**Project/Activity Number:** NC1193

**Project/Activity Title:** Using Behavioral and Environmental Tools to Identify Weight Related Factors Associated with Health in Communities of Young Adults

**Period Covered**: 10/01/2018 to 09/30/2019

**Date of Report:** 05/20/2019

**Annual Meeting Dates:** 02/20/2019 to 02/22/2019

**Participants:** Brown, Onikia (onb0001@auburn.edu) – Auburn University; Byrd-Bredbenner, Carol (bredbenner@aesop.rutgers.edu) – Rutgers University; Colby, Sarah (scolby1@utk.edu) – University of Tennessee; Franzen-Castle, Lisa (lfranzen2@unl.edu) – University of Nebraska; Greene, Geoffrey (gwg@uri.edu) – University of Rhode Island; Horacek, Tanya (thoracek@syr.edu) – Syracuse University; Kattelmann, Kendra (kendra.kattelmann@sdstate.edu) – South Dakota State University; Kidd, Tandalayo (martan@ksu.edu) – Kansas State University; McNamara, Jade (jade.mcnamara@maine.edu) – University of Maine; Morrell, Jesse Stabile (jesse.morrell@unh.edu) – University of New Hampshire; Mosby, Terezie (terezie.mosby@msstate.edu) – Mississippi State University Olfert, Melissa (melissa.olfert@mail.wvu.edu) – West Virginia University; Shelnutt, Karla (kpagan@ufl.edu) – University of Florida; Koenings, Mallory (Mallory.koenings@nifa.usda.gov) - USDA; Savaiano, Dennis (savaiano@purdue.edu) – Purdue University.

**Brief Summary of Minutes of Annual Meeting:**

* State PI’s, and group advisor provided an update of individual, department, college, university, and state-level changes and announcements.
* Selected PI’s presented and led discussions on topics to help develop research ideas for manuscripts, grants, projects in preparation for the 5-year plan. Mallory Koenings provided USDA administrative insight for each of the following discussions:
	+ **Panel 1: Dissemination/Implementation Science Systems**

By: Melissa Olfert, PhD, RD (West Virginia State University)

* + **Panel 2: Biological Factors**

By: Terezie Mosby, PhD, RD (Mississippi State University)

* + **Panel 3: Food Systems Discussion**

By: Sarah Colby, PhD, RD (University of Tennessee) &

Kendra Kattlemann (South Dakota State University)

* + **Panel 4: Campus Food Security Discussion**

By: Onikia Brown, PhD, RD (Auburn University)

* + **Panel 5: SNAP-ED and Farm Bill**

By: Karla Shelnut, PhD, RD (University of Florida)

* + **Panel 6: Environmental Assessment**

By: Tanya Horacek, PhD, RD (Syracuse University)

* Updates from lead personnel regarding the progress made and short-term plans for advancing the

Healthy Campus Environmental Audit and Healthy Community Index, eB4CAST, the

Behavioral Environmental Perceptions Survey, and the Behavioral Environmental Perceptions -

Community Survey

* A presentation and discussion about inter-institutional research program for non-thesis dietetic interns was led by Kathleen Melanson (University of Rhode Island).
* Future grants, presentation and publications plans: Group reviewed all grants, abstracts and

papers submitted, in progress, and in the pipeline.

* Review of Organizational Chart and Elections: Officer elections were held and confirmed for

2019-2020 and 2020-2021.

* Scheduled monthly conference calls and 2019-2020 fiscal year annual meeting, the annual meeting date and location was tentatively set.

**Accomplishments:** Excessive weight gain is associated with increased risk of developing many serious diseases, including heart disease, diabetes, and high blood pressure, however, programs to address overweight/obesity among communities of young adults are lacking. The NC1193 multistate group is developing tools to assess the healthfulness of college campuses and effectively disseminate information for use by campus administrators and stakeholders to make changes that support and sustain healthier environments for their students. The group is also evaluating the tools developed for college campuses to assess low-income communities.

**Short-term Outcomes:**

* Approximately 2676 students from seven universities completed the BEPS survey. In confirmatory analyses a 21-item, 5-factor structure was the best fit for the data (χ=3286.77, df=189; CFI=.840; RMSEA=0.078) and there were significant associations between scales and validation criteria (p<.05).
* A total of 440 students at two universities participated in an online critical thinking intervention including an experimental design to assess the effectiveness of a critical thinking contextual framework on development of skills.

**Outputs:**

* Final development with psychometric and external validation of the Behavioral Environmental Perception Survey (BEPS) to assess college student perception of the healthfulness of their campus environment.
* Development and testing of an online educational program to enhance development of critical thinking skills in college students.
* Campuses participating in the validation of the Healthy Campus Environmental Audit received campus-specific reports known as EB4Cast.
* Completed the first phase of qualitative research to explore issues related to environmental perceptions of the healthfulness of communities as part adapting instruments for low-income communities.
* 29 graduate students (MS and PhD) and 60 undergraduate students participated in the research process and were trained on developing behavioral nutrition interventions for obesity prevention including completion and maintenance of CITI Human Subjects Research training.

**Activities:**

* 7 states conducted focus groups to develop an instrument to explore issues related to environmental perceptions of the healthfulness of low-income communities.
* Trained undergraduate and graduate students to conduct environmental assessment audits, create surveys using survey software, conduct focus groups, conduct cognitive testing, recruit study participants, collect data with fidelity, manage research data, analyze data, and present research findings.

**Milestones:** The BEPS college instrument is a valid instrument to assess college student perception of the healthfulness of their environment. Initial work on translating college campus assessments to low-income communities was initiated in 2018, additional qualitative work needs to be completed before a BEPS community instrument can be developed. Additional impacts are findings that a contextual framework encourages development of critical thinking skills and the enhancement of our understanding of human behavior in weight loss which can be used to guide future interventions. Dissemination and Implementation (D&I) model eB4CAST captured local community data in indirect and direct measures. D7I model eB4CAST monitored environmental change and community/individual perception of change through refinement and pointed reporting to community stakeholders.

**Impacts:** Helping individuals understand the footprint of health in their communities is important to making behavior changes. As a result seven-page eB4CAST reports were provided; 69 Forecast report (baseline) (24 interventions, 25 control, 18 PHA, 2 high schools), 27 Footprint reports and 2 posters. Over 75 schools completed the implementation of the Healthy Community Index. Themes regarding health perceptions of stakeholders in low-income communities were determined in 9 communities.

**Publications:**

1. Charlier CM, Barr ML, Colby SL, Greene GW, Olfert MD. Correlations of self-reported androgen deficiency in aging males (ADAM) with stress and sleep among young adult males. Healthcare 2018, 6, 121; doi:10.3390/healthcare6040121
2. Famodu, O.A., Barr, M.L., Colby, S.E., Zhou, W., Holaskova, I., Leary, M.P., Byrd-Bredbenner, C., Mathews, A.E., and Olfert, M. (2018) Neck Circumference Positively Relates to Cardiovascular Risk Factors in College Students. International Journal of Environmental Research and Public Health, 15:1480.
3. Horacek TM, Dede Yildirim E, Kattelmann K, Byrd-Bredbenner C, Brown O, Colby S, Greene G, Hoerr S, Kidd T, Koenings MM, Morrell J, Olfert MD, Shelnutt K, White A, Phillips B. Multilevel Structure Equation Model of Students’ Dietary Intentions/Behaviors, BMI and the Healthfulness of Convenience Stores. Nutrients 2018, 10(11), 1569; https://doi.org/10.3390/nu10111569
4. Horacek, T.M., Yildirim, E.D., Simon, M., Byrd-Bredbenner, C., White, A., Shelnutt, K.P., Olfert, M.D., Morrell, J., Mathews, A., Kidd, T., Kattelmann, K., Franzen-Castle, L., Colby, S., and Brown, O. (2018) Development and Validation of the Full Restaurant Evaluation Supporting a Healthy (FRESH) Dining Environment Audit. Journal of Hunger and Environmental Nutrition, DOI: 10.1080/19320248.2018.1434103.
5. Horacek TM, Yildrim ED, Kelly E, White AA, Shelnutt KP, Riggsbee K, Olfert MD, Morrell JS, Mathews A, Mosby TT, Kidd T, Kattelmann K, Greene G, Franzen-Castle L, Colby S, Byrd-Bredbenner C, Brown O. (2018) Development and validation of a simple convenience store SHELF audit. Int J Environ Res Pub Health 2018;15:2676; doi:10.3390/ijerph15122676.
6. Riggsbee KA, Riggsbee J, Vilaro MJ, Moret L, Spence M, Anderson Steeves E, Zhou W, Olfert MD, Franzen-Castle L, Horacek TM, Hall E, Sarah Colby S. More than Fast Food: Development of a Story Map to Compare Adolescent Perceptions and Observations of their Food Environments and Related Food Behaviors. Int. J. Environ. Res. Public Health 2019, 16(1), 76; <https://doi.org/10.3390/ijerph16010076>
7. Vilaro MJ, Colby SE, Riggsbee K, Zhou W, Byrd-Bredbenner C, Olfert MD, Barnett TE, Horacek T, Sowers M, Mathews AE. Food choice priorities change over time and predict dietary intake at the end of the first year of college among students in the U.S. Nutrients 2018, 10(9), 1296; https://doi.org/10.3390/nu10091296

**Scientific and Outreach Oral/Poster Presentations:**

1. El Zein A, Shelnutt K, Colby S, Olfert M, Kattelmann K, Brown O, Kidd T, Horacek T, White A, Zhou W, Vilaro M, Greene G, Morrell J, Riggsbee K, Mathews A. Socio-demographic Correlates and Predictors of Food Insecurity among First Year College Students. J Acad Nutr Diet, 2017 (10), A146.
2. Olfert MD, Barr ML\*, Hagedorn RL\*, Horacek TM, Colby SE, Shelnutt K, Mathews A, Franzen-Castle L, White A, Greene GW, Kattelmann KK, Byrd-Bredbenner C, Kidd T, Brown O, Morrell J, Mosby T. Developing Infographic Forecast Reports for Campuses Engaged in GetFruved using the eB4CAST Framework. American Society of Nutrition Annual Mtg., Boston MA, June 2018. Current Developments in Nutrition, 2018, P15-023. DOI link DOI: <https://doi.org/10.1093/cdn/nzy042>
3. Colby S, Olfert M, Mathews A, Kattelmann K, Kidd T, Brown O, White A, Horacek T, Shelnutt K, Byrd-Bredbenner C, et al. GET FRUVED: the RCT Year. J Nutr Educ Behav 2018, 50, S116-S117, doi:10.1016/j.jneb.2018.04.258.
4. McNamara J, Olfert MD, Faulk M, Colby S, White A, Byrd-Bredbenner C, Kattelmann K, Franzen-Castle LD, Brown O, Kidd T, Shelnutt K, Greene G. Development and Validation of an Instrument Aimed to Measure Perceived Healthfulness of the College Environment: Behavior Environment Perception Survey. Journal of Nutrition Education and Behavior, Volume 50, Issue 7, S12 - S13
5. Riggsbee K, Colby S, Kidd T, Brown O, White A, Horacek T, Olfert MD, Mathews A, Kattelmann K, Shelnutt K, Franzen-Castle L, Greene G. Development and Pilot Testing of a Community Based Participatory Research Obesity Prevention Program on College Campuses. Journal of Nutrition Education and Behavior, Volume 50, Issue 7, S55.
6. Riggsbee K, Riggsbee J, Vilaro M, Spence M, Anderson Steeves, E, Zhou, W, Olfert M, Franzen-Castle L, Horacek T, Colby S. Utilizing Story-Mapping to Better Understand and Explore Adolescent Food Environments. American Public Health Association November 2018 https://apha.confex.com/apha/2018/meetingapp.cgi/Paper/415477
7. Riggsbee, K.; Colby, S.; Kidd, T.; Brown, O.; White, A.; Horacek, T.; Olfert, M.D.; Mathews, A.; Kattelmann, K.; Shelnutt, K., et al. Development and Pilot Testing of a Community Based Participatory Research Obesity Prevention Program on College Campuses. Journal of nutrition education and behavior 2018, 50, S55, doi:10.1016/j.jneb.2018.04.082.
8. White, J., Olfert, M., Faulk, M., Colby, S., White, A., Byrd-Bredbenner, C., Kattelmann, K., Franzen, L.D., Brown, O., Kidd, T., Shelnutt, K.P., and Greene, G. (2018) Development and Psychometric Validation of an Instrument Measuring Perceived Healthfulness of the College Environment: Behavior Environment Perception Survey (BEPS). Journal of Nutrition Education and Behavior, 50:S12-S13. Presented at the Society for Nutrition Education, Minneapolis, MN, July.