Laurel HARVEST: Helping Appalachia Restore a Vibrant Food Environment for Self Sufficiency Together

Kathryn Cardarelli, PhD, MPH, kathryn.cardarelli@uky.edu, University of Kentucky; Makenzie Barr, PhD, RDN, LD, University of Kentucky; Christa Mayfield, MS, University of Kentucky; Mark Swanson, PhD, University of Kentucky; Courtney Luecking, PhD, MPH, RDN, University of Kentucky; Stacey Slone, MS, University of Kentucky; Janet Mullins, PhD, University of Kentucky

Objective: Inequities in obesity and related chronic diseases between rural and urban communities have grown in recent years, as rural residents face numerous barriers to healthy eating. The goal of this project is to improve food security and nutritional health outcomes in a rural Kentucky community. Our team is employing a community-based participatory approach to identify and adapt evidence-based healthy eating interventions at multiple levels of the sociologic model.

Description: Working in partnership with the Kentucky Cooperative Extension Services and its Extension Council, this project builds on our team’s long relationship with residents living in Appalachian Kentucky to implement policy, systems, and environmental (PSE) interventions in this rural and underserved population. Guided by a Community Advisory Board (CAB) of 16 community leaders from multiple sectors, multi-level interventions are being implemented in the study county- Laurel County, Kentucky. We are implementing alternative programming in a control county with similar sociodemographic characteristics. Interventions in Laurel County include evidence-based multigenerational cooking classes to enhance self-efficacy to prepare nutritious meals and structural interventions with the farmers market to enhance community access to fruits and vegetables. All interventions are tailored for the target population and guided by the CAB.

Evaluation: We are employing a mixed methods evaluation approach to measure short and intermediate term outcomes, including a longitudinal cohort study in both the intervention and control communities. Primary project outcomes include increased food security and increased fruit and vegetable consumption. Our process evaluation to document implementation employs the Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) framework.

Conclusion and Implications: Evidence-based programs to promote healthy eating that can be successful in rural environments are needed, and some have suggested that the capacity to adapt or develop obesity prevention strategies for rural communities might be best informed by the communities themselves. This community-engaged project has the potential to advise feasible strategies to reduce the rural burden of food insecurity and poor nutritional outcomes, leading to greater self-sufficiency.

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MealSim: Data-Driven Predictions of Child Selection, Consumption, and Waste Behaviors to Promote Increased Fruit and Vegetable Consumption

Melissa Prescott, RDN, PhD, mpp22@illinois.edu, Case Western Reserve University School of Medicine; Brenna Ellison, PhD, Purdue University; Roland Ofori, PhD, University of Oregon; Mayra Saenz Amaguaya, MA, University of Illinois at Urbana-Champaign; Iulia Ciubotariu, BS, University of Illinois at Urbana-Champaign; Shelly Palmer, RDN, MS, University of Illinois at Urbana-Champaign

Objective: The objective of the MealSim study is to empower school nutrition directors with evidence-based strategies specific to their institution to improve student fruit and vegetable consumption while decreasing food waste through the development and evaluation of a school meal systems agent-based model simulation tool.

Description: The project aims to improve fruit and vegetable consumption and reduce food waste. Research activities will be conducted through two key objectives: Build an agent-based model (MealSim) to simulate dietary behavior in school meal systems and validate MealSim using data from school nutrition programs in collaboration with key stakeholders.

Evaluation: Year three focused on analyzing qualitative data from key stakeholders who provided feedback on MealSim, identifying priorities for model adaptations based stakeholder input, and revising model validation procedures due to COVID-related changes to school nutrition programs. School nutrition stakeholders viewed the MealSim interface positively and reported several potential uses for the simulation tool, such as advocating for policy changes and various training/educational purposes. Stakeholders suggested that additional features be added to MealSim to better represent the school nutrition environment, such as more nuanced time use and number of staff supervising students during lunch. Lunch period structured observation protocols were revised to better differentiate between seated lunch time and other lunch period times, as requested by stakeholder feedback. Plate waste assessment protocols were modified to adapt to COVID-related changes and supply chain challenges to school nutrition programs.

Conclusions and Implications: Adapting MealSim according to stakeholder feedback will facilitate trust in the tool and likely improve its utility. It is anticipated that MealSim will empower school nutrition stakeholders to make evidence-based decisions on how to modify their cafeteria operations to improve fruit and vegetable consumption and reduce food waste, ultimately resulting in improved public and planetary health.

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