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Objective: The project aimed to reduce the prevalence of underweight among young children and improve the nutrition knowledge of mothers and caregivers.

Study Design, Setting, Participants, Intervention:

A quasi-experimental design was used in this study among young children and their mothers or caregivers in selected villages in the Philippines with high prevalence of malnutrition among children aged 0–5 years old. The intervention group children were fed daily for 120 days with rice-mongo based complementary foods rich in energy and protein while their mothers/caregivers participated in nutrition education sessions. The non-intervention group received the regular services in the locality.

Outcome Measures and Analysis: Anthropometric measurements were taken using calibrated weighing scale. Face-to-face interview using pre-tested questionnaires was utilized to obtain the profile of program participants and knowledge of mothers/caregivers on health and nutrition. Energy and protein intakes of children using 24-hour food recall were recorded. Data were collected before and after the intervention.

Results: The prevalence of underweight children decreased significantly in the intervention compared to the non-intervention group. Energy and protein intakes among children, as well as the mean scores on nutrition knowledge among mothers/caregivers increased significantly at baseline in the intervention group. The complementary feeding component of the intervention proved effective in improving the nutritional status of children and the nutrition education component increased mean scores of mothers/caregivers on health and nutrition knowledge.

Conclusions and Implications: The combined intervention of complementary feeding of children and nutrition education of mothers provided policy directions for local government units to adopt the intervention as a component of the local health and nutrition services.

Funding: Department of Science and Technology—GIA.

P172 Food Appeal and Taste Perceptions Differ by School Lunch Participation During a Chef-Based Intervention

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Background (Background, Rationale, Prior Research, and/or Theory): Chef-based training programs addressing culinary skills of school nutrition professionals are a growing trend. Studies of these interventions reflect better compliance with the 2012 USDA school meal regulations; less is known if they influence satisfaction of school meals among students, parents and faculty.

Objective: Investigate if a chef-based intervention, Cooking for Kids, influenced stakeholder groups' satisfaction with the lunch program. The study was conducted in 17 school districts that participated in the 9-month program. The pre/

post survey was based on the satisfaction scale developed by the Child Nutrition Institute, and included a question assessing frequency of participation and allowed for open-ended comments.

Outcome Measures and Analysis: Scale items and overall satisfaction were compared using a 2x3 analysis of variance for time and frequency of participation. Comments were coded by theme; frequency analysis was used to identify common themes. Chi-square was used to determine if the proportion of negative versus positive survey comments changed over time.

Results: The number of stakeholders that completed the survey were 3,820 students, 660 parents, and 364 faculty. For each stakeholder group, regardless of participation frequency, there were no changes in overall satisfaction from pre- to post- intervention. Across all groups, stakeholders who always participated reported higher overall satisfaction compared to those who sometimes or never participated ($P < .001$). Faculty had a significant shift in the proportion of negative to positive comments ($P = .004$). The prevalent themes were related to taste and appeal of the food.

Conclusions and Implications: Stakeholders who participate in the school lunch program are likely to be satisfied with the meals, compared to those who never participate. Appeal and taste tend to drive satisfaction. Soliciting input for school menus and introducing new foods with taste testings, among both participants and non-participants, may help increase stakeholders' satisfaction.

Funding: Oklahoma State Department of Education, USDA.

P173 How Students View Food Security: Results From Cognitive Interviews With Undergraduates at a Land-Grant University

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Background (Background, Rationale, Prior Research, and/or Theory): In the U.S., food insecurity (FI) affects one in eight households, putting individuals at greater risks for compromised mental and physical well-being. Recent evidence suggests that post-secondary (i.e. college) students are at an increased risk of FI. However, little is known about how students interpret established FI questionnaire items.

Objective: The current study aims to understand how students think about FI questionnaire items and compare their response choices to their experiences.

Study Design, Setting, Participants, Intervention: Thirty-three undergraduate students, aged 18- to 24-years old and fluent in English were recruited. Students completed the 10-item USDA Adult Food Security Survey Module (AFSSM) in-person, and then were cognitively interviewed to understand how they

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perceived questionnaire items and to explore their personal experiences with FI. Interviews were recorded and transcribed verbatim. Two researchers used inductive open coding procedures to analyze interviews. Qualitative responses were compared to FI classifications derived from the questionnaire.

Results: Participants, on average, were 19.5 years old (± 1.2), predominantly female (70%), and 67% were classified as food insecure with the AFSSM. College students' interpretations of questionnaire items reflected their diverse personal experiences (familiarity with FI, familial economic hardships, etc). Confidence in response choices were complicated for students given the range of both formal and informal food and financial resources they had access to (university meal plans, support from social circles, savings, etc.). Among those reporting FI, consequences of and coping responses to perceived shortcomings in food were widely heterogeneous.

Conclusions and Implications: The results of this qualitative study provide indications that university students' perceptions of traditional FI assessment questions are influenced by their personal experiences and resources. Results indicate that future work should investigate modified FI classifications and assessment methods among university students to account for the nuanced perspectives in this sample.

Funding: USDA.

P174 Lessons Learned: Challenges of Nutrition-Related Outcome Evaluations in an Urban Farmers Market Intervention

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Background (Background, Rationale, Prior Research, and/or Theory): Research about the outcome measures of farmers markets' potential impact on improving access to and intake of fresh produce is limited.

Objective: To examine perceived barriers and fresh produce intake-related behaviors among customers at the beginning and after implementation of a farmers' market.

Study Design, Setting, Participants, Intervention: Face-to-face surveys were conducted in a convenience sample of adult customers at the beginning of a new farmers' market (T1 $n = 129$) in urban New Brunswick, NJ, in summer of 2009. Multi-year follow up surveys were conducted in fall (end of market season) of 2015 (T2 $n = 73$), 2016 (T3 $n = 142$), and 2017 (T4 $n = 99$).

Outcome Measures and Analysis: Demographic characteristics, 11-item perceived barriers scale for fruits and vegetables, vegetable intake frequency. Descriptive statistics, Chi Square, independent samples t - and Mann-Whitney U tests were used for analyses.

Results: Participants were racially and ethnically diverse. For example, for T1 vs. T4, 31.0% vs. 23.2% were Hispanic, 17.8% vs. 14.1% were Black, 41.9% vs. 47.5% were White; about 28.7% vs. 21.2% reported having less than college education. Majority of participants at T4 used the market for less than three years. About 39.5% (T1) vs. 32.3% (T4) of the participants reported experiencing two or more barriers to eating fruits or vegetables ($P = .262$). The specific barrier of lacking variety of fruits and vegetables in the area stores was reported by more participants at T1 vs. T4 (32.3% vs. 19.2%, $P = .028$). Mean vegetable intake ranged from 2.6 ± 1.9 (T1) to 2.1 ± 1.2 times/d (T4) ($P = .131$).

Conclusions and Implications: Transient nature or self-selection of market customers and seasonality can challenge the efforts to measure longitudinal and individual behavioral changes in urban farmers market settings. Perceived barriers can be a viable proxy, and additional environmental assessments might be needed to differentiate the potential effects of a farmers' market and other environmental changes.

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P175 MassCAMPS: A National Training Model

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Objective: To offer Child and Adult Care Food Program (CACFP) sponsors and providers with free training and assistance to create and maintain a healthier childcare environment in line with the Healthy Hunger-Free Kids Act of 2010.

Target Audience: Massachusetts early education professionals participating in the CACFP.

Theory, Prior Research, Rationale: A needs assessment revealed a knowledge gap on how to prepare, serve, and convey the importance of healthy foods in the CACFP. Additionally, completion of professional development hours each year are required for CACFP certification. Adult learning theory was used to design a complete set of interactive online and engaging in-person trainings to meet the needs of early education professionals.

Description: The MassCAMPS (Massachusetts Children's Access to Meals Planned Smart) team developed the project components over a 1.5 year period. Components included: an online course containing six modules; five in-person train-the-trainer sessions incorporating the Growing Healthy Habits training manual; two live culinary demonstrations; a 15-minute culinary video; and a webpage to host all materials. A total of 1,589 CACFP

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