P20 (continued)

Study Design, Setting, Participants: This review is reported in accordance with PRISMA guidelines. Five databases were searched for peer-reviewed articles, and additional publications were hand-searched or provided by experts in the field. Studies were sought from October 1, 2010, until December 31, 2018.

Measurable Outcome/Analysis: Studies which included a nutrition promotion in retail stores located in a low-income rural or urban community were included if they provided a quantitative outcome evaluation regarding the impact of the intervention(s). Intervention data was extracted and classified based on the MINDSPACE framework. Store level approaches including manager and staff training, store incentives, and/or store modifications were extracted. Two reviewers independently assessed the methodological quality of the studies using the EPHPP's Quality Assessment for Quantitative Studies.

Results: Peer-reviewed data from 43 publications (19 rural and 24 urban) was extracted representing 38 healthy retail programs in the US, Canada, Europe, New Zealand, and Australia. Preliminary results show 192 (82 rural and 110 urban) MINDSPACE interventions were implemented. Excluding norms, interventions were implemented in descending frequency as follows: salience, priming, commitment, incentives, ego, messenger, affect, and defaults. Rural interventions included a messenger that was unique to the community and appealed to the consumer's emotions more often than urban interventions. Of the 17 programs which reported staff and storeowner training, 12 were in low-income urban areas.

Conclusions: More research is needed to identify interventions, essential equipment, and training needs of managers and staff in low-income rural stores.

Funding: Supplemental Nutrition Assistance Program - Education.

P21 Low-Income Older Adults' Salient Beliefs Regarding Whole Grain Consumption: A Qualitative Approach

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Background: Given the known health benefits of whole grains (WG) in promoting overall health, as well as the low intake of WG products by low-income older adults, there is a need for developing effective health promotion programs targeting low-income older adults promoting WG consumption

Objective: To gain an in-depth understanding of low-income older adults' underlying beliefs regarding WG consumption using the Theory of Planned Behavior (TPB) as a framework.

Study Design, Setting, Participants: In this qualitative study, interview questions regarding WG consumption

were structured according to the TPB constructs (behavioral, normative, and control beliefs). The setting was 2 congregate meal sites located in Tuscaloosa, AL. A convenience sample of 25 low-income older adults, 60 years of age and older, participated in this study.

Measurable Outcome/Analysis: Individual interviews were audio-recorded, transcribed verbatim, and cross-checked for consistency. Content analysis was used to identify themes pertaining to the TPB constructs in addition to other prevalent themes.

Results: Participants believed WGs were nutritious and had health benefits, but disliked sensory qualities, perceived higher cost, and longer cooking time. Participants also believed healthcare professionals and family would support WG consumption. Facilitators to WG consumption included knowledge of nutritional and health benefits, WG preparation skills, social support, availability and accessibility, and grocery shopping assistance. Barriers to WG consumption included cost of WGs, age-related physical changes such as chewing and swallowing, lack of motivation to prepare WG, and nutrition-related knowledge deficits.

Conclusions: Findings from this study provide strategies for nutrition education programs to promote increased WG consumption by low-income older adults, ultimately influencing the health status of this population.

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P22 Prevalence of and Characteristics Associated with Food Security Status Among International College Students

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Background: The majority of studies on food insecurity among US college students show higher prevalence rates than the general population. Past studies have looked at characteristics associated with food security status among US college students, but have not focused specifically on international students.

Objective: To estimate the prevalence of and identify characteristics associated with food insecurity among international students at the University of North Carolina at Chapel Hill.

Study Design, Setting, Participants: This cross-sectional study used data from 263 international students attending the University of North Carolina at Chapel Hill who completed an online survey in October and November of 2016.

Measurable Outcome/Analysis: Food security status was assessed using the 10-item US Adult Food Security Survey Module and students were categorized as having high food security, marginal food security, or food insecurity. Self-reported demographics and other student

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characteristics were also assessed. Descriptive statistics were calculated. Monte Carlo Estimates for the Exact Test and ANOVA were used to assess statistical significance for the association between food security status and student characteristics. Statistical significance was considered $P < .05$.

Results: Among students in the sample, 51% reported high food security, 24% marginal food security, and 25% food insecurity. Characteristics significantly associated with food security status were gender, year in school, having a car, and perceived health rating. Age, years in the US, academic performance, marital status, having dependent children, living on vs off-campus, employment status, receiving financial aid, weight status, cooking frequency, perceived cooking skills, and having a meal plan were not significantly associated with food security status.

Conclusions: Lack of food security is a serious issue among international students at the University of North Carolina at Chapel Hill, with nearly half reporting food insecurity or marginal food security. The characteristics identified in this study as being associated with food security status can help to inform future research and interventions for addressing food security status among international students.

Funding: University of North Carolina at Chapel Hill Food for All micro-grant.

Food and Nutrition Policy

P23 Do Restaurants in Japan Support the Goals of Minimizing Food Loss and Maintaining Healthy Weight?

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Background: Serving excessive amounts of food may not only stimulate overeating in customers but also increase leftovers. Minimizing food loss and having more people who maintain healthy weight are national goals in Japan and are included in the United Nations' Sustainable Development Goals (SDGs).

Objective: To examine how restaurants support the goals of minimizing food loss and maintaining healthy weight, and owners' thoughts about leftovers.

Study Design, Setting, Participants: A cross-sectional study was conducted via an internet survey through a Japanese research company. Four hundred and twelve restaurants owners participated.

Measurable Outcome/Analysis: Measures included frequency and record of leftovers, thoughts about serving amount and leftovers, readiness for achieving Japanese national goals, recognition and referring of SDGs, and demographics. Descriptive analysis was used.

Results: Three hundred seven out of 412 participants were men (74.5%); average age was 51.0 years ($SD = 9.3$). Most were small business owners ($n = 357$, 86.7%);

average number of seats was 32.3 ($SD = 44.71$). Twenty-five percent answered that leftovers were found "often" ($n = 5$, 1.2%) or "sometimes" ($n = 98$, 23.8%), but 68% ($n = 281$) answered that they did not record it regularly. Seventy-seven percent ($n = 319$) answered that the eating amount was affected by the serving amount but 61% ($n = 253$) thought that the customers should control their eating amount. Moreover, 84.2% believed that a lot of food is necessary for customer satisfaction ($n = 347$). Only few reported to have started something for achieving the national goals of minimizing food loss ($n = 47$, 11.4%) and maintaining healthy weight ($n = 14$, 3.4%). The restaurants that referred to SDGs for running their business were only 2.7% ($n = 11$), and 73.5% ($n = 303$) answered never to have heard of SDGs.

Conclusions: Although a quarter of the restaurants had leftovers, most restaurant owners believed a large quantity of food was needed. Moreover, very few restaurants knew about SDGs.

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Behavior and Education Theory

P24 Differences in College Students' Decision Making Related to Sustainable Protein Choices

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Background: Protein choices are an important component of the environmental cost of the food system. It is important to consider the limited research done on protein choice decision making in college students. Students who are aware of their protein choices at the decision point in college may be more likely to practice sustainable food choices throughout their life.

Objective: To compare demographic, attitudinal and behavioral variables in college students between those who consistently think about the environmental impact of their protein choices (C) and those who are less concerned (L).

Study Design, Setting, Participants: Participants, 18-24 years old, consenting to participate in this cross-sectional survey ($n = 390$), were recruited from introductory classes at a Northeastern university for extra credit. Participants were categorized by their response to "How often do you think about the impact of meat consumption on the environment?" with responses of "always" or "vegetarian" categorized as C and "sometimes" or "never" categorized as L.

Measurable Outcome/Analysis: Group (C and L) was compared using chi-square or t-test analysis for demographics, stage of change for environmentally conscious protein choice (EC), and green eating (GE), red meat consumption, and health consciousness.

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