Background: In 2014, the United States Department of Agriculture (USDA) established the Regional Nutrition Education and Obesity Prevention Centers of Excellence (RNECE) to build the evidence-base regarding Supplemental Nutrition Assistance Program-Education (SNAP-Ed) and Expanded Food and Nutrition Education Program (EFNEP) programs, and to identify strategies to strengthen both programs. From 2014-2018, the National Institute of Food and Agriculture (NIFA) and Food and Nutrition Service (FNS) provided funding for a national coordination center and four regional centers. The overarching goal of RNECE was to improve the health of low-income Americans by fostering a culture of health through multiple strategies, including nutrition education and complementary public health approaches implemented at each level of the socio-ecological framework through policy, systems, and environmental (PSE) changes. The Southern Regional Center coordinated efforts among the 13-states/2-territory region and SNAP-Ed, EFNEP and similar programs to improve the impact on preventing obesity among low income populations.

Objectives: The goal of The Regional Nutrition Education and Obesity Prevention Centers of Excellence Southern Regional Center (RNECE-South) at the University of North Carolina-Chapel Hill (UNC) was to equip SNAP-Ed and EFNEP implementing agencies to create a culture of wellness where program participants experienced measurable improvements in their health, nutrition and physical activity through multiple strategies, including nutrition education and public health approaches.

Overview of Projects: The RNECE-South promoted nutrition education and PSE change through Faithful Families Signature Project and Innovation Sub-Awards; research in social media interventions for EFNEP and healthy retail interventions for SNAP-Ed; and online training opportunities and SNAP-Ed Obesity Prevention Toolkit website development.

Highlights and Implications: As a result of the RNECE Initiative, there is a stronger nationwide network of SNAP-Ed and EFNEP implementers and administrators collaborating to facilitate the implementation of evidence-based programming within both nationwide programs. In addition, there are a greater number of researchers working to further strengthen the evidence for nutrition education and obesity prevention interventions. There is an Interactive SNAP-Ed Toolkit that is searchable and linked to the SNAP-Ed Evaluation Framework and the SNAP-Ed and EFNEP Interactive Maps, developed by the RNECE-PSE Center at the University of Tennessee, to facilitate evidence-based intervention selection and identification of appropriate evaluation measures and tools. Through collaboration across the RNECE Initiative, resources to assist SNAP-Ed and EFNEP program staff to implement policy,
systems, and environmental change activities have proliferated and many more agencies are participating in such activities. These resources and products of other RNECE Centers will all be curated and maintained on the SNAP-Ed Toolkit website, which will live on past the life of the RNECE Initiative.

Observations and Conclusions About the RNECE Initiative

As one cog in the RNECE Initiative wheel, the RNECE-South made contributions in the following areas to improve the health of low-income Americans by fostering a culture of health through multiple strategies, including nutrition education and complementary public health approaches implemented at each level of the socio-ecological framework through policy, systems and environmental changes: Developed, launched, and promoted an interactive SNAP-Ed Toolkit Website; adapted and tested a healthy corner store intervention (Baltimore Healthy Stores) for a rural setting and within SNAP-Ed guidance; administered three Signature and one Innovation sub-award; developed Social Media Communications Guidance Materials; developed/co-developed and conducted webinars; and collaborated with all centers within the RNECE Initiative.

Healthy Retail. RNECE-South completed a guidance document for use of the rural-adapted Baltimore Healthy Stores intervention. RNECE-South included instructions in this guidance for use specifically by SNAP-Ed Implementing Agencies. These instructions include a discussion of allowable and unallowable costs and how to adapt the intervention for rural settings. In addition, leveraging the SNAP-Ed and Duke-UNC USDA Center for Behavioral Economics and Healthy Food Choice Research (BECR) funding to complement our RNECE funds, RNECE-South tested three more behavioral economics strategy interventions within three convenience stores and one grocery store. A manuscript has been submitted for publication. RNECE-South has since moved to working exclusively in full service grocery stores and has completed one more experiment (an upsell behavioral economics test). Building on the work of this initiative, another experiment will commence soon with SNAP-Ed funding.

SNAP-Ed Toolkit Website. RNECE-South is continuing to improve the features and offerings on this website. The team accomplished this in part by reviewing Google Analytics and implementing a pop-up survey about visitor experience. The pop-up survey queried the following:

- What visitors were seeking,
- Whether visitors found what they were seeking,
- How site navigation could be improved.

Further, so that RNECE-South may better integrate its resources with those of the RNECE-PSE Center, particularly the SNAP-Ed PSE Interactive Map, a feature was added to the Toolkit Website to allow compilation of ‘Setting-specific’ interventions that correspond to those settings featured on the Map (See Page 6, Photo 5):

- Community gardens
- School gardens
- Farmers markets
- Corner stores
- Faith based organizations

The PSE Interactive Map has now been integrated into the SNAP-Ed Toolkit so that there is a one-stop location for these resources (See Page 6, Photo 6).

RNECE-South added all training resources developed through the RNECE Initiative to this website (see: https://snapedtoolkit.org/training/rneece-initiative-products/). Additionally, funding was secured to lead the peer-review process of interventions submitted for potential inclusion in the toolkit and for updating the website with selected interventions.

Signature Sub-awards. Data analysis for Faithful Families is complete, and sub-award PIs are jointly preparing a manuscript tentatively titled Evaluating a faith-based health promotion intervention in three states, which will be submitted to a peer-reviewed, scientific journal for publication. Following discussions with national and North Carolina
partners about the mission, vision, and future of Faithful Families, the program recently rebranded to Faithful Families Thriving Communities (see: https://faithfulfamilies.com/) and has expanded to 21 states.

**Social Media.** RNECE-South collected additional website evaluation data and completed data analysis for Phase 3. A manuscript entitled *Associations Between EFNEP Social Media Message Content and Participant Engagement* has been submitted to a peer-reviewed, scientific journal for publication. An additional manuscript *Development of a Web-Based Educational Tool Designed to Help Practitioners Develop Social Media Campaigns* is under development. RNECE-South presented findings at the National EFNEP Conference in 2018.

Below is a more detailed look at each of these efforts and how they address the four RNECE Initiative Objectives:

**RNECE INITIATIVE OBJECTIVE 1.**
**Strengthen the evidence-base on effective nutrition education/obesity prevention programs for diverse population groups.**

**Sub-Awards.** RNECE-South administered four pilot awards to strengthen the evidence-base for nutrition education and obesity presentation programs. All are complete. Technical expertise for the implementation of the three Signature sub-awards was provided and each sub-awardee was reviewed to ensure implementation as designed. The three Signature Sub-awards all focused on implementation of the Faithful Families Intervention: University of Arkansas – Faithful Families: Implementation and Outcome Evaluation of Paraprofessional and Volunteer Delivery Methods; University of Florida – Building Faith through Health in the Community and Online; University of Tennessee-Knoxville – Faithful Families in Tennessee: Improving the Health of Low-Income Faith-Based Audiences. The Innovation Sub-award went to the University of Georgia for evaluation of online nutrition education eLearning program tailored to SNAP-Ed eligible adult Georgians. See the Appendix for project abstracts.

**Healthy Retail.** RNECE-South also conducted internal research. In 2016, the Center for Health Promotion and Disease Prevention (HPDP) adapted a previously tested healthy retail intervention, Baltimore Healthy Stores, in three rural counties in North Carolina. Entitled “Eat Well Be Well” this five-phase environmental intervention aimed to address obesity by increasing access to and purchasing of healthy food items in convenience stores. Each phase was four weeks long and promoted one message and corresponding healthy food choices available in the store. The program also provided an opportunity to try a healthy recipe utilizing promoted foods. An intervention guide describing best practices and lessons learned from Eat Well Be Well has been completed, with a focus on tips for using SNAP-Ed funds to launch healthy retail interventions in rural settings. This guide is featured on the SNAP-Ed Toolkit Website with the other RNECE Initiative products.

RNECE-South additionally provided guidance though webinars, briefs, and presentations on implementation of healthy retail interventions that incorporate behavioral economic nudges and use funds within SNAP-Ed guidance.

**RNECE INITIATIVE OBJECTIVE 2.**
**Evaluate the long-term effectiveness of nutrition education/obesity prevention interventions for disadvantaged and underserved populations and identify opportunities for new research.**

**Created an interactive SNAP-Ed Toolkit Website.** RNECE-South developed and launched an interactive SNAP-Ed Toolkit Website informed by nearly 10 years of work in developing and implementing the Center for Training and Research Translation. The SNAP-Ed toolkit incorporates a searchable directory of reviewed evidence-based interventions and the SNAP-Ed Evaluation Framework. The Evaluation and Toolkit portions are linked to ease use by SNAP-Ed and EFNEP Implementing Agencies and others. RNECE-South integrated training resources into the Toolkit from all centers within the RNECE Initiative. Moreover, this is an on-
going effort to add training resources from the RNECE Initiative as they are completed. Funding is now secured to continue partnering with FNS to lead the expansion the toolkit through a rigorous intervention review process. This will expand the SNAP-Ed toolkit’s collection of evidence-based interventions.

RNECE INITIATIVE OBJECTIVE 3. Identify and create research collaborations and synergistic relationships among researchers and EFNEP/SNAP-Ed program directors, universities and other implementers, and state and federal agencies.

RNECE-South is an example of an EFNEP-SNAP-Ed collaboration as one of our Co-Directors leads EFNEP for North Carolina and the other is on the National SNAP-Ed Advisory Board. In addition, RNECE-South collaborated with all RNECE Initiative Centers, Public Health Institute, Association of SNAP Nutrition Education Administrators (ASNNA), Nutrition and Obesity Policy Research Evaluation Network (NOPREN), and SNAP-Ed/Southeast Regional Office (SERO) (our SNAP-Ed Region) to create partnerships around training and development of tools to assist with the implementation of evidence-based interventions within SNAP-Ed and EFNEP. This included participating in RNECE Initiative PSE and Training Working Groups and in the development of SNAP-Ed Toolkit including review of new interventions. RNECE-South also participated in the Southeastern Consortium for Research in Food Security, which is coordinated out of the University of South Carolina and includes involvement from SERO staff.

With RNECE and Center for Behavioral Economics and Health Food Choice Research (BECR) funding, RNECE-South presented at conferences and on webinars information for how SNAP-Ed and EFNEP implementers and researchers may work together. A presentation was made at the 2017 Society for Nutrition Education and Behavior on this topic. A brief on this topic has been prepared and can be found here: https://becr.sanford.duke.edu/wp-content/uploads/2017/09/BECR-Behavioral-Economics-Results-SNAP-Ed.pdf.

RNECE INITIATIVE OBJECTIVE 4. Enhance the impact of state and community nutrition education and obesity prevention efforts by providing the public health-related training and evidence that practitioners need for improving nutrition and health behaviors, environments, and policies in ways that are equitable, efficient, and sustained over time.

Training. RNECE-South developed or co-developed and presented the following six webinars to train SNAP-Ed and EFNEP implementers. All of this content has been migrated to the Interactive SNAP-Ed Toolkit Website, which will be maintained past the life of the RNECE Initiative.

- RNECE-South:
  - Behavioral Economics in the Healthy Retail Environment: Working Within the SNAP-Ed Context
  - Strengthening Outcomes Through Collective Impact
  - PSE Change Measurement & Reporting
  - Policy, Systems, and Environmental (PSE) Change in SNAP-Ed and EFNEP Programs

- Collaborating with Public Health Institute (PHI):
  - PHI Southeast Learning Community: Incorporating Farmers Markets and Community Gardens
  - PHI Southeast Learning Community: Best Practices Webinar - Childcare and School Wellness

Social Media Communications Guidance. The goal of the Social Media Communications Guidance project was to develop, implement and evaluate a social media toolkit designed to provide guidance to SNAP-Ed and EFNEP implementers using social media campaigns to enhance program goals. Three research phases were planned to accomplish program goals: (1) content analysis of
existing North Carolina EFNEP social media communications to identify promising social media strategies for engaging participants, (2) survey administration to better understand the social media use of EFNEP participants and (3) development and evaluation of a website, informed partially by phases one and two to be used by EFNEP and SNAP-Ed staff to conduct effective social media campaigns to augment existing programming. Phase 1: Content analysis is completed. Findings were presented at the Annual Society of Behavioral Medicine Meeting (April 2016) and a manuscript has been submitted to a peer-reviewed, scientific journal for publication. Phase 2: 180 surveys were distributed to EFNEP participants in nine North Carolina counties and a manuscript is currently in development. Phase 3: A beta version of the website has been developed. Four EFNEP programs were recruited to create social media campaigns using the website. Structured interviews were conducted with administrators at those programs to evaluate the usability and acceptability of the website. A website evaluation survey was distributed in late July 2017 to 75 EFNEP administrators and the team received 23 responses. Preliminary data from this survey and the interviews are included in a manuscript currently under preparation. A Digital Resources product has been developed, which is currently being hosted by Virginia Tech University and utilized by EFNEP Coordinators throughout the country. The Digital Resources project was presented at the National EFNEP Conference (already reported). The National EFNEP Technology and Social Media Committee provides maintenance for the site and training to EFNEP coordinators for use of the resources. A training is scheduled for 2019.

CONCLUSIONS

As a result of the RNECE Initiative, there is a stronger nationwide network of SNAP-Ed and EFNEP implementers and administrators collaborating to facilitate the implementation of evidence-based programming within both nationwide programs. In addition, there are a greater number of researchers working to further strengthen the evidence for nutrition education and obesity prevention interventions. We have an Interactive SNAP-Ed Toolkit that is searchable and linked to the SNAP-Ed Evaluation Framework and the SNAP-Ed Interactive Map to facilitate evidence-based intervention selection and identification of appropriate evaluation measures and tools. Through collaboration across the RNECE Initiative, resources to assist SNAP-Ed program staff to implement policy, systems, and environmental change activities have proliferated and many more agencies are participating in such activities. These resources will all be curated and maintained on the SNAP-Ed Toolkit website, which will live on past the life of the RNECE Initiative.

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Funding source: USDA 2014-48757-22610.

Photo 1. SNAP-Ed Toolkit Website

Photo 2. SNAP-Ed Toolkit RNECE Resources
Photo 3. Food demo and taste testing as part of the Eat Well Be Well Healthy Retail intervention

Photo 4. ‘Scarcity’ intervention to incorporate behavioral economics nudge testing into a retail setting

Photo 5. New Addition of SNAP-Ed Map Link on SNAP-Ed Toolkit Website

Photo 6. Screenshot of Interactive SNAP-Ed PSE Map on SNAP-Ed Toolkit Website
Photo 7. Screenshot of EFNEP Social Media Toolkit Website

Online marketing is about more than creating a Facebook page. It’s about creating engaging, interesting content that your followers want to see. EFNEP representatives from across the country came together to create tools and resources to educate other EFNEP practitioners. Includes:

- sample guidelines for developing a social media strategy
- examples of social media posts for use on your channel
- sample photo release forms

Before you begin here, we strongly recommend reading the EFNEP Policy: Use of Contemporary Technology in Conjunction with the Pairs Health document. Also, read the overviews of each Social Media Platform to become more familiar with them.

Papers


Presentations

Chapman, C., Sadeghzadeh, C., De Marco, M., Uslan, D., Kearney, B. Integrating concepts from Behavioral Economics into Low-Cost Healthy Retail Interventions: Methods and Results from Rural North Carolina. Accepted for oral presentation at the Annual Public Health Association meeting, November 2018.

Chapman, L., Chauvenet, C., De Marco, M. (2017). Healthy retail interventions: Establishing partnerships and utilizing sales data to conduct healthy food choice research. Presentation at the annual meeting of the American Public Health Association, Nov 4-8, 2017; Atlanta, GA.


Abstract Submitted

Grants Secured


APPENDIX: Sub-Award Abstracts

Title: Evaluation of Online Nutrition Education eLearning Program Tailored to SNAP-Ed Eligible Adult Georgians

Authors: Jung Sun Lee, PhD, RD, Sarah Stotz, MS, RD, CDE, LD, Judy Hibbs, EdD

Organization: The University of Georgia

Objective: Formative evaluation of an innovative smartphone-based nutrition education eLearning program.

Target audience: SNAP-Ed eligible adult Georgians

Theory/Prior Research/Rationale: Regular Internet access is essentially commonplace among SNAP-Ed eligible adults and eLearning theory suggests asynchronous, contextual-based eLearning nutrition education may decrease traditional barriers to attending face-to-face classes and increase nutrition education opportunities in point-of-decision-making environments. Key informant interviews indicated eLearning is a feasible form of nutrition education for SNAP-Ed eligible Georgians and inclusion of interactive games, videos, recipes, and extrinsic incentive would enhance engagement. To inform eLearning program development and employ the Policy, Systems, Environment approach to nutrition education, understanding the food retail environment from the perspective of the priority audience is critical.

Description: Food eTalk is a six-lesson smartphone based eLearning program. Each lesson (~10 minutes) includes an accompanying cooking demonstration video. Lesson topics include DASH diet principles, food safety, and food resource management. Food eTalk includes mobile-first interface, intentionally simple navigation design, and a Cultural-Southern influence.

Evaluation: Formative evaluation operationalized by a longitudinal mixed-methods case study including: qualitative interviews, focus groups, photovoice methods, self-administered demographic, baseline Internet habits, and learning management system user tracking data.

Conclusions and Implications: Key findings include: typical use of smartphones is quick and specific, nutrition education content should highlight topics the priority audience considers relevant such as: recipes, diabetes, ways to feed ‘picky’ children and should focus on barriers to healthful eating. eLearning format should be short, interactive, include videos, and consider external incentives to help increase motivation for engagement. These findings will contribute to and guide evidence-based UGA SNAP-Ed eLearning nutrition education program development.
Title: Building Health through Faith in the Community and Online

Authors: Karla P. Shelnutt, PhD, RD, Jennifer Walsh, PhD, RD, Lacey Corrick MS, RD, LDN

Organization: University of Florida/IFAS Extension

Objective: To demonstrate the feasibility of teaching Faithful Families (FF) through EFNEP with the Family Nutrition Program (FNP; Florida’s SNAP-Ed) implementing policy, systems, or environmental (PSE) approaches, and to determine whether adding an online component increases healthy eating and physical activity behaviors.

Design/Setting/Participants: As part of a quasi-experimental study, five faith community sites were identified as control (N=2) or intervention (N=3). Participants (N=81) were 18 years or older with children 18 years or less; had Internet access available at least three times a week; and had limited resources or were eligible for public assistance programs.

Intervention: FF was implemented in Florida as a 9-week program with a PSE component. The study included an online Qualtrics survey for intervention participants to provide data and access Facebook weekly. Assessments (EFNEP and Faithful Families evaluation tools; accelerometer for subgroup) were conducted at baseline, 9-weeks, and 6- to 10-week follow-up.

Main Outcome Measures: Social media use, Healthy Eating Index scores, physical activity, and common measures related to healthy eating.

Analysis: Descriptive statistics were conducted, and non-parametric and parametric tests were used as appropriate. Significance was determined a priori at p<.05.

Results: Overall, no differences in social media use, Healthy Eating Index scores, and physical activity were noted between control and intervention group. While the intervention may not have been intensive enough to identify group differences, small sample size may have prevented identification of small effects. Overall program implementation resulted in an increased use of Nutrition Facts to make food choices, decreased sugar-sweetened beverage consumption, and increased use of MyPlate to make food choices.

Conclusion: While online engagement did not influence adoption of healthy behaviors, this EFNEP and SNAP-Ed partnership demonstrated that both programs can utilize their strengths and expertise to facilitate change at several levels of the Social-Ecological Model. More research to develop an online component to reinforce and complement FF is needed.
Title: Faithful Families: Implementation and Outcome Evaluation of Paraprofessional and Volunteer Delivery Methods

Authors: Lisa Washburn, Rosemary Rodibaugh, Serena Fuller, & Josh Phelps

Organization: University of Arkansas Division of Agriculture Cooperative Extension Service

Objective: Compare nutrition education delivery methods with environmental change (PSE) components to facilitate behavior change in low-income participants.

Design: Quasi-experimental, non-equivalent groups design, Faithful Families: Eating Smart and Moving More (FFESMM) was conducted using two methods: EFNEP paraprofessional (PA) delivery and Extension Wellness Ambassadors (EWA) delivery.

Setting: Income-qualified faith-based settings.

Participants: 44 faith community members provided entry/exit data [EWA, n=23 (21 females, 16 African American); PA, n=21 (20 females, 21 African American)]; 24 provided 3-month follow-up data [EWA, n=9 (8 females, 8 African American); PA, n=15 (14 females, 15 African American)]

Intervention: Nine FFESMM sessions in faith communities.

Main Outcome Measures: Diet quality (24-hour Diet Recall), health behaviors (Behavior Checklist), weight, BMI, and blood pressure (biometrics), Faith Community Assessment (PSE).

Analysis: Independent samples t-tests assessed between group differences in diet quality and health behaviors. Paired-samples t-tests explored biometric differences. Descriptive statistics describe PSE changes from entry to 3-month follow-up.

Results: Diet quality and health behavior differences emerged between groups. Compared to EWA groups, PA groups demonstrated significant changes at exit in SoFAS (mean difference=-306.97 kilocalories), saturated fat (mean difference=-13.20 grams), and food energy (mean difference=-898.43 kilocalories) and sustained them through follow-up. For health behaviors, compared to the PA group, EWA participants had significantly higher mean scores at exit for shopping with a grocery list (mean= 3.84), considering healthy food choices when deciding what to feed their families (mean= 3.68), and using the Nutrition Facts label (mean= 3.47). Mean decrease in systolic blood pressure approached significance (n=43, p=.058) from entry to exit, however, this difference diminished at follow-up (n=24, p=.659). Faith Community Assessment (n=1) at follow-up showed improved scores in several areas including physical activity and nutrition environments.

Conclusion and Implications: FFESMM positively impacted diet quality and health behavior. Compared to EWA groups, PA showed diet quality changes to a greater degree; EWA groups showed greater health behavior change. Further study is needed to determine outcome differences between delivery methods. Findings suggest both are feasible for FFESMM.
Title: Faithful Families in Tennessee

Authors: Karen Franck, Laura Bolt, Bonnie Hinds, Rita Jackson, and Chris Sneed

Organization: University of Tennessee

Objective: To compare participants and outcomes in Faithful Families to Eat Smart, another EFNEP and SNAP-Ed curriculum that is used in Tennessee.

Design/Setting/Participants: Two counties implemented both programs: a rural county in the Appalachian region and an urban county in the Delta region. Four churches (two in each county) received programming: two congregations received Faithful Families and two congregations received Eat Smart. Forty-nine participants were enrolled in Faithful Families and 34 were enrolled in Eat Smart.

Interventions: Churches received programming either from Faithful Families or Eat Smart.

Main Outcome Measures: Physical activity and healthy eating behaviors

Analysis: Demographic measures were compared between groups. Pre- and post-surveys were administered to investigate differences in healthy eating and physical activity behaviors. Significance was determined a priori at p<.05.

Results: Faithful Families’ participants were more likely to graduate from the program (33 vs. 23 or 73% vs. 68%), had more men participate (15 vs. 3) and were more likely to have children (11 vs. 4 or 24% vs. 12%). There were no significant differences between the two groups regarding changes in healthy eating and physical activity, with participants in both groups making positive changes in eating fruits and vegetables and being more physically active. Faithful Families’ congregations also implemented environmental changes including written policies for church functions to promote drinking water, being more physically active, and healthier food options.

Conclusions and Implications: Faithful Families worked well in both the rural and urban community as indicated by number of people who signed up and completed the program. This was one of the largest adult SNAP-Ed classes that the rural county had ever completed. The success of this program indicates that working with faith communities can be a promising practice for SNAP-Ed and EFNEP to work with adult participants. One of the keys to success is engaging the faith community through faith and lay leaders and working with churches to recruit participants who have young children.