P9 (continued)

facilities (DFAC) are a common source of dietary intake and DFAC culinary staff often provides nutrition information to service members during meal selection. However, it is uncertain if staff members possess a higher nutrition knowledge (NK) than their patrons.

Objective: Evaluate and compare the NK of DFAC staff members and their patrons.

Study Design, Setting, Participants, Intervention:

A 19-question true/false military NK survey was administered to 48 staff and 125 patrons at Fort Carson, CO. A confidence score was also included to stratify NK scores. Possible question outcomes were confident and correct (CC), confident but incorrect (CI), unconfident and correct, or unconfident and incorrect. Data analysis was restricted to CC and CI responses. Volunteers were predominately male (71%), junior enlisted Soldiers (90%) between the ages of 18 and 34 years.

Outcome Measures and Analysis: Descriptive data are reported as mean $\pm$ standard deviation (SD) or frequency (n / %). Independent t-test and chi-square analyses were conducted comparing patron and staff total NK score, %CC, and %CI scores.

Results: CC scores (mean $\pm$ SD) were similar between culinary staff ($40 \pm 16\%$) and patrons ($41 \pm 21\%$), and CI scores were higher for staff ($31 \pm 16\%$) compared to patrons ($25 \pm 16\%$; $P = .024$). More staff responded CC that at least half of the plate should be fruits and vegetables (90% vs. 70%; $P = .021$) but staff had lower CC scores on questions related to dietary fat (50% vs. 77%; $P = .008$) and protein as an energy source (13% vs. 38%; $P = .005$). Patrons who had ≥ 3 hours of nutrition education had higher NK scores (53% CC) compared to only 1–2 hours (39% CC; $P = .044$) and no education (39% CC; $P = .015$).

Conclusions and Implications: DFAC culinary staff are not more knowledgeable about nutrition than patrons and may unknowingly provide inaccurate information. Future initiatives should consider a minimum three hours of nutrition education for DFAC staff to promote dissemination of accurate dietary guidance.

Funding: U.S. Army Research Institute of Environmental Medicine.

P10 Adolescent Self-Assessment of Cooking and Kitchen Skills

Katera Moore, PhD, MES, Agatston Urban Nutrition Initiative; Melissa Sattler Gordon, RDN, MSPH, RD, msattler@sas.upenn.edu, Agatston Urban Nutrition Initiative, 3451 Walnut Street, Suite P117-A, Philadelphia, PA 19104

Background (Background, Rationale, Prior Research, and/or Theory):

The Netter Center for Community Partnerships, Agatston Urban Nutrition Initiative (AUNI) provides summer high school programming and job development focusing on peer nutrition education. This study examines self-assessments of adolescents at the conclusion of the program compared to a control

group of Philadelphia high school students who did not participate in the program.

Objective: To assess and compare adolescent confidence in cooking skills at the end of a six week nutrition education program.

Study Design, Setting, Participants, Intervention:

The AUNI Philadelphia Youth Network (PYN) summer program engaged 36 primarily African-American adolescents for six weeks, 20 hours per week, in cooking, nutrition education, and peer education and community outreach activities. Evidence-based nutrition curriculums were used along with Career and College Readiness training. At the program conclusion, students were given a survey to self-assess their cooking skills and knowledge.

Outcome Measures and Analysis: The survey was constructed with a chef who determined cooking skills necessary for home and professional settings. Three questions were asked about skills regarding working with community members. Adolescents were asked to rate their skills on a scale of zero (no knowledge) to five (expert). The same survey, with the omission of one program specific question, was administered to students who did not participate in the program. Results were averaged for each question and each group.

Results: For eight of the nine questions, program students (n = 32) average rating of their skills were statistically significantly higher ($P < .01$) than the averages of non-program students (n = 35). For all questions, program students averaged above four, demonstrating a high level of skill confidence.

Conclusions and Implications: Nutrition education programs that include a skill building and community outreach component could increase students' confidence in their own cooking abilities. Based on existing research, this could have an impact on improved nutrition related behaviors.

Funding: Supplemental Nutrition Assistance Program—Education.

P11 Development of an Instrument Measuring Perceived Environmental Healthfulness: Behavior Environment Perception Survey (BEPS)

Jade McNamara, MS, University of Rhode Island; Melissa D. Olfert, DrPH, LDN, RDN, West Virginia University; Morgan Sowers, MS, RD, LDN, University of Tennessee; Sarah Colby, PhD, RD; Adrienne White, PhD, RDN, FAND, University of Maine; Carol Byrd-Bredbenner, PhD, RD, FADA, Rutgers University; Kendra Kattelman, PhD, LDN, RD, FAND, South Dakota State University; Lisa Franzen-Castle, PhD, RD, University of Nebraska-Lincoln; Onikia Brown, PhD, RD, Auburn University; Tandalayo Kidd, PhD, RD, University of Tennessee; Karla Shelnut, PhD, RD, University of Florida; Geoffrey Greene, PhD, LDN, RD, ggreene@uri.edu, University of Rhode Island, 41 Lower College Road, Kingston, RI 02881

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P11 (continued)

Background (Background, Rationale, Prior Research, and/or Theory): Descriptions of college students' perception of the healthfulness of their campus can inform the development of tailored nutrition education programs.

Objective: To develop an assessment tool, Behavior Environment Perception Survey (BEPS), measuring college students' perception of the healthfulness of different domains of environmental influencers of health.

Study Design, Setting, Participants, Intervention: A sequential process of measurement development included item generation by experts at seven universities using a pool of existing items and item sorting based on domain/construct. Then, college students participated in cognitive interviews and a pilot survey administration. Finally, survey field testing data were used for confirmatory factor analysis and reliability testing to construct the final questionnaire. Analyses used SPSS and EQS.

Outcome Measures and Analysis: Item generation from experts at seven universities resulted in 100 items, reduced to 93 items based on sorting. Items were eliminated based on content analysis of cognitive interviews ($n = 120$); identification of misinterpreted items and exploratory factor analysis of pilot survey data ($n = 724$ at 6 universities; elimination of cross-loading [$> .30$] or weak loading [$< .40$] items). The field test ($n = 2,724$ at 6 universities) included the refined 31-item measure which underwent confirmatory factor analysis and structural equation modeling.

Results: A 23-item, 5-factor structure was the best fit for the data ($\chi^2 = 3,462.15$, $df = 209$; CFI = .841; RMSEA = 0.076). The perceived healthfulness of the environment factors were: physical activity ($\alpha = .71$; 5 items), healthy eating ($\alpha = .85$; 5 items), mental health ($\alpha = .85$; 5 items), barriers to health ($\alpha = .70$; 4 items), and social influences ($\alpha = .73$; 3 items).

Conclusions and Implications: BEPS is a novel, brief instrument measuring college students' perception of the healthfulness of their environment. Strengths include: strong psychometric properties, breadth of constructs, and comprehensive instrument development process involving a large sample from seven different universities. Future steps include validation studies.

Funding: None.

P12 Food Security, Dietary Diversity and Glycemic Control Among Adults Diagnosed with Type 2 Diabetes in Malawi

Getrude Mphwanthe, MS, mphwanth@msu.edu, Michigan State University, Food Science and Human Nutrition, 469 Wilson Road, East Lansing, MI 48824;

Dave Weatherspoon, PhD, Michigan State University, Agricultural, Food and Resource Economics;

Alexander Kalimbara, PhD, Lilongwe University of Agriculture and Natural Resources, Human Nutrition and Health, Malawi; Lorraine Weatherspoon, PhD, RD, Michigan State University, Food Science and Human Nutrition

Background (Background, Rationale, Prior Research, and/or Theory): Juxtaposition of food insecurity

and Type 2 diabetes (T2DM), disproportionately higher than Sub-Saharan Africa, among adults in Malawi is not well understood along with its negative health implications.

Objective: To determine and compare food security and dietary diversity of adults with T2DM relative to glycemic control in urban (Lilongwe) and semi-urban (Kasungu) districts in Malawi.

Study Design, Setting, Participants, Intervention: A cross-sectional face-to-face survey was conducted from June to August 2017 in Lilongwe and Kasungu with a total of 428 adults diagnosed with T2DM; ($n = 288$ in Lilongwe and $n = 140$ in Kasungu).

Outcome Measures and Analysis: Data included: demographic characteristics, glycosylated hemoglobin (HbA1C) to assess glycemic control, Household Food Insecurity Access Scale (HFIAS) questionnaire was used to calculate the HFIAS score, and 24-hour recalls were used to derive Individual Dietary Diversity Scores (IDDS). Independent t-tests (IBM SPSS version 24) were used to determine if there were differences in IDDS and food security based on HbA1C as well as location.

Results: Overall, 60.3% had higher than recommended ($>8\%$) HbA1C levels. Subjects were primarily: female (69.4%), ≤ 60 years (79.6%), married (77.6%), and 49.6% only attained grades 1–8 education. Significantly higher HFIAS scores (moderate to severe) were evident in those with HbA1C $>8\%$ ($P < .05$). There were no significant differences between those who were mildly and moderately to severely food insecure in both locations. Participants with HbA1C $>8\%$, had mean IDDS = 4.80 ± 1.38 , indicating low to moderate dietary diversity. Lilongwe participants had significantly ($P < .05$) higher mean IDDS (5.03 ± 1.39), but still in low to moderate dietary diversity range.

Conclusions and Implications: Both food insecurity and dietary diversity are a concern among adults diagnosed with T2DM, the majority of whom are also not achieving target HbA1C levels. Therefore, more in-depth dietary quality and food access exploration is needed to inform nutrition education and policy efforts for adults with T2DM in Malawi.

Funding: USAID, Borlaug Higher Education for Agricultural Research and Development (BHEARD), Michigan State University.

P13 How Does Place Influence Children's Willingness to Try New Vegetables?

Yazmin Cespedes, BS, cespe012@umn.edu, University of Minnesota, School of Nursing, 5140 Weaver Densford Hall, 308 Harvard Street SE, Minneapolis, MN 55455; Jennifer Linde, PhD, University of Minnesota, School of Public Health; Sarah Friend, MPH, RD, University of Minnesota, School of Nursing; Jayne A. Fulkerson, PhD

Background (Background, Rationale, Prior Research, and/or Theory): Vegetable consumption is essential in a healthful diet. Among children aged 2–18,

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