### Motivation and Sustained Involvement:

- Gamification
- Assigned points to financial compensation

### Use of Devices:

- Screen protector and sturdy cases
- Data overages: improved with education

## DISCUSSION

	W8Loss2Go	EMPOWER
zBMI	Significant decrease at 1/3/6 months	Non significant decrease at 1/3/6 months
Providers	1 Provider	Multi-Disciplinary Team
Cost	\$	\$\$\$
Limitations	Self Selected Requires Smartphone Reproducibility mHealth Fatigue	Labor Intensive Time Consuming Expensive Long Wait List

## CONCLUSIONS

- The **W8Loss2Go** App intervention is feasible to implement and useful in reducing zBMI.
- This represents a cost-effective, timely and labor efficient method for weight management in adolescents.
- These findings are comparable to those reported in the first pilot study of the W8Loss2Go App<sup>4</sup>.
- Large randomized control trials are required to confirm these findings and to determine which components of the behavioral intervention result in change in weight status.
- More in depth cost analysis is required to determine if behavioral mHealth interventions are cost effective on a large scale.

## REFERENCES

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