The Impact of Teacher Fidelity on the Effectiveness of WISE and Early Childhood Health Outcomes

Megan E. Gremillion, Tonya Vandenbrink, PhD, Dong Zhang, Taren Swindle, PhD, Peyton Percle, Julie M. Rutledge, PhD

**Background:** Early Childhood Educators’ (ECEs) food-related behaviors can significantly influence child health outcomes (CHOs). The We Inspire Smart Eating (WISE) intervention program trains ECEs in promoting fruit and vegetable consumption by encouraging children’s healthy eating habits. WISE provides a 6-hour training and curriculum for weekly sensory-based lessons with eight target foods.

**Objective:** This study explores the association between ECE WISE fidelity and CHO. We hypothesize that higher median fidelity scores across time are associated with improved CHOs.

**Study Design, Setting and Participants:** Research assistants (RAs) observed lesson fidelity during lessons eight times across an academic year. RAs scored ECEs on a 1 (“Not at all”) to 4 (“Very much”) scale for three evidence-based practices: hands-on exposure, mascot use, and role modeling. Child participants were African American 63.4%, Caucasian 28.5%, or other 8.1% (N= 659, M age = 4.70, 50% female).

**Measurable Outcome/Analysis:** Median fidelity scores of ECEs’ lessons (N=30) were calculated to convey fidelity performance across time. CHO include Body Mass Index (BMI) percentile and Resonance Raman Spectroscopy (RRS) scores. Change scores (BMI∆ and RRS∆) were calculated by subtracting pre-intervention from post-intervention scores.

**Results:** In total, 463 children had BMI∆ and 273 had RRS∆. A linear regression revealed a significant association between fidelity and BMI∆ (F1, 462)=5.068, p=0.025 (Beta=−1.315). Results indicate that ECEs with higher fidelity scores had statistically significantly lower BMI∆ at post-intervention compared to ECEs with lower fidelity scores. Specifically, a one-point increase in fidelity was associated with a 1.315 decrease in BMI. The association between fidelity and RRS was not statistically significant (F1, 272)=0.28, p=0.60. Multilevel analysis showed variance accounted for by nesting in classroom was not significant.

**Conclusions and Implications:** Children in classrooms with ECEs who have higher average fidelity benefit more from intervention, as indicated by a significant decrease in BMI percentile.

Preschoolers in classrooms with Early Childhood Educators (ECEs) who have higher average fidelity benefit more from intervention, as indicated by a significant decrease in BMI percentile.