Exploring the Relationship between Middle School Children’s Body Mass Index and the Home Food Environment within the Contextual Process of Food Choice

ABSTRACT

Rates of childhood obesity and comorbidities have been escalating steadily over the past three decades. Children’s food environment may promote excessive consumption of energy-dense food. This concurrent mixed-methods dissertation examined the relationship between physical home food environment (availability and accessibility) and body mass index (BMI) of middle school children within the contextual process of their food choices. Sixty-five children from a U.S. public middle school were enrolled. BMI z-scores were calculated based on measured weight and height, and derived against national reference data for standardization. Food store receipt and purchase log data were collected as a measure of home food availability. Home food accessibility, dietary intake, and other BMI covariates were measured via questionnaires and recalls. Hierarchical multiple regression analyses were conducted (n=58 participants). Semi-structured interviews were conducted with a sub-sample of children (n=47 participants) to explore factors that affect their food choices in the home. A data-driven content analysis was performed. Quantitative and qualitative data were integrated in analysis by exploring the differences in qualitative data by overweight status and in the interpretation of the results. Home food availability and accessibility were not significantly associated with BMI z-scores. However, dietary intake of fruits, low-fat dairy, and sugar-sweetened beverages were correlated with their availability in the home. Qualitative data revealed that children’s food choice in the home was a dynamic process involving three main interacting components – the child, parent, and food – embedded in the context of time.
Overweight children emphasized weight concerns and nutritional aspects of foods, such as calories, in describing their food choices. Compared to healthy weight children, overweight children also expressed greater emotion in their preferences for and awareness of higher-energy foods in their homes. The inconsistency between the desire to lose weight and preferences for and awareness of higher-energy foods along with the significant associations between availability and intake support a focus on physical home environment within family-based obesity interventions. Future research should test the relationship between the home food environment, dietary intake, and BMI with larger cross-sectional or prospective studies and explore children’s process of food choice in other settings.