Nutrition Across the Life Cycle

P31 Associations Between Snack Food and Demographics, Family Meals and Fruit/Vegetable Intake Among Rural 7- to 10-Year-Old Children

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Background: Snacking is common among children; often including low-nutrient dense foods. Children from rural areas consume fewer fruits and vegetables (FV) than recommended but little is known about their snacking patterns.

Objective: Examine associations between different types of snacks and demographics, family meal frequency and FV intake among rural children.

Study Design, Setting, Participants: Baseline data (2017/2018) were used from 106 parent/child dyads in the NU-HOME randomized controlled trial designed to prevent childhood obesity in rural communities. Children were mostly female (60%), 8.9 years old on average (SD = 104) and 28% of families received economic assistance. Parents reported on their child's snacking via text surveys on 7 random evenings over a 2-week period. Past week family meal frequency and demographics (child age, sex, economic assistance, parent education) were collected via parent survey. FV servings were averaged over 2 dietary recalls.

Measurable Outcome/Analysis: Snack categories were created using factor analysis: Fruit/Yogurt (Fruit, yogurt, 100% juice), Vegetables/Cheese, Granola bars/Chips (including cereal and crackers), and Sugar-sweetened snacks (sugar-sweetened beverages, candy, baked sweets, ice cream). Items in each snack category were summed over 7 days. Correlations and t-tests examined associations between the number of items from each snack category and demographics, family meal frequency, and FV servings.

Results: Children ate a variety of foods for snacks with most being sugar-sweetened snacks ($M = 5.52$, $SD = 3.64$) followed by Fruit/Yogurt ($M = 4.97$, $SD = 3.39$), Granola bars/Chips ($M = 3.67$, $SD = 2.38$), and Vegetables/Cheese ($M = 2.24$, $SD = 2.10$). Children whose families received economic assistance were more likely to eat Fruit/Yogurt snacks (6.2 vs 4.5 snacks; $P = .02$) and less likely to eat Sugar-sweetened snacks (4.2 vs 6.0 snacks; $P = .02$) than those who did not receive economic assistance. Family meal frequency was negatively correlated with Sugar-sweetened snacks ($r = -0.25$; $P = .009$). Servings of FV was positively correlated with Fruit/Yogurt snacks ($r = 0.19$; $P = .046$).

Conclusions: Innovative, real-time snacking data indicate nutrition educators should encourage nutrient-dense

snacks particularly among families who do not regularly eat family meals.

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Food and Nutrition Policy

P32 Evaluation of Multilevel Nutrition Interventions among Urban Clients on Charitable Food Assistance

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Background: Decreased accessibility to farmland and food insecurity in urban areas have expanded the need for emergency food assistance. The culture of food banks is evolving from a system that supplied non-perishable foods for immediate needs to more sustainable initiatives that emphasize access to healthier foods and nutrition education due to the rise of obesity and chronic diseases. Furthermore, minimal evaluation on produce consumption behaviors of underserved clients using resources from local and federal programs has been conducted.

Objective: Evaluate the relationship between usage of federal nutrition programs, local resources, and fresh produce consumption among clients on charitable food assistance.

Study Design, Setting, Participants: A cross-sectional design during Summer 2018 was implemented with 91 respondents (87% African American and 13% other) who met inclusion criteria for socioeconomic status at 5 faith-based and healthcare food pantries and clinics in Washington DC. Subjects completed informed consent, demographics, and the Eating at America's Table survey of fruit and vegetable consumption patterns.

Measurable Outcome/Analysis: R software version 3.5.3 was used for data analysis. Analysis of variance (ANOVA) Fisher Test measured the relationship between number of federal programs used and mean intakes of fresh produce as well as number of local nutrition resources used and mean intakes of fresh produce. ANOVA findings were confirmed via Tukey, Scheffe, and least square difference testing.

Results: Subjects who reported participation in 1 or more federal programs reported higher intakes of fruit, potatoes, non-starchy vegetables, and beans than those who did not ($P < .05$). Subjects who used 1 or more local nutritional resources reported higher intakes of fruit, potatoes, and non-starchy vegetables than those who did not ($P < .05$).

Conclusions: To improve food security and sustainability, urban communities, especially underserved areas, may

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benefit from multiple subsystems, including local food production and nutrition support from federal and decentralized community resources.

Funding: USDA.

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P33 Assessment of Dietary Behaviors and Weight Status Among Adolescents from Multicultural Families and Non-Multicultural Families in Korea

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Background: As Korean adolescents in multicultural families (MF) might experience health disparities, assessing their specific nutritional health status is necessary to design effective and tailored nutrition education programs.

Objectives: This study was the first step to develop a nutrition education program for the Korean adolescent in MF. The aim of this study was to identify nutritional health problems of MF' adolescents through comparing dietary and lifestyle behaviors and weight status among Korean adolescents from MF and non-multicultural families (non-MF).

Study Design, Setting, Participants: This study included 111,067 adolescents aged 12–18 years (MF = 1,751, non-MF = 109,316) from the 2017–2018 Korea Youth Risk Behavior Surveys.

Measurable Outcome/Analysis: Data on dietary and lifestyle behaviors were self-reported using a web-based questionnaire and included foods consumption, alcohol drinking, smoking, physical activity, weight control efforts, and perceived health status. Body mass index (BMI) was calculated using the self-reported height and weight (kg/m²). Weight status was determined based on the 2017 Korean National Growth Chart: underweight (weight-for-age <5th percentiles), overweight (85th ≤ BMI-for-age <95th percentiles), and obesity (BMI-for-age ≥95th percentiles).

Results: Using a multiple logistic regression after adjustment for sex, school level, residence, and household income, adolescents from MF showed higher odds ratios (ORs) for having underweight (OR = 1.60, 95% CI = 1.29–1.99) and obesity (OR = 1.22, 95% CI = 1.03–1.43) compared to those from non-MF. Adolescents from MF were less likely to intake fruit ≥5 times/week (OR = 0.86, 95% CI = 0.76–0.96) compared to adolescents from non-MF. Boys in MF showed a lower OR for having vegetable ≥5 times/week (OR = 0.74, 95% CI = 0.60–0.92) than boys in non-MF. Compared to non-MF' adolescents, the OR for engaging in physical activity ≥3 days/week was 0.83 (95% CI = 0.74–0.94) in MF' adolescents.

Conclusions: Korean adolescents in MF showed higher risks for having underweight and obesity as well as unhealthy dietary behaviors compared to those in non-MF. Our findings can be used to develop nutrition education programs for adolescents from MF.

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P34 Examining Skill, Stress, and Time in Food Procurement and Preparation in Food Insecure University Students

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Background: In recent years, university campuses have found high rates of food insecurity. Food insecurity is associated with negative health and academic outcomes. Identifying contributing and mediating factors can inform appropriate intervention development.

Objective: The purpose of this study was to examine skill, stress, and time related to meal planning, grocery shopping, food preparation, and budgeting in undergraduate university students.

Study Design, Setting, Participants: This was a cross-sectional study with undergraduate students at a private, mid-sized university in the US Midwest. Students from engineering, business, health science, education, and sociology were recruited through their campus email accounts.

Measurable Outcome/Analysis: Informed by qualitative semi-structured interviews with the target population, a short questionnaire examining student perception of skill, time, and stress in meal planning, grocery shopping, food preparation, and budgeting was developed. Further, the USDA short 6-item food security questionnaire was used to measure food security in the sample population. One-way Analysis of Variance and Bonferroni post-hoc tests were employed to examine the differences in skill, time, and stress across the 3 food security groups (food secure, low food security, and very low food security).

Results: Of the 270 undergraduate students who completed the questionnaires, 26.4% identified as low food secure and 15.5% as very low food secure. Further, there was a significant difference between groups in terms of skill, time, and stress ($P < .01$). For skill, food-secure students had a significantly higher score compared to the low food security group. In terms of stress, the low and very low food secure groups had significantly higher stress and less perceived time compared to the food secure group ($P < .05$).

Conclusions: When addressing food insecurity in this population, skill-based factors and time may be mediating factors. Interventions addressing these factors may help to address food insecurity and develop lifelong skills.

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