

HER NOPREN Virtual Student Presentations Wednesday, August 11th, 4:00-5:15 p.m. ET

Virtual Student Presentations

1

Understanding Black Parents' Perceptions and Barriers to Consuming and Serving Sugar-Sweetened Beverages to their Young Children

Presenter: Chisom Blessing Okoli

University: University of Georgia, Athens

NOPREN-affiliated faculty: Caree J. Cotwright

Objective: To understand Black parents' perceptions and barriers to consuming and serving Sugar-Sweetened Beverages (SSBs) to their Young Children aged 0 to 5 years. Findings from study created the need to develop a parent-focused eLearning training to improve healthy beverage consumption among Black families **Introduction:** Sugar-sweetened beverages (SSBs) is a major contributor to obesity among young children aged 0 to 5 years. By race, Non-Hispanic Blacks (63%) are the highest consumers of SSBs compared to other races (45%). Additionally, beverages that young children drink are heavily influenced by beverages parents consume and serve. Formative stage of this study explored Black parents' perceptions and barriers to limiting SSBs among their young children (0-5 years). Study was grounded on Social Cognitive theory (SCT) to explore personal, behavioral, and environmental factors (reciprocal determinism) to consuming and serving beverages among Black families. **Methods:** Low-income Black parents with children enrolled in Head Start programs across Georgia were enrolled for the study. A statewide focus groups (1 in each 6 regions of Georgia) was conducted. Focus group script were grounded on SCT constructs (reciprocal determinism, expectations, observational modelling, self-efficacy and reinforcements). NVivo software was used to code and analyze qualitative data. Quantitative data obtained from demographic characteristics were analyzed using R, and presented as frequencies, mean and standard deviation. **Results:** Parents and kids consumed about 2.8 ± 1.5 , 2.0 ± 0.9 SSBs, respectively. Taste/flavor, price/rollbacks, preferences by parents and kids, family norms were major factors influencing Black parents' decision on type of beverage to consume and serve. Parents associated weight gain, back pain, dental caries as negative attributes of drinking SSBs. Parents felt confident that they could consume \leq SSB/ day if provides with resources such as nutrition education and peer support. **Implications:** Black parents felt confident that they could decrease their sugary beverage intake if provided with the adequate resources. Therefore, developing nutrition education tools and Black-family centered intervention can help decrease SSBs consumption, increase water intake and address childhood obesity.

2

Who's Grocery Shopping Online: Results from a Nationally Representative Survey

Presenter: Emily Duffy

University: UNC Chapel Hill Gillings School of Global Public Health

NOPREN-affiliated faculty: Shu Wen Ng

Objectives: The objectives of this study were to estimate the prevalence of online grocery shopping during the COVID-19 outbreak in a nationally representative sample, overall and

HER NOPREN Virtual Student Presentations Wednesday, August 11th, 4:00-5:15 p.m. ET

by food category, to report the proportion of households that planned to continue online grocery shopping in the future, and to describe sociodemographic correlates of online grocery shopping during COVID-19. **Background:** COVID-19 has created a new normal, affecting food purchasing behaviors, moving a portion of them online. It is unknown how these behavioral shifts may differ by sociodemographic characteristics and whether shifts may widen or diminish existing diet-related disparities. **Methods:** The Nielsen COVID-19 Shopper Behavior Survey was administered to a subset of Nielsen Homescan panel participants in July 2020 (n=18,598). We describe survey-weighted sociodemographic characteristics, prevalence of self-reported prior online grocery shopping, and plans to continue grocery shopping online in the next month. We used survey weighted-multivariable logistic regression to examine sociodemographic correlates of prior online grocery shopping. **Results:** Forty percent of respondents had purchased groceries online in the past, and among those that reported prior purchases (n=7,045), 89% indicated that they would continue to online grocery shop in the next month. Canned or packaged foods were the most commonly shopped for grocery category online (31% reported prior online purchases), followed by beverages (28%), fresh foods (21%), and lastly, frozen foods (20%). In adjusted analyses, older age groups (40-54y, 55-64y, 65+y) had lower predicted probabilities of online grocery shopping (29%, 22%, and 23%, respectively) than respondents 39y or younger (47%), all $p < 0.001$. Those with greater than a college degree were more likely to have grocery shopped online (45%) than respondents with some college education (39%), and those with a high school education or less (32%) (both $p < 0.001$). Similarly, high income respondents were more likely (42%) to online grocery shop than middle income respondents (39%) and low-income respondents (35%), both $p < 0.01$. The presence of children in the household also increased the likelihood of online grocery shopping (41% compared to 38% in households with no children, $p = 0.035$). Food insecure households were more likely (45%) to have shopped online than food secure households (37%, $p < 0.001$). There were no significant differences in the predicted probability of online grocery shopping by race/ethnicity or self-reported financial situation. **Implications:** With the rapid expansion of online grocery shopping in recent years that has been accelerated by COVID-19, there is growing interest in the public health community about potential policies and interventions to facilitate healthier choices online and protect consumers from potential adverse outcomes such as targeted junk food marketing. These findings can help inform these future policy and programmatic efforts as well as efforts to address barriers to online grocery shopping among specific demographic groups.

3

Nutrition Practices of Family Childcare Providers and Children's Diet: Do Children Have Better Diet Quality if Providers Meet related Nutrition Best Practices?

Presenter: Qianxia Jiang

University: University of Connecticut

NOPREN-affiliated faculty: Kim Gans

Background and Objective: Childcare settings play an important role in shaping young children's eating behaviors. However, less research has focused on family childcare homes (FCCHs) than centers. This analysis examines whether 2-5-year-old children that are cared for in FCCH have better diet quality if their provider adheres to best practices for nutrition.

Methods: We used baseline two-day observation using Environment and Policy Assessment and Observation (EPAO) and the Dietary Observation in Childcare (DOCC) measures from a cluster-randomized trial. Following the observation, 26 nutrition best

HER NOPREN Virtual Student Presentations Wednesday, August 11th, 4:00-5:15 p.m. ET

practices were dichotomized into met vs. not met, based on Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC). Multilevel linear regression models assessed the association between meeting nutrition best practices and children's diet quality (Healthy Eating Index (HEI-2015 total and sub scores). Each model was clustered by FCCH, controlling for provider ethnicity and income level. **Results:** Overall FCCH providers were all female (n=120), with over 50% identifying as Latinx (67.5%) and 370 children (51% female, 58% Latinx). Providers who met the following two best practices had children with higher total HEI scores compared to those who did not meet these practices: teaching children how to serve themselves or allowing them to serve themselves (b=24.20, 95%CI (21.92, 26.47), p<.001); talking with children informally about nutrition (b=4.10, 95%CI (1.86, 6.34), p<.001). In addition, meeting best practices related to serving certain foods or beverages was associated with higher HEI sub-scores for the following sub-components: total fruit (b =.55, 95%CI (.017, 1.08), p<.05), whole fruit (b=.76, 95%CI (.25, 1.26), p<.01), whole grain (b=2.90, 95%CI (.57, 5.24), p<.05), refined grain (b=2.74 95%CI (1.17, 4.31), p<.01), and added sugar (b=3.1, 95%CI (.43,5.78), p<.05). **Implications:** Overall, children cared for in FCCHs that met some nutrition best practices had overall better diet quality. Future interventions and policies should continue to support FCCH providers in meeting nutrition best practices to achieve better nutrition environments in FCCHs and improve children's diet quality.

4

A State-by-State Analysis of Variation in Regulatory Requirements for The Emergency Food Assistance Program (TEFAP) and Impact on Equitable Program Provision

Presenter: Anna Jackson

University: University of Tennessee, Knoxville

NOPREN-affiliated faculty: Elizabeth Anderson Steeves

Background and Objective: The Emergency Food Assistance Program (TEFAP) is a federal program that supports the provision of nutritious supplemental foods to low-income Americans. The integration of TEFAP within the charitable food system is fundamental for the efficient provision of emergency foods, however, state-level regulatory variations may generate challenges related to TEFAP program implementation and equitable food distribution to populations that are nutritionally vulnerable. The purpose of this study was to systematically review variations in the enacted state-level regulatory requirements of TEFAP and discuss implications for research, policy, and practice. **Methods:** A comprehensive analysis of open-access data from US Government TEFAP manuals (n = 33 out of 50 States) was conducted by one researcher between June 2021 and July 2021. Confirmation checks (20%) were completed by a second researcher to ensure data accuracy. Data were systematically extracted using a standardized data extraction spreadsheet and synthesized across States. **Results:** Findings suggest that moderate variability in State-level TEFAP implementation regulations. Dominant variations were categorized into three main themes including administration; client and household eligibility criteria; and eligible recipient agency practice and implementation. Primarily, States may enact unequal TEFAP eligibility criteria. These variations include income-level thresholds (ranging from 130% to 275% of the federal poverty level), categorical qualifications (e.g., automatic acceptance if client participates in a Supplemental Nutrition Program or congregate meals program), and the requirement of proof of income and/or identification. **Key Take-Aways and Implications:** Intervening action at the policy and systems level could improve the public health impact of TEFAP. State-by-state regulatory comparisons, like this study, can highlight differences in state-level program administration, and provide opportunities for TEFAP leaders at the state and federal level to evaluate and justify regulatory variations. Given the moderate level of variation, there is

HER NOPREN Virtual Student Presentations Wednesday, August 11th, 4:00-5:15 p.m. ET

opportunity to advance existing policies and practice that streamlines TEFAP regulations across governmental levels to enhance equitable emergency food distribution across states.

5

Understanding Successful Healthy Stores in Low Income Communities: A Case Study Approach

Presenters: Emma Clare Lewis & Christina Kasprzak

University: Johns Hopkins Bloomberg School of Public Health & University at Buffalo

NOPREN-affiliated faculty: Joel Gittelsohn

Objective: We sought to better understand the role of healthy food retail stores in underserved communities across the U.S., particularly in the context of the COVID-19 pandemic. Specifically, our aims were to: (1) conduct mixed methods research to construct case studies in 7 diverse healthy food-focused retail food stores located in underserved communities throughout the U.S.; (2) understand experiences of these stores in the aftermath of the pandemic; and (3) implement a cross-case analysis to understand common strategies for store survival under usual conditions, as well as under the circumstances of the pandemic. **Background:** Underserved communities in the U.S. generally lack access to healthy and affordable foods. Consequently, these same communities often experience food insecurity, a vulnerability which has been further exacerbated by the pandemic. We conducted a series of case studies of diverse retail food stores around the country with a focus on facilitators and barriers to successfully improving healthy food access in underserved communities. **Methods:** Seven healthy retail food stores were identified and recruited to participate. Stores were located in Baltimore, MD, Boston, MA, Buffalo, NY, Washington, DC, Chicago, IL, Detroit, MI, and Minneapolis, MN. Data collection began in January 2021 and was completed by trained research staff. Mixed methods were used to construct the case studies, including in-depth interviews with store staff and other key stakeholders, direct observations of food stocking and prices (NEMS-S Short Form), and store sales records. All in-depth interviews were transcribed and analyzed using Atlas.ti version 9. A codebook was developed by the research team to guide an aggregate cross-case analysis in order to elucidate challenges as well as potential novel solutions, with a special focus on identifying responses to the pandemic. **Findings:** Data analyses are ongoing and expected to be completed by August 2021. Of the 7 participating stores, 2 were non-profit, 4 were for-profit, and 1 was a cooperative (co-op) business. Three stores had more than one location (only 1 location was chosen for the purpose of this study), and the stores were of varying sizes (1 “small”, 4 “medium”, 2 “large”). All 7 stores accepted federal nutrition assistance except for one store which had temporarily suspended acceptance of SNAP at the time of the study. Cross-cutting themes from in-depth interviews included a focus on providing customers with “fresh” foods, serving low-income and racial/ethnic minority families, and partnering with local producers. In addition, almost every store (5 stores) emphasized the importance of hiring local, majority BIPOC, employees. During the study timeframe, one store permanently closed, providing important insight into the challenges faced by some food retail stores due to the aftermath of the pandemic. **Implications:** This is the first study to compare and contrast different food retail models being employed to increase access to healthier foods in underserved communities. The toolkit we aim to develop has important implications for improving healthy food access for vulnerable families. This work is timely given the impact of the pandemic, and will yield insights into how healthy retailers can be prepared for future emergencies.

Student Posters

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Food & Nutrition Security

School Wellness

Early Childhood

Healthy Food Retail

1

Food Insecurity & CVD in Lower-Income U.S. Adolescents

Presenter: Aarohee Fulay

University: University of Michigan

Objective: This study investigates whether household and child food insecurity is associated with CVD risk factors in lower-income adolescents. **Background:** Household food insecurity is associated with CVD risk factors in low-income U.S. adults, but research on these associations among adolescents is inconsistent. **Methods:** The study design was cross-sectional. The sample was comprised of 2876 adolescents, aged 12-17 years, with household incomes at or below 300 % federal poverty line from the National Health and Nutrition Examination Survey cycles 2007-2016. Multivariable linear regression assessed the association between household and child food security and CVD risk factors. Household and child food security was measured using the US Food Security Survey Module. The analyses were adjusted for adolescent's age, sex, race/ethnicity, smoking status, physical activity and sedentary time, as well as household income and the head-of-household's education and marital status. **Results:** The weighted prevalence of household food insecurity in the analytic sample was 33.4 %, and the weighted prevalence of child food insecurity was 17.4 %. After multivariable adjustment, there were no significant associations between household and child food insecurity and BMI-for-age Z-score, systolic and diastolic blood pressure, HDL-cholesterol, total cholesterol, fasting TAG, fasting LDL-cholesterol and fasting plasma glucose. **Implications:** Despite observed associations in adults, household food insecurity was not associated with CVD risk factors in a national sample of lower-income adolescents. Child food insecurity was also not associated with CVD risk factors. More research should be conducted to confirm these associations. Published abstract and article link: <https://pubmed.ncbi.nlm.nih.gov/34155968/>

2

Will Encouraging Dollar Stores to Become WIC Vendors Increase WIC Participant Access to WIC Vendors?

Presenter: Anna Jackson

University: University of Tennessee, Knoxville

NOPREN-affiliated faculty: Elizabeth Anderson Steeves

Background and Objective: Minimum stocking standards for WIC retail vendors have been shown to enhance healthful food access at the community level. Communities that have been socially and economically marginalized may have inequitable access to WIC-authorized vendor locations, thus exacerbating the barrier to healthy food access. Leading dollar format stores are often more prevalent in such communities compared to other food retailers; however, most dollar store chains are not WIC-authorized vendors. The purpose of this study is to examine accessibility to WIC-authorized vendors against a leading dollar store format among communities located within the Southeast USDA region. Secondly, this study aims to determine if there is a geospatial indication for encouraging a leading Dollar Store format to become a WIC vendor based on access data. **Methods:** Accessibility and spatial distribution of WIC-authorized vendors and a leading dollar store chain will be

HER NOPREN Virtual Student Presentations Wednesday, August 11th, 4:00-5:15 p.m. ET

assessed using Geographical Information Systems (GIS). Additional variables that will be mapped (assessed?) include sociodemographic characteristics, the Child Opportunity Index (from diversitydatakids.org), and USDA Food Access Data. Access data provided from a leading dollar store chain and WIC State agencies will be used to create the base-map layer. Descriptive statistics will be used to quantify the number of a leading dollar store locations and WIC-authorized vendors at the county level. The American Community Survey data will be used to calculate the population-weighted centroid of each county. Multiple regression analysis will be used to estimate and compare the average distance from the population-weighted centroid to WIC-authorized vendors and a leading dollar store chain. GIS maps will be made using ArcGIS and statistical analysis will be conducted using RStudio.

Results: Data have been received from Georgia, Tennessee, Mississippi, and Florida and organized for geospatial analysis in ArcGIS. The remaining WIC-authorized vendor and clinic location data have been requested and analyses will be finalized upon receipt of those data. Results from this analysis will inform if there is a need to increase access to WIC-authorized retailers by way of a leading dollar store format to enhance equitable food access among WIC participants. **Key Take-Aways and Implications:** The WIC program serves as a vital nutritional safeguard for maternal and child populations with nutritional and socioeconomic risk. However, geographical barriers to healthy food access may exist for this high-risk population. Thus, findings from this study could encourage dollar store retailers to participate in the WIC Program, and thus increasing healthy food access for these important populations.

3

USDA Summer Food Service Program: Insights from the COVID-19 Distribution Response

Presenter: Ashlyn Anderson

University: University of Tennessee Knoxville

Objective: The Summer Food Service Program (SFSP) is a federally-funded, state-administered program that reimburses programs that provide free, nutritious meals to children under 18 years old during the summer months when school is not in session. Due to the onset of COVID-19 and interruption of school nutrition, the nation witnessed an unprecedented use of SFSP, adjusted to adhere with public health protocols. As a result of the flexibility waivers issued in the first COVID-19 stimulus relief bill, summer meal programs have implemented innovative strategies to allow more meals to be served than in previous years. The purpose of this practicum research is to: (1) overview the experience as a site supervisor for the SFSP during the summer of 2021, (2) summarize the methods of the pandemic-response meal distribution model, and (3) report key findings and takeaways for SFSP policy and practice. **Background:** Independent student intern (AA) served as a site supervisor to facilitate the SFSP through the Zero Hunger Internship of the Congressional Hunger Center. The internship placement in St. Louis Missouri was hosted by Operation Food Search, an anti-hunger nonprofit and one of the leading providers of summer meals in the state of Missouri. Internship responsibilities involve summer meal program implementation at six distribution locations across the St. Louis County region, managing and training a team of five volunteers to distribute meals on site, and facilitating outreach with over 50 external organizations and six school districts. All sites were adapted to facilitate a contactless, drive-thru model to distribute summer meals for children, as well as supplemental distribution items of shelf stable family boxes and fresh produce for households. **Methods:** The effectiveness of the COVID-19 response distribution model employed by Operation Food Search is strengthened by the nationwide waivers to support access to meal service and program operations. These include: allowing parents and guardians to pick up meals, waiving meal time requirements to allow multiple days' worth of meals to be served at once, and allowing non-congregate feeding. This allows meals to be served in a grab-and-go format where children's meal boxes are packed with a 7-day supply

HER NOPREN Virtual Student Presentations Wednesday, August 11th, 4:00-5:15 p.m. ET

of breakfast and lunch. Many barriers to food access are alleviated as families receive multiple days of food at a time through a mobile meal distribution model. **Results:** The result of the current SFSP model has allowed over eight times the amount of children's meals to be served, and households benefited from the addition of produce and pantry items. During the combined months of June and July 2020, 9,260 meals were served, and in June and July of 2021, 77,879 meals were served, documenting a significant increase in the total volume. The combined impact of pandemic-induced financial strain on families and the efficiency of the drive-thru distribution model allowed for serving meals at a higher capacity than in previous summers. **Research, Policy and Practice Implications:** Key take-aways from this experience include the potential to continue nationwide summer meal waivers to support non-congregate feeding and serving multiple meals at once. Ultimately, more research is needed to evaluate the impact of the flexibilities on program participation and nutrition outcomes, as well as the potential to integrate summer EBT with SFSP.

4

Supporting the Whole Child: How Parents Can Ensure a Healthy and Active Summer

Presenter: Eden W Gebreyes

University: Emory University

NOPREN-affiliated faculty: Sarah Sliwa & Caitlin Merlo

Objective: With schools closed throughout the summer, students' eating patterns and access to nutritious meals and structured physical activities can be affected, which can also increase the risk for a more sedentary lifestyle. Parent involvement is critical during these out of school-time months. To help parents navigate choices during this period of out of school-time, this project communicates actions parents can take to keep their children healthy, safe, and active as the COVID-19 pandemic continues. **Process or Methods:** This project is guided by the Whole School, Whole Community, Whole Child framework to address youth health behaviors. This framework supports positive health communication methods and practices by incorporating all aspects of a child's environment. School, community, and family engagement are all critical components to mitigate child obesity health risks, as the WSCC model upholds. A health promotion plan in the form of a tip sheet was created and published with the purpose of providing parents with recommendations and ideas to navigate out-of-school time this summer. Content was developed collaboratively with public health and communication experts and details a variety of resources to stay active and healthy from the CDC, USDHHS, the NIH, among others. Nutrition tips were supported by tools, such as meal planning worksheets and mobile app suggestions for monitoring meals and nutrition intake. Physical activity resources included activities to increase movement and to limit sedentary periods, such as nature toolkits for outdoor activity and screen time widgets to minimize technology use. A literature review was conducted to identify previous school-based out-of-school time physical activity interventions and summer nutrition programs conducted among school-aged children to improve health outcomes. Grey literature, particularly parent surveys, were reviewed to gain insight on thought processes and intentions to facilitate a positive experience for children in the summertime. **Products Developed:** An informational brief will be developed and will highlight key considerations and methods of supporting school-aged children in engaging in healthy behaviors. In addition to the issue brief, a summer messaging campaign, informed by the tip sheet content and research evaluation efforts, will be launched and geared towards parents and caregivers. These messages will further nutrition and physical activity promotion efforts and will be framed around keeping children engaged, challenged, healthy, safe, and supported. Additionally, resources will be shared to uplift and support child nutritional health and social emotional wellbeing. **Implications, Key Take-Aways, or Lessons Learned:** While summer meal programs and structured summer programming are excellent preventative measures to adverse health risks among children, they are not accessible to all

HER NOPREN Virtual Student Presentations Wednesday, August 11th, 4:00-5:15 p.m. ET

families who would like their children to participate. Researchers must identify and evaluate strategies to address present barriers to participation. Lastly, incorporating a framework that centers the population at risk, is fundamental to developing health messaging in this campaign.

5

A Scoping Review of Local Education Agency Reopening Plans in Response to COVID-19

Presenter: Theresa A. LeGros

University: University of Arizona

NOPREN-affiliated faculty: Kathryn Orzech & Cynthia Thomson

Background: Informed by complex adaptive systems theory, this scoping review was designed to collect and analyze Arizona Local Education Agency (LEA) reopening plans for the 2020-21 school year in response to COVID-19. We aimed to (1) uncover processes related to plan development, (2) describe plan characteristics, and (3) explore variations by key LEA demographics. **Methods:** We used the Arksey and O'Malley framework for scoping reviews and adjusted their stages to gray matter, only: identify the research question(s); identify the relevant gray matter; select and review the relevant gray matter; chart the data; and collate, summarize, and report the results. Plans were collected from LEA websites and the Arizona Department of Education (ADE) from July-December 2020. Key a priori eligibility criteria for LEAs included: public education agency, students, and an active LEA website. Reopening plan documents were eligible as formal plans, distance learning plans, or specified supplemental materials. A codebook supported systematic data extraction, performed by two reviewers after we established high inter-rater reliability. Descriptive statistics were used to summarize findings, and non-parametric analyses were used to further explore charted data. **Results:** Reopening plans were collected from 351 public LEAs across all Arizona counties (51% regular public-school districts and 45% charters). Although 57% of LEAs were considered urban, a substantial portion (36%) represented rural areas. Plans were most comprehensive in their descriptions of support services and learning models and least comprehensive in food security measures. However, ADE data showed that over 75% of LEAs had received meal program waivers by December 2020. Plan differences were found by LEA type, degree of rurality, and other demographics. Regular school districts were more likely than charters to reference ADE guidance in plan development, engage more stakeholder groups (families, school staff, indigenous authorities, and county health departments) in their planning, describe their districts' communication methods, communicate plans in more than one language, include more mitigation and food security measures, have a meal program waiver in place, and employ a distance learning model. Charter schools were more likely than regular school districts to provide distance learning plans, use a hybrid model, and specify a virtual communication platform (e.g. Zoom). LEAs located in more rural counties were more likely to report in-person learning, while LEAs in the most urban counties were more likely to report the use of distance or hybrid models. By-county results revealed more nuanced differences in plans that suggest rurality as just one of many factors that influence plan variations. **Implications:** This scoping review contributes to a burgeoning evidence base around local-level pandemic response in the education sector. Findings revealed variation by key demographics that enhance the understanding of systems influences on plan development, implementation, and characteristics. Demographic variation in plans also suggest potential areas of exploration around equity-related issues.

HER NOPREN Virtual Student Presentations
Wednesday, August 11th, 4:00-5:15 p.m. ET

6

Age of Bottle Cessation and BMI-for-Age Percentile among Children Aged 36 Months Participating in WIC

Presenter: Morium Bably

University: The University of North Carolina at Charlotte

Background: Children's age at bottle weaning typically ranges from 12-24 months. The recommended age of bottle weaning varies. The American Academy of Pediatrics recommends weaning by 12 months; The American Academy of Pediatric Dentistry recommends 12-15 months; The US Department of Agriculture recommends 18 months. Prolonged bottle use is associated with dental caries, iron-deficiency anemia, and child overweight or obesity. We examined factors associated with age of bottle cessation, and the association between age of bottle cessation and body mass index (BMI)-for-age percentile at age 36 months among Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) participants. **Methods:** Data were from the WIC Infant and Toddler Feeding Practices Study-2 (ITFPS-2). The ITFPS-2, a longitudinal study of WIC participants (mothers and their children) began in 2013. We used Cox proportional hazards models to identify factors associated with bottle cessation, and multivariate linear regression to examine the association between age of bottle cessation and BMI. **Results:** About 34% of children used a bottle longer than 12 months, and 13% longer than 18 months. Bottle cessation at older ages was associated with Hispanic ethnicity, multiparity, low income, low education, higher caregiver weight, and not initiating breastfeeding. The adjusted children's BMI-for-age percentile at age 36 months increased by 0.47 for each additional month of bottle use. **Conclusion:** Prolonged bottle use was associated with increased children's BMI-for-age percentile. Future research is warranted to determine the optimal age to recommend bottle cessation for WIC participants.

7

Associations between Ad-Supported Media and Ultra-Processed Food Intake among Pre-School Age Children

Presenter: Jennifer Carroll

University: University of Massachusetts Amherst

Objective/Background: Ultra-Processed Foods (UPF)—industrial formulations made from substances derived from foods, with little intact food (1)—account for nearly 63% of calories purchased (2). UPF are often high in added sugar, sodium and fat (3–5), and emerging research demonstrates that overconsumption of UPF is associated with cardiometabolic diseases (6,7), the number one cause of death in the world (8). While diets high in UPF are associated with overweight/obesity among adults (9–18), research among children is limited, especially for unhealthy food advertisement exposure. Hypotheses include: 1) a greater usual intake of UPF over 1 year will be positively associated with a greater gain in BMI; 2) advertisement-supported media will be positively associated with a greater UPF intake cross-sectionally/prospectively over 1 year; and 3) an exploratory hypothesis that a greater usual intake of UPF will partially mediate a positive association between advertisement-supported media and weight gain over 1 year. **Methods:** This proposal builds on a rich dataset from the study: Impact of Food Marketing and Cross-Promotions on Preschoolers' Dietary Intake (R01HD071021 PI: Dalton), a prospective, community-based study of 624, 3–5-year-old children in NH, followed for 1 year between Mar 2014-Oct 2016. Advertisement-supported, advertisement-free, and mixed-advertisement media use will be proxies for food ad exposure. UPF intake will be measured from two, 3-day food records using the NOVA food classification system. Objectively measured child weight/height will be used to calculate age-and-sex-adjusted BMI. A customized nutrient database includes child-specific packaged foods (e.g., kid's yogurt tubes, squeezable food pouches), accounting for 19% of the final dietary database. **Results:** The findings of this proposal are on-going as a chapter in a

HER NOPREN Virtual Student Presentations
Wednesday, August 11th, 4:00-5:15 p.m. ET

dissertation. **Implications:** This proposed research is significant as these findings may have policy-level implications by demonstrating how child-directed food marketing may adversely affect child health.

8

Exploring a Theory of Change: Are Increases in Parental Empowerment Associated with Healthier Weight-Related Parenting Practices?

Presenter: Cristina Gago

University: Harvard TH Chan School of Public Health

Objective: Using a difference-in-difference approach, the current study is among the first to assess the relationship between the process of increasing parental empowerment and acquiring healthier weight parenting practices (i.e., change in parental empowerment by change in parenting practices). **Background:** In child health, parental empowerment is defined as the process by which parents realize control over their life situation and take action to promote a healthier lifestyle. For decades, researchers have described the theoretical potential of empowerment in health promotion efforts, though few have empirically examined this hypothesized relationship. This study is one of the first to examine the relationship between parental empowerment and healthy weight parenting practices, as a mechanism for early childhood health promotion in community settings. **Methods:** In the 2017 and 2018 school years, low-income parents of preschool-aged children attending Head Start in Greater Boston were invited to complete a survey in the Fall and Spring semesters (n=645 parents). Scores were created by averaging responses to validated items from the Parental Empowerment through Awareness, Relationships, and Resources (PEARR) survey and the Obesity Parenting for Intervention (OPTION) survey. PEARR items evaluated the development of context-specific critical awareness, the recognition of available resources, and the embrace of relationships beneficial for the promotion of their child's health; OPTION items assessed healthy weight parenting practices (i.e., actions and behaviors) – as opposed to parenting style (i.e., attitudes and emotions) – across the domains of food, physical activity, and sleep. We used a multilevel difference-in-difference approach to estimate changes in healthy parenting practices score by changes in parental empowerment score over an academic school year (from Fall to Spring). **Results:** Among an ethnically diverse group of parents from low-income households with young children, increases in parental empowerment were associated with healthier weight-related parenting practices. Specifically, through our difference-in-difference approach we observed a one-unit increase in empowerment score to be associated with a mean increase of 0.153 units in healthy weight parenting score over one academic school year (b=0.153; 95% CI=0.090, 0.217; p<0.0001). Out of a possible score of four, the unadjusted mean (SD) scores in Fall were 3.20 (0.40) for empowerment and 3.01 (0.40) for healthy weight parenting. **Implications:** This observed linkage between increased parental empowerment and healthier parenting practices is a promising finding, as even minor improvements to healthy weight parenting are linked with healthy child diet, growth, and development. These findings also further establish the theoretical underpinnings of empowerment as a target in family-based behavior change work. Given that healthier weight-related parenting practices are linked with healthier lifestyle behaviors (i.e., diet, physical activity) and body weight in children, results from this study support parent empowerment as a predictor of healthy parenting practices for the prevention of obesity in children of low-income households.

HER NOPREN Virtual Student Presentations
Wednesday, August 11th, 4:00-5:15 p.m. ET

9

Associations between Peer Counseling and Breastfeeding Initiation and Duration among WIC Participants: A Meta-Analysis

Presenter: Yarisbel Melo Herrera

University: University of Rhode Island

NOPREN-affiliated faculty: Alison Tovar

Background: There have been several interventions to promote breastfeeding among WIC participants, including the use of peer counseling (PC). However, to date, no review has evaluated the overall association of PC with breastfeeding behaviors. **Objectives:** To investigate the associations between PC and breastfeeding initiation and duration among WIC participants using a meta-analysis. **Data Sources:** We searched the literature from inception to April 2021, using PUBMED, EMBASE, SCOPUS, CINAHAL, and ProQuest. **Study Eligibility Criteria:** Published and unpublished studies reporting breastfeeding initiation or breastfeeding duration, not necessarily exclusive, up until 12 months post-partum. No study design, dates, or language restrictions were applied. **Participants:** Pre- and post-natal WIC mothers. **Interventions:** WIC PC programs. **Study Appraisal and Synthesis Methods:** Individual study quality was assessed using the Newcastle-Ottawa Scale with thresholds to convert to the Agency for Health Care Research and Quality standards. All pooled analyses were based on fixed-effects models. **Results:** We included nine studies (n=58,398) that evaluated breastfeeding initiation (any breastfeeding) or breastfeeding duration (range 0-12 months). For the eight studies (n= 58,220) that reported breastfeeding initiation, there was a significant increase in initiation for women who received PC [odds ratio (OR) 1.85 (95%CI 1.82-1.96)]. Similarly, for the four studies reporting breastfeeding duration ≤ 1 month (n=1494), our results showed there was a significant increase in breastfeeding duration for those who received PC [OR 1.71 (1.33-2.20)]. For the two studies that reported longer breastfeeding duration (n=1089), there was a non-significant increase in breastfeeding duration; 24 weeks for those who received PC [OR 1.39 (0.97-1.98)]. Using breastfeeding duration as a continuous variable (four studies, n=29,647) PC was positively associated with length of breastfeeding [mean difference 0.48 weeks (0.32-0.63)]. **Limitations:** Meta-analysis for breastfeeding initiation had large statistical heterogeneity (I²=95%) and some evidence of publication bias through inspection of funnel plots. Moreover, the duration, intensity, timing, and mode of communication of PC services was not differentiated in our analyses. **Conclusions and Implications of Key Findings:** WIC participants who received PC services had significantly higher odds of breastfeeding initiation and duration. These results may inform future policy changes and potentially increased funding for WIC PC programs. Future meta-analyses could explore how breastfeeding behaviors are impacted by the timing, duration, and intensity of PC.

10

The Impact of a Pricing Manipulation Intervention on Food Sales in a Small Community Grocery Store in Baltimore City

Presenter: Samantha Sundermeir

University: Johns Hopkins

NOPREN-affiliated faculty: Joel Gittelsohn

Background: The price of food has been identified as one of the most important barriers to food access, and is a potent determinant of food choices. Pricing can either promote or inhibit access to certain types of food; the latter being the most detrimental to food access and food security, especially in low-income populations with tight budget constraints. The per calorie price of foods like fresh fruits and vegetables tend to be prohibitively higher than unhealthier options like sugar-sweetened beverages, ready-to-eat foods, and energy-dense

HER NOPREN Virtual Student Presentations
Wednesday, August 11th, 4:00-5:15 p.m. ET

snack foods (e.g., chips, cookies, and candy bars). Such pricing structures simultaneously discourage purchases of healthier options and encourage purchase of unhealthy options. Therefore, pricing strategies have been identified as a promising avenue to inform policy for behavior change. **Objective:** To test a series of pricing manipulations in a retail grocery store setting, and assess their impact on sales of healthy and unhealthy foods. **Methods:** The study took place at a small, retail grocery store in Baltimore City. The store was run by a large international charitable foundation, and was located in a healthy food priority area of Baltimore that serves low-income populations. The prices of 35 healthy foods were decreased over time by 10, 20, 30, and 40 percent. Simultaneously, the prices of 45 unhealthy foods were increased at similar rates from January 2020-January 2021. Foods were grouped into healthy and unhealthy market baskets as well as individual food groups for analysis examining trends in sales over each manipulation period. **Results:** Daily, weekly, and monthly total sales of healthy foods within the healthy market basket and within each food group remained relatively stable over time. Given the decreased prices, this indicates that total quantity sold increased. In contrast, total sales of healthy foods within the unhealthy market basket and within each food group generally declined during the study period. Given the increased prices, this indicates that total quantity sold decreased. **Implications:** In this store, we found that both healthy and unhealthy foods may be sensitive to pricing manipulation strategies. These findings support an emphasis on public health pricing strategies that focus on simultaneously incentivizing purchases of healthy foods and disincentivizing purchases of unhealthy foods.

11

A Literature Review of Implemented Food Service Guideline Research Over the Last 10 Years: Major Themes and Outcomes

Presenter: Odessa Seng

University: University of Washington

NOPREN-affiliated faculty: Jessi Silverman

Summary: The places in which people live and work have a profound effect on the foods they eat; in turn impacting their health. Public and private institutions are increasingly utilizing food service guidelines to align the foods and beverages purchased, sold, and served with broader community health goals. Despite the potential benefits to population health and sustainability, adoption of these policies has been slow across various settings. This project is an ongoing literature review of existing food service guideline research, evaluations, and policies over the last 10 years aims to summarize key findings and highlight emerging themes and components of success within a range of different settings. Existing peer reviewed journals, grey literature, and white papers available in English, relating to non-school settings, are categorized in a review matrix to evaluate and summarize key findings across different settings and outcome evaluations. The deliverable product will include a synthesized summary of major themes and outcomes to aid in the advancement, adoption, and implementation of evidence-based policies and inform the direction of future research.