14TH ANNUAL NUTRITION SYMPOSIUM: SHARE, DISCOVER, CONNECT
KOGER CENTER GALLERY ROOM, 2ND FLOOR
MARCH 28TH, 2024

8:15-8:45 Posters to be placed on display in Grand Tier Lobby space
8:30 am Registration Opens
9:00-9:10 Welcome Remarks
Christine Blake, PhD, RD

9:10-10:10 Session 1: Nutrition Across Diverse Populations and Settings
Moderator: Hala Ghattas
9:10-9:14 Hala Ghattas, PhD
9:14-9:23 Delia West, PhD
Delivering Digital Behavioral Weight Management Interventions in Rural Populations
9:25-9:34 Aliye Cepni, PhD
Addressing Disparities in Pediatric Obesity: Exploring the Ideal Dose of Structured Summer Programming for Mitigating Accelerated Summer BMI Gain
9:36-9:45 Susan Yeargin, PhD
The prevalence and measures of dehydration in student-athletes
9:47-9:56 James Hebert, PhD
Diet and Health Disparities in Colorectal Cancer: The Inflammation and Metabolic Dysregulation Connection
9:56-10:10 Q&A

10:10-10:20 Coffee Break

10:20-11:10 Session 2: Food is Medicine
Moderator: Elizabeth Adams
10:20-10:27 Elizabeth Adams, PhD
The Future of Food is Medicine
10:29-10:36 Edward Frongillo, PhD
Food-based interventions to support management of chronic diseases
10:38-10:45 Caroline Rudisill, PhD
Connecting patients to food resources within the clinical setting

10:47-10:54 Kelly Duane & Kim Hollins

Let Food be Thy Medicine: A look at FoodShare SC Food is Medicine Interventions

10:54-11:10 Q&A

11:10-12:00 Poster Presentations/Open Meet and Greet

12:00-12:50 Session 3: Introducing Our Newest Faculty Affiliates

Moderator: Samin Sharraf

12:00-12:07 Nandita Perumal, PhD

Causes and consequences of perinatal outcomes in vulnerable populations: the role of nutrition

12:07-12:10 Q&A

12:12-12:19 Eckton Chinyanga, PhD

Did Covid-19 Influence Fruit & Vegetable Consumption?

12:19-12:22 Q&A

12:24-12:31 Devin Bowes, PhD

Using community wastewater to understand population-level dietary behavior: Current status and future outlook

12:31-12:34 Q&A

12:36-12:43 Demetrius Abshire, PhD

An Overview of “GameDay Ready”: A Behavioral Weight Management Intervention for Black Men Living in the Rural South

12:43-12:46 Q&A

12:50-1:00 Closing and Poster Prizes

Christine Blake, PhD, RD
Emma Kenney-Madsen, MPH

1:00pm Networking Lunch at Hickory Tavern
ORAL PRESENTATIONS

Delivering Digital Behavioral Weight Management Interventions in Rural Populations

Rural populations bear an increased burden from obesity, but little behavioral obesity treatment research focuses on effective lifestyle treatment approaches for this underserved group. The presentation will describe the history and details of iREACH, a digital weight loss program focused on dietary and physical activity habit change, and a current research trail seeking to identify optimal treatment components to produce sustained weight management among rural residents with overweight or obesity.

Delia West, PhD, Professor, Department of Exercise Science

Bio: Delia West is a professor of exercise science and the director and Endowed Chair of the South Carolina SmartState Technology Center to Promote Healthy Lifestyles. Her work focuses on technology-assisted lifestyle interventions. She is particularly interested in identifying the most effective approaches to harness the platforms offered by technology to increase access and efficacy of lifestyle programs to promote healthy weight management. Her research translates these interventions into community settings with a focus on underserved populations.

Addressing Disparities in Pediatric Obesity: Exploring the Ideal Dose of Structured Summer Programming for Mitigating Accelerated Summer BMI Gain

In this symposium, Cepni will present Dr. Weaver’s NIDDK-funded clinical trial, the DOSE Study (R01DK133248), with an emphasis on the diversity in our research. She will give a brief background on the pediatric obesity disparities between children from low- and middle-to-high-income households and the role of unequal access to structured summer programming guided by the Structured Days Hypothesis and Health Gap Hypothesis. Then she will present the findings from existing literature and previous studies that show the beneficial impact of summer programming on child diet and BMI. Lastly, she will finish by describing the DOSE Study, which aims to identify the dose-response relationship between structured summer programming and children’s summer BMI gain.

Aliye Cepni, PhD, Post-doctoral Research Assoicate, Department of Exercise Science

Bio: Aliye Cepni is a postdoctoral fellow in the Department of Exercise Science. Dr. Cepni's research aims to improve children's eating and activity behaviors to address health disparities. Dr. Cepni received her doctorate degree in Kinesiology from the University of Houston, where she studied the impact of school-based physical activity programs on child executive functioning and obesity-related health outcomes. She submitted her K99/R00 grant proposal to prevent obesogenic behaviors among adolescents that lead to BMI gain over the summer.

The prevalence and measures of dehydration in student-athletes

A brief review of hydration terms will be given. The presentation will focus on high school and college athletes on school-sponsored sports. Research will be highlighted that provides the prevalence of hypohydration in team sport athletes. The benefits to using different weight chart calculations to prevent hypohydration will be covered.

Susan Yeargin, PhD, Associate Professor, Department of Exercise Science
Bio: Susan Yeargin is an Associate Professor of Athletic Training at the University of South Carolina. She currently serves on the NATA’s Research Committee and is Chair of the Pronouncements Committee. She was a task force member and author of the Pre-Season Heat Acclimatization Guidelines for Secondary School Athletics and a co-author of the NATA and ACSM Position Statement updates on Exertional Heat Illnesses. Susan has 20 years of experience conducting research, over 70 peer-reviewed publications, on exertional heat illnesses, thermoregulation and hydration behaviors.

Diet and Health Disparities in Colorectal Cancer: The Inflammation and Metabolic Dysregulation Connection
Hebert will provide a short background on the epidemiology of colorectal cancer that points to the important role of diet in determining risk. He also will briefly explain how he was drawn into nutritional epidemiology and, as a cancer epidemiologist, was called to consider the role of diet more broadly. This entailed a very deep dive into inflammation and an understanding of how inflammatory responses influence metabolism in general and immune function in particular. In this talk Hebert will provide results from specific studies; i.e. from an exploration of colorectal cancer among Medicaid recipients with and without diabetes here in South Carolina and from the Multiethnic Cohort Study. He also will briefly describe our ongoing NCI-funded trial: A Transdisciplinary Approach to Investigating Metabolic Dysregulation and Risk of Early-Onset Colorectal Cancer: A randomized intervention trial in human dyads and mechanistic study in animals (U01 CA272977-01).

James Hebert, PhD, Professor, Department of Epidemiology and Biostatistics
Bio: James Hébert, Health Sciences Distinguished Professor of Epidemiology, focuses his research efforts on: 1) the role of diet in cancer and other chronic diseases; 2) the relationship between diet and other important risk factors; and 3) methodologic improvements in both study design and measurement technologies for diet and other risk factors. As Director of University of South Carolina’s Cancer Prevention and Control Program, Dr. Hébert oversees a large, eclectic research portfolio that addresses a wide array of public health concerns. Though wide-ranging in his interests, the centerpiece of his current research efforts is the Dietary Inflammatory Index (DII™), which he invented in 2004 and was refined in DII Gen3, which was published in 2014. It now forms the basis for >1100 scientific papers and >20,000 citations according to Web of Science®.

The Future of Food is Medicine
This presentation will give a general overview of the current and future landscape for Food is Medicine initiatives, programs, and policies.

Elizabeth Adams, PhD, Assistant Professor, Department of Exercise Science
Bio: Elizabeth Adams’ research includes the promotion of healthful dietary patterns to prevent pediatric obesity and reduce health inequities. Her work centers on food insecurity and food policies to ensure children from all income levels have access to healthful nutrition for chronic disease prevention.

Food-based interventions to support management of chronic diseases
Food insecurity in vulnerable populations is detrimental to the management of chronic diseases such as HIV and diabetes. Food-based interventions intending to mitigate these consequences of food insecurity and promote better disease management have been developed and evaluated for their effectiveness.
Edward Frongillo, PhD, Professor, Department of Health Promotion, Education, and Behavior  
Bio: Dr. Frongillo conducts research globally to learn how to improve the growth, development, feeding, care, and survival of infants and young children. He leads research on the measurement, determinants, and consequences of household and child food insecurity, most recently conducting research with colleagues and students giving voice to the experiences of food insecurity by children. His research program also aims to understand how to advance policy and programs for improving nutrition and development. He has expertise in validation of measures, policy and program evaluation, and design and analysis of longitudinal studies.

Let Food be Thy Medicine: A look at FoodShare SC Food is Medicine Interventions  
VeggieRx is a fruit and vegetable prescription program designed to increase the intake of fresh produce for patients with diet-related diseases to improve health outcomes (reducing A1C, blood pressure and weight). Participating physicians prescribe patients fresh fruits and vegetables that they receive from FoodShare’s Fresh Food Box Program. Patients receive two produce boxes each month for six months, at no charge. The long-term goals are to reduce food insecurity, increase positive health outcomes, and decrease health care costs. Our Culinary Medicine program teaches nutrition science and culinary skills to medical learners and professionals at the University of South Carolina Columbia School of Medicine using a nationally accredited curriculum. We offer a special lecture to introduce food security and social determinants of health to first year students and a fourth-year intensive elective in culinary medicine. Our fourth-year elective focuses on chronic disease prevention and application of dietary recommendations for the most critical diseases facing South Carolina, namely diabetes and heart disease. These courses provide health care providers and medical students with the knowledge they need to empower their patients to make healthy food and cooking choices to prevent and treat disease. While Food Is Medicine is a popular refrain, food is a complementary treatment to modern medicine and a choice people can make daily for better health.
Kelly Duane, Director of Culinary Medicine, FoodShare
Bio: Kelly Duane is the Director of Culinary Medicine for FoodShare. She joined the team in January 2024 to launch their teaching kitchen and expand the Culinary Medicine program offerings to communities across the state. Prior to joining the FoodShare family, Kelly engaged partners across the Lowcountry as a nutrition educator. She also has extensive background in restaurant operations and management. Kelly is passionate about building community through food literacy.

Kim Hollins, Veggie Rx Program Manager and Healthy Living Motivator
Bio: Kim Hollins joined the FoodShare team in August 2020 as the Program Manager for the VeggieRx Program. She has significant experience coordinating programs focused on improving the quality of health for patients with chronic conditions. Kim works closely with physicians, healthcare practices and others in the community to ensure FoodShare’s VeggieRx Program participants have access to healthy fruits and vegetables as they strive to improve their diet and health.

Causes and consequences of perinatal outcomes in vulnerable populations: the role of nutrition
The perinatal period—the time between conception and the first year of life—is a sensitive period of rapid change for both the mother and the infant. In low- and middle-income countries, the prevalence of adverse maternal and neonatal outcomes in the perinatal period is disproportionately high. This presentation will examine the causes, with a particular focus on nutrition, and the consequences of adverse perinatal outcomes for health and development throughout the life course.
Nandita Perumal, PhD, Assistant Professor, Department of Epidemiology and Biostatistics
Bio: Dr. Nandita Perumal is a perinatal and pediatric epidemiologist and an applied public health researcher with expertise in leading interdisciplinary research to improve maternal, newborn, and child health in vulnerable populations. She received her PhD and MPH in epidemiology from the University of Toronto and completed her postdoctoral research in the Department of Global Health and Population at the Harvard T.H. Chan School of Public Health.

Did Covid-19 Influence Fruit & Vegetable Consumption?
The purpose of the study was to Explore and Explain the effects of the pandemic on:
1. Attitudes towards fruits and vegetables (F&V).
2. Examine consumers’ subsequent changes in consumption patterns during the peak and post-peak pandemic periods.
The presentation focuses on the background to the topic, methodology used for research, the results, and conclusions.

Eckton Chinyanga, PhD, Instructor, Department of Retailing
Bio: Eckton Chinyanga serves as an accounting instructor in the Department of Retailing. After graduating from Tennessee State University, Chinyanga started his career with TSU in the College of Business as an adjunct accounting instructor where he spent seven years teaching principles of accounting, managerial accounting, cost accounting, and international business. His research interests include food marketing, nutrition, and supply chain management.

Using community wastewater to understand population-level dietary behavior: Current status and future outlook
Population-level nutrition assessments are often reliant on self-reported data, which may increase the risk for certain limitations including recall bias. Wastewater-based epidemiology (WBE) is an inclusive, quantitative, and minimally invasive approach to conducting
population-level health assessments, and established itself as an effective tool in providing actionable, near real-time data during the COVID-19 pandemic. Due to this success, the use of WBE in other realms of public health, such as nutrition, has been proposed. This presentation highlights a novel case study where community wastewater was collected from within a suburban population for two years and analyzed for human excreted biomarkers indicative of a plant-based diet. Wastewater-derived measurements indicate trends in consumption that suggests a reflection of changes in human dietary behavior. This report is the first to demonstrate that WBE can assess acute variations in diet and can serve to support public health nutrition strategies.

Devin Bowes, PhD, Assistant Professor, Department of Environmental Health Sciences

Bio: Dr. Bowes is an Assistant Professor in the Department of Environmental Health Sciences. Her research interests are interdisciplinary with a focus on the human-environment nexus, particularly as it relates to health outcomes due to health disparities. Her work pioneers the field of wastewater-based epidemiology (WBE), where she leverages community wastewater to analyze human excreted biomarkers indicative of various aspects of human health at population-scale in order to encourage inclusive and data-driven decision-making. Utilizing multiomic techniques, topics of investigation include diverse applications including dietary behavior/food insecurity, chronic illness, microbiomes, infectious disease, and environmental exposures, and forming links to social determinants of health.

An Overview of “GameDay Ready”: A Behavioral Weight Management Intervention for Black Men Living in the Rural South

This presentation will provide an overview of the “GameDay Ready” behavioral weight management intervention that was developed to address the low representation and engagement of Black men living in rural areas in obesity trials. The presentation will cover indicators of feasibility and acceptability of the intervention, changes in health outcomes, lessons learned, and future research implications.

Demetrius Abshire, PhD, Associate Professor, College of Nursing

Bio: Dr. Abshire is an Associate Professor of Nursing in the Department of Biobehavioral Health & Nursing Science and a Co-Director of the Smart Start Nursing Program. His research interests include rural health, men’s health, obesity, physical activity, nutrition, and psychosocial determinants of health.
POSTER ABSTRACTS

Berthe Abi Zeid, MPH, Health Promotion, Education, and Behavior

Food and Water Insecurities are predictors of Noncommunicable Disease Management and Poor Mental Health in Older Syrian Refugees in Lebanon: A Cross-Sectional Analysis
Stephen J. McCall, DPhil; Sawsan Abdulrahim, PhD; Hala Ghattas, PhD, and Elrha study team*
*Elrha study team authors include Abla M. Sibai, PhD; Leen Farouki, MPH; Maria El Haddad, MPH; Marwan F. Alawieh, MPH; Monique Chaaya, PhD

Objectives: Older Syrian refugees in Lebanon experience high rates of food and water insecurity, concurrently with noncommunicable diseases (NCDs) and poor mental health. Food and water insecurity can adversely affect well-being through various mechanisms. To inform humanitarian programs, we explored whether food and water insecurity predicted NCD management ability and mental health of older Syrian refugees.

Methods: This cross-sectional study was conducted in Lebanon among older Syrian refugees (≥50 years) from households that received assistance from a humanitarian organization. Data were collected via telephone interviews between September 2020 and January 2021. Backward step-wise logistic regression models were used to determine predictors of the two main outcomes; self-reported inability to manage any NCD (including chronic respiratory disease, diabetes, history of cardiovascular disease, or hypertension) and poor mental health (Mental Health Inventory-5 score≤60).

Results: Of 3322 older Syrian refugees, 58.7% had at least one NCD, 76.9% had poor mental health, 91.9% were food insecure and 30.8% were water insecure. Among those with an NCD, 20.4% were unable to manage at least one. Predictors for inability to manage NCDs were younger age, not receiving cash assistance, water insecurity, food insecurity, and having multiple NCDs. Predictors for poor mental health were younger age, food insecurity, water insecurity, lack of legal status documentation, irregular employment, higher intensity of bodily pain, having debt, and having NCDs.

Conclusion: Food and water insecurity are interconnected resource insecurities, which affect health outcomes. In order to improve individuals’ wellbeing, humanitarian initiatives should ensure that refugees receive essential support, addressing their basic food and water needs.

Ali Alfalki, MPH, Epidemiology and Biostatistics

Food Insecurity Patterns and Mental Health among Youth and Young Adults with Diabetes
Emmanuel Julceus, MD, MPH; Kate Flory, PhD; Jason Mendoza, MD, MPH; Faisal Malik, MD, MS; Edward Frongillo, PhD; Beth Reboussin, PhD; Anna Bellatorre, PhD; Dana Dabelea, MD, PhD; Catherine Pihoker, MD; Angela Liese, PhD

Objectives: We explored the associations of food insecurity (FI) patterns with symptoms of depression, anxiety, stress, and changes therein in youth and young adults (YYA) with type 1 (T1D) and type 2 diabetes (T2D).

Methods: A longitudinal analysis was conducted using SEARCH 4 and the SEARCH Food Security Cohort Study (2016-2022), which included 953 individuals (747 T1D and 97 T2D) from Colorado, South Carolina, and Washington. Food security was ascertained with the Household Food Security Survey Module at 3 times (t1, t2, and t3) and patterned as persistently food secure (PFS), persistently food insecure (PFI), and intermittently food insecure (IFI). Mental health at t3 and changes from t2 to t3 were characterized with the Center for Epidemiologic Studies Depression Scale, the Generalized Anxiety Disorder Scale, and Cohen’s Perceived Stress Scale; higher scores indicated greater severity.
Results: Among YYA with T1D, 6.6% experienced PFI and 20.3% IFI; among YYA with T2D, 16.5% were PFI and 42.3% IFI. In T1D, PFI and IFI were associated with greater depressive, anxiety, and stress symptoms at t3 but not with changes. In T2D, PFI was associated with greater depressive symptoms at t3 but not with symptom changes.

Conclusion: Both persistent and intermittent patterns of FI were associated with mental health symptoms, more so for those with PFI, underscoring the critical interplay between FI and mental health symptoms in YYA with diabetes.

Lavanya Bakshi, Health Promotion, Education, and Behavior
Correlation Between Podcast Engagement and Total Weight Loss Among Participants of the mLife Study
Kelli E. Dubois, PhD, MS; Gabrielle Turner-McGrievy, PhD, MS, RD, FTOS; Diana C. Delgado-Diaz, PhD, MS, PT

Objective: The mLife study is a 12-month mobile weight loss intervention for individuals at risk for type 2 diabetes mellitus. Within the mLife app, participants were provided bi-weekly (0-6 months) and weekly (7-12 months) educational podcasts on topics related to diet, exercise, and weight management. This study assessed the correlation between podcast engagement and weight loss at 12 months.

Methods: Podcast engagement was measured by the total number of podcasts each participant downloaded. Participants reported body weight by stepping onto a provided FitBit scale synchronized to the mLife app. Total weight loss was calculated as the change in body weight from baseline to 12 months. Eligible participants reported body weight at 12 months and downloaded at least one podcast. Data were analyzed and correlations between variables were conducted using Excel.

Results: Seventy-four participants were included in this study. The average weight loss was -10.66 lbs (range: -85.0 – 18.0 lbs). A total of 76 podcasts were released over the course of the study. The mean number of podcasts downloaded per person was 52.6 (range: 1-75). The results of the correlation analysis indicate a negative correlation between total podcast engagement and body weight at 12 months ($r = -0.248$), such that listening to podcasts was associated with greater weight loss.

Conclusion: Results suggest that increased podcast engagement relates to weight loss. Other factors that influence total weight loss may include dietary intake, physical activity, and social support. Additional analysis is needed to factor in other variables that could influence the results.

Alexis Bell, MPH, Health Promotion, Education, and Behavior
The Association Between Power of Food Scale Scores and Weight Among Individuals Consuming a Vegan or Low-Fat Omnivorous Diet
John Bernhart, PhD, MPH, CHES; Sara Wilcox, PhD; Nkechi Okpara, PhD, RDN; Gabrielle Turner-McGrievy, PhD, MS, RD, FTOS

Objectives: The NEW Soul study was a 24-month intervention delivered across 2 cohorts among AA adults at risk of cardiovascular disease. Participants were randomized to follow either a vegan or omnivorous diet, both emphasizing soul food cuisine. The Power of Food Scale (PFS) was used to measure appetite for food, with a higher score indicating experiencing more difficulty in a food abundant environment. The current study examined whether changes in the PFS scores differed by group across 12 months and if PFS score was associated with weight loss at 12-months.
Methods: Participants (n = 109) completed the PFS questionnaire at baseline and 12 months. PFS scores can range from 15 (most favorable) to 75 (least favorable). Weight was assessed in kilograms. First, a dependent t-test compared PFS scores from baseline to 12-months. Next, differences in 12-month PFS score by diet group were compared using a generalized linear model, controlling for cohort, age, gender, education, and baseline PFS score. Lastly, we assessed if 12-month PFS score predicted weight loss at 12-months with both groups combined, controlling for the same covariates in the previous model.

Results: Among all participants, PFS scores decreased by -4.9 points (p = < 0.0001) over 12 months. In the adjusted models, there were no differences in 12-month PFS score between diet groups (omnivorous LSM ± SE = 32.4 ± 1.0, vegan LSM ± SE = 31.9 ± 1.0, p = 0.74). Finally, 12-month PFS score did not predict weight loss at 12-months (β = 0.14, SE = 0.08, p = 0.07).

Conclusion: Although there were no differences in change in PFS score between the groups, participants in the NEW Soul study saw improvements in PFS scores, indicating the intervention helped to reduce the impact of the food environment on their behavior. Future studies should examine the relationship between PFS and diet quality and risk factors for cardiovascular disease.

Raymond Bogdon, BS, MS, Pathology, Microbiology, and Immunology

Colitis is a chronic inflammatory bowel disease (IBD) affecting the gastrointestinal (GI) tract and often is associated with mental health issues like depression. Factors linking colitis to depression remain unclear, and effective treatments for both are currently unmet challenges. Our lab previously showed supplementation with indole-3-carbinol (I3C), a dietary indole in cruciferous vegetables, can reduce disease severity in mouse models of colitis. In the current study, we aimed to determine the behavioral impact I3C supplementation has on colitis-induced depression via alterations in the gut metabolome. Colitis was induced in female C57BL/6 mice using the 3% dextran sodium sulfate (DSS) method and treatment groups were given a regimen of 40 mg/kg I3C as previously reported. Untargeted metabolomic studies of the gut revealed quinolinic acid (QA), a metabolite produced by the kynurenine (KYN) pathway and linked to depression, was found to be significantly reduced in I3C-treated mice when compared to colitis disease controls. In order to determine the effects of I3C and QA modulation on depressive-like behavior, experimental colitis mice were treated with either I3C or an inhibitor of kynurenine 3-monooxygenase (KMOi), a major enzyme involved in QA production. Depressive-like behavior was measured using the Tail Suspension Test (TST) method, and results showed that colitis mice had significantly higher measures of depressive-like behavior which also correlated with increased colitis disease severity. Interestingly, treatment with I3C or KMOi was able to reduce depressive-like behavior, but only I3C treatment reduced colitis severity. These studies provide evidence I3C can treat colitis-associated depression by regulating QA.

Kasie Roark; Archana Saxena, PhD; Chandani Mitchell; Michele Hailey; Shanieka Staley; Prakash Nagarkatti, PhD; Mitzi Nagarkatti PhD; Philip Brandon Busbee, PhD

Morgan Boncyk, MPH, Health Promotion, Education, and Behavior

Identifying and Defining Constructs for Assessment of Household- and Individual-Level Drivers of Food Choice
Sejla Isanovic, Sharraf Samin, Krystal K. Rampalli, Edward A. Frongillo, Rasmi Avula, Sunny Kim, Purnima Menon, Christine E. Blake

Objectives: Understanding drivers of food choice (DFC) is vital for guiding actions to improve diets in low-and middle-income countries (LMIC). Existing research assesses the external food environment and food consumption in LMICs, but has limited measures of food choice behaviors and their drivers, and how to validly assess these behaviors and drivers is unclear. Understanding food choice constructs is essential to develop measures and protocols. We aimed to identify and define food choice constructs at the household and individual levels and identify existing measures and instruments to assess these constructs in LMICs.

Methods: We used three methods: 1) reviewed and synthesized models of food choice to develop a list of constructs for DFC and food choice behaviors at the household and individual levels in LMICs; 2) conducted thematic coding to define, group, and connect food choice constructs; and 3) reviewed peer-reviewed and grey literature to identify research measures, instruments, and protocols for each construct.

Results: Food choice constructs were identified: food choice behaviors (acquisition, preparation, food safety and storage, allocation, consumption behaviors, waste and disposal) intrapersonal drivers of food behaviors (goals and priorities; habits and routines; time use; roles; identities; knowledge, attitudes, and beliefs; motivation and expectancies; preferences), sociocultural drivers (values, gender and women’s empowerment, social relationships, life course experiences), personal food environment (desirability, convenience, affordability, accessibility), material assets and resources (transportation; facilities; wealth; food, water, and housing security), and person-state drivers (biological features, physiological needs and conditioning, psychological components). A repository of research measures, instruments, and protocols was developed to design study protocols to assess DFC in LMICs and identify where instrument development is needed.

Conclusions: Constructs driving household and individual food choice and food choice behaviors were identified. These constructs are reflected in measures compiled in the repository. This information will help guide actions to improve diets in LMICs.

Nadine EL Kalach, MS Pharm, MSPH candidate, BCPS, Epidemiology and Biostatistics

Food insecurity and inability to obtain recommended medications, diabetes technology, and multidisciplinary services in youth and young adults with diabetes

Nadine El Kalach, MSPH candidate, BCPS; Emmanuel F. Julceus, MD MPH; A. Caroline Rudisill, PhD; Faisal S. Malik, MD MSHS; Kate Flory, PhD; Edward A. Frongillo, PhD; Katherine A. Sauder, PhD; Jason A. Mendoza, MD,MPH; Angela D. Liese, PhD.

Objective: Little evidence exists on how household food insecurity (FI) affects youth and young adults (YYA) obtaining diabetes care. We assessed if FI is cross-sectionally associated with not obtaining recommended diabetes medications, technology, and multidisciplinary services, and explored the most common reasons for not obtaining recommended treatments in YYA with diabetes.

Methods: Using data from 911 YYA with type 1 diabetes (T1D) and 144 YYA with type 2 diabetes (T2D) in the SEARCH Food Cohort Study Follow-up 1 (2018-2021) and logistic regression, we evaluated the association of FI and the inability to obtain recommended treatments and tabulated the reasons reported.

Results: Almost 30% of YYA with T1D and FI and 20% of YYA with T2D and FI did not obtain one or more recommended treatment (15.8% and 14.4% in food
secure YYA, respectively). YYA with T1D and FI had higher odds of not obtaining insulin, an insulin pump, a continuous glucose monitor, mental health counseling, and diabetes education adjusted for socio-demographics and diabetes duration. Among YYA with T2D, FI was related to not obtaining dietician services. YYA with T1D mostly reported financial reasons (e.g., affordability, insurance issues) for not obtaining diabetes technology and medications, followed by structural reasons (e.g., time-related concerns) for not obtaining services including diabetes education or mental health counseling.

Conclusion: YYA with diabetes and FI face mostly financial and structural constraints in obtaining medications, diabetes technology, and multidisciplinary services. New strategies are needed to bridge the gap between medical care required versus obtained by YYA with diabetes.

Afsaneh Fallahi, PhD, Epidemiology and Biostatistics

Association between Food Insecurity and Risk of Falls Among American Older Adults: A Mediation Analysis
Afsaneh Fallahi, PhD; Jessica Sainyo, PhD; Anwar Merchant, ScD

Objectives: We investigated the association between food insecurity and risk of falls among American older adults and the extent to which this association is mediated by osteoporosis.

Methods: This retrospective cohort study used data from the 16th wave of the Health and Retirement Study (HRS) between 2016 and 2018 (N = 20912), as well as the Health Care and Nutrition Study (HCNS) in 2013 (N=8073), to estimate the causal association between food insecurity and falls among American older adults aged 50 years and older. Mediation analysis was used. Food insecurity was assessed using six questions from the United States Household Food Security Survey Module. Data on fall history and osteoporosis disease were obtained from the physical health section of HRS Core 16.

Results: Due to a positive total effect estimate, we can indicate that food insecurity increases the risk of falls among older adults. The controlled direct effect (CDE) is significantly below a p value of 0.05 (p = 0.0038), which represents the causal effect of food insecurity on fall events if everyone's osteoporosis values were fixed. Approximately 0.0014% of food insecurity is attributed to the mediation of osteoporosis values. Therefore, osteoporosis, as the mediator variable, accounts for a negligible portion of the food insecurity effect. If an intervention on the mediator could be achieved to set everyone's osteoporosis values at the highest level, then you could expect an increase of 59% (1–(2.3651/(2.2974))100% = -59%) in the food insecurity effect.

Conclusion: Our findings indicate a significant causal association between food insecurity and falls in older adults (95%CL=0.31-2.27, P<.001). Our study suggests that this association is independent of osteoporosis (95%CL=-0.13- 0.13, P=.98) as osteoporosis did not explain any proportion of the association. Interventions aimed at improving dietary patterns among older adults may have the potential to reduce the incidence of falls.

Keywords: Food insecurity, Falls, Older adults, Mediation analysis

Sejla Isanovic, MPH, Health Promotion, Education, and Behavior

Alignment between Food-safety Policies and Perspectives of Consumers in Three African Countries
Objectives: Frequent foodborne disease in low- and middle-income countries highlights limitations of food safety policies in reducing exposure to hazardous foods. Limited policy effectiveness reflects neglect of consumers’ perspectives of food safety, which emerge from their past and current interactions with food value chains and their food environments. Policies must align with consumers’ perspectives to address food safety issues effectively. This study aimed to evaluate whether and how policies align with consumers’ perspectives about food safety, drawing on the elucidation of the intents and instruments of food policies.

Methods: Consumers’ concerns and assurances about food safety were identified through thematic analysis of transcripts from three Drivers of Food Choice projects in Ghana, Kenya, and Tanzania. Policies with information about food safety were selected (Ghana=40, Kenya=54, Tanzania=44). Policy intents and instruments were compared to consumers’ food-safety-related concerns and assurances to determine whether and how policies aligned with consumers’ perspectives about food safety, drawing on the elucidation of the intents and instruments of food policies.

Results: Policies with stated intents to ensure better health, safe environments, and food and water security were broadly aligned with consumers’ food safety assurances. Evidence of misalignment between food safety policies and consumers’ perspectives of food safety occurred when policies failed to consider mechanisms needed to effectively implement policy. For example, false assumptions over the capacity of policy implementors (e.g., local government’s commitment to enforcing food safety regulations) increased consumers’ concerns about food safety after experiencing inconsistencies in regulation enforcement.

Conclusions: Understanding the interactions between policies addressing food safety and consumers’ perspectives about food safety is important for designing policies that account for and can effectively influence and shape consumers’ food choice behaviors to reduce risks of food-borne disease.

Laukhika Kasetty, Health Promotion, Education, and Behavior
Assessing Experiences of Food Safety: A Scoping Review of Research Methods and Constructs
Laukhika Kasetty; Sejla Isanovic, MPH; Edward A. Frongillo, PhD

Objectives: This scoping review aims to determine which underlying constructs of subjective food safety experiences have been assessed.

Methods: Six online databases (Cochrane, PubMed, Embase, Web of Science, CINAHL, Science Direct) were used to identify articles published in English between 2000-2023 using key terms like food safety and consumer food choice behaviors. After removing duplicates, 1566 article titles and abstracts were screened for eligibility. Studies involving human participants and assessing food safety experiences were included, excluding those focusing on biological and chemical hazards through supply-side risk management.

Results: Full-text screening of 89 articles was completed; data were extracted from 81 articles. Most studies (n=51) were conducted in high-income countries. Quantitative methods were used in 58 of the studies, qualitative methods in 22, and 8 were literature reviews. Fourteen of the articles focused on scale development. Most studies included consumers as participants (n=65). Vendors were recruited in 15 of the studies, and healthcare and academic professionals were recruited in 2. Studies measured cognitive, affective, and behavioral
components of food safety. Infrastructure and quality control adherence influenced consumers' sensory perceptions, feelings of trust, risk perceptions, behaviors, and attitudes toward food safety. Only a few studies integrated these considerations into their evaluations to comprehensively understand consumers' food safety experiences.

Conclusions: Research on food safety experiences and metrics is limited. Studies predominantly originate from high-income countries, focus on psychological dimensions of food safety, and do not fully consider infrastructure and quality control adherence.

Enid Keseko, MS, RD, Health Promotion, Education and Behavior

Connection between diet and mental health: Comparing participants randomized to vegan and omnivorous diets in the NEW Soul Study
John Bernhart, PhD; Shiba Bailey, PhD; Mary Wilson, PhD; Nkechi Okpara, PhD; Sara Wilcox, PhD; Gabrielle Turner-McGrievy, PhD

Objective: To examine changes in mental health outcomes among African American (AA) adults participating in a randomized controlled design behavioral nutrition intervention.

Methods: AA participants (N=159) aged 18 – 65 years with overweight and obesity were randomized to vegan or low-fat omnivorous soul food diets in the NEW Soul study, a two-year dietary intervention delivered across two cohorts. Mental health outcomes were operationalized as stress levels, measured by the Perceived Stress Scale (PSS), and mental well-being, an aggregate score from the 12-item Short Form health survey (SF-12). Data was collected at baseline and at the 12-month time point (primary endpoint). At both timepoints, individual scores were summed across the groups for both surveys. A paired t-test compared changes in mental health outcomes from baseline to 12-months. Using GLM analysis, 12-month mental health outcomes were compared between the two diet groups, adjusting for cohort, age, gender, education, and corresponding mental health baseline score.

Results: Among all participants, there was a reduction in PSS scores over 12 months (M= -2.3 ± SD = 6.6, p < 0.001) but not mental wellbeing (M=0.4 ± SD = 8.7, p=.61). In adjusted models, there were no significant differences between vegan and omnivorous diet groups after 12 months for PSS score (β=.74, p=.53) or mental wellbeing SF-12 score (β=-.9, p=.57).

Conclusion: This study found no difference in stress and mental wellbeing between groups, contrary to prior research findings, and is the first randomized study examining mental health outcomes of following plant-based diets among an all-AA study population.

Gitanjali Lall, Health Promotion Education and Behavior

Social Norms around IYCF in rural Bangladesh: Learnings from the Alive & Thrive Program
Gitanjali Lall, MSc, PhD Student; Phuong H. Nguyen, PhD; Sunny S. Kim, PhD; Purnima Menon, PhD; Edward A Frongillo Jr., PhD

Objectives: Social norms play an important role in shaping infant and young child feeding (IYCF) practices. IYCF interventions to improve child feeding among mothers may ultimately translate into social norms in their communities. This study aimed to understand 1) normative patterns of IYCF in a rural Bangladesh community and how they changed over time and 2) variations in normative patterns of IYCF based on prior exposure to the Alive and Thrive (A&T) intervention.
Methods: Data were gathered using free listing during program midline in 2012 and follow-up in 2016, including 90 focus groups, of which 30 were exposed to the non-intensive A&T intervention and 60 to the intensive intervention. Groups of household members were asked to list all foods usually given to infants and young children in their household or village.

Results: In both 2012 and 2016, rice and khichuri were the most reported foods for children under 24 months; snack foods were frequently reported as well. Several foods that were uncommonly reported in 2012 gained prevalence in 2016. While breastmilk was consistently most reported in children under six months in both years, various other foods were also frequently reported, indicating that exclusive breastfeeding up to the age of 6 months was not normative. The proportions and ages of introductions of foods changed differentially by intervention arm but no clear patterns were observed.

Conclusions: Normative IYCF practices in Bangladesh may reflect influence of the A&T intervention, on increasing diversity of diet in young children but not on exclusive breastfeeding.

Lesley Leake, MPH, CHES, Environmental Health Sciences
Comparing the Impacts of Farm to School Programing by School Poverty Level and Program Model
Katie Schreiber; Maria McClam, PhD, MS; Amanda Howell, MPH

Objectives: Fruit and vegetable (F&V) consumption is a protective factor of health, but over 90% of US children don’t consume the recommended amount. Farm to School (F2S) programs connect children with locally grown F&V and have promising impacts on children’s nutrition related knowledge and behavior. This study examined these impacts on a sample of elementary aged youth then assessed the extent to which impacts differed for children at low-income and high-income schools and for children receiving weekly versus quarterly sessions.

Methods: We conducted a case-control study to compare nutrition related knowledge and behavior between students who received F2S curriculum and those who did not. We conducted a cross-sectional analysis of survey data collected from F2S participants between 2017-2023 and compared results based on school poverty level and the type of curriculum received.

Results: Students participating in a weekly F2S curriculum were significantly more likely to include imagery of F&V in their mental model of “food”. Students at low-income schools and those receiving a weekly F2S curriculum were significantly more likely to report positive feelings about F&V, eating F&V they grew themselves, confidence cooking a meal, and also self-reported higher F&V consumption.

Conclusions: F2S programs offer schools, and the families they serve, an effective approach to improving children’s nutrition knowledge and behavior that aligns with the Whole School, Whole Community, Whole Child model. Focusing implementation of F2S programs in low-income schools and delivering F2S sessions weekly rather than quarterly could make the greatest positive impact on students.

Jessica Sainyo, MS, Epidemiology & Biostatistics
Associations between Plant- and Animal-Based Dietary Patterns and Aggressive Prostate Cancer in the North Carolina-Louisiana Prostate Cancer Project (PCaP)
Susan E. Steck, Longgang Zhao, L. Joseph Su, Lenore Arab, David Turner, Ebonée N. Butler, Jeannette T. Bensen, Elizabeth T.H. Fontham, James L. Mohler

Objective: The goal of this study was to examine the association between healthy and unhealthy plant-based
and animal-based diet scores and aggressive prostate cancer in the North Carolina-Louisiana Prostate Cancer Project, a case-only study of Black and White men in the United States.

Methods: Eighteen food groups were created and classified as healthy plant foods, unhealthy plant foods, or animal foods using dietary data collected from an interviewer-administered modified version of the National Cancer Institute Diet History Questionnaire among 909 Black and 991 White men with a histologically confirmed diagnosis of prostate cancer. High aggressive prostate cancer (n=332) was defined as Gleason sum ≥8; or PSA>20ng/ml; or Gleason sum ≥7 and clinical stage T3-T4, and the comparison group was all other prostate cancer cases (n=1,568). Logistic regression was used to determine the odds ratio (OR) and 95% confidence intervals (95% CI) for high aggressive prostate cancer by tertiles of dietary pattern scores.

Results: Decreased odds of aggressive prostate cancer was observed among men in the upper compared to the bottom tertile for healthy plant-based diet score (OR: 0.82, 95% CI: 0.58, 1.15) and unhealthy plant-based diet score (OR: 0.89, 95% CI: 0.63, 1.25) while increased odds was observed comparing extreme tertiles of the animal-based diet score (OR: 1.17, 95% CI: 0.84-1.65), adjustment for multiple covariates.

Conclusions: Consuming a plant-based dietary pattern may be associated with lower odds of aggressive prostate cancer while an animal-based dietary pattern may be associated with higher odds, though associations were weak and not statistically significant.

Eren Sakarcan, MS, UofSCSOM Columbia M1
The effect of race and ethnicity on the associations between metabolic syndrome, nativity, and diet quality: A cross-sectional analysis of the National Health and Nutrition Examination Survey (NHANES) 2013-2018

Objectives: This analysis investigates the potential effects of race/ethnicity on the associations between metabolic syndrome (MetS), Nativity, and Diet Quality (DQ). A clear inverse relationship between DQ and MetS exists[26]. Associations between MetS and other exposures are reported, as are those between nativity and various cardiometabolic factors within a single race/ethnicity. Current literature does not thoroughly explore race-based differences in the association between MetS, Nativity, and DQ [2-3, 9, 20, 28-32, 37-38]. This analysis fills gaps in current literature by accounting for multiple races/ethnicities and DQ in its analysis of the known association between MetS and Nativity.

Methods: All analyses were performed through SAS Studio 3.8 Survey Procedures. DQ was measured using the Healthy Eating Index-2015 (HEI-2015)[5, 22-25, 34]. Differences in proportions and means were analyzed using chi-square and 1-way ANOVA tests.

Results: Race/ethnicity had significant interaction with nativity (P = 0.0124). Stratifying logistic models by race/ethnicity showed that U.S.-native nonHispanic Blacks (NHBs) have significantly higher odds of developing MetS than their non-U.S.-native counterparts (OR: 0.430, 95%CI: 0.196-0.944), even after controlling for diet quality (OR: 0.391, 95%CI: 0.174-0.881).

Conclusion: The U.S. has more immigrants than any other country, who bring diverse values, beliefs, lifestyles, attitudes, and food consumption patterns. Exploring race and nativity-based differences in cardiometabolic and nutrition-related health outcomes, alongside surveillance of the changes in food demand trends in the U.S. can be valuable predictors of health outcomes and advance the development of culturally-relevant preventative and treatment approaches.
Objective: To examine unhealthy food consumption, acquisition, perceptions, and information sources among adults and adolescents in rural South Asia.

Methods: The 2023 Transforming Agrifood Systems in South Asia survey was conducted across five rural districts (Bangladesh: Rangpur and Rajshahi; Nepal: Banke and Surkhet; India: Nalanda). In total, 4,000 households were selected (n=6,007 adults and n=3,995 adolescents). Dietary intake was assessed using 24-hour dietary recall and a 7-day food frequency questionnaire. Data on eating occasions, purchasing habits, perceptions, and exposure to food advertisements were also collected.

Results: Among all unhealthy foods, sweets and ice cream had the highest daily consumption, ranging from 42-75% among all respondents. Daily processed meat consumption was 10-15 times higher in Bangladesh compared to other countries. Bangladeshi males daily consumed twice as much unhealthy foods in the afternoon than Nepal and India. Over the last 7 days, 38% adults and 22% adolescents consumed tea/coffee with sugar daily. Biscuits were perceived as safer and more nutritious in Bangladesh (70%) and India (60%) than in Nepal (37%). Most unhealthy foods were purchased from open-air markets in Bangladesh (60%) or retail shops in Nepal (85%) and India (78%). Adolescents (47%) were more exposed to unhealthy food advertisements than adults (33%) in the past month. However, adolescents (26%) received more information on avoiding unhealthy foods than adults (14%), mostly from family and friends (44%).

Conclusion: Adults and adolescents consume a notable portion of their diets from unhealthy foods, with easy access and extensive exposure to unhealthy food advertisements in South Asia.

Meghan Savidge, MS, Exercise Science

Barriers and Facilitators to using a SNAP Fruit and Vegetable Incentive Program for Families with Food Insecurity

Objective: This study partnered with pediatric clinics to increase knowledge of a Supplemental Nutrition Assistance Program (SNAP) fruit and vegetable (F&V) incentive program in South Carolina called “Healthy Bucks” (HB) and explored parent perceptions of program adoption.

Methods: Parents (N=91; 100% female, 76% Black; 45% very low food secure) experiencing food insecurity and enrolled in SNAP were recruited from a pediatric clinic. Parents were provided brief information on HB during clinic visits. Five months later, semi-structured phone interviews were conducted with a subset of parents that did (n=13) and did not (n=15) start using HB. Grounded theory methods were used to identify barriers and facilitators of HB use. Codes were mapped onto the Theoretical Domains Framework (TDF).

Results: Six TDF domains emerged including knowledge, social influences, environmental context and resources, emotion, intentions, and belief about capabilities.
Limited knowledge of HB was the greatest barrier to prior usage in both groups. Parents suggested increasing awareness of HB through discussions with professionals (e.g., SNAP outreach staff), media (e.g., commercials), and flyers. For non-HB users, the most common barriers included limited time and unreliable transportation. Both groups had positive views about the HB program and intend to use HB in the future, due to the financial benefit and increased F&V provision for their family.

Conclusion: Parents perceived benefits of HB; yet limited knowledge and environmental barriers negatively impacted use of this program. Studies should examine strategies to overcome environmental barriers, such as delivery, and raise awareness of SNAP F&V incentive programs.

Taylor White, BS, Psychology
A Mixed-Methods Approach to Understanding Stress, Eating to Cope, and Blood Pressure Outcomes in African American Women
Asia Brown, M.A.; Dawn K. Wilson, Ph.D.; Mackenzie Hood, B.A.; Chih-Hsiang Yang, Ph.D.; Mary Quattlebaum, M.A.; Allison Sweeney, Ph.D.

Objectives: African American (AA) women experience high rates of stress, which may contribute to unhealthy behaviors, such as overeating, increasing their risk of chronic disease conditions (obesity, high blood pressure). This study evaluated qualitative and quantitative data from AA women who reported their daily experiences of stress and coping.

Methods: Twenty-seven AA women (Mage=46.7±15.1 yr; Age Range=23.0-74.0 yr; MBMI=30.1±5.9) reported their daily experiences of stress through ecological...
momentary assessment (EMA) twice per day over 10 consecutive days. Qualitative themes of daily stressors were identified from the EMA data (Interrater reliability \( r=.82 \)). Quantitative measures included objective assessments of body mass index (BMI), blood pressure, and self-reported measures of perceived stress and eating to cope using validated scales.

Results: Qualitative data revealed that the most prominent category of stressors was at the individual level, with worries about work/school (34%), difficulties with physical/mental health (26%), and tasks of daily living (24%) being the most frequent. Additional stressors were reported at the interpersonal (caregiving, 18%) and community level (church, 3%; neighborhood factors, 4%). Quantitative analyses revealed a positive association between stress and eating to cope \( (r(25)=0.52, \ p< 0.01) \). Eating to cope also showed a positive association with diastolic blood pressure \( (r(25)=0.33, \ p=0.10) \).

Conclusions: This study showed a variety of intrapersonal and interpersonal stressors experienced by AA women, and that these stressors may be linked to coping responses that hinder healthy eating behaviors. Intervention research is needed to address adaptive stress management and positive health behaviors in response to stress among AA women.