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40 years old and with MHI above U$ 1515,31 had statistically significant higher NL than participants who were male, aged over 49 years old and with an MHI below U$ 1082,36 ($P = 0.00$).

Conclusions: In this study, participants men, middle and older age (≥50 years old), and with a MHI below U$1298,84 (< 6 MW), had statistically significant lower NL scores. This is one of the first studies to report NL inequality for biological sex and age in Brazil. Future studies should further explore the NL inequality observed for Brazilian males, middle to older adults, and lower household income impacts on their dietary and health outcomes.

Funding: None

P016 Nutrition Literacy Predicts Diet Quality in College Undergraduate Students

Leigh Neptune, MS, University of Maine; *Kayla Parsons, MS,* University of Maine; *Amelia Sullivan, BS,* University of Maine; *Jade McNamara, PhD, MS, RDN,* jade.mcnamara@maine.edu, University of Maine, 107 Hitchner Hall, Orono, ME, 04469

Background: Nutrition Literacy (NL) is the degree to which individuals can obtain, process, and understand nutrition information/skills to make appropriate nutrition decisions and can be categorized into three domains (functional, interactive, and critical). Limited studies have been conducted examining the relationship between the different NL domains and diet quality (DQ) in young adults.

Objective: To explore the influence of NL on DQ in undergraduate students.

Study Design, Settings, Participants: A cross-sectional convenience sample of undergraduate students completed an online survey that assessed health characteristics/behaviors including NL and DQ.

Measurable Outcomes/Analysis: Nutrition literacy was measured using the Young Adult Nutrition Literacy Tool. Diet quality was assessed using the Short Healthy Eating Index (sHEI). Scores for NL were on a scale of 1-5, and DQ 1-100, with higher scores indicating higher NL and more healthful DQ. Multiple regressions were used to determine if total NL predicted DQ and, if so, which domains of NL (functional, interactive, or critical) were significant in predicting DQ.

Results: Participants (n = 841) were an average of 20.9 (± 2.3) years old, mostly White (89%), and female (70%). The average sHEI score was 49.4 (± 10.3), indicating poor to moderate DQ. The mean total NL score was 3.50 (± 0.45). Mean functional, interactive, and critical NL scores were 3.33 (± 0.62), 3.55 (± 0.61), and 3.61 (± 0.52), respectively. Total NL was a significant predictor of DQ ($r2 = 0.113$, $F(1,880) = 111.760$, $P < 0.001$). Two domains of NL (interactive and critical) explained 12.8% of variance in DQ ($r2 = 0.131$, $F(3,878) = 44.229$, $P < 0.001$). Interactive NL ($\beta = 0.267$, $P < 0.001$) and critical NL ($\beta = 0.122$, $P = 0.001$) significantly predicted DQ, but functional NL did not.

Conclusions: Nutrition literacy was significant in predicting diet quality in undergraduate students. These findings justify the need for increased efforts to understand NL in college students, as well as highlight the potential of improving DQ by improving NL in this population.

Funding: USDA National Institute of Food and Agriculture, Hatch project number #ME013054538 through the Maine Agricultural & Forest Experiment Station

P017 Project DINE: Improving Diet Quality in Pregnant Women Through the University of Georgia EFNEP

Sarah T. Henes, PhD, LDN, RDN, sarah.henes@uga.edu, University of Georgia, 300 Carlton St, Athens, GA, 30602; *Latrice Rollins, PhD, MSW,* Morehouse School of Medicine; *Tiara Giddings, MA,* Morehouse School of Medicine; *Tiffany Williams, MDiv,* University of Georgia; *Chris White,* Morehouse School of Medicine; *Jazmine Medrano, MPH,* University of Georgia; *Susan L. Moore, MS,* University of Georgia; *Zohregul Soltanmammedova, MR,* University of Georgia; *Wykinia Culbreth, MPH,* Georgia Department of Public Health

Background: Georgia's maternal mortality rates are 60% higher for African American women compared to all racial/ethnic groups. There is also evidence that father involvement in prenatal maternal health initiatives may positively influence health outcomes. Nutrition education during pregnancy may also promote positive nutrition outcomes.

Objective: A primary goal of Project DINE (Dads in Nutrition Education) is to improve maternal nutritional outcomes and to increase father involvement through family participation in UGA (the University of Georgia) EFNEP (Expanded Food and Nutrition Education Program), an evidence-based community nutrition program.

Study Design, Setting, Participants: Participants were recruited by Morehouse School of Medicine and community partners, and were divided into two groups: single moms and expectant couples with father/male involvement. Inclusion criteria were African American pregnant women or men expecting a baby and Healthy Start program participants. UGA EFNEP provided an eight-week virtual nutrition education program in both metro and rural counties.

Measurable Outcome/Analysis: Data analyses were completed via WebNEERs, the centralized database for NIFA EFNEP at the federal level. Overall diet quality indicators (i.e., fruit/vegetable intake, sweet beverage intake, dinner at home) were measured pre/post analysis of the validated and federally mandated survey.

Results: Twenty single moms (SM) and 6 couples (C) (n = 32) graduated from Project DINE EFNEP (FY21). Overall diet quality improved in 97% of all graduates. When

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comparing groups, overall diet quality improved in 100% graduate couples vs. 95% (SM), including increased vegetable intake (54% couples vs. 40% SM)
Conclusions: Preliminary data indicate that UGA EFNEP as a nutrition intervention for pregnant women improves overall diet quality, including fruit and vegetable intake. Father involvement in nutrition education may provide an additional benefit to improving overall diet quality for their pregnant partners.
Funding: Expanded Food and Nutrition Education Program

P018 The Pathophysiology of Food Insecurity: A Narrative Review and System Map

Brooke Wurster, BA, Division of Medical Dietetics, School of Health and Rehabilitation Sciences, College of Medicine, The Ohio State University; *Jennifer Garner, RDN, PhD,* jennifer.garner@osumc.edu, Division of Medical Dietetics, School of Health and Rehabilitation Sciences, College of Medicine, The Ohio State University, 453 West 10th Ave, Atwell Hall, Columbus, OH, 43210

Background: The chronic disease impacts of food insecurity have been studied extensively. There is a more contemporary appreciation, though, for how food insecurity may influence a wider array of health outcomes, and a need to synthesize the rapidly-expanding literature on relationships between food insecurity and biological antecedents of poor physical and mental health.
Objective: To synthesize recent evidence of the complex and interdependent biological mechanisms that intermediate well-known relationships between food insecurity and health diagnoses.
Study Design, Settings, Participants: Narrative review of English-language, peer-reviewed, published articles was conducted based on an iterative series of searches in the PubMed electronic database and subsequent vetting of reference lists for additional studies of relevance. Studies were eligible if they analyzed relationships between measured food insecurity and one or more health-related biomarkers. Studies were not excluded due to publication year, study setting, or population to afford a comprehensive review.
Measurable Outcome/Analysis: Key findings were extracted and synthesized narratively. Using a framework not unlike those used to describe disease processes, the review culminated in the creation of a concept map of body systems affected by food insecurity and involved in the development of related chronic diseases.
Results: Research related to various isolated biological and clinical impacts of food insecurity were widely available; however, no articles characterized the impact using a systemic, pathophysiological framework. The available evidence supports the theory that food insecurity can contribute to toxic stress and a systemic inflammatory stress response. This response contributes to: poorer mental health outcomes, including heightened risk for eating disorders and depression; changes to the gut microbiome with implications for nutrient metabolism and chronic disease; and susceptibility to weight gain and central adiposity in particular, with implications for insulin resistance and metabolic syndrome.
Conclusions: Food insecurity is a social risk with individual and intergenerational biological consequences. Synthesizing the most recent evidence on such consequences affords a more precise appreciation for the value of community-clinical partnerships to monitor and address it.
Funding: None

P019 Validation of a Smartphone-Based App for Assessing Energy Intake: A Pilot Study

Sanjoy Saha, PhD, sanjoy.saha@pbrc.edu, Pennington Biomedical Research Center, 6400 Perkins Rd, Baton Rouge, LA, 70808; *Chloe Lozano, PhD,* Pennington Biomedical Research Center; *Stephanie Broyles, PhD,* Pennington Biomedical Research Center; *John Apolzan, PhD,* Pennington Biomedical Research Center; *Corby Martin, PhD,* Pennington Biomedical Research Center

Background: Smartphone-based methods are innovative and promising tools to accurately quantify energy intake (EI). The PortionSize™ app measures dietary intake using embedded templates and provides real-time feedback. PortionSize also sends food images to a server where they can be analyzed using the Remote Food Photography Method (RFPM). The RFPM accurately measures EI; however, it requires human raters to analyze food images; therefore, the RFPM does not provide dietary feedback in real-time.
Objective: To compare the validity of EI estimates from PortionSize and RFPM to weighed meals (WM).
Study Design, Setting, Participants: Fifteen adults used the PortionSize app during covertly-weighed simulated meals in a laboratory setting. Trained personnel also quantified EI from the images captured from the PortionSize using the RFPM.
Measurable Outcome/ Analysis: Demographics and body mass index (BMI). Dependent t-tests were performed to investigate whether EI measured with templates in PortionSize or using the RFPM differed to EI from WM.
Results: Mean (± SD) age and BMI of participants were 28 (± 12) years and 24.1 ± 6.6 kg/m2, respectively, and 73.3% were female. PortionSize estimated EI was 743 ± 328 kcal, EI RFPM-estimated intake was 660 ± 196 kcal, and weighed intake was 659 ± 191 kcal. The mean differences of EI estimation between PortionSize and WM (84 ± 288 kcal) and between RFPM and WM (1 ± 32 kcal) were not significant ($P > .05$). The mean difference in EI estimation (83 ±284 kcal) between PortionSize and RFPM was not significant ($P > .05$).

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