

O18 (continued)

**Program Description:** EF works with restaurants in Louisiana to offer easily identifiable healthy options on food menus. Healthy options are promoted on and are searchable within a map-based, EF smartphone app.

**Evaluation Methods:** Pre- and post-program implementation environmental assessments and cross-sectional manager/owner surveys were collected.

**Results:** In 44 restaurants, an average increase of 4.5 healthy items was observed from pre- to post-EF implementation. All restaurants with no healthy dishes at baseline ( $n=9$ ) added healthy offerings. Of 49 surveyed restaurant managers/owners, most had positive beliefs towards offering healthy options ( $n=41$ ), positive perceptions of staff knowledge and skills to offer healthy options ( $n=29$ ), high levels of support to implement EF ( $n=41$ ), and positive perceptions of EF success in their restaurants ( $n=41$ ). Most commonly cited barriers to implementation were customer preference ( $n=26$ ), ingredient availability ( $n=16$ ), staff knowledge ( $n=15$ ), and operational challenges ( $n=14$ ). Facilitators included: desire to increase healthy food access ( $n=36$ ), desire to entice customers seeking healthy options ( $n=36$ ), belief that restaurants should offer healthy foods ( $n=34$ ), and opportunities to market the restaurant through EF ( $n=34$ ).

**Conclusions:** The availability of healthy food options increased after program implementation, indicating that programs like EF hold promise for improving customer food choices, especially where no healthy options may exist. When recruiting new restaurants, restaurant-based healthy eating programs may focus on the role restaurants can play in promoting health, benefits of offering healthy food, and the idea of social responsibility. Programs like EF may consider more training for restaurant staff for improved staff nutrition knowledge, program buy-in, and program implementation and fidelity.

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### O19 Measuring the Reliability of a Frequency Method for Assessing Vegetable Intake Using Photos: A Smart Phone Approach

Heena Suthar, BS, Hofstra University; Krisha Thiagarajah, PhD, RDN, Indiana University School of Public Health-Bloomington; Ibraheem Karaye, PhD, MD, Hofstra University; Zayra Lopez, MA, Indiana University School of Public Health-Bloomington; Trishnee Bhurosy, PhD, CHES, MS, [trishnee.bhurosy@hofstra.edu](mailto:trishnee.bhurosy@hofstra.edu), Hofstra University, Hofstra Dome, Hempstead, NY, 11549

**Background:** Traditional dietary assessment tools can present several challenges, including participant and researcher burden, recall bias, cost, and time. A frequency method using mobile photos and descriptions of meals through smartphones can be a promising strategy to address these challenges.

**Objective:** To measure the interrater reliability of assessing the frequency of vegetable intake using photos and descriptions from smartphones.

**Study Design, Setting, Participants:** This study used a pre-posttest experimental design. Participants were undergraduate students living in dormitories at a large Midwestern university. Participants ( $n=85$ ) were asked to count the number of times they ate red/orange vegetables and set a goal to eat one more time. Participants used their smartphones to upload photos and descriptions of their meals on an online platform for three days. Based on the study's objective, two raters independently coded meals using uploaded photos and descriptions of meals from smartphones. The first rater, who has several months of experience in public health research, was trained in qualitative coding of mobile photos by a senior researcher. The second rater has over three years of experience in coding mobile photos and oversaw the coding process.

**Measurable Outcome/Analysis:** The primary outcome measure was the interrater reliability in assessing the number of times each of these vegetable subgroups was consumed daily: dark green vegetables, beans and peas, starchy vegetables, and other vegetables. Cohen  $\kappa$  was calculated to determine interrater reliability.

**Results:** A value of  $\kappa=0.956$  ( $P < 0.001$ ) was obtained, indicating an almost perfect agreement between the two raters who independently coded each mobile photo using the same training protocols.

**Conclusions:** The trained raters reliably coded the frequency of vegetable consumption using mobile photos. Therefore, a frequency method using mobile photos and descriptions of meals through smartphones is a reliable strategy to assess vegetable consumption by nutrition researchers. This mobile-phone-assisted method can be used in nutrition programs to improve data quality, reduce participant burden, and minimize recall bias.

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### O20 Food System Models for Promoting Food Security, Diet Quality, and Health Among Low-Income Populations: A Systematic Review

Hannah Hart, MPH, RDN, LD, Department of Clinical Nutrition, The Ohio State University Wexner Medical Center; Katharine Garrity, MS, RDN, Medical Dietetics, School of Health and Rehabilitation Sciences, College of Medicine, The Ohio State University; Ashlea Braun, PhD, LD, RDN, Department of Nutritional Sciences, College of Education and Human Sciences, Oklahoma State University; Katie Poppe, RDN, LD, College of Public Health, The Ohio State University; Kathleen Krzyzanowski Guerra, MIS John Glenn College of Public Affairs, The Ohio State University; Jennifer Garner, PhD, RDN, [jennifer.garner@osumc.edu](mailto:jennifer.garner@osumc.edu), Division of Medical Dietetics, School of Health & Rehabilitation Sciences, College of Medicine, The Ohio State University, 453 West 10th Ave, Columbus, OH, 43210

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