ABSTRACT

Objective: Validate a pictorial vegetable behaviors assessment for low-income parents of young children.

METHODS

Head Start and WIC parent-child pairs participated in the study (n=128). 8 Vegetable Items. Parents from Head Start and WIC completed the short vegetable item tool (n=128). Eight vegetable behavior items were asked of the parent about the family’s vegetable shopping practices, vegetable snacking as well as vegetable preparation, availability, and accessibility. Picky eating and vegetables at the main meal were other items. Content of the tool came from an evidenced-based analysis of relevant peer reviewed literature.2 Face validity of the items were previously demonstrated.3 The vegetable scale items were recoded to the healthy direction.

Blood samples. Blood samples (~9 ml) from fasted children were drawn by venipuncture and transported on ice to Western Human Nutrition Research Center (WHNRC) for processing. The plasma and serum were recovered by centrifugation (1500 x g x 15 min at 4C) and aliquot at -80°C until analyzed. All assays were performed in duplicates. Serum CRP [C-reactive protein] was measured using a Roche High Sensitivity CRP kit [Roche LifeScience, Indianapolis, IN] on a Cobas Integra 400 Chemistry Analyzer [Roche]. Plasma was analyzed by electro-chemiluminescence using a multiplex adipokine panel (MSD, Rockville, MD) with an Immulite reader [Siemens Diagnostics, Deerfield IL]. Plasma adiponectin and RP4-8 levels were also determined using the Immulite instrument with specific singplex assay kits (MSD). Serum retinol and carotenoids [a and β carotenote] were measured simultaneously by HPLC on an Agilent instrument with specific singleplex assay kits (MSD). Serum retinol and carotenoids [a and β carotenote] were measured simultaneously by HPLC on an Agilent instrument with specific singleplex assay kits (MSD). Serum retinol and carotenoids [a and β carotenote] were measured simultaneously by HPLC on an Agilent instrument with specific singleplex assay kits (MSD).

Anthropometrics. Two trained research assistants weighed each participant twice at the nearest 0.1 pound using the Seca Digital Medical Scale. Height was measured twice to the nearest 0.1 cm. BMI was calculated using the average of the two measured heights in kilograms divided by the average of the two measured heights [meters squared]. BMI percentile was derived by using the Center for Disease Controls BMI Percentile Calculator for Children. Waist and hip circumference were measured twice to the nearest 0.1 cm. Waist circumference was divided by height to calculate

CONCLUSION

The resulting screening tool with a low response burden has evidence to suggest its use as a measure of the child’s vegetable behaviors for these low-income families.

RESULTS

The parent-child pairs were enrolled at 13 sites for Head Start and WIC serving low-income families.

Demographics. Parents reported race/ethnicity as: 19% Hispanic, 7% Latino, 29% African American, 21% white, 7% Asian, 4% American Indian, 17% multi-ethnic, 0.6% other. Families enrolled in the study participate at least one USDA assistance program, with WIC (75%), Head Start (76%) and SNAP (58%) being reported most frequently. Parents (87% female) on average were 30 years old and children [40% female] were enrolled on average 3.4 years old living in a household size of 4.1. About a third of parents were married (34%) with a majority reporting a high school diploma (33%) or some college (45%). 75% of parents reported earning $25,000 or less annually.

Statistical Analysis. Stepwise regression identified significant negative associations between selected vegetable items and C-reactive protein and leptin, and positive associations with retinol and α-carotene. Children with higher frequency of vegetable eating behaviors had lower levels of inflammation and higher intake of carotenoids. Children with higher vegetable behavior scores on selected items had lower levels of cholesterol: HDL, non-HDL cholesterol and LDL. In addition, waistheight and BMI were negatively related to selected vegetable items.

Background

Parents control their child’s environment during the early years. They control the vegetable purchasing, availability in the home, accessibility to the child, preparation, methods, inclusion as a snack, with meals and parental modeling. Because many federal programs promote fruit and vegetable behaviors as programmatic objectives, valid evaluation tools are needed, particularly for participants of federal food assistance and education programs. These federal programs include Head Start, The Special Supplemental Food for Women, Infants and Children [WIC], SNAP-Ed and EFNEP. In addition, many program participants are part of the 43 million Americans estimated to have minimal literacy skills. Consequently, they require tools targeting low-literate parents.

Recently reported at EB 2015, the items produced an alpha of 0.83. This scale was positively related to a sum of the volume of vegetables in cup equivalents for dinner. Parents from Head Start and WIC completed the short vegetable item tool. Eight vegetable behavior items were asked of the parent about the family’s vegetable shopping practices, vegetable snacking as well as vegetable preparation, availability, and accessibility. Picky eating and vegetables at the main meal were other items. Content of the tool came from an evidenced-based analysis of relevant peer reviewed literature.2 Face validity of the items were previously demonstrated.3 The vegetable scale items were recoded to the healthy direction.

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REFERENCES