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Evaluation of Healthy2Go: A country store transformation project to improve the food environment and consumer choices in Appalachian Kentucky

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ABSTRACT

Rates of obesity and type 2 diabetes in Kentucky's Cumberland Valley region are among the highest in the United States and limited access to healthy food contributes to these epidemics. The aim of Healthy2Go (H2G), a country store transformation project launched by Spread the Health Appalachia (STHA), was to improve awareness and availability of healthy options in small, rural stores. Ten country stores participated in H2G and received training and technical assistance to increase availability and awareness of healthy foods. Stores made inventory changes; installed point-of-purchase educational and in-store marketing materials directing shoppers to healthier options; provided nutrition education such as healthy recipes; and altered the display and location of healthy items. To measure changes within stores and the potential impact on resident eating and purchasing habits, STHA used four instruments: a modified version of the Nutrition Environs Measures Survey – Corner Stores at baseline and follow-up, a bimonthly store inventory assessment, a final store owner survey, and a Community Nutrition Survey at baseline (n = 287) and follow-up (n = 281). The stores in the H2G program (n = 10) had a 40% increase in stocking fresh produce, a 20% increase in produce variety, and trends towards increasing healthy inventory. During the same period, surveyed residents reported a statistically significant increase in the frequency of healthy food consumption. Small store transformation programs can improve availability of and access to healthy food in rural settings and influence local purchasing patterns.

1. Introduction

In the United States, nearly 60 million people, or 19.3% of the population, live in rural areas (United States Census Bureau/American FactFinder, 2011). Similar to other rural regions across the United States, the population in the Cumberland Valley Region of Appalachian Kentucky experiences much higher rates of chronic disease and all-cause mortality than their urban counterparts (Befort et al., 2012; Bennett et al., 2011; Jackson et al., 2005). Specifically, obesity rates in rural counties, especially southern counties, exceed national averages (40% of rural vs. 33% of urban) (Adams et al., 2011; Ogden et al., 2014). Factors contributing to this rural health care disparity include high unemployment rates, low household incomes, limited educational attainment, geographic and transportation barriers, low quality food environment, and limited health literacy (United States Census Bureau/American FactFinder, 2011; Appalachia Regional Commission, 2015; Research and Statistics Branch, 2014; Adler et al., 2010; McEwen, 2012).

Consumption of healthy, nutritious foods, in combination with physical activity and appropriate access to health professionals, are critical for the maintenance of good health and for the avoidance of certain chronic conditions, including obesity and type 2 diabetes (World Health Organization, 2003; US Dep. Health Hum. Serv./US Dep. Agric., 2010). The local food environment is believed to be an important factor in shaping eating habits (Liese et al., 2007; Morland et al., 2002). Studies on the health benefits of improving food environments, mainly focusing on urban environments, have been inconclusive and there is little long term data available on this expanding area of research (Cannuscio et al., 2013; Morland et al., 2002).

Generally, rural residents face a restricted supply of healthy food options and higher prices (Sharkey, 2009). Large percentages of the population in these counties live in designated food deserts, places where it is difficult to find convenient, affordable food: 28% in Bell, 37% in Clay, 42% in Knox and 8% in Jackson (United States Census Bureau/American FactFinder, 2011). Access to fresh produce is similarly limited in the region (United States Census Bureau/American FactFinder, 2011). Rural residents rely more on non-traditional food stores including convenience stores and dollar stores than their urban counterparts

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(Sharkey, 2009). Corner stores (urban) and country stores (rural) are small stores offering convenient access to food and other essential items. In the Cumberland Valley, the country stores serve the most rural reaches of the counties. Corner store transformation programs, where owners receive training and technical assistance to introduce healthy foods in areas with restricted access, have emerged as a public health strategy to address poor nutrition and social determinants of health that contribute to chronic conditions around the country. To date these projects have been predominantly focused in urban environments (Martin et al., 2012; Dannefer et al., 2012; Ortega, 2014; Cavanaugh et al., 2014).

In the Healthy2Go project described below, we assessed the impact of a country store transformation program on the availability of healthy food options in a rural, low quality food environment setting, the Cumberland Valley region of Appalachian Kentucky. We also assessed the eating and purchasing habits of local residents before and after the intervention to better understand behavioral decisions and awareness of healthy eating and healthy retail.

2. Methods

2.1. Survey area

Four target counties in the Cumberland Valley area (Bell, Clay, Jackson, and Knox) were selected for the Healthy2Go intervention and evaluation activities. According to the 2010 United States census, the total population of these four Appalachian counties is 94,466, 96.5% of the population is white, and 34.4% live below the poverty line.

2.2. Intervention: Healthy2Go

The 18 month long project- Healthy2Go- was designed by Spread the Health Appalachia (STHA) to increase the availability of healthy products and improve local health literacy. Healthy2Go was one of the seven initiatives of STHA, a comprehensive public health approach to chronic conditions in rural southeastern Kentucky based on the Microclinic International contagious health model and funded by the Centers for Disease Control and Prevention (Ding et al., 2013).

2.2.1. Country store identification and recruitment

All stores located in a food desert or a food poor census tract qualified for the program. Stores were provided information on the program both during initial mNEMS-CS surveying and at local food safety and environmental department meetings. Owners self-selected to participate, committing to meet criteria in each of the three program phases and to participate in technical assistance and training programs. In the end, STHA was capable of supporting any qualifying stores with interest, and 10 stores enrolled in the program.

2.2.2. First store visit

Store owners were provided a Healthy2Go Plan outlining the incremental steps to making inventory changes and maintaining program compliance. They were also given a Healthy Product Menu with suggested inventory improvements. To address store owner education, STHA produced food literacy materials including a food-label reading guide. A thorough inventory was conducted at this and all subsequent store visits.

2.2.3. Second store visit (2 month)

STHA worked with store owners to address any concerns, rearranged store inventory and planned for future store improvements to help promote new healthy products being introduced.

2.2.4. 3rd and 4th store visits (4 and 6 months)

As the project progressed, and the store owners met certain benchmarks, STHA installed numerous point-of-purchase materials to bring attention to the new inventory and address public healthy eating literacy. These materials included shelf strips directing shoppers to healthy options and a cookbook full of easy, cheap, healthy recipes. All included recipes were under $2 per serving, used ingredients widely available at Cumberland Valley country stores, had a preparation time of 30 min or less, and averaged 197 cal, 4.7 g of fat, 8 g of sugar, and 250 mg of sodium per serving.

2.2.5. 5th and 6th store visits (8 and 10 months)

As stores continued expanding their inventories, Healthy2Go hosted promotional events at each store to bring attention to new options and promote community involvement. These events included taste tests with new foods available at the stores. Store owners also received food handling training.

2.2.6. One year follow-up

At one year, limited and varied transformations had occurred across the stores. To complete the process, stores introduced additional display improvements such as basket display and refrigeration units, furthering the promotion of healthy products.

2.3. Data collection

There were four data collection instruments used to assess the impact of the Healthy2Go program: the modified Nutrition Environment Measures Survey-Corner Stores (mNEMS-CS) (Cavanaugh et al., 2013), country store inventory logs, a final storeowner survey and the Community Nutrition Survey (CNS).

2.3.1. Country store surveys

To assess the food environment across the 4 counties, STHA staff members completed baseline mNEMS-CS surveys during July 2013 and final mNEMS-CS surveys in July 2014 (see Appendix for mNEMS-CS Survey). Twenty-seven stores were evaluated at baseline and final and were selected based on convenience sampling. All surveyed stores were located in food desert tracts or surrounding areas, mostly located at least 10 miles from a county seat. Of the 27 stores surveyed in the mNEMS-CS, 10 participated in Healthy2Go. Stores were selected to participate in Healthy2Go based on ownership engagement and stability.

STHA staff tracked inventory in 21 healthy food categories bimonthly at the ten participating stores over a one-year period (see Appendix for Healthy2Go Inventory Tracking). The inventory tracking was a benchmark for program monitoring. In addition, it allowed for a more detailed picture of the types and extent of changes in healthy food categories. The categories were established based on a review of corner store transformation programs nationally and with input from The Food Trust and local nutritionists. Lastly, the 10 participating storeowners were surveyed at the end of the intervention period to gather feedback on the benefits, impact and challenges of Healthy2Go.

2.3.2. Community Nutrition Survey population

Residents were surveyed about their purchasing and eating patterns over a one-month period, with baseline in September 2013 and final in August 2014 (see CNS in Appendix). Convenience sampling was used, surveying community members within 10 miles of participating Healthy2Go stores in the four target counties. Respondents were not surveyed at the same locations at baseline and final, but all locations were within a 10-mile radius of participating stores. STHA staff members stood in high volume parking lots and at local community centers asking all comers if they would complete a survey about eating behaviors. As needed, staff members explained confusing questions and helped respondents with limited literacy skills. The survey locations were selected to sample the population that would be likely to rely on remote country stores for some of their food purchases.