



Idaho Academy of Nutrition & Dietetics Poster Session 2024

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Optimizing Campus Communication: Understanding Effective Modes for College Student Engagement, Hannah Kindelspire, University of Idaho, Presenting Author, Grace Lawson, University of Idaho, Katie Miner, PhD, RD, LD, University of Idaho.

Long Live Idaho 3.0, Jolene Whiteley, BS, University of Idaho, Presenting Author, Annie J. Roe, PhD RDN, University of Idaho, Kristin Hansen, MS, University of Idaho, Shelly Johnson, MS, University of Idaho, Joey Peutz, MS, University of Idaho, Siew Guan Lee, MS, RDN, University of Idaho, Kathryn Hickok, MS, RDN, University of Idaho.

Electronic Devices, Dietary Choices, and Obesity, Katya Boyce, BS, MS/Dietetic Intern, Idaho State University Presenting Author, Cynthia Blanton, PhD, RDN, LD, Professor Idaho State University.

Leveraging the White House National Strategy on Hunger and Participatory Research Theory to Establish a Statewide Food Security Research Agenda, Barbara Gordon, EdD, RDN, FAND, Associate Professor, Idaho State University, Presenting Author, Jenifer Reader, MHE, RDN, LD, DPD Director/Clinical Associate Professor, Idaho State University, Benjamin Larsen, PhD, Research Scholar, Idaho Policy Institute, Boise State University Kelsey Cooper, MPH, Community Health Coordinator, Idaho Food Bank.

The Relationship Between Knowledge and Evidence-Based Practice Attitudes Among Healthcare Professional Holders or Non-holders of the Certified Nutrition Support Clinician Credential, Lea Steiner, MS, RD, LD, CSG, Rutgers, Presenting Author, Joachim Sackey, PhD, Rutgers, Deborah Cohen, DCN, RDN, Rebecca A. Brody, PhD, RD, LD, CNSC.

Understanding the Impact of Food Exposure Interventions on Children's Diets, Rebecca Robinson, BS, MS/Dietetic Intern, Idaho State University, Presenting Author, Cynthia Blanton, PhD, RDN, LD, Professor Idaho State University.

Migration is a Coping Strategy to Face Food Insecurity in Indigenous Communities of Momostenango, Guatemala. Rita Franco González, MA, University of Idaho, Presenting Author, Michele Monroy-Valle, PhD, University of Saskatchewan, Hassan Vanaprastha, PhD, MD, University of Saskatchewan, Ginny Lane, PhD, RD, University of Idaho.

Food Insecurity in Juliaetta, Idaho. Leann Sharpe, MS Dietetics Candidate, University of Idaho, Presenting Author, Morgan Thompson, BS., University of Idaho, Ginny Lane, PhD, RD, University of Idaho.

Circadian and Within-Feed Variation in Human Milk Total Protein and Proteomic Profiles. Alexandra C. Gogel, BS, University of Idaho, Presenting Author, Kassie A. Bull, BS, University of Washington, Bum-Jin Kim, PhD, Oregon State University, David Dallas, PhD, Oregon State University, Janet E. Williams, PhD, University of Idaho, Mark A. McGuire, PhD, University of Idaho, Michelle K. McGuire, PhD, University of Idaho.

Academic Achievement and Nutritional Status: Do They Correlate? A Cross-sectional Study for UAE Elementary Schoolchildren in Al-Ain City, UAE. Hussain Qazaq, PhD Student, Margaret Ritchie School of Family and Consumer Sciences, University of Idaho, Presenting Author, Ginny Lane, PhD, RD, Margaret Ritchie School of Family and Consumer Sciences, University of Idaho.

Variability in Presence, Abundance, and Timing of Bovine Milk- and Soy-Derived Peptides in Human Milk After Maternal Bovine Milk and Soy Beverage Consumption. Cassandra Partridge, MS, RDN, University of Idaho, PhD Student, Presenting Author, Trillitye Paullin, PhD, CEO Free to Feed™, Bum-Jin Kim, PhD, Oregon State University, David Dallas, PhD, Oregon State University, Janet Williams, PhD, University of Idaho, Mark McGuire, PhD, University of Idaho. Michelle McGuire, PhD, University of Idaho.

Enhancing Diabetes Prevention Through Lifestyle Modifications in Idaho. Raveen Rani, MS, University of Idaho, Presenting Author, Ginny Lane, PhD, RD, University of Idaho.

Eat Smart Idaho Identifies Best Practices to Facilitate Healthy Food and Physical Activity Behaviors Among Low-Resource Audiences. Calla Chapin, RDN, LD, University of Idaho, Presenting Author, Kali Gardiner, RDN, LD, University of Idaho, Kristin Hansen, MS, University of Idaho, Kathryn Hickok, MS, RD, University of Idaho, Cammie Jayo, BS, University of Idaho, Shelly Johnson, MS, University of Idaho, Siew Guan Lee, MS, RDN, University of Idaho, Joey Peutz, MS, University of Idaho, Annie Roe, PhD, RDN, University of Idaho, Becky Woodhouse, RDN, LD, University of Idaho.

Thank you to our reviewers

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Analysis of Nutrient-Dense Foods Chosen in a Free Choice Pantry (Student Poster)

Authors

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Katie Miner, PhD, RD, LD, University of Idaho.

Abstract

Introduction: Many people frequently utilize food pantries. The foods available are often shelf-stable, processed, and high in sodium, added sugars, and saturated fats, which impacts patrons' ability to choose nutritious food that can prevent chronic disease.

Problem statement: This study aimed to quantify the number of nutrient-dense foods being chosen in relation to non-nutrient-dense foods in a free choice pantry with the goal to propose potential interventions to improve the number of nutritious foods being chosen.

Methods: Data was collected during operating hours at the food pantry in Lewiston, Idaho. Observers counted the number of individual food items being selected by each patron. Food items were categorized as nutrient-dense or non-nutrient dense according to previously identified nutritional quality components.

Results: Observation data showed that patrons tend to choose higher numbers of nutrient-dense foods in comparison to non-nutrient-dense foods despite the lack of variety and availability of many nutritious options.

Conclusion: Limitations to this study include variability in data collection between observers, differences in weekly food availability, and a limited collection time frame. Future interventions might include nutrition education of both patrons and food donors.

Learning Objective

Quantify the number of nutrient-dense foods being chosen in relation to non-nutrient-dense foods in a free choice pantry.

Funding

No funding was received for the research, and the authors declare no financial conflicts of interest.

Faculty Sponsor

Katie Miner, PhD, RD, LD, University of Idaho

Assessment of University Strategies to Promote Student Use of the Vandal Food Pantry (Student Poster)

Authors

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Abstract

Background: According to the American College Health Association, nearly a quarter of the University of Idaho's student body experienced low food security in 2020 and over 40% stated that it negatively impacted their academic performance. Many studies highlight a lack of awareness among students of the existence of university food pantries, however little to no research exists discussing the university's efforts to promote this important resource. To our knowledge this is the first study looking at a university's effort to promote a campus food pantry as a way to alleviate food insecurity.

Methods: This study aims to understand how food pantries are being promoted on campus and to make recommendations to increase awareness and access to the food pantry. Our methods include an online search of university-related promotional materials published within 2022-2023, searching for physical forms of promotional media on campus, and conduct a passive survey within the pantry to determine how students discovered it.

Results: Researchers found only three physical signs on campus asking for donations and zero promoting student use of the pantry. Similarly, the internet search yielded only four web pages posted in 2022-2023 that provides information regarding pantry use. Students currently using the pantry stated that they heard about it from a friend.

Conclusion: While the university's guiding principles include providing a nurturing environment for all Vandals to succeed, we found little to support their efforts in ensuring students are aware of the resources available to meet their most basic needs. We recommend the university increase efforts to promote the pantry through social media and print media as well as including a reference during freshman orientation, campus tours, and course syllabi.

Learning Objective

Participants will be able to state 2 suggestions on how to increase awareness of campus food pantries among students.

Funding

No funding was received for the research, and the authors declare no financial conflicts of interest.

Faculty Sponsor

Katie Miner, PhD, RD, LD, University of Idaho

Prevalence of Nutrition-related Misinformation in Students Enrolled in Nutrition-related Degrees at University of Idaho (Student Poster)

Authors

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Abstract

Objective: To determine the prevalence of nutrition-related misinformation in University of Idaho Food and Nutrition, Nutritional Sciences, and Dietetic students.

Background: With unlimited access to information in today's world, nutrition misinformation is everywhere. Social media is a top source of nutrition related misinformation. As high as 70% of nutrition-related information on social media platforms is incorrect or misleading. Less is known about how this information is impacting current students in nutrition-related degrees. Students enrolled in nutrition-related degree plans may view nutrition-related content on social media as factual or just simply use social media as a form of inspiration for recipes and cooking.

Methods: A cross-sectional design was utilized using a convenience sample of students enrolled in nutrition-related degrees at the University of Idaho. An electronic survey was distributed via email. Survey results were analyzed using Qualtrics.

Results: A total of 28 participants completed the survey for analysis. Out of 13 nutrition knowledge questions, the following were frequently missed: recommendations for servings of processed red meat per day (29%), appropriate macronutrient distribution (32%), foods that contain trans-fat (32%), amount of added sugar in diet soda (32%), and nutritionists identified as nutrition experts (46%).

Conclusion: There is room for improvement in student knowledge on sources of added sugar, appropriate percent daily value of fat, sources of trans fat, and who qualifies as a nutrition expert. This survey was not validated for this population and only 42% of the population completed the survey. Further research is needed to determine the prevalence of misinformation in this community.

Learning Objective

The participants will learn at least one frequently missed nutrition knowledge question by nutrition students at the University of Idaho.

Funding

No funding was received for the research, and the authors declare no financial conflicts of interest.

Faculty Sponsor

Katie Miner, PhD, RD, LD, University of Idaho

Vandal Food Pantry Awareness and Utilization (Student Poster)

Authors

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Katie Miner, PhD, RD, LD, University of Idaho.

Abstract

Background: University students are at risk of experiencing food insecurity, and the resources aimed at providing food to the food insecure population are often underutilized.

Study Objectives: This study aims to assess the awareness, utilization, and need of the Vandal Food Pantry among students in the School of Family and Consumer Sciences (FCS) at the University of Idaho. Secondary, this study aims to determine risk factors of food insecurity by measuring demographics, to understand the risk factors for food insecurity.

Methods: Fourteen students responded to the survey through Qualtrics. Survey questions asked about food pantry awareness, utilization, demographics, and the Food Insecurity Experience Scale (FIES). Responses were placed into the food insecure group if they experienced any level of food insecurity in the last year, using the results of the FIES. No significant differences in our measures were found between the food secure and food insecure groups. Sixty-four percent of participants experienced some level of food insecurity in the last year.

Results: Vandal Food Pantry utilization was below need, with only 56% of those classified as food insecure using the food pantry at least once in the last year. Awareness was high, as 93% of respondents were aware of the Vandal Food Pantry, and 93% were aware of food pantries in general.

Conclusions: Future studies with larger sample sizes should investigate risk factors of food insecurity in the university student population, and the gaps between awareness, need and utilization of food pantries**abstract (Student Poster)**

Learning Objective

Participants will be able to describe current awareness and use of the Vandal Food Pantry.

Funding

No funding was received for the research, and the authors declare no financial conflicts of interest.

Faculty Sponsor

Katie Miner, PhD, RD, LD, University of Idaho

Optimizing Campus Communication: Understanding Effective Modes for College Student Engagement (Student Poster)

Authors

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Abstract

Objectives: This study investigates optimal communication methods for engaging college students, addressing the challenge of diverse information dissemination on campuses.

Methods: Part 1 involves interviews with key university personnel, while Part 2 surveys students through various communication channels.

Results/Discussion: Results indicate that, while flyers, email, and tabling events are most commonly used by university communicators, email emerges as the most preferred and effective method. Social media, though popular amongst participants, poses logistical challenges for communicators. The survey received 94 responses, with 88 meeting age criteria for analysis. Despite the tabling event generating the highest response number, participants expressed a higher likelihood of engaging with email or social media.

Conclusions: A notable gap exists between reported preferences and encountered modes, suggesting a need to refine methods to ensure participants interact with multiple modalities. These findings provide valuable insights for institutions aiming to enhance student engagement through effective campus communication strategies.

Recommendation: Future research should explore optimizing email communication through factors like formatting, timing, personalization, and attachments contributing to targeted and impactful university communication strategies.

Learning Objective

To investigate student engagement of different modes of mass communication that are used to communicate to college students on campus.

Funding

No funding was received for the research, and the authors declare no financial conflicts of interest.

Faculty Sponsor

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Long Live Idaho 3.0

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Abstract

Background: High childhood obesity rates in Idaho put youth at risk for poor health. Healthy eating and physical activity are key lifestyle factors for achieving and maintaining healthy weight. The Long Live Idaho (LLI) social marketing campaign targets parents and caregivers of young children to promote healthy diet and physical activity behaviors through use of print and electronic media. Evaluation of this campaign identified a need for tools to aid in the application of the messages.

Objective: Provide tools to promote behavior change related to the LLI messages.

Methods: Items related to LLI messages were designed; bento box (serve 5 fruits and veggies a day), water bottle (serve water or low-fat milk instead of soda), frisbee (encourage 1 hour of physical activity a day), and drawstring bag (cut screen time to 2 hours or less a day). Items were distributed statewide at community sites. A QR code was attached to each item directing recipients to complete a survey to capture demographics and diet and physical activity behaviors. Participants could opt-in to receiving a follow-up survey. Qualitative questions were summarized using a thematic approach. Additional analysis will be conducted (not presented here).

Results: 2,315 items were distributed. 686 participants responded to the initial survey. 336 opted into the follow-up and 50 completed the follow-up survey. 58% of participants used their item in the way they planned, 82% used their item to carry out the promoted behavior change.

Conclusion: Idaho parents and caregivers utilized promotional items to reinforce Long Live Idaho messaging.

Learning Objective

The participants will learn what physical objects were distributed by Eat Smart Idaho to promote behavior change related to the Long Live Idaho messaging.

Funding

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Electronic Devices, Dietary Choices, and Obesity (Student Poster)

Authors

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Cynthia Blanton, PhD, RDN, LD, Professor Idaho State University

Abstract

Introduction: Poor diet quality of adolescents continues to be a serious public health problem. Adolescents consume fewer fruits and vegetables, and more convenience foods and ultra-processed foods than other age groups. The poor dietary behaviors of adolescents increase the risk of obesity and other chronic diseases. Electronic devices are becoming more common and accessible to adolescents, and their impact on health needs to be better understood. Screen time increases sedentary behaviors, causes distracted eating, and increases exposure to unhealthy food marketing. Diet is a modifiable risk factor for obesity. Understanding the relationship between dietary quality and electronic devices can be beneficial in helping to reduce obesity and improve quality of life.

Methods: The Academy of Nutrition and Dietetics Evidence Analysis Library for conducting systematic reviews was used to perform a literature review.

Results: Increased use of smartphones was associated with reduced intake of fruits and vegetables and more intake of fast food and sugary drinks. Using electronic devices for entertainment showed an increased intake of sugar and caffeine and decreased intake of vegetables. Using a screen while eating was associated with having a higher BMI and eating more snacks and ultra-processed foods.

Conclusions: Electronic device use is associated with increased consumption of convenience and ultra-processed foods in adolescents. Electronic devices directly impact dietary behaviors which can indirectly impact weight and cause obesity. Additional studies should be conducted to find an effective way to limit adolescents' screen time or combat negative dietary behaviors.

Learning Objective

After viewing the poster, people will be able to state the effect of electronic devices on food intake in adolescents.

Funding

The authors received no financial support for the research of this article.

Faculty Sponsor

Barbara Gordon, EdD, RDN, FAND

Leveraging the White House National Strategy on Hunger and Participatory Research Theory to Establish a Statewide Food Security Research Agenda

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Abstract

Research Objective: Leveraging the White House Strategy on Hunger, Nutrition and Health to establish state-specific food security research objectives.

Methods: This mixed-method study employed a participatory research design. Through an academic-community partnership, the faculty of two universities informed, consulted, involved, collaborated, and empowered stakeholders. A survey was created and disseminated to a purposive sample mirroring the state population. Descriptive statistics were calculated pairwise. At a statewide food security summit, survey findings were presented, and discussions facilitated among engaged community stakeholders to establish research priorities.

Results: The survey sample (n=1,575) was sufficient to yield significant findings (n=385, 95% CI, MoE=55%). Though below that threshold, the 13% response rate (n=197) was within acceptable range (MoE=6.6%). Combining living and working locales, respondents represented all 45 Idaho counties. Idaho-specific findings focused on addressing differences between the rural and urban food insecurity experience, and programs addressing farming and environmental issues. With the knowledge gleaned from the survey findings, summit participants (n=31) collaboratively created two research objectives: (1) conduct food assistance gap analyses on why Idahoans eligible for food assistance programs are not using those benefits and the characteristics of eligibles not receiving benefits, (2) investigate strategies to increase collaboration among food programs and evaluate if increased collaboration mitigates gaps in program usage. Participants were invited to be part of the team tasked with working on those priorities across the next two years.

Conclusions: An efficacious state model for responding to national calls to action was developed. Utilizing an existing initiative of a non-profit organization and participatory research, statewide research objectives were developed. Mapping those objectives back to the White House Strategy, they fall within the strategies to help mitigate food insecurity.

Learning Objective

After viewing this poster, people will be able to list the two priority research topics aimed at increasing our understanding about the phenomenon of food insecurity among Idahoans

Funding

No funding was received to conduct this study.

The Relationship Between Knowledge and Evidence-Based Practice Attitudes Among Healthcare Professional Holders or Non-holders of the Certified Nutrition Support Clinician Credential

Authors

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Abstract

Background: Clinical practice frequently changes, and professionals should stay abreast of evidence-based practice (EBP) guidelines. Negative attitudes towards EBP are a barrier to guideline adoption. This study explored EBP attitudes and knowledge of a complex nutrition support clinical case scenario of individuals holding or not holding the CNSC credential.

Methods: This cross-sectional study used an online survey sent to American Society for Parenteral and Enteral Nutrition (ASPEN) members with and without the CNSC credential and all CNSC credential holders from the National Board of Nutrition Support Certification email list. The survey included the Evidence-Based Practice Attitude Scale Score (EBPAS-15) and 8 knowledge questions using a nutrition support case scenario. An independent samples t-test compared knowledge and EBPAS-15 total scores and sub scores between CNSC holders and non-holders. Pearson's correlation determined the correlation between knowledge and EBPAS-15 scores.

Results: The response rate was 7.8% (N=706). CNSC holders (n=536) had significantly higher mean knowledge scores (4.7 ± 1.6 out of 8) than non-holders (n=159, 4.1 ± 1.7) ($p < 0.001$). Total EBPAS-15 scores were not significantly different between CNSC holders (n=542, 2.9 ± 0.4 out of 4) and non-holders (n=164, 2.8 ± 0.7) ($p = 0.434$) and knowledge scores and total EBPAS-15 scores ($p = 0.639$) or subscores were not significantly correlated.

Conclusions: Regardless of holding the CNSC credential, EBPAS-15 scores indicated respondents had positive EBP attitudes. CNSC holders had significantly higher knowledge scores of recent nutrition support EBP guidelines compared to non-CNSC credential holders. Positive EBP attitudes are a precursor to clinical decision-making, but future research should determine the use of guidelines in clinical practice.

Learning Objectives

After viewing this poster, people will be able to describe the two primary outcomes of this research.

1. Assess differences in evidence-based practice attitudes for healthcare professionals with and without the CNSC credential.
2. Establish the correlation between knowledge scores and Evidenced-Based Practice Attitude Scale (EBPAS-15) scores.

Funding

The research was supported by the National Board of Nutrition Support Certification.

Understanding the Impact of Food Exposure Interventions on Children's Diets (Student Poster)

Authors

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Cynthia Blanton, PhD, RDN, LD, Professor Idaho State University

Abstract (Student Poster)

Research Outcome: This research investigates the impact of exposure-based interventions on children's dietary behaviors, specifically targeting picky eating tendencies. There is a primary focus on assessing the effectiveness of food exposure practices, including taste tests and food chaining, in enhancing fruit and vegetable consumption among children.

Methods: A systematic review of diverse studies that included children and food exposure interventions was utilized to evaluate the adequacy of the research design and analysis methods. The evidence's validity was assessed using the Evidence Analysis Library Guideline. The quality of the studies was decided by assessing the length of the study, its relevancy, its design, and the population involved. Fifteen articles were reviewed, but eleven were included in the evaluation.

Results: Understanding children's eating behaviors is vital for treating picky eaters. Taste preferences, appearance, and immediate gratification often outweigh nutritional considerations, influencing choices. Picky eating negatively impacts growth, nutrition status, development, and overall health. Assessed studies consistently show increased fruit and vegetable consumption with food exposure practices. Promisingly, out-of-home food exposures, like taste tests, enhance healthy food preferences in children, encouraging repeated trials. Diverse food exposures, including sensory activities, boost a child's willingness to try new foods. Considering the influence of social and environmental factors, a combined home-based and community-based approach is recommended for optimal fruit and vegetable intake.

Conclusions: There is consistent evidence that supports the positive influence of exposure-based interventions on children's dietary behaviors. Emphasis on increased fruit and vegetable intake is a notable outcome. Implications of picky eating were highlighted, specifically its impact on growth, nutritional status, development, and overall health in children. Most studies primarily focused on changes in dietary behaviors, with a need for further exploration of the specific influence on nutritional status.

Learning Objective

Describe the influence that picky eating has on child nutrition status and the impact of exposure-based interventions on children's dietary behaviors.

Funding

No funding was received for the research, and the authors declare no financial conflicts of interest.

Faculty Sponsor

Barbara Gordon, EdD, RDN, FAND

Migration is a Coping Strategy to Face Food Insecurity in Indigenous Communities of Momostenango, Guatemala (Student Poster)

Authors

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Ginny Lane, PhD, RD, University of Idaho

Abstract

Background: In Guatemala, over 45% of households are food insecure. Chronic child malnutrition is also a major problem, with 47% of children affected. Rural populations in the Dry Corridor are particularly vulnerable to food insecurity due to weather events. Totonicapán is a department in Guatemala where most of the population is Mayan. Unfortunately, 75% of them face food insecurity. A migration survey conducted in 2022 found that 35,532 people from Totonicapán had migrated abroad, which equates to about 8% of the current population. The majority (80%) settled in the United States.

Methods: This mixed-methods study included interviews with key informants and surveys of mothers on themes including subsistence agriculture, commercial production, challenges related to climate, capital, market, capacity, and sustainable opportunities.

Results: A significant finding is that 85% of households were food insecure, with 93% relying on agriculture for subsistence. Families used several coping strategies during food scarcity, like selling small animals, reducing expenses, generating funds, borrowing funds to buy food, and removing children from school. Severely food-insecure families were more likely to decrease portion sizes (72.2%) than moderately food-insecure (34.5%) and food-secure households. Eighty percent of households reported consuming less meat during periods of food insufficiency. Interviewed families reported ten family members had migrated, and 80% came from families experiencing moderate to severe food insecurity. Family members had migrated to Guatemala City or the United States, primarily in search of employment. Families reported receiving remittances from half of the migrants.

Conclusion: Families are interested in household hen-and-egg operations and high-protein/climate-adapted corn to address food insecurity. Mothers of the households could lead these agricultural activities to enhance their family's nutrition and food security.

Learning Outcome: After viewing this poster, people will be able to describe why migration is a coping strategy to face food insecurity in the Indigenous communities of Momostenango, Guatemala.

Funding

Queen Elizabeth Scholars

Faculty Sponsor

Ginny Lane, PhD, RD, University of Idaho

Food Insecurity in Juliaetta, Idaho (Student Poster)

Authors

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Morgan Thompson, BS, University of Idaho

Ginny Lane, PhD, RD, University of Idaho

Abstract

Introduction: Food insecurity is a prevalent issue in rural communities in Idaho. To better understand food security issues in rural areas, the town of Juliaetta, ID, located in Latah County was chosen. Juliaetta has a population of 563 and is located 20 miles from the nearest grocery store.

Methods: Our study focused on gathering information from publicly available sources and conducting interviews with community members to inform a nutrition-focused community assessment of Juliaetta.

Results: Although community-level data for Juliaetta is limited, regional data indicates a food insecurity rate of 12.7%. Additional data regarding high reliance on Medicaid and Medicare suggests underlying health challenges in this area. The extended travel distance to the nearest supermarket adds a layer of complexity to food access, contributing to potential nutritional disparities. The interviews suggest the community is experiencing an aging population, a lack of employment opportunities, lack of nutrition-based community education, poor communication of available resources, and poor participation in community events.

Conclusions: Potential strategies to address these identified concerns are community-based nutrition initiatives such as community gardens or food cooperatives, nutrition education programs, professional network expansion and outreach. The results also suggest that residents' preferred community events and appropriate marketing strategies should be further investigated.

Learning Objective

Participants will be able to describe issues related to food insecurity in rural Idaho.

Funding

No funding was received for the research, and the authors declare no financial conflicts of interest.

Faculty Sponsor

Ginny Lane, PhD, RD, University of Idaho

Circadian and Within-Feed Variation in Human Milk Total Protein and Proteomic Profiles (Student Poster)

Authors

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Abstract

Objectives: This study evaluated effects of time of day, time within feed, and inter-breast differences on total lipid, protein, and individual proteins in human milk (HM).

Methods: Foremilk (FM), mid-milk (MM), and hindmilk (HDM) were collected from women who also provided 4 complete breast expressions [morning, mid-day (both breasts), evening, and night] over 24 hours. Protein was measured using a colorimetric assay. Lipid was measured gravimetrically. Proteins were isolated, digested, and identified via liquid chromatography–mass spectrometry (LC-MS/MS) and database searching. Data were analyzed using linear mixed-effects models with participant as a random effect and principal components analysis (PCA). Values are means \pm SEM.

Results: Protein and lipid were not different between breasts. Protein was greater in the evening and night (18.4 ± 0.5 and 19.2 ± 0.4 g/L, respectively) compared to the morning (17.3 ± 0.5 g/L; $p < 0.05$) and greater at night than mid-day (17.8 ± 0.4 g/L; $p < 0.01$). Protein in FM (17.7 ± 0.5 g/L) and MM (17.8 ± 0.5 g/L) was lower than HDM (18.6 ± 0.6 g/L; $p = 0.02$). We identified 602 proteins shared between FM and HDM and 598 proteins between morning and night milk. We found 1, 11, 4, and 7 unique proteins in FM, HDM, morning milk, and night milk, respectively. PCA plots indicated clustering of FM vs. HDM proteomes. Lipid increased over a feed ($p < 0.01$) and was higher at mid-day ($4.5 \pm 0.3\%$) than at night ($3.5 \pm 0.3\%$, $p = 0.05$).

Conclusions: Like lipids, HM protein increases within a feed and over a 24-h period. Number of proteins and proteomes also likely vary within a feed and over a 24-h period. This study supports method optimization when collecting a representative milk sample.

Learning Objective

Readers will have a better understanding of the dynamic composition of human milk.

Funding

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Faculty Sponsor

Michelle K. McGuire, PhD, University of Idaho

Academic Achievement and Nutritional Status: Do They Correlate? A Cross-sectional Study for UAE Elementary Schoolchildren in Al-Ain City, UAE.

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Abstract

Objective: This study aims to investigate the correlation between academic achievement and nutritional status of elementary schoolchildren in Al-Ain City, United Arab Emirates (UAE).

Background: Malnutrition adversely affects children's brain development and cognitive abilities. Malnutrition increases the risk of recurrent infections, which may result in increased absenteeism and hence may affect their academic achievement. Underweight, stunting, wasting, overweight, and obesity are all prevalent among UAE schoolchildren.

Methods: A cross-sectional sample of 1182 UAE students (575 females) aged 9-12 years was selected using a multi-stage stratified random sampling technique. Weight and height were measured. Body mass index (BMI)-for-age and sex percentiles of the NCHS/CDC reference population were used as indicator standards to assess nutritional status. The student was classified as **underweight** when his BMI < 5th percentile, **obese:** BMI ≥ 95th percentile, and **overweight:** 85th ≤ BMI < 95th percentile. **Stunting** (short stature) was assessed by using the height-for-age (H/A) and sex percentiles < 5th percentile and **wasting** when the weight-for-height percentile < 5th percentile. Academic achievement was measured by the student's average scores (out of 100) for Math, Science, and Arabic language.

Results: Academic achievement was significantly lower among underweight (p=0.028), wasted (p=0.03), stunted children (p=0.009), and children who did not eat breakfast (p=0.039).

Conclusions: Stunted, wasted, and underweight children, as well as those who did not eat breakfast, are at risk of lower academic achievement. This study showed the importance of healthy nutrition on academic achievement.

Learning Objective

Participants will be able to state the effect of healthy nutrition on students' academic achievement.

Funding Disclosure

Authors received no funding for this research.

Faculty sponsor

Ginny Lane, PhD, RD, University of Idaho

Variability in Presence, Abundance, and Timing of Bovine Milk- and Soy-Derived Peptides in Human Milk After Maternal Bovine Milk and Soy Beverage Consumption (Student Poster)

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Abstract

Background: Food-borne allergens can transfer to human milk (HM) leading to a potential allergic response in breast-fed infants. Variability of allergen transfer complicates best-practice recommendations for women breastfeeding infants with allergy. We aimed to identify bovine- and soy-derived peptides in HM after maternal consumption of bovine milk (BM) and soy beverage (SB).

Methods: Lactating women participated in this randomized, cross-over dietary intervention trial consisting of 2 phases, each including a 5-d diet elimination, 3-d diet intervention, and 2-d washout period. Participants eliminated and then consumed BM-containing products during one phase and soy-containing products during the other. Each 3-d intervention required daily consumption of increasing amounts of BM or SB (175, 295, 415 mL). Participants collected HM samples at baseline and 3 times daily during diet interventions (prior to BM/SB consumption and 2 and 4 h after). Peptidomics was performed on 75 HM samples from a subset of 25 women. Specifically, we analyzed samples collected after the 5-d diet elimination, and 2 and 4 h after consumption of 415 mL of SB/BM. Peptides were isolated from HM by ethanol precipitation, C18 solid-phase extraction, LC-MS/MS analysis, and identified with Proteome Discoverer.

Results: We identified 121 bovine-derived peptides (associated with 6 proteins) in HM collected after BM consumption. These proteins included β -lactoglobulin, κ -casein, α -s1-casein, β -casein, α -lactalbumin protein variant D, and glycosylation-dependent cell adhesion molecule 1. Abundance and timing of peptide appearance was variable. Results do not support the appearance of soy-derived peptides after SB consumption.

Conclusions: There is interindividual variation in timing and abundance of BM peptides in HM following maternal BM ingestion. More research is needed to evaluate transfer of other allergens and factors impacting peptide appearance.

Learning Objective

After viewing the poster, participants will be able to state at least 2 bovine proteins that were identified in human milk samples after maternal consumption of bovine milk.

Funding

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Faculty Sponsor

Michelle McGuire, PhD, University of Idaho

Enhancing Diabetes Prevention Through Lifestyle Modifications in Idaho (Student Poster)

Authors

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Abstract

Background: In response to the escalating diabetes epidemic, the U.S. National Diabetes Prevention Program encourages lifestyle modifications among individuals at high risk of diabetes. Nationally, these interventions, aimed at causing a modest 5-7% body weight reduction, led to a remarkable 58% decline in type 2 diabetes risk among participants. This study objective was to evaluate the impact of lifestyle changes on obesity and diabetes incidence among high-risk individuals in Idaho.

Methods: This study analyzed data collected from University of Idaho Extension Diabetes Prevention Recognition Program (DPRP)-enrolled participants. We enrolled 227 participants at high risk of diabetes in a year-long program focused on promoting lifestyle modifications. Inclusion criteria encompassed individuals aged 18 or older with a Body Mass Index (BMI) of ≥ 24 kg/m² (≥ 22 kg/m² for Asian individuals) and a recent blood test indicating prediabetes or a history of gestational diabetes mellitus (GDM). Using paired t-tests, we analyzed the changes in final BMI (31.7765 kg/m²) compared to initial BMI (32.9219 kg/m²) and physical activity changes among participants.

Results: The analysis revealed a statistically significant decrease in final BMI by an average of 1 kg/m² among participants. Furthermore, a notable increase in physical activity levels was observed among those that completed the year-long program, characterized by an average increase of 41 minutes per week.

Conclusion: The study showcased a significant decrease in BMI, affirming the effectiveness of DPRP lifestyle intervention program.

Learning Objective

Upon review of this study, participants will be able to delineate the impact of lifestyle modifications on obesity and diabetes incidence among high-risk individuals in Idaho, thereby elucidating the effectiveness of the DPRP intervention program.

Funding

No funding was received for the research, and the authors declare no financial conflicts of interest.

Faculty sponsor

Ginny Lane, PhD, RD, University of Idaho

Eat Smart Idaho Identifies Best Practices to Facilitate Healthy Food and Physical Activity Behaviors Among Low-Resource Audiences

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Abstract

Literature Review: Four of the leading causes of death in Idaho are related to diet and physical activity behaviors. Adults in lower income brackets consume fewer fruits and vegetables and are less physically active compared to those in higher income brackets. The percentage of highschoolers who consume fruits or vegetables at least once a day has decreased over the last decade. Interventions to address food and physical activity behaviors are needed to reduce the risk of diet-related diseases and build healthy habits.

Objective: Apply the social ecological model to develop multi-level interventions reaching Idahoans eligible for Supplemental Nutrition Assistance Program (SNAP) benefits and facilitate behavior change to support overall health.

Methods: Eat Smart Idaho layered multi-level public health approaches with evidence-based nutrition education and social marketing. Programming targeted counties with high population and high SNAP participation rates. Community partnerships and feasibility of multiple interventions were prioritized for implementation and sustainability.

Results: Leveraging over 300 community partners, programming was provided in 22 counties, reaching 7,248 adults and youth with direct education classes. Policy, systems, and environmental changes were made in 57 school cafeterias, 66 food pantries, and 27 food drives statewide. Thirty-two small space gardens were implemented, and 124 sites displayed Long Live Idaho social marketing materials. Program participation resulted in positive changes of healthier choices (82% youth, 95% adults), improved food safety (49% youth, 81% adults), stretching food dollars (36% youth, 93% adults), and increased activity (51% youth, 69% adults).

Conclusion: Best practices to facilitate healthy food and physical activity behaviors among low resource audiences include utilizing evidence-based curriculum and validated evaluations, designing audience-specific materials, implementing statewide standards, encouraging local pilots, and leveraging resources.

Learning Objective

After viewing the poster, participants will be able to identify best practices for community interventions among low-resource SNAP participants to support healthy behaviors.

Funding

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