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Marian H. Creasy April 1, 2015

Evaluation of the *Healthy Food, Healthier You* Shelf Labeling Program in an Atlanta Grocery Store

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Evaluation of the *Healthy Food, Healthier You* Shelf Labeling Program in an Atlanta Grocery Store

By

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Bachelor of Science
James Madison University
2011

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An abstract of
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Abstract

Background: Obesity disproportionately impacts low-income, minority communities and the local food environment plays an important role. Since the majority of food purchasing decisions are made in grocery-stores, these settings are optimal for interventions aimed at promoting a healthy diet. The Urban Health Initiative implemented the *Healthy Food, Healthier You* shelf labeling program in an independently-owned grocery-store serving a predominately low-income, African-American community in Atlanta, Georgia.

Objective: This study applied process and outcome evaluation methodology to examine how the *Healthy Food, Healthier You* program was implemented and customers' reactions to and awareness and use of the shelf-labels.

Methods: The evaluation used a cross-sectional, post-implementation, mixed-methods design to assess the program. Customer intercept surveys (N=72) were used to assess program reach, customers' reactions to the shelf-labels, and awareness and use of the shelf-labels. Interviews with store employees (N=6) were used to assess current experiences with the program and gather feedback on program feasibility, acceptability, and sustainability. In-store observations were conducted at two time-points to monitor fidelity and dose of shelf-labels and program materials.

Results: Sixty-seven percent of participants were female, 96% African-American, 58% received nutritional assistance from Supplemental Nutrition Assistance Program (SNAP) or Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and participants had a mean age of 50.2 ± 14.87 SD. Twenty-six percent of participants were aware of the program and of those aware, 68% of participants used the shelf-label. A logistic regression indicated that higher education, considering healthfulness while food shopping, and greater program exposure were significantly associated with program awareness. Older age was significantly associated with shelf-label use. Grocery-store employees reported strong program acceptance, and indicated that this program may be a feasible means of promoting healthy food purchases for customers. Observations indicated that the program was implemented with a high-level of fidelity and reach, and a moderate-level of dose.

Discussion: Results indicate that this intervention may be a viable approach to reduce the complexity of healthy food purchasing. After a period of capacity building and strengthening of current program components, adding a community outreach component and an in-person nutrition education program should be considered.

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Table of Contents

Chapter 1. Introduction

Obesity as a Public Health Problem

Over the past 30 years, United States obesity rates have more than doubled. Recent estimates show that two out of three (69%) adults in the United States are overweight or obese; further, one out of three (36%) adults are obese (Centers for Disease Control and Prevention, 2013a; Flegal, Carroll, Kit, & Ogden, 2012; Trust for America's Health and Robert Wood Johnson Foundation, 2014). Obesity is most commonly defined based on body mass index (BMI) (i.e., body weight in kilograms divided by height in meters squared) (Centers for Disease Control and Prevention, 2012). An adult with a BMI of 30.0 or greater is considered obese, and an adult with a BMI between 25.0 and 29.9 is considered overweight (Wartella, Lichtenstein, & Boon, 2010). Obesity is associated with heart disease, stroke, type II diabetes, hypertension, and a variety of other preventable health complications (Centers for Disease Control and Prevention, 2013a; National Institutes of Health Obesity Expert Panel, 2013; Trust for America's Health and Robert Wood Johnson Foundation, 2011).

The U.S. Department of Health and Human Services (DHHS) developed Healthy People, a health promotion and disease prevention initiative with 10-year national objectives for improving the health of all Americans (U.S. Department of Health and Human Services, 2013). These goals were designed to set health priorities and establish measurable targets and strategies to combat public health problems, such as obesity. Healthy People 2020 currently includes 38 objectives focused on nutrition and weight status (Food and Drug

Administration and National Institutes of Health, 2010). The goals highlight prevention strategies and numerous evidence-based approaches that promote greater access to healthy food, increase monitoring in health care and workplace settings, reduce food insecurity, prevent inappropriate weight gain, and increase the quality of food and nutrition consumption (U.S. Department of Health and Human Services, 2013). Specifically, reducing the prevalence of obesity among adults in the U.S. by 10% is a key national health objective for the Healthy People 2020 agenda (Fryar, Carroll, & Ogden, 2012).

According to the Centers for Disease Control and Prevention (CDC), between 2009 and 2010 there was a slowing or leveling off of the prevalence of obesity among adults; however, obesity continues to take a disproportionate toll on particular communities (Ogden, Carroll, Kit, & Flegal, 2013). Research suggests a strong pattern of obesity among racial/ethnic minority groups, women, and those from lower socioeconomic status backgrounds (Centers for Disease Control and Prevention, 2013a; Clarke, O'Malley, Johnston, & Schulenberg, 2009; Flegal et al., 2012; Ogden et al., 2013; Paeratakul, Lovejoy, Ryan, & Bray, 2002). Overall, prevalence of obesity is highest among women (36.1%), adults ages 40 to 59 (39.5%), and African-Americans (47.8%) (Ogden et al., 2013).

While obesity is a national epidemic, with prevalence ranging by state from 20% to 35%, many Southern states fall among those with the highest occurrence of obesity (Centers for Disease Control and Prevention, 2013a; Trust for America's Health and Robert Wood Johnson Foundation, 2014). In Georgia,

adult obesity rates have steadily risen since 1990 and currently rest as the 18th highest in the nation (Trust for America's Health and Robert Wood Johnson Foundation, 2014; University of Georgia, 2014).

Problem Definition

Aside from direct negative health consequences, the obesity epidemic has a substantial economic impact on direct medical costs, transportation costs, productivity costs, and human capital costs. In recent cost-analysis studies, obesity-related economic costs total more than $215 billion dollars each year in the United States. The average annual health care cost for an obese adult may be $1,400 higher compared to costs for an adult of healthy weight (Hammond & Levine, 2010; University of Georgia, 2014).

While the prevalence of obesity is well documented, the determinants of the epidemic are more complex. Considerable research has established the integral role nutrition plays in preventing overweight and obesity. Diets consistently high in fat, added sugars, and sodium, while low in fruits, vegetables, and fiber are considered an important behavioral risk factor for obesity (Center for Nutrition Policy and Promotion, 2013). Fruits and vegetables are of particular importance; since most are high in water and fiber, they have a low energy density, and thus help reduce the total energy intake (He et al., 2004; Rolls, Ello-Martin, & Carlton Tohill, 2004). Nevertheless, only 11% of adults consistently consume the USDA-recommended minimum of five servings of fruits and vegetables a day (Guenther, Dodd, Reedy, & Krebs-Smith, 2006). Even more alarming, African-Americans are less likely to consume the recommended daily amounts compared to whites or

the population overall (Guenther et al., 2006). The U.S. Department of Agriculture's Healthy Eating Index (HEI), a national measure of dietary quality, confirms similar findings. According to the HEI conducted in 2000, most Americans have below-adequate scores, meaning that their diet does not meet nutrition recommendations (Center for Nutrition Policy and Promotion, 2013). James (2004) found that African-Americans had a disproportionately low HEI score: twenty-eight percent of African-Americans consumed an inadequate diet compared to 16% of whites and 14% of other racial/ethnic groups.

To understand nutrition environments, the Social Ecological Model (SEM) frequently helps frame key environmental factors that influence food choices. SEM emphasizes that individual outcomes, such as obesity, are not solely determined by individual-level factors but by interactions between and within social, cultural, economic and environmental contexts (National Cancer Institute, 2005; Ohri-Vachaspati et al., 2014). Levels of influence include: (1) intrapersonal or individual factors; (2) interpersonal or relationship factors; (3) institutional or organizational factors; (4) community factors; and (5) society or public policy factors. Each level of influence can impact health behavior (Bronfenbrenner, 1977). Identifying factors within layers of SEM can help illustrate the effects each factor has on food choices.

Individual-level factors related to food choices include: thoughts, behaviors, and biological and demographic factors. A particular approach to addressing individual-level factors may include a nutrition education program that is designed to change attitudes, beliefs, and behaviors (National Cancer Institute, 2005; Ohri-Vachaspati et al., 2014; Story, Kaphingst, Robinson-O'Brien, & Glanz, 2008).

Interpersonal-level factors that may impact food choices include interactions with family members, friends, peers, and other community members. Role modeling and social support are examples of strategies used to promote healthy food decisions (Story et al., 2008). At the institutional-level, settings such as schools, workplaces, and neighborhoods, are viewed as influential food environments in which to reinforce positive behavior (National Cancer Institute, 2005). Community-level factors may facilitate or hinder healthy eating; for instance, living in a food desert is an example of a community-level factor that may directly or indirectly impact eating behaviors (Morland, Diez Roux, & Wing, 2006). Societal-level factors influence individuals on a broad scale. For example, the Supplemental Nutrition Assistance Program (SNAP) is a case of a social policy designed to support low-income families and encourage healthy eating behaviors (James, 2004; Townsend, 2006). Food choices may be influenced by a combination of levels and elements within the same SEM layer (Ohri-Vachaspati et al., 2014; Story et al., 2008).

Limited research has been conducted to determine which facets of the food environment are most influential and also the most feasible to incorporate into health promotion programs (Story et al., 2008). However, there is increasing evidence that health programs are more effective when multiple levels of influence are considered (National Cancer Institute, 2005).

Justification of the Problem

Residents of low-income communities often have limited access to fresh and healthy foods. Further, the lack of exposure to healthy foods and prior nutrition knowledge present barriers to making health-promoting food choices (Cassady, Jetter, & Culp, 2007; Dammann & Smith, 2011; Eikenberry & Smith, 2004; Rustad & Smith, 2013). To effectively counteract obesity and improve health equity, multi-level interventions that create supportive food environments are critical (Glanz, Bader, & Iyer, 2012; Gustafson, Hankins, & Jilcott, 2012; Story et al., 2008; U.S. Office of the Surgeon General, 2001). Since individuals make the majority of food purchasing decisions in grocery stores, these settings are optimal for interventions aimed at promoting healthy food decisions (Escaron, Meinen, Nitzke, & Martinez-Donate, 2013).

In light of this, researchers have implemented various point-of-purchase nutrition interventions in grocery store settings. These point-of-purchase interventions include shelf labels and other educational materials and are designed to help consumers distinguish between healthy and unhealthy products (Feunekes, Gortemaker, Willems, Lion, & van den Kommer, 2008; Story et al., 2008).

Key Stakeholders for the Current Evaluation

Urban Health Initiative – Launched in 2011, Emory University's Urban Health Initiative (UHI) is an interdisciplinary non-profit organization with the mission to improve overall health and decrease disparities among diverse and underserved populations in Atlanta, Georgia (Urban Health Initiative, 2014). The Urban Health Initiative was developed as a focal point for diverse partnerships

around important urban health issues. Joining research, community-engaged learning, training of health professionals, and community programs, the Urban Health Initiative is immersed in a number of projects in the Atlanta area. Current efforts revolve around food access and security, obesity and overweight, access to health and wellness screenings and resources, pre-term birth, transportation, and tobacco-use prevention. Three key individuals lead the Urban Health Initiative: Co-Directors, Drs. Jada Bussey-Jones, MD, FACP and Charles Moore, MD, and Associate Director Carolyn Aidman, Ph.D. The Urban Health Initiative is guided by an advisory board composed of physicians and Emory University faculty who are experts in a variety of fields including behavioral sciences, urban public policy, HIV/AIDS, and neonatal healthcare. A volunteer-supported organization, Urban Health Initiative's growth relies on the energy, passion, and dedication of students, community volunteers, and local leaders. Currently, there are approximately 180 active volunteers.

Super Giant Food – One of Urban Health Initiative's strong community partnerships is with Super Giant Food, a grocery store located in Northwest Atlanta. The current owner of Super Giant Food has been an Urban Health Initiative partner since 2012 and has been instrumental in the success of the existing Super Giant Food Community Garden project and subsequently the *Healthy Food, Healthier You* program; the latter is the focus of the current evaluation. Super Giant Food serves about 510 customers each day and continues to be a valuable resource for the community. As of March 2015, the store owner is currently renovating the store in order to provide a more welcoming environment for customers to shop for their groceries. This renovation will increase store

capacity and extend the reach of the *Healthy Food, Healthier You* store-based nutrition program. The partnership between the Urban Health Initiative and Super Giant Food is unique, providing future opportunities and access to a direct supply chain and support of community nutrition education.

Open Hand – For over twenty-five years, Open Hand has addressed chronic disease using prevention-focused nutrition services in the Atlanta community (Open Hand, 2014). Open Hand is a non-profit organization that offers comprehensive nutrition care, which includes nutrition education with a community and public health focus. Open Hand's registered dieticians and dietetic interns were selected to provide nutritional expertise to help the Urban Health Initiative develop and implement the *Healthy Food, Healthier You* program. These collaborative efforts have facilitated positive relationships within the Northwest Atlanta community.

Georgia Food Oasis – Since Spring 2013, Food Oasis has been committed to bringing local organizations together that are working towards the common goal of developing innovative, affordable ways to encourage communities to make smart food decisions, consume healthy foods, and improve overall health. Food Oasis has helped the Urban Health Initiative and the *Healthy Food, Healthier You* Program to identify local partnerships and promote current program efforts.

Description of the *Healthy Food, Healthier You* Program

The Urban Health Initiative designed the *Healthy Food, Healthier You* program to be theoretically grounded in the Social Ecological Model, which considers the dynamic interaction between individual, relationship, institutional,

community, and societal factors (Bronfenbrenner, 1977). Individual, institutional, and community-level factors were of particular interest to the program. Additionally, the Urban Health Initiative developed and implemented the *Healthy Food, Healthier You* program using many of the principles outlined in community-based participatory research (CBPR) (Israel, Schulz, Parker, & Becker, 2001). The project team brought the store owner and community members together to discuss an in-store nutrition program plan. CBPR principles used in these processes included: building on preexisting strengths and resources within the community; facilitating collaborative partnerships in all phases of the research; integrating knowledge and action for mutual benefit of all partners; promoting co-learning; and involving a cyclical and iterative process (Israel et al., 2001). Using community members' knowledge of the neighborhood helped the Urban Health Initiative to understand the most pressing health problems and needs. From these discussions, the mission of the program was developed: The *Healthy Food, Healthier You* program aims to equip Super Giant Food shoppers with the necessary tools, skills, and knowledge for making healthful food purchasing decisions for lifelong health.

The Urban Health Initiative began by identifying a store for the nutrition program. As one of only two grocery stores in Northwest Atlanta, the Super Giant Food had a particularly interested store owner and was also uniquely situated as the current site of a community garden (Austin, Dijkerman, Hartrampf, Thummalapally, & Tran, 2012). Given the demonstrated need in the community, the Super Giant Food grocery store on Donald Lee Hollowell Parkway in Atlanta, Georgia was selected as the site of the shelf labeling program (Austin et al., 2012;

U.S. Department of Agriculture - Economic Research Service, 2013). The site of the shelf labeling program is unique because the Urban Health Initiative is currently laying the groundwork for this store to become a "Healthy Hub." In addition to in-store nutrition promotion such as this shelf labeling program, the Healthy Hub will include an on-site community garden, laundromat, health clinic, community kitchen, and transportation arrangements for community residents.

In July 2014, Urban Health Initiative volunteers conducted preliminary assessments of the store environment. The volunteers photographed the store interior and exterior, inventoried produce and other healthy food items, and assessed store architecture. Brief customer intercept surveys were also conducted to gauge interest in new healthy food products and healthy food promotion activities. Using this information, the mission statement, and direct input from the store owner, the plan for a nutrition program was developed. The program operationalized various strategies including point-of-purchase strategies, such as shelf labels, related educational signage, and food demonstrations, and promotional strategies such as store tours and community outreach. After consulting the literature, the Urban Health Initiative volunteers determined that no existing store shelf labeling mechanisms suited the needs of the independent, medium-sized Super Giant Food store.

Between July and September 2014, Urban Health Initiative volunteers conducted formative research to inform the shelf label messages and graphic development. After a brainstorming session with the store owner, the team agreed that the health promotion message would focus on consumer empowerment and how to make healthy food choices more desirable. Volunteers

created numerous ideas for graphics and messaging ideas, including: “Healthy and Affordable,” “Shop Healthy Atlanta,” “My Choice, My Health,” and “Healthy Food, Healthier You.” A graphic designer developed numerous test images based upon these suggestions. Both messaging and graphics were intended to be relatable, intuitively health-related, and to establish credibility. Since both Urban Health Initiative and Food Oasis were key stakeholders in this nutrition program and also well known in the community, the organizations were given joint-recognition on the label. Urban Health Initiative volunteers conducted in-store surveys with customers and store employees to test key messages and graphics. At the request of the store owner, the shelf label format and size mimicked sale labels currently used in the store. The message and graphic most preferred was placed into a rectangular format as shown in Appendix A; additionally, a photograph of the shelf label on the store shelf is in Appendix B.

The shelf label design is grounded in consistent scientific and observational evidence that suggest a simple label will help consumers make quick, informed decisions about the relative healthfulness of their food choices, while complementing the back-of-pack Nutrition Facts panel. Urban Health Initiative volunteers and community nutritionists from Open Hand selected the foods for promotion. The team assembled a list of food items sold at the Super Giant Food store and assessed each food item using a two-step process. First, each item was scanned using the Fooducate cell-phone application. Fooducate assigned the item a letter grade on a scale of A to D. This scale was developed based on an algorithm that assesses the food based on nutrients, ingredients, product category, processing, and fortification (Fooducate, 2014). All foods

included in the next stage of nutritional assessment had a rating of a "B" or above. The purpose of using Fooducate was to eliminate the unhealthy food items prior to in-depth nutrition analysis. In the second phase of the process, Open Hand dietetic interns developed *Healthy Food, Healthier You Shelf Label* Guidelines (Appendix C) and assessed each food item to ensure accordance with the USDA dietary recommendations. According to the nutritionists' recommendations, 225 food items were selected for promotion with a shelf label. Categories of foods on the list included: salad dressings, peanut butter, rice, dried beans, canned vegetables, canned soups, canned fruit, dried fruit, snack nuts, baking nuts, canned milk, canned meats, bread, cereal (hot and cold), dairy products, meat, frozen vegetables, frozen fruit, frozen meats, and frozen bread. The Healthy Food to Label List was later expanded to include 323 food items.

Produce was not highlighted in the shelf labeling program for three primary reasons: (1) access to a variety of produce was not identified as a significant concern by customers during formative research; (2) all fruits and vegetables would have met the criteria to receive a label, so a label to assist with nutritional comparison decisions would have been less relevant; (3) fruit and vegetable consumption was already being promoted by the on-site community garden project.

On October 4, 2014, a team comprised of Urban Health Initiative volunteers, community members, an Open Hand dietetic intern and nutritionist, and a Super Giant Food employee who manages the regular store labeling, joined together to place 225 *Healthy Food, Healthier You* labels on the shelves, directly below where the food items were located. Approximately seven weeks later on

November 20, 2014, Healthy Food to Label List was expanded to 323 food items, and new larger labels were placed on the shelves by a smaller, similarly experienced volunteer team. Signage describing the *Healthy Food, Healthier You* program was given to the store owner to place throughout the store. A total of 12 posters were provided: six to position in the front windows and six to hang from the ceiling above the aisles. Examples of the posters are in Appendix D. Additionally, shelf talkers were designed to hang over the side of the shelf and to educate customers when making purchases. Thirty shelf talkers were placed along the shelves of the following items: beverages (water and milk), grain products (bread, rice, and pasta), canned foods (vegetables, beans, and fruit), and spices. An example of a shelf talker is in Appendix E and a photograph of the shelf talker on the store shelf is in Appendix F. Flyers with similar messaging were also distributed to customers by cashiers, as shown in Appendix G.

In addition to shelf labeling and in-store promotional signage, two nutrition-focused events were held on October 25, 2014 and December 13, 2014. Local chefs familiar with the community conducted food demonstrations, seasonally-appropriate activities centered on children and families took place in the adjacent community garden, and a community nutritionist led store tours. The use of shelf labels to guide purchasing decisions was emphasized during the food demonstrations and the educational store tours. Although the project team expressed intent to establish a regular food demonstration schedule, as of March 2015 there are no additional events planned.

Program Logic Model

The lead evaluator developed a detailed program logic model to inform evaluation objectives and data collection activities of the *Healthy Food, Healthier You* program, as shown in Figure 1 below.

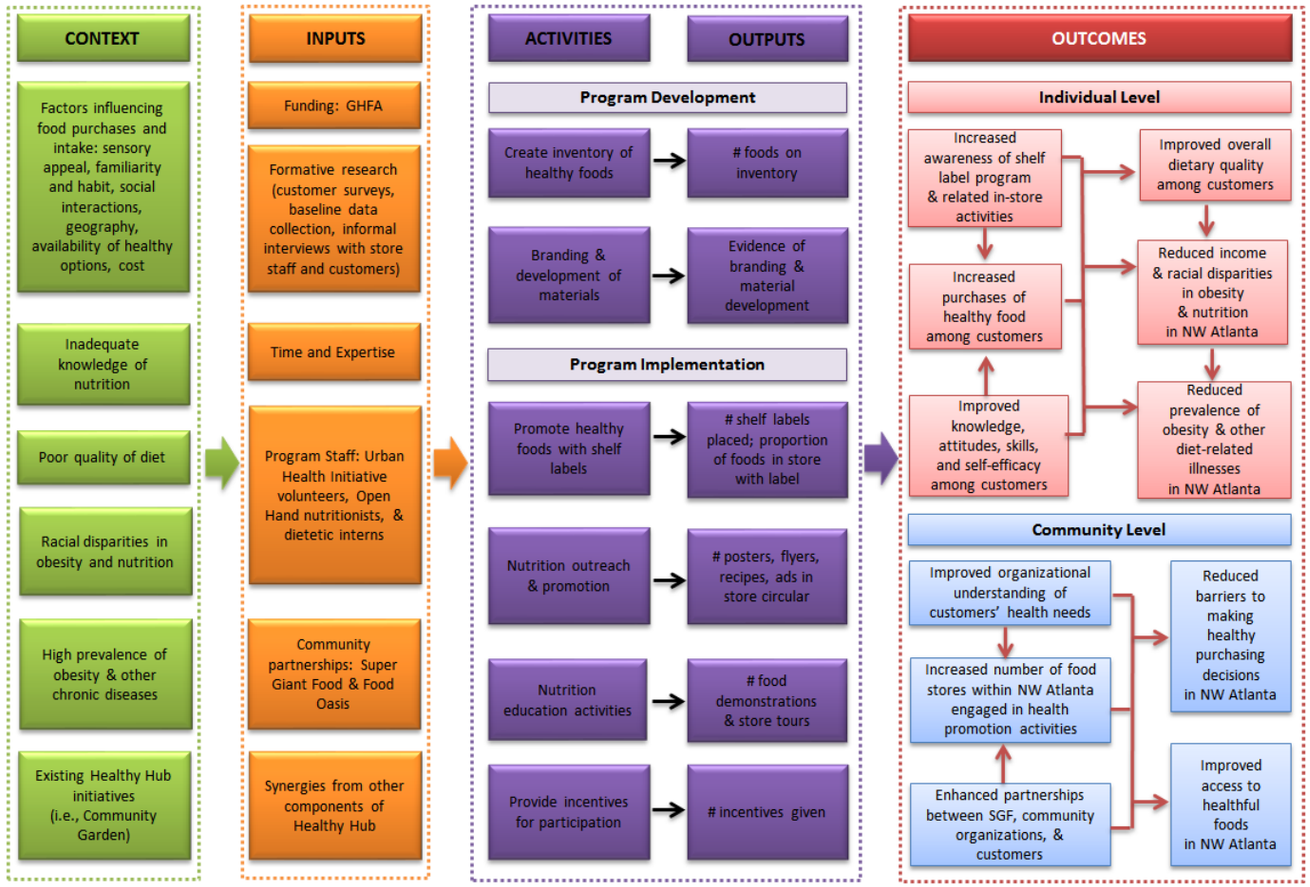

Figure 1. *Healthy Food, Healthier You* logic model

Components of the logic model include context, inputs, activities, and outputs, further explained as follows:

Context

The first section of the *Healthy Food, Healthier You* logic model describes the broad environmental context in which the program operates. Within Northwest Atlanta, the neighborhood in which Super Giant Food is located, there are large areas of low-income census tracts where residents have limited access to healthy food. There are only two grocery stores in this community and the majority of food sources are corner stores, liquor stores, and quick marts; consequently, Northwest Atlanta is considered a food desert (U.S. Department of Agriculture, 2014) . The five census tracts immediately surrounding the grocery store have a predominately Black/African-American population (92%) and nearly half (45.6%) of individuals living in this area fall below the poverty line (Austin et al., 2012; U.S. Census Bureau, 2010). The median income ranged from $18,364 to $24,255, less than half the county or state average (Austin et al., 2012; U.S. Census Bureau, 2010). While 20% of individuals living in the 30318 zip code reportedly received SNAP benefits in 2012, the grocery store owner noted that 70% of the store's customers use SNAP to purchase groceries (U.S. Census Bureau, 2010).

Findings from a nationwide study show that people living in the lowest-ranked food environments are less likely to consume a healthy diet than those in the best-ranked food environments (Moore, Diez Roux, Nettleton, & Jacobs, 2008). Similarly, studies by Wen and Kowaleski-Jones (2012) and Lovasi, Hutson, Guerra, and Neckerman (2009) established that the neighborhood built environment is significantly correlated with risk of obesity. Poor nutritional

knowledge and eating behaviors are often coupled with financial and geographic barriers to accessing healthful foods and making health-promoting food choices when shoppers are presented with both healthy and unhealthy food choices (Cassady et al., 2007; Dammann & Smith, 2011; Eikenberry & Smith, 2004; Rustad & Smith, 2013). Other influential contextual factors that influence food decisions may also include sensory appeal, familiarity and habit, and social interactions around food (Henry, Reimer, Smith, & Reicks, 2006). A 2012 Community Needs Assessment conducted by the Emory University Urban Health Initiative demonstrated that residents in this community recognized the need to reduce barriers to access to healthy foods in order to improve obesity-related health outcomes (Austin et al., 2012). In an effort to counteract obesity and improve health equity among area residents, interventions that enhance food environments are critical.

Inputs

This portion of the logic model describes the resources used to support *Healthy Food, Healthier You* program operations. The program was funded by the Georgia Healthy Family Alliance, a charitable public foundation in Georgia that leads giving programs for the Georgia Academy of Family Physicians; the Georgia Healthy Family Alliance funds educational and outreach programs that promote healthy lifestyles consistent with the principles of family medicine. The project team was composed of Urban Health Initiative volunteers and Open Hand nutritionists. Urban Health Initiative developed the program in partnership with Super Giant Food and Food Oasis. The program design utilized formative research and capitalized on current on Healthy Hub activities, such as the community garden

and the store owner's plans for renovation. The program was delivered to customers via point-of-purchase at the Super Giant Food grocery store. Using an already-existing mechanism (i.e., grocery store) for delivery increases the feasibility of providing continued nutrition education to customers (Gittelsohn, Song, et al., 2010; Story et al., 2008).

Activities

Resources described above are used to implement specific program activities. With assistance from community nutritionists, the Urban Health Initiative project team compiled an inventory of foods sold in the store and determined which foods should be included on the Healthy Food to Label List. With the help of community volunteers, the project team placed shelf labels under the foods listed on the Healthy Food to Label List. Store employees were also included in this labeling process. Urban Health Initiative volunteers conducted nutrition outreach, promotion, and educational activities to highlight shelf labels. Volunteers gave the store owner nutritional signage to place in the store and organized store tours and food demonstrations. Incentives (i.e., re-useable grocery bags and small kitchen items such as measuring cups and measuring spoons) were provided to customers who participated in store tours.

Outputs

Each program activity is directly linked to one or more observable results, also known as outputs. For example, the project team promoted the selected healthy foods in the store by placing shelf labels under the appropriate items. Outputs were measured by the number of shelf labels, shelf talkers, and posters placed in the store. The Urban Health Initiative project team also conducted

nutrition outreach and promotion in the store and measured the number of flyers distributed.

Outcomes

The final column of the logic model describes the outcomes that the inputs, activities, and outputs are collectively intended to achieve. This evaluation focused on inputs, activities, outputs, and short-term outcomes. Future outcome evaluations may assess the overall effectiveness of the program in achieving the intermediate or long-term outcomes. The *Healthy Food, Healthier You* program has short-term, intermediate, and long-term outcome objectives, at the individual and community level.

Individual level—In the short term, the Urban Health Initiative program is intended to increase awareness of the *Healthy Food, Healthier You* shelf label program and related in-store activities, increase knowledge and improve attitudes towards healthy foods, and improve the skills and self-efficacy of customers to make healthy purchasing decisions. Following these initial outcomes, research suggests that nutritional knowledge is a major factor in promoting more permanent behavior changes. Examples of these behavior changes include increasing purchases of healthy food and improving overall dietary quality, and the ultimate goal of reducing the prevalence of obesity and other diet-related illnesses and health inequities (Cummins, Flint, & Matthews, 2014; Escaron et al., 2013; Foster et al., 2014; Ransley et al., 2003; Rustad & Smith, 2013). The literature review in Chapter 2 provides an in-depth discussion on the relationship between nutritional knowledge and food purchasing behavior.

Community and Organizational level –In the short term, the program is intended to improve organizational understanding of customers' health needs and enhance partnerships between Super Giant Food, community organizations, and store customers. Intermediate outcomes include increasing the number of food stores within Northwest Atlanta that are engaged in in-store health-promotion activities, thereby reducing barriers to making healthy purchasing decisions. In the longer term, this program is expected to improve overall access to healthful foods for community residents (Bodor, Rose, Farley, Swalm, & Scott, 2008; Escaron et al., 2013; Gittelsohn et al., 2006; Laraia, Siega-Riz, Kaufman, & Jones, 2004; Michimi & Wimberly, 2010; Morland et al., 2006). The literature review in Chapter 2 provides additional discussions on how organizational improvements have increased access to healthy foods, and how access is related to intake.

Evaluation Purpose and Questions

Program evaluation is an essential part of public health practice. Public health programs are often designed to address large problems, which require complex changes in community-wide attitudes and behaviors. Program evaluations document progress on program goals and monitor strategies in order to establish their effectiveness in promoting the health behavior or outcome (Centers for Disease Control and Prevention, 1999).

The *Healthy Food, Healthier You* nutrition program was created to empower and improve nutrition outcomes among residents of Northwest Atlanta. In recognition of the importance of evaluation in fulfilling their mission to, "improve the health of and decrease disparities among diverse and underserved

populations in Atlanta," the Urban Health Initiative prioritized the task of evaluating the *Healthy Food, Healthier You* in the very early stages of program implementation. The Urban Health Initiative is interested in monitoring the operations of the ongoing program. By measuring the delivery of the program, the evaluation will identify early problems and facilitators in reaching the target population. Additionally, the Urban Health Initiative would like to examine the degree to which the program is moving toward achieving its intermediate goals to increase the likelihood in achieving long-term outcomes.

The questions below represent the Urban Health Initiative's priorities for the evaluation and served as a framework for the analysis of the *Healthy Food, Healthier You* program's process and outcomes.

Process evaluation questions addressed:

1. Was the *Healthy Food, Healthier You* program implemented with high fidelity, reach, and dose?
2. Is the *Healthy Food, Healthier You* program an acceptable, feasible, and sustainable model for this context?
3. What external factors facilitated or inhibited *Healthy Food, Healthier You* program implementation?

Outcome evaluation questions addressed:

4. What are the customers' reactions to the *Healthy Food, Healthier You* shelf labels?
5. What factors are associated with customer awareness and use of the *Healthy Food, Healthier You* shelf labels?

The objective of this study was to conduct a process and outcome evaluation of the *Healthy Food, Healthier You* nutrition program in the Super Giant Food in Northwest Atlanta in order to identify program strengths, weaknesses, and areas for improvement. Findings from this evaluation will be used to make specific recommendations for how to improve on the existing program model in order to enhance customers' nutrition-related behaviors. Results will also be used to propose how additional nutrition promotion activities could be used in the store to reach nutritional objectives. Further, study findings will be used to inform other food stores within the Northwest Atlanta community wishing to implement similar in-store nutrition promotion programs.

Chapter 2. Review of the Literature

This literature review will outline past research on grocery store-based nutrition interventions to create eating behavior change among vulnerable populations, with particular focus on shelf labeling program evaluations in low-income and minority communities.

Importance of the Food Environment

Over the past few decades, supporting nutrition behaviors by improving the food environment has become of increased interest to researchers, policymakers, and consumers. In a nationwide survey of adults in the United States, Americans supported policy changes intended to increase access to fruits and vegetables in food deserts (Foltz, Harris, & Blanck, 2012). Food deserts, characterized by areas with low or no access to affordable fruits, vegetables, and whole grains, low-fat milk, and other foods that form a healthy diet, are often found in impoverished neighborhoods (American Nutrition Association, 2011; Michimi & Wimberly, 2010; Story et al., 2008). Several studies have explored how proximity to food stores plays a role in dietary intake and risk for obesity (Bodor et al., 2008; Laraia et al., 2004; Michimi & Wimberly, 2010; Morland et al., 2006). For example, Morland et al. (2006) found that the presence of supermarkets, which tend to have a wider variety of healthy foods, was associated with a decreased prevalence of obesity and overweight. Further, neighborhoods with access only to smaller grocery stores or convenience stores had the greatest increase in prevalence of obesity.

In two separate studies, fruit and vegetable consumption was significantly higher among residents who lived near a food store, particularly among low-income

African-American residents with limited access to transportation (Bodor et al., 2008; Morland et al., 2006). In addition, Laraia et al. (2004) examined proximity to supermarkets and eating behaviors among pregnant women; pregnant women who lived closer distances (i.e., less than four miles) to a supermarket were more likely to maintain a nutritionally adequate diet, than women who lived farther distances. While researchers recognize the importance of access, it has been suggested that simply the presence of a neighborhood food store may not be sufficient to promote healthy eating. In a recent pilot study conducted to measure the impact of improving access by opening a new food store in a Philadelphia food desert, Cummins et al. (2014) measured BMI, daily fruit and vegetable intake, and perceptions of food accessibility. Researchers found that while improving physical access to this food store did lead to moderate increases in perceptions of availability, it did not result in changes in self-reported fruit and vegetable intake or BMI between the baseline and 6-month follow-up period. In the absence of other nutrition-promotion initiatives, the influence of interventions to improve the structural food environment remains unclear. Researchers have suggested that complementary in-store nutrition interventions may be promising strategies to move shoppers from perceptions of increased accessibility to healthy food purchasing behaviors (Cummins et al., 2014; Escaron et al., 2013; Foster et al., 2014).

Rationale for Interventions in Food Stores

Food stores are optimal settings for interventions aimed at promoting healthy food decisions (Escaron et al., 2013). Despite increased fast-food consumption in recent years, Americans purchase between 65% and 75% of their

food from food stores (Guthrie, Franzo, Andrews, & Smallwood, 2007; Milliron, Woolf, & Appelhans, 2012). In 2013, customers averaged 1.6 trips per week to the supermarket (Escaron et al., 2013; Food Marketing Institute, 2013). Food purchasing behaviors are strongly linked to dietary intake and obesity. Milliron et al. (2012) found that greater purchases of food with higher daily energy and fat for each member of the household were associated with higher aggregate BMI for the household. Similarly, Ransley et al. (2003) found significant differences in supermarket purchases between obese or overweight individuals and healthy weight individuals; overweight and obese households purchased more energy and fat per adult. Further, household purchasing behavior was associated with prevalence of obesity in the home.

Interventions in Food Stores to Improve Eating Behaviors

Intervention strategies in food stores typically fall into four main categories: (1) increased availability of healthy foods; (2) pricing manipulation; (3) promotion and advertising; and (4) point-of-purchase information (Glanz & Yaroch, 2004).

Store-based Intervention Strategy: Increased Availability of Healthy Foods

In-store stocking of healthy foods is an important determinant of an individual's dietary intake, particularly in urban neighborhoods with smaller food stores. Caldwell, Miller Kobayashi, DuBow, and Wytinck (2009) found that fruit and vegetable consumption was higher when these products were perceived to be more available in neighborhood food stores. The researchers also measured community factors of availability such as the total square meters, total number of

produce varieties, produce freshness, availability of organic produce, minimum price, and number of stores in the community. Improving availability of healthy foods tends to be one of the primary goals of corner store interventions and programs that take place in smaller food stores. Two programs focused on in-store stocking of healthy foods are Baltimore Healthy Stores (BHS), a supermarket and corner store-based nutrition program in Baltimore City, Maryland, and the Healthy Corner Store (FIT Store) program in Michigan (Paek et al., 2014; Song et al., 2009). The BHS and FIT Store programs both found that expanding access to healthy foods had an impact on behavior; Paek et al. (2014) found increases in consumption for certain foods, including whole grain bread, beans, and nuts and Song et al. (2009) reported increases in sales of promoted food (i.e., cooking spray, whole wheat breads, 100% fruit juices, low-sugar cereals, baked/low-fat chips, and low-salt crackers). In these programs as well as other similar programs focused on increased availability of healthy foods, researchers worked with stores to stock and promote particular food items (Curran et al., 2005; Gittelsohn et al., 2006; Gittelsohn, Rowan, & Gadhoke, 2012; Song et al., 2009).

Store-based Intervention Strategy: Pricing Manipulation

Many Americans' intakes, particularly those with lower incomes, fall short of USDA recommendations for fruit and vegetable consumption (Guenther et al., 2006; Jaskiewicz et al., 2013). Consequently, increased attention has been given to economic incentives, another strategy used to modify purchasing behavior and promote healthy eating. In the United States, eligible persons can receive financial assistance to purchase foods in the form of SNAP and WIC benefits. The Supplemental Nutrition Assistance Program (SNAP), formerly known as the

Food Stamp Program, was first implemented in 1969 as a domestic hunger safety net (SNAP to Health, 2014). The federally-funded, state-administered program provides food assistance to the most vulnerable families. Nearly 83% of households receiving SNAP have incomes at or below the federal poverty line (i.e., $20,090 for a family of three in 2015) and the average monthly stipend for SNAP households is $744 (Feeding America, 2014). Similarly, the Supplemental Nutrition Program for Women, Infants, and Children (WIC) is a federal assistance program to assist low-income pregnant women, women who are breastfeeding, and infants and children under the age of five (U.S. Department of Agriculture - Food and Nutrition Service, 2014).

While these programs partially address affordability of food, it has been found that SNAP recipients often turn to foods that are higher in calories and have a bigger "bang-for-the-buck," such as refined grains and other less healthy options (Mukherjee, 2013). A recent study found that SNAP participants' diets had significantly less fruits, vegetables and whole grains, and more refined grains (i.e., more processed and stripped of original healthful properties) that can serve as risk factors for chronic disease, such as diabetes and obesity (Leung et al., 2014). As a result, experts have proposed the need for additional financial assistance to incentivize healthy foods (Guthrie et al., 2007).

Nutrition promotion programs with pricing interventions offer discount coupons or vouchers to promote healthy items (Glanz & Yaroch, 2004). Price discounts ranged from 10% to 50%, and the majority of studies found significant evidence that subsidies significantly increased purchase and consumption of promoted food items (An, 2013). Huang and Lin (2000) found that low-income

households were especially responsive to price changes in dairy products, fruits, and vegetables. Further, while many nutrition education programs must be tailored to different social groups to achieve positive outcomes, structural price interventions tend to be similarly effective across ethnic groups (Blakely et al., 2011).

Many of the pricing interventions in the United States occur in environments such as farmers markets, schools, and worksites. Few pricing interventions have been implemented in United States supermarkets. Herman, Harrison, Afifi, and Jenks (2008) suggest that the limited research on pricing interventions is due to the high implementation cost. Additionally, Geliebter et al. (2013) measured the effect of pricing discounts in U.S. supermarkets and found that 50% discounts on low-energy-dense fruits and vegetables, bottled water, and diet sodas led to an increased purchasing and consumption of those foods. In addition, participants in this New York City price discount intervention showed significant decreases in body weight. Similar positive results were found in a study conducted by Herman, Harrison, and Jenks (2006) in Los Angeles, California. WIC recipients were provided vouchers for fresh fruit and vegetables that could be redeemed at either supermarkets or farmers markets. With the $40/month vouchers, participants reported purchasing a wide variety of fruits and vegetables. In an extension of this study, participants receiving the vouchers demonstrated a sustained increase in fruit and vegetable consumption; intake was significantly higher compared to those in the control group (Herman et al., 2008).

Other supermarket pricing intervention studies have also been conducted outside the United States. In a supermarket pricing and education intervention in

New Zealand, Mhurchu, Blakely, Jiang, Eyles, and Rodgers (2010) found that price discounts were effective in increasing healthier food purchases; during the intervention purchases rose by 11% and after the intervention purchases sustained a 5% increase. In a randomized controlled trial in France, Bihan et al. (2012) found that supermarket fruit and vegetable vouchers were effective in increasing consumption, although results were comparable to nutrition education interventions. In general, price interventions were associated with low to moderate increases in purchases and consumption of healthier foods. When interventions combined pricing strategies with other approaches such as point-of-purchase and promotion and advertising, interventions were much more effective (Escaron et al., 2013).

Store-based Intervention Strategy: Promotion and Advertising

Food store interventions that utilize promotion and advertising strategies such as paid television, radio, and newspaper advertising combined with media relations are viewed as effective in influencing behavior change. Snyder (2007) discovered that when the target audience is repeatedly exposed to the campaign message, these strategies have been found to have a significant impact on behavior. This study also established that on average, health communication campaigns incorporating mass-media components have an average effect size of approximately five percentage points. Fruit and vegetable campaigns were particularly successful, having an average effect size of eight percentage points; this allows researchers to predict that a given fruit and vegetable nutrition campaign will propel behavior change among an additional 8% of people, compared to before the campaign (Snyder, 2007).

Today, store-based nutrition interventions routinely incorporate mass-media messages into programming (Curran et al., 2005; Ernst et al., 1986; Foster et al., 2014; Gittelsohn et al., 2006; Gittelsohn, Kim, He, & Pardilla, 2013). Food for Health: The Carbohydrate Connection was one of the first published supermarket nutrition education programs that utilized both in-store point-of-purchase and mass-media approaches to influence consumers. Through the use of nutrition fact sheets, recipe cards, and product displays, all of which that were coordinated with newspaper and radio messages, this program showed short-term increases in nutrition knowledge and purchases of healthy foods (Olson, Bisogni, & Thonney, 1982).

Booth-Butterfield and Reger (2004) and Wootan, Reger-Nash, Booth-Butterfield, and Cooper (2005) developed another more recent study to evaluate a nutrition campaign that promoted low-fat milk consumption. Health messages were communicated through paid advertising, public relations activities, and community-based education programs: newspaper, radio, and television advertisements, press conferences, and in-store campaigns. The 1% Or Less media campaign generated increased sales of targeted items, validating the effectiveness of population-based campaigns to encourage healthy eating behaviors. Rarely implemented alone, promotion and advertising strategies are very compatible and successful when they accompany point-of-purchase interventions (Escaron et al., 2013).

Store-based Intervention Strategy: Point-of-purchase

The ability to differentiate the healthy products from the unhealthy is necessary for consumers to be able to make informed purchasing decisions. In order to make the environments more conducive to healthy decision-making, researchers have implemented various point-of-purchase nutrition interventions. One of the most well-known examples of using product health information to help consumers is the back-of-pack nutrition label. In response to growing national concerns about obesity and chronic disease, Congress passed the 1990 Nutrition Labeling and Education Act, which standardized the food label with the intention to help the consumer select healthy foods as outlined by U.S. Department of Agriculture's Dietary Guidelines (Ollberding, Wolf, & Contento, 2010; Wartella et al., 2010). Today, the Food and Drug Administration (FDA) continues to require all packaged food items to provide nutrition information on the Nutrition Facts Panel, typically located on the back or side of the food package (Center for Food Safety and Applied Nutrition, 1994; Hersey, Wohlgenant, Arsenault, Kosa, & Muth, 2013). This Nutrition Facts panel includes serving size information, calorie information, total fat, saturated fat, cholesterol, sodium, carbohydrates, dietary fiber, sugar, protein, nutrient information, and the percent daily value for nutrients (Center for Food Safety and Applied Nutrition, 1994; Ollberding et al., 2010).

According to the U.S. Department of Agriculture's Dietary Guidelines for Americans, individuals are encouraged to purchase foods that are low in total fat, saturated fat, and cholesterol; choose beverages and snacks low in sugar; prepare foods with less added salt; and eat a variety of fruits and vegetables each day

(Wartella et al., 2010). Understanding nutrition labels is a fundamental element of an individual's ability to follow the Dietary Guidelines; however, comprehension of current food labels can be challenging for many. Low literacy and numeracy skills are significantly associated with a low understanding of nutrition labels (Rothman et al., 2006). Recent studies estimate that nearly 90 million Americans fall into the category of inadequate literacy and numeracy skills to make informed health decisions (Institute of Medicine, 2004; Rothman et al., 2006). Common mistakes in reading nutrition labels include the misapplication of the serving size, confusion by extraneous material on the food label, and incorrect numerical calculations (Rothman et al., 2006). Further, research suggests that only 20% of participants can accurately calculate the contribution of a single food item to recommended daily intake (Roberto et al., 2012). For individuals with chronic illnesses, such as diabetes, hypertension, obesity, or heart failure, following food labels becomes even more complicated. Even those individuals with functional literacy and numeracy skills may not have the resources to make consistently healthy behavior choices. As a result, other means of communicating this health information to consumers at point-of-purchase have since been developed. Research suggests that consumers value health information and that it would aid in their shopping decision-making, as long as the costs–time or price–will not outweigh the benefits (Borgmeier & Westenhoefer, 2009; Van 't riet, 2013).

Point-of-purchase interventions typically focus on shopper education through the use of product health information: health-related printed materials, food demonstrations, taste tests, signs, recipe cards, and shelf labels. One point-of-

purchase intervention activity that is of particular interest in this literature review is shelf labeling. A shelf label is a nutrition tool that is placed on the shelf below the product. Since the 1980s, shelf labeling in food stores has been used as a vehicle to reduce the complexity of decision making when consumers are faced with time constraints, broad range of products to evaluate, and a long grocery list (Berning, Chouinard, Manning, McCluskey, & Sprott, 2010). Simple shelf labels may serve as a "nudge" and help consumers identify which products are healthier (Feunekes et al., 2008; Story et al., 2008). Shelf labels typically fall into the following categories (1) single-level summary icon or nutrition message, such as a checkmark; (2) multiple-level icon or color-coding indicating varying levels of product healthfulness, such as a product traffic-light; (3) various health messages to show nutrients to encourage or limit, such as 'high fiber' or 'low fat'; and (4) health messages targeting specific health conditions for which the product is associated with improving (Berning et al., 2010; Hersey et al., 2013).

Research has shown that interventions using product health information to increase purchasing of healthy foods can have a positive influence on knowledge as well as on behavior; however, there is variability in the effectiveness. Lang, Mercer, Tran, and Mosca (2000) implemented the M-Fit Supermarket Shelf Labeling Program in 18 Detroit supermarkets and examined consumer awareness and use of the program designed to encourage heart healthy food choices. Exit surveys of 361 participants, two-thirds (n= 241) of which were African-American, revealed that 28% of participants were aware of the shelf labels and 56% reported using the program to guide their purchases; however, only 17% of participants reported using

the system “often” or “always.” Further, African-Americans were twice as likely as whites to report awareness of the shelf labeling program.

In a large Arizona suburb, Milliron et al. (2012) conducted an in-store intervention combining environmental point-of-purchase changes such as shelf labels and shopping lists with an in-person food shopping education program carried out by a nutrition educator. Over the course of four months, 164 customers were randomly assigned to either the control or intervention group; over half (65%) of participants reported awareness of the shelf labels and that the healthy shopping program was an incentive to shop at that particular supermarket. Participants who received the face-to-face, individualized nutrition education were more likely to increase intake of fruit and green or yellow vegetables than those who were exposed to the shelf labels only. The majority of participants in this study were white middle class women with a college degree.

Gittelsohn, Suratkar, et al. (2010) conducted a quasi-experimental study with a pre- and post- survey to examine food knowledge, label reading, healthy eating self-efficacy, healthy eating intentions, and behavioral outcomes of healthy food purchasing and preparation. Baltimore Healthy Stores (BHS) was conducted in two supermarkets and seven corner stores. The primary shelf label intervention strategy was supplemented with additional communication tools, interactive nutrition education sessions, and cooking demonstrations which took place twice per month for ten months. Although overall healthy food purchasing scores, food knowledge, and self-efficacy did not significantly increase, researchers found that respondents were more likely to report purchasing promoted foods as a result of the

shelf label. The BHS program is one of the few studies conducted in a predominately African-American urban community.

A food store intervention involving ten store regions on the Navajo Nation was used to examine the effect of the Navajo Healthy Stores (NHS) program on psychosocial variables, food-related behavior, and BMI (Gittelsohn et al., 2013). Consistent with similar studies, shelf labels proved to be a useful tool to promote healthy foods (Gittelsohn et al., 2013). Further, a modest dose-response relationship between intervention exposure and psychological, behavioral, and BMI-related outcomes was observed (Gittelsohn et al., 2013).

The majority of shelf labeling programs were implemented on a fairly small scale by independent research teams; however, two of the more widely implemented shelf labeling programs across retail chains included Guiding Stars and NuVal. Developed in 2006, Guiding Stars was one of the first shelf labeling programs implemented throughout entire retail chains (Fischer et al., 2011). After the one- and two-year follow-up periods, Sutherland, Kaley, and Fischer (2010) found significant increases in purchases of cereals with stars, compared to cereals that did not receive stars. This study included sales data from 168 supermarkets and compared sales across multiple food categories. The Guiding Stars program has since expanded and currently operates in 1,400 supermarkets along the East Coast (Pinto, 2009). While research shows the Guiding Stars' apparent efficacy, high costs (i.e., food retailers have to pay to be evaluated) can make these shelf labeling programs financially prohibitive for most small, independently owned food stores.

NuVal, another nutrition navigation program implemented throughout entire retail chains, is more widespread than Guiding Stars (LaBuda, 2104; NuVal,

2014). Located predominately in the Northeast, Midwest, and Southwest, researchers were unable to locate any NuVal programs in Northwest Pacific or the South Atlantic states. NuVal has similar motivations and intentions as Guiding Stars and uses the Overall Nutritional Quality Index to generate the 1-100 rating. While Chiuve, Sampson, and Willett (2011) documented that diets with higher ONQI scores were associated with lower risk for chronic disease, the researchers did not evaluate the effectiveness of the NuVal program in a food store setting.

Point-of-purchase interventions can reach large numbers at fairly low cost and have been implemented in low-resource areas (Milliron et al., 2012). Overall, customers have positive perceptions of shelf labeling programs and health conscious and motivated consumers were particularly in favor of the strategy (Hawley et al., 2013; Schucker, Levy, Tenney, & Mathews, 1992). Studies that showed the largest influence on consumer purchasing behavior were generally implemented for more than a year, incorporated frequent and intensive marketing efforts, measured outcomes across many food categories, and targeted the absence of unhealthy nutrients (i.e., low-fat, low-sugar, etc.) (Van 't riet, 2013). Trial effectiveness may be bolstered by accompanying point-of-purchase interventions with other strategies; when point-of-purchase interventions were coupled with promotion and advertising or pricing strategies, project impact nearly tripled (Escaron et al., 2013).

Use of Theory for Evaluating In-store Nutrition Interventions

To develop a sound framework for evaluating a program, researchers often establish a theoretical model of how behavior change might take place and use it to guide development of goals, activities, and messages (Glanz, Rimer, & Lewis,

2008). The theoretical model or logic model often includes the types of information necessary for behavior change, the beliefs and attitudes that need to be changed, and barriers to persuasion and action.

Despite this standard of practice, the review of the literature revealed that few store-based nutrition interventions operationalized behavioral change theories in the framework of their programs. Among interventions that explicitly applied a behavioral model of change the most commonly used were Social Cognitive Theory (Anderson et al., 1997; Anderson, Winett, Wojelk, Winett, & Bowden, 2001; Curran et al., 2005; Gittelsohn et al., 2013) and the Social Ecological Model (Escaron et al., 2013; Gittelsohn et al., 2012; Gittelsohn, Suratkar, et al., 2010; Paek et al., 2014). Less commonly used theories included Theory of Planned Behavior (Gittelsohn et al., 2013) and the Transtheoretical Model (Stages of Change) (Kristal, Goldenhar, Muldoon, & Morton, 1997; Mhurchu et al., 2007). Other research trials merged health behavior models with Diffusion of Innovation Theory (Anderson et al., 1997) and Consumer Information Processing Model (Kristal et al., 1997) to provide a framework for integrating factors affecting behavior change.

Participatory Approaches

Conventional interventions may not be sufficient for addressing the needs of high-risk populations; rather, intervention strategies must be tailored to the particular population (Ball et al., 2013). Consequently, community-based participatory research (CBPR), or the collaborative process that equitably involves all partners in the research process and recognizes the unique strengths that each brings, has gained momentum over the last ten years among health interventions

(Minkler, 2005). There are eight key principles of CBPR that support successful approaches to reducing health disparities: (1) recognizes community as a unit of identity; (2) builds on strengths and resources within the community; (3) facilitates collaborative partnerships in all phases of the research; (4) integrates knowledge and action for mutual benefit of all partners; (5) promotes a co-learning and empowering process that attends to social inequities; (6) involves a cyclical and iterative process; (7) addresses health from both positive and ecological perspectives; (8) disseminates findings and knowledge gained to all partners (Israel et al., 2001). CBPR research embodies the Social Ecological Model Framework, which considers the complex interplay between multilevel environments surrounding individuals, and is relatively common among store-based nutrition interventions. This process includes active involvement of community leaders in the development, implementation, and monitoring of the program. Researchers have incorporated this strategy into interventions by bringing store owners and community members together to discuss intervention strategies (Gittelsohn et al., 2013; Gittelsohn et al., 2012; Paek et al., 2014). By gaining community support and building rapport and connections with local community members, researchers can address health needs more appropriately and efficiently (Gittelsohn et al., 2013).

Evaluation Methods for Store-based Interventions

In recent years the focus has shifted to the need for accurate measurement and evaluation to assess effectively the process and impact of store-based nutrition interventions. Process evaluations are essential to measure the delivery of the intervention, specifically how well the program was planned and then put into practice (Saunders, Evans, & Joshi, 2005). Process evaluations are used for

formative and summative purposes. For formative purposes, process evaluations are used for 'fine-tuning' an evaluation or conducting continuous quality improvement during implementation. Process evaluations used for summative purposes evaluate the extent to which an intervention was implemented as planned, reached the intended audience, and how the program was perceived by participants. Both are useful in informing the design, evaluation, and framework for future interventions (Saunders et al., 2005). It is suggested that process evaluations should monitor five main components: (1) fidelity, the extent to which the intervention was implemented as planned; (2) dose, the amount of intended units of each intervention component provided to and received by the target audience; (3) reach, the proportion of the intended target audience that participated in the intervention; (4) context , the characteristics of the environment that may influence the implementation or study outcomes; and (5) recruitment, the procedures used to approach or attract participants (Saunders et al., 2005).

For formative research, the Nutrition Environment Measures Survey in stores (NEMS-S) is a commonly used food store audit tool. This tool was developed specifically for retail food stores and uses observational measures of the nutrition environment to assess availability, price, and quality of healthy foods (Glanz, Sallis, Saelens, & Frank, 2007). NEMS-S is useful in the early stages of a program, to reveal important information about the consumer environment, as well as when evaluating changes in the nutrition environment (Glanz et al., 2007; Jilcott-Pitts, Bringolf, Lawton, et al., 2013).

Curran et al. (2005) were the first to conduct a process evaluation on an exclusively store-based intervention program, Apache Healthy Stores. Researchers

evaluated fidelity, dose, and reach using a store visit evaluation form, mass-media log, cooking demonstration and taste test observation form, and self-administered customer evaluation form. Researchers executed a quasi-experimental design that included a pre-test/post-test, prospective longitudinal study of 270 randomly selected customers; this data was used to examine exposure to intervention and outcome measures such as behavioral changes over time.

Process evaluations conducted to measure the impact of nutrition interventions in convenience store settings employed similar process measures as those in larger food stores. Gittelsohn, Suratkar, et al. (2010) conducted a feasibility study of the Baltimore Healthy Stores program which was implemented in nine Baltimore convenience and supermarket stores. The program was evaluated with a total of 158 store visits throughout the nine-month intervention period. Four instruments were used: store visit evaluation form, taste test observation form, interventionist log and field notes, and an interventionist weekly progress report. These tools were used to assess fidelity, dose, and reach and determine the feasibility of small store-based intervention programs.

Another small food store process evaluation, the Change4Life nutrition intervention was conducted in the North East of England and performed a mixed-methods study to provide information on the fidelity of the intervention (Adams et al., 2012). The UK-based program measured fidelity with in-store observations. Information was collected on the presence of the intervention materials such as shelf labels and a fresh fruit and vegetable stand, and if they were used appropriately or not used appropriately. Also measured was the variety, quality, and prices of fresh fruits and vegetables.

In another grocery store-based study, Zhiiwaapenewin Akino'maagewin: Teaching to Prevent Diabetes, Rosecrans et al. (2008) measured the delivery of a multi-institutional program (i.e., schools, food stores, and health offices) in First Nations communities in Ontario, Canada. A very carefully monitored program, researchers made a total of 93 store evaluation visits over the ten month intervention period to assess fidelity, dose, reach, and context using a store visit process evaluation form, mass-media log, and cooking demo/taste test participant evaluation form.

In addition to in-store observations, process evaluations also can include interviews and surveys. To measure feasibility, acceptability, and sustainability, Rosecrans et al. (2008) conducted 13 semi-structured interviews with 10 managers, owners, and employees at eight stores and with program intervention staff. All store owners commented on how easy the shelf labeling program was to have in the stores and the positive benefits for the customers. The difficulty of conveying trustworthy health messages, suggestions to include a pricing intervention, and the importance of cooking demos and taste tests was also discussed. Similarly, Jilcott-Pitts, Bringolf, Lloyd, et al. (2013) conducted 11 qualitative in-depth interviews with corner store owners and managers to determine the feasibility of increasing access to healthy foods in rural corner stores. Each 60-minute qualitative interview included questions about types of customers, acceptance of benefits from WIC and SNAP, store products and inventory, and availability of healthy foods. In addition to qualitative interviews, 179 customer intercept surveys were used to examine baseline demographics as well as dietary consumption, food purchasing, and shopping habits.

These food store-based process evaluations collected qualitative and quantitative data and focused on availability of promoted foods, presence of planned signage and other intervention materials, implementation of in-store activities, communication of mass-media messages, and store owner/manager engagement (Adams et al., 2012; Curran et al., 2005; Gittelsohn, Suratkar, et al., 2010; Rosecrans et al., 2008). The importance of process evaluation data has been well established; collecting implementation data helps the research reduce the likelihood of Type III error, or evaluating an intervention that was inadequately implemented and thus cannot properly be evaluated (Escaron et al., 2013; Rosecrans et al., 2008; Saunders et al., 2005). Process data builds a strong foundation for future outcome evaluations.

In addition to process level measurements, outcome measures are critical to measuring program effectiveness. While there were only a handful of process evaluations of in-store nutrition programs, studies that assess the outcomes of these interventions are more common. Common measurement tools include customer surveys, interviews with stakeholders and store staff, and sales data. Among the evaluation studies reviewed that used customer surveys, the most commonly measured variables were program awareness and use, consumer nutrition knowledge, food consumption habits, food purchasing habits, and demographics. Many of the surveys were conducted at both baseline and post-intervention periods, although some studies only conducted surveys once during the intervention period. The number of customers surveyed ranged from 82 to 750 and the surveys were designed for customers of varying ethnicities, racial groups, and backgrounds. The majority of studies used in-store convenience sampling.

In an evaluation of eight supermarkets in rural Iowa, Kristal et al. (1997) used theory-based exit interviews and take-home surveys to assess 120 participants. A cross-sectional evaluation was repeated at baseline and 1-year post randomization. Exit interviews included questions about shopping habits, recall of store signage, and purchases of fruits and vegetables. Take-home surveys included detailed questions related to fruit and vegetable intake, dietary habits, and stage of change in adopting healthy eating habits. A modified food frequency questionnaire supplemented the take-home survey.

Henry et al. (2006) conducted 420 cross-sectional surveys among low-income, African-American mothers to assess how well the survey model measured future intervention efforts. The survey was developed using the Transtheoretical Model and incorporated decisional balance, processes of change, self-efficacy, and a stage classification algorithm. Demographics such as age, number of children in the home, self-reported BMI, education, and if participants received SNAP and WIC were collected.

In an extensive assessment of a Healthy Corner Program (FIT Store), Paek et al. (2014) surveyed a total of 750 customers across four stores: 421 customers pre-intervention and 329 customers post-intervention. The pre-intervention survey included questions about monthly food consumption patterns, frequency of monthly store visit, awareness of nutrition program, children in household, and demographics. The post-intervention survey was similar but included additional questions about customers' awareness of the nutrition program, where customers had seen branding materials, perceived store change of healthy food availability, prices, and information about healthy eating, and changes in food

purchases. The population surveyed predominately identified as Black/African-American and Hispanic/Latino and a five-dollar coupon for healthy foods was provided as an incentive for participation.

To evaluate attitudinal and awareness variables and the possible link to purchasing and eating behaviors, Reid, D'Angelo, Dombrow, Heshka, and Dean (2004) conducted a cross-sectional survey of 200 store customers. The survey to assess the Heart and Stroke Foundation of Canada's Health Check food information program contained questions about the presence of diet-related health conditions, attitudes toward healthy food purchases, use of back-of-pack nutrition information, awareness and use of the Health Check logo, and perceived meaning of the logo. Researchers supplemented customer surveys with a Food Frequency Questionnaire to be completed at home and mailed back to the investigators to assess consumer behavioral impact. The majority of participants were middle aged, female, and had some post-secondary education.

Also evaluating attitudes and awareness, Holmes, Estabrooks, Davis, and Serrano (2012) conducted 82 cross-sectional surveys with customers in the one Healthy Kids intervention store. Data collectors asked customers if they recognized the intervention kiosk as a promotion for kids, if they purchased an item from the kiosk, if the kiosk motivated them to purchase healthier items for themselves or for their children or grandchildren, if the kiosk encouraged them to shop at the intervention store, and the amount of money they intended to spend at the store during their shopping trip. Customers were predominately white, middle-aged, middle-class women.

Lang et al. (2000) conducted a cross-sectional survey of 361 customers across 18 supermarkets to assess the M-Fit Supermarket Shelf-Labeling Program serving minority communities in Detroit, Michigan. The 10-question survey collected information about awareness and use of the program, attitudes toward nutrition and health, cholesterol and blood pressure screening history, and demographics – age, gender, ethnicity, and education.

In-depth qualitative interviews are a tool used by researchers to provide additional insight into program delivery. In a mixed-methods evaluation of the Change4Life convenience store nutrition intervention, Adams et al. (2012) conducted ten key stakeholder interviews to explore motivation for taking part in the intervention, views about barriers and facilitators to intervention success; and acceptability, value and sustainability of the intervention. These interviewees were selected using purposive sampling. While quantitative data demonstrated the short-term success of the program, these interviews shed light on longer-term program sustainability. Using the Change4Life evaluation as a model, Gardiner et al. (2013) qualitatively evaluated

a store fruit and vegetable promotion initiative conducted in 13 stores in rural Victoria, Australia. Six 30 to 70 minute semi-structured in-depth interviews with participating retailers were used to evaluate the retailers' experience. Data was manually analyzed using a thematic approach. Categories were grouped into themes to address the evaluation questions. Categories included project management, retail incentives, awareness, knowledge, and behavior change, enablers, and barriers to success.

Food store sales data offers a detailed and timely method of measurement, may be less intrusive to consumers, and sheds light on purchasing patterns and behaviors of customers (Tin-Tin, Mhurchu, & Bullen, 2007). To measure the impact of a 12-week grocery store nutrition intervention in Roanoke, VA, Holmes et al. (2012) assessed sales data for all items in the store overall and the 32 featured healthy food items. To address sales variability due to changes in the item price, seasonal changes, and other external factors, the percent of total sales was used for the final analysis. As one of the more robust measures, food sales records can also be the most problematic to obtain and monitor; many small stores lack computerized sales tracking systems and if they do, some are reluctant to release this information (Song et al., 2009). In order to circumvent these barriers, the research team arranged for unit sales of promoted food sales to be recorded on a weekly basis based on store owners' recollection (Song et al., 2009). Another method researchers used to measuring sales in these smaller stores is receipt collecting. Both Reid et al. (2004) and Ransley et al. (2003) found this method feasible to examine food purchases.

Although less commonly used, BMI is another measure used to determine longer-term impact. In a study conducted among American Indians on the Navajo Nation, Gittelsohn et al. (2013) measured the heights and weights of participants at baseline and post intervention periods; these measures were compared between intervention and control groups. Geliebter et al. (2013) conducted a similar study in New York City to assess the impact of an in-store nutrition intervention on body weight. Overweight and obese participants, characterized by a BMI of ≥ 25, were

recruited and randomized into intervention and control groups. BMI was measured at five time points and compared across and within groups.

Conclusion

In order to make a population-level impact on eating behaviors, it is critical to prioritize institutional change that makes the healthy choice easy, accessible, and desirable. The findings of this literature review highlight the need to employ store-based intervention strategies to promote healthy food purchase and consumption in order to reduce obesity in minority and lower socioeconomic status populations. Among the literature reviewed, one of the most promising combinations of store-based nutrition intervention strategies appears to be point-of-purchase, such as shelf labeling, related nutrition education materials, food demonstrations, and recipe cards, and promotion and advertising strategies (Escaron et al., 2013). The literature indicates that the most effective interventions target the specific population, coordinate intervention components, expose customers to frequent activities and communication, and involve community members. While store-based nutrition interventions, particularly shelf labeling, are gaining popularity as vehicles to reduce the complexity of decision making, there are no available findings to date which assess the process of the shelf labeling application and subsequent impact on consumer purchasing among African-Americans in low-socioeconomic status communities in the Southeastern region of the United States.

Chapter 3. Method

This evaluation used a cross-sectional, post-implementation, mixed-methods design to assess the *Healthy Food, Healthier You* program. The following sections will describe in detail: (1) the three instruments used to collect data—the in-store observation form, the key informant interview guide and protocol, and the customer intercept survey; (2) sampling methods used to recruit customers for intercept surveys and key informants for interviews; (3) data collection procedures; (4) corresponding measures for each data collection instrument; and (5) data analysis plan.

Overview

An in-store observation form, key informant interview guide and protocol, and a customer intercept survey were used to collect evaluation data in order to address the five evaluation questions. Table 1 shows how the evaluation questions aligned with the three instruments. The first evaluation question, "Was the *Healthy Food, Healthier You* program implemented with high fidelity, reach, and dose?" and the second evaluation question, "Is the *Healthy Food, Healthier You* program an acceptable, feasible, and sustainable model for this context?" were addressed using components of all three evaluation instruments. The third evaluation question, "What external factors facilitated or inhibited *Healthy Food, Healthier You* program implementation?" was assessed with data collected using in-store observations and key informant interviews. The fourth evaluation question, "What are the customers' reactions to the *Healthy Food, Healthier You* shelf labels?" was measured using key informant interviews and customer intercept surveys. Customer intercept surveys were used to address the fifth and

final evaluation question, "What factors are associated with customer awareness and use of the *Healthy Food, Healthier You* shelf labels?" This study did not require approval by the Institutional Review Board of Emory University because it was not considered research according to federal and local guidelines.

Table 1. Evaluation questions and corresponding evaluation instruments

	Evaluation questions	In-store observations	Key informant interviews	Customer intercept surveys
1	Was the *Healthy Food, Healthier You* program implemented with high fidelity, reach, and dose?	✔	✔	✔
2	Is the *Healthy Food, Healthier You* program an acceptable, feasible, and sustainable model for this context?	✔	✔	✔
3	What external factors facilitated or inhibited *Healthy Food, Healthier You* program implementation?	✔	✔	
4	What are the customers' reactions to the *Healthy Food, Healthier You* shelf labels?		✔	✔
5	What factors are associated with customer awareness and use of the *Healthy Food, Healthier You* shelf labels?			✔

Customer Intercept Surveys

Participants

Participants in the customer intercept surveys were customers of Super Giant Food on Donald Lee Hollowell Parkway, the site of the shelf labeling program. Data were gathered in-person by the lead evaluator and trained research assistants at the Super Giant Food. A convenience sample of 72 customers was obtained over four time periods, between December 1st and 7th, 2014 to ensure a broad range of customers in terms of employment status and age (as shown in Table 2). Store visit dates and times were determined based on discussions with the store owner and manager about the volume of customers; days in which a high volume of customers shopped at the store generally corresponded with the monthly SNAP benefit issuance schedule and days in which the store was holding a sale. Time spent collecting surveys totaled to 14 hours.

Table 2. Customer intercept surveys: days and times conducted, factors related to customer type and reach, and total number collected

Date	Monday, December 1, 2014	Friday, December 5, 2014	Saturday, December 6, 2014	Sunday, December 7, 2014
Time	2:00 p.m. – 4:00 p.m.	2:00 p.m. – 6:00 p.m.	10:30 a.m. – 3:00 p.m.	11:30 a.m. – 3:00 p.m.
No. hours in store	2	4	4.5	3.5
No. data collectors	2	3	5	4
SNAP Day	No	Yes	No	Yes
Sale Day	No	No	Yes	Yes
No. surveys collected	6	22	19	25

Procedure

Following initial development, the customer intercept survey was reviewed by Urban Health Initiative and Open Hand volunteers for face validity and breadth of coverage. On November 12, 2014, customer intercept surveys were pilot tested using a convenience sample of Super Giant Food customers. The purpose of the pilot was to ensure the survey questions were appropriate for the target population, feasible in the store setting, and the most suitable recruitment techniques were used. The lead evaluator and two trained research assistants approached approximately 12 customers as they exited the store; six customers agreed to participate. There were no incentives provided to participants for completion of the pilot surveys. Participants expressed concerns that they did not have time to complete the survey (e.g., since their transportation was already at the store waiting for them) and that they would be more interested in participating if an incentive were offered.

The pilot test suggested the need to streamline participant recruitment. Following the pilot test, the lead evaluator determined that the best location to administer the survey would be the entrance of the store, near the produce section. Survey administration inside the store entrance provided greater visibility for customers to see the survey table. Additionally, this permitted interviewers to interface with nearly every customer as they entered the store. Indoor survey administration ensured that surveying would not be disrupted due to weather conditions. The pilot test also assisted in the improvement of the survey content; the length of the survey was reduced, the question order was adjusted for appropriate flow, the question wording was revised for participant understanding,

the format was changed for interviewer readability, and various questions were altered from closed to open-ended when response options tended to be less predictable.

Customer intercept surveys were administered by the lead evaluator, an Emory University Rollins School of Public Health MPH student, and eight trained research assistants. Research assistants were recruited from a list of Urban Health Initiative and Open Hand volunteers who had worked on previous *Healthy Food, Healthier You* program activities. The 15-minute training included three elements: first, the research assistants reviewed the customer intercept survey prior to survey administration; second, the research assistants, observed the lead evaluator conducting the survey; third, the research assistants practiced administering the survey to the lead evaluator. The lead evaluator was present at all times during survey administration; the research assistants had rotating schedules.

During each customer approach, the interviewer read a prepared script to the customer (as shown in Appendix H). First, the interviewer asked the customer if they would be willing to complete a brief survey about their grocery shopping experience. Second, if the customer responded positively, eligibility was assessed; to be eligible, customers were required to be at least 18 years of age. Third, the interviewer informed the customer of the opportunity to receive an incentive for participation in the survey: a reusable grocery bag and a small kitchen item (i.e., measuring cups or measuring spoons) with a total value of less than five dollars. Fourth, the interviewer asked the customer if they were willing to provide verbal consent. If the customer provided consent, the interviewer proceeded to administer the survey. Interviewers read participants a series of 19 open and closed-ended

questions to which participants responded verbally. Surveys took less than five minutes each.

The lead evaluator took every precaution to maintain the confidentiality of the data. All participants were required to provide verbal informed consent; to each participant, the interviewer read brief description of the data to be collected, the duration of participation, how confidentiality will be maintained, and asked for permission to begin the survey. Customer intercept surveys were collected anonymously, ensuring participant identification protection throughout the data collection and analysis process. Printed copies of the anonymous customer intercept surveys were stored in a locked room and the electronically-entered survey data was stored on a secure, password-protected computer. Upon completion of the study, all electronic and paper records were destroyed and results were presented in aggregate form.

Measures

The customer intercept survey was composed of three open-ended and 15 closed-ended questions. The questions assessed dose of exposure received by customers, awareness and use of shelf labels, factors that may have contributed to or impeded upon customers' use of the shelf labels, customers' self-efficacy to use the shelf labels to purchase healthy foods, customers' reactions to shelf labels, and sociodemographic characteristics (customer intercept survey shown in Appendix H). The survey instrument was developed to address the *Healthy Food, Healthier You* program objectives and evaluation questions. After a thorough literature review, survey questions were developed based on existing similar measures assessing awareness and attitudes toward grocery store-based nutrition programs

located in Canada and the United States. Questions that were not linked to the literature were based on the lead evaluator's in-store observations and Urban Health Initiative program objectives. The simplicity of face-to-face administration and easy comprehension by low-literacy audiences were two of the primary considerations in the construction of this survey.

Sociodemographic characteristics—Participants were asked seven sociodemographic questions. Participants were asked to indicate their age and responded with a number value. Age values were subsequently placed into four categories: (18 to 29 years, 30 to 49 years, 50 to 64 years, and 65 years and older); meaningful cut-off points were used for categories after reviewing a histogram of the sample's distribution (Centers for Disease Control and Prevention, 2013c). Participants were also asked to indicate their ethnicity by selecting "yes" or "no" when asked, "Are you Hispanic, Latino/a, or Spanish origin?" Race was measured by asking, "Which one or more of the following would you say is your race?" Participants selected one or more of the following categories, "White," "Black/African-American," "American Indian or Alaska Native," "Asian," or "Pacific Islander," or "Other/Multi-race." Highest grade completed was assessed by asking, "What is the highest grade or year of school you completed?" Participants provided open-ended responses that were later categorized into: "some high school," "high school graduate or equivalent," "some college or vocational school," and "college graduate" (Henry et al., 2006). Items to assess age, ethnicity, race, and highest grade completed were from the Behavioral Risk Factor Surveillance System Questionnaire (Centers for Disease Control and Prevention, 2013b).

To determine if the participant had children in their household they were asked, “Do you have children under the age of 18 in your household?” Participants responded either “yes” or “no.” This question was modified for this evaluation based upon work by (Paek et al., 2014). Participation in federal nutrition assistance programs was determined by asking, “Do you or anyone in your household receive…” and answer choices included, “SNAP,” “WIC,” or “none of the above.” Participants selected multiple responses if applicable. This measure was adapted from work by (Henry et al., 2006).

Awareness and use of shelf label program—Awareness of the shelf label program was assessed with the question, “Have you ever seen or heard about the *Healthy Food, Healthier You* shelf label program?” Participants responded with either “yes” or “no.” This question was adapted from (Lang et al., 2000), (Reid et al., 2004), and (Paek et al., 2014). Participants answering “yes” to being aware of the program were then directed to the next question, “How did you first learn about the *Healthy Food, Healthier You* shelf label program?” Response options included, “saw shelf labels in store,” “signs, posters, or store flyer,” “event,” and “store circular advertisement.” This question was adapted from (Paek et al., 2014) and (Kristal et al., 1997).

Participants who were aware of the shelf label program were also asked the following question to determine their *stage of change*: “On average, how often do you use the shelf labels to help you select foods?” Participants ranked their level of shelf label use on a four-point scale: “never,” ”sometimes,” “about half the time,” or “regularly.” This measure was adapted from work by (Lang et al., 2000), (Reid et al., 2004), and (Henry et al., 2006). Participants who indicated “sometimes,”

"about half the time," or "regularly" were classified in the "action" stage of change. To classify stage of change among participants who were not aware of the shelf label program the question was asked, "Knowing what you know now about the shelf labels, do you plan on using them to guide your purchases in the next…?" Response options included, "6 months," "30 days," or "no intention to use shelf labels." This measure was modified from work by (Henry et al., 2006) and (Kristal et al., 1997). Participants who responded "6 months" were classified into the "contemplation" stage of change, those who answered "30 days" were categorized in the "preparation" stage of change, and those who responded "No intention to use shelf labels" were placed in the "pre-contemplation" stage of change category.

In addition, participants were asked, "Which types of food did the label help you purchase?" and responded with the food categories in which they used the shelf labels. While this question was presented as open-ended, if the participant asked for additional guidance the interviewer presented the following categories: dairy, meat, frozen or canned fruits or vegetables, canned soup, whole grain pasta, rice, bread, or cereal, and dried beans. Multiple responses were accepted. This question was modified from work by Gittelsohn et al. (2013) and Paek et al. (2014).

Factors that contribute to or impede upon use of shelf labels—Factors were examined that could contribute to or impede upon the use of shelf labels: factors influencing food purchases and self-efficacy. These variables were modified from two Transtheoretical Model constructs. To assess *factors influencing food purchases* participants were asked, "Which of the following is most important to you when making food purchases?" Response options included, "convenience," "healthfulness," "price," "taste," "sustainability," or "other." Participants were asked

to select only one answer. This measure was adapted from work by Henry et al. (2006). To measure *self-efficacy*, the question was asked, "If you decided to start shopping for healthy foods, how hard or easy would it be to use the shelf label?" Four-point Likert responses included: very hard, somewhat hard, somewhat easy, and very easy. This measure was developed independently for this evaluation since no similar item could be identified in the literature measuring confidence in the use of an in-store nutrition navigation program. All participants who responded "very hard," "somewhat hard," or "somewhat easy" were then asked the open-ended question, "What are some things that make it hard to follow the shelf labels?" This measure was adapted from work by Henry et al. (2006).

Customers' reactions to shelf labels—Customers' reactions to the shelf labels were measured by asking three questions about relatability, comprehensibility, and credibility. These three questions were prefaced with the statement, "I will read you a few statements now. For each, please tell me if you 'strongly disagree,' 'somewhat disagree,' 'somewhat agree,' or 'strongly agree.'" *Relatability* was assessed by presenting the statement, "This shelf label catches your eye." *Comprehensibility* was assessed with the statement, "This shelf label is easy to understand." *Credibility* was measured by posing the statement, "This shelf label is trustworthy." Relatability and comprehensibility measures were developed for this evaluation, since there were no similar items identified in the literature measuring customers' reactions to an in-store nutrition program. Credibility was adapted from a survey question from Reid et al. (2004).

Dose received—The dose of the intervention that was received by participants was measured by asking, "On average, how many times a month do you

shop at Super Giant Food?" Participants provided the number of times per month they visited the store. If, for instance, the customer responded with "once per week," the interviewer recorded the most reasonable estimate; once a week was translated to an estimated four times a month. The question for this measure was developed exclusively for this evaluation.

Key Informant Interviews

Participants

Six individuals were selected to interview based on purposive sampling. The lead evaluator approached the store manager and requested permission to conduct the interviews with store employees. Eligibility criterion for participating in the key informant interviews was that interviewees were store staff since July 2014, three months prior to the initiation of the program. Without any additional instruction from the lead evaluator, the store manager indicated the five employees in addition to himself that he considered best to interview based on the eligibility criterion provided. Neither familiarity with the program nor opinions about the program were taken into account during selection. The store manager also reported selecting employees with different job functions.

Procedure

After receiving the store manager's recommendations, the lead evaluator approached the store employees he had suggested to interview and asked of their willingness to participate in a brief interview. All store employees approached agreed to participate. The first semi-structured interview was conducted on the afternoon of December 5, 2014 and the remaining five interviews were conducted

on the morning of December 6, 2014. All interviews were conducted in English by the lead evaluator. Each interview took approximately eight to fifteen minutes to complete. There were no incentives provided to employees for participating in the interviews.

Confidentiality was maintained throughout the evaluation. All interviews were conducted in a private room within the Super Giant Food. The transcriptions were de-identified and the audio recordings and transcriptions were stored on a secure, password-protected computer. All electronic records were destroyed upon completion of the study and only final aggregate results were presented.

Measures

In-person interviews were performed using the interview guide; the semi-structured guide included one quantitative question and thirteen open-ended questions about the staff members' experiences with the shelf labeling program, customers' reactions to the shelf label program, program feasibility, benefits and challenges of the program, and sustainability of the program. To begin the interview, the lead evaluator asked the employee, "Can you tell me briefly about your current position at Super Giant Food and your major responsibilities?" To assess reach, the employee was then asked, "On average, how many customers shop in the store each week?" Employees were asked two questions related to their experience with the *Healthy Food, Healthier You* program. First, they were asked, "How did you first learn about the *Healthy Food, Healthier You* program?" The

interviewer followed with, “Please talk briefly about your experience with the *Healthy Food, Healthier You* program.”

To assess customers’ reactions from the employees’ perspective, the next two questions were asked: “Do you feel as though the *Healthy Food, Healthier You* program is working?” and “Have customers come up to you asking about the shelf label or the *Healthy Food, Healthier You* program?” In order to receive input on program feasibility, the interviewer asked the employee two questions. First, the employee was asked, “Based on your observations, what do you think has been the most successful part of the *Healthier Food, Healthier You* program?” Second, the employee was asked, “What are some of the challenges of having this shelf labeling program at your store?”

Sustainability was discussed with five subsequent questions. First, the employee was asked, “Based on your experience, would you like to see the shelf label program…continue, grow, or change?” Depending on the employee’s response, the interviewer adjusted the next question appropriately. For example, if the employee responded that they would like to see the program grow the next question asked was, “Do you have any suggestions about how you would like to see the program expanded?” Next, the interviewer asked the employee, “In some cases, programs like these only exist when there is a strong volunteer base; how could the program be changed so it’s less dependent on UHI?” The interviewer asked two additional questions which were adjusted based on the employee’s role and his or her past responses: “Do you (or your employees) have an interest in participating in the *Healthy Food, Healthier You* program in the future?” and “What makes you interested (or not interested)?” The interview posed a final

question, “Do you have any other comments about the shelf label program?” and then concluded the interview by thanking the participant for their time. See Appendix I for the Key Informant Interview Guide.

In-Store Observations

Procedure

The lead evaluator conducted two in-store observation visits: one on December 7, 2014 (10 weeks after the program launch) and one on January 18, 2015 (16 weeks after the program launch). Based on discussions with the Urban Heath Initiative program team and first-hand program knowledge about where the nutrition signage had been placed, the lead evaluator developed two in-store observation forms. The first in-store observation form, used to assess the shelf label placement, was derived from the healthy food inventory list (i.e., the compiled list of items that met the criteria to receive a *Healthy Food, Healthier You* shelf label). The second in-store observation form was used to assess the placement of posters and shelf talkers as well as the distribution of promotional flyers. In addition, in order to maintain an active relationship with the store owner, the lead evaluator was asked to inform the store owner and manager ahead of time when evaluation visits were planned.

Measures

The purpose of the in-store observations was to observe the program in operation and to assess fidelity of the shelf labels, shelf talkers, and posters, as well as the dose of flyer distribution.

Shelf labels—To assess shelf label placement, the lead evaluator used the shelf label in-store observation form and the store map. See Appendix J for in-store observation form for the shelf label check and Appendix K for the store map. The lead evaluator cross-checked this list with the labels currently placed on the shelves. For example, the first product on the shelf label inventory is 'Ken's Light Olive Oil and Vinegar' salad dressing located in aisle one of the store. To evaluate if the *Healthy Food, Healthier You* shelf label was placed correctly under this product, the lead evaluator located the salad dressing item and observed the shelf label.

To assess fidelity of shelf label placement and dose delivered, the evaluator indicated if the shelf label was hanging appropriately, placing a "1" which meant, "shelf label is placed correctly" or placing a "0" which meant, "shelf label is placed incorrectly." A product's *Healthy Food, Healthier You* shelf label was marked as being "placed correctly" if it was accurately placed next to the item's price tag and was undamaged. The shelf label was marked as "placed incorrectly" if it was missing, damaged, or not directly adjacent to the price tag. The lead evaluator noted any contextual factors contributing to program implementation, such as if the product was no longer sold in the store (i.e., price tag is no longer present) or if there was no room for the shelf label next to the product's price tag. If the shelf label was placed incorrectly, the lead evaluator indicated if the label was replaced. Dose delivered and fidelity of shelf labels were calculated; the number and percentage of shelf labels placed correctly were reported by aisle and overall. Low fidelity was defined as 0% to 49%, moderate fidelity as 50% to 74%, and high fidelity as 75% to 100% (Gittelsohn, Suratkar, et al., 2010).

Shelf talkers—Fidelity and dose delivered of the shelf talkers was assessed by observing if the shelf talkers were placed correctly by the food of interest. Shelf talkers were observed using the in-store observation form in Appendix L. The evaluator observed the five aisles in which the shelf talkers were placed. The evaluator graded each by indicating the number of "shelf talkers placed correctly" and the number of "shelf talkers placed incorrectly" in each aisle observed. When possible, the lead evaluator also provided technical assistance by replacing damaged, missing, or incorrectly placed shelf talkers and posters. The total number and percentage of shelf talkers properly placed was calculated. Using the same threshold as the shelf labels, 0% to 49% was considered low fidelity, 50% to 74% as moderate fidelity, and 75% to 100% as high fidelity (Gittelsohn, Suratkar, et al., 2010).

Posters—To assess fidelity and dose delivered of both the posters in the store window and hanging above the aisles, the evaluator documented the number of posters correctly placed using the in-store observation form in Appendix L. This was used to document the number of posters correctly placed in the window and above the aisles, respectively. The condition of the posters was also noted (e.g., any physical damage). Dose delivered was calculated as a number and fidelity as a percentage, using the same standards as described above.

Flyers—The last element of the in-store observation was monitoring flyer distribution. Flyer distribution was monitored to assess dose delivered, or the number of nutrition-promotional materials provided to the store customers. As shown on the in-store observation form in Appendix L, the lead evaluator asked one cashier if he or she had been distributing the shelf label promotional flyers and if so,

if the cashier needed more copies. First, the evaluator asked, “Have you been distributing the shelf label promotion flyers?” and recorded either “yes” or “no.” Second, the evaluator asked, “Do you need more copies?” and recorded either “yes” or “no.” If the cashier responded “yes,” then the evaluator provided additional copies and recorded the number of copies provided. The number of flyers distributed was also recorded during the first and second in-store observation periods and the total number was calculated.

Summary of Measures

As outlined in Table 3, the nine primary components of the evaluation were: fidelity, reach, dose delivered, dose received, acceptability, feasibility, awareness and use of shelf labels, customer reactions to shelf labels, sustainability, and suggestions for improvement. These components were assessed using various measures across the three instruments.

Table 3. Evaluation component, measure, and respective instrument used

Component	Measure	Instrument
Fidelity (Quality)	• Quality and consistency of placement of shelf labels, shelf talkers, and posters	• In-store Observations
Reach (Participation)	• Sociodemographic characteristics of customers • Number of customers exposed to program	• Customer Intercept Surveys • Key Informant Interviews
Dose Delivered (Completeness)	• Number of program components – shelf labels, shelf talkers, posters, and flyers delivered to the population	• In-store Observations
Dose Received (Exposure)	• Frequency of customers' exposure to program	• Customer Intercept Surveys
Acceptability & Feasibility	• Appropriate and practical for the setting • Barriers and facilitators to the implementation of the program	• Key Informant Interviews • In-store observations
Awareness & Use of Shelf Labels	• Awareness and use of the shelf label program • Factors that may contribute to or impede upon the awareness and use • Predictors of awareness and use	• Customer Intercept Surveys
Customer Reactions to Shelf Labels	• Customers' reactions (i.e., reliability, comprehensibility, and credibility) to shelf label	• Customer Intercept Surveys • Key Informant Interviews
Sustainability	• Future program support • External factors	• Key Informant Interviews
Suggestions for Program Improvement	• Recommendations for current program components • Ideas for new activities	• Key Informant Interviews

Fidelity

In order to measure fidelity, or to what extent the program was implemented consistently and as planned, in-store observations were used to estimate the quality and consistent placement of shelf labels, shelf talkers, and posters. The observations also provided context for fidelity in the grocery store setting.

Reach

The customer intercept surveys and key informant interviews were also used to evaluate reach, or participation in the program. The customer intercept surveys measured sociodemographic characteristics and the key informant interviews measured the number of customers exposed to the program.

Dose Delivered

Dose delivered, or to what degree of completeness all the program components were delivered, was measured by in-store observations. Total numbers of shelf labels, shelf talkers, posters, and flyers were recorded.

Dose Received

Customer intercept surveys were used to quantify dose received. The customer intercept survey measured shopping frequency at Super Giant Food, which established dose of exposure.

Acceptability and Feasibility

Through the key informant interviews, employees provided their opinions on program acceptability and feasibility. This shed light on the appropriateness of this nutrition navigation promotion program in the grocery store setting as well as barriers and facilitators contributing to implementation of the program.

Awareness and Use of Shelf Labels

The customer intercept surveys assessed three measures related to this component: awareness and use of the shelf label program, factors that may contribute to or impede upon the awareness and use, and predictors of awareness and use.

Customer Reactions to Shelf Labels

The customer intercept surveys measured customers' reactions to the shelf label: reliability, comprehensibility, and credibility. Reaction scores were assessed across sociodemographic characteristics; this provided further insight on the social and economic conditions that may have influenced program outcomes. Key informant interviews provided added perspective into customers' reactions to the shelf labels from the employees' viewpoints.

Sustainability

Sustainability, or the capacity to maintain program services at a level that will provide ongoing benefits for a health problem, was measured through the key informant interviews. Employees were asked to discuss their experiences with the program and describe issues that may influence future support for the program. Employees were also given the opportunity to discuss external factors, such as community culture or access to the grocery store, that may present both opportunities and roadblocks for future programming efforts.

Suggestions for Program Improvement

Suggestions for program improvement were collected during the key informant interviews. During the interviews, employees provided

recommendations for enhancing current program components as well as ideas for new activities.

Analysis

Customer Intercept Surveys

Participants' responses from the paper surveys were entered twice into Microsoft Excel spreadsheets using the codebook in Appendix M for guidance; the two data sets were compared for accuracy and data entry errors, mismatches, and out-of-range values were corrected. The survey data was then transferred to SPSS (Version 17.0, SPSS Inc., Chicago, IL) for full analysis. Descriptive statistics – frequencies, percentages, means, and standard deviations—were used to summarize data from the customer intercept survey.

Sociodemographic characteristics—Continuous variables were summarized by means and standard deviations, and categorical variables were summarized with frequencies and percentages. Age was collected as a continuous variable and analyzed as both a continuous and a categorical variable by grouping as described in the Measures section. Sex was collected and analyzed as a categorical dichotomous variable, based on male/female categorization. Hispanic/Latino ethnicity was collected and analyzed as a categorical dichotomous variable, based on a yes/no categorization. Race was collected and analyzed as a categorical variable. The highest grade of education received was collected as an open-ended response, first analyzed as a continuous variable, and then categorized for analysis as described in the Measures section. Having children in the household was also collected and analyzed as a categorical dichotomous variable based on a

yes/no categorization. Federal nutrition assistance, in the form of SNAP and WIC benefits, was also collected and analyzed as a categorical dichotomous variable.

Awareness and use of shelf label program—Awareness was collected as a categorical variable and presented as a frequency and percentage, based on a yes/no categorization. Those responding "yes" to awareness indicated how they heard of the program with an open-ended response. These responses were then placed into categories and calculated as frequencies and percentages. Frequency and percentage of participants in each stage of change were presented in data summaries. In addition, for purposes of analysis, the use of shelf label program scale was grouped as "used program to any extent" (i.e., responses "sometimes," "about half the time," "most of the time," or "regularly") versus "did not use" (i.e., responses "never"). Using the chi-square test, the shelf label awareness and subsequent use variables were compared across gender, age, education, children in household, participation in federal nutrition assistance, "healthfulness" as the top decisional factor influencing food purchases, and number of times per month they shopped at Super Giant Food. Statistical significance was set at $\alpha < 0.10$ for inclusion in multivariate analysis. Multivariate Logistic Regression was performed to determine which of the aforementioned variables had the most influence on shelf label awareness and subsequent use. Statistical significance was set at $\alpha < 0.05$.

Factors that contribute or impede upon use of shelf labels— The variable, factors influencing food purchases, was collected as a categorical variable and summarized using frequencies and percentages. This variable was also dichotomized: those who selected "healthfulness" as the top decisional factor

influencing food purchases were placed into one group and all other responses (i.e., price, convenience, taste, sustainability, variety, and quality) were placed into a second group. Self-efficacy, collected as an ordinal variable using four-point Likert scale, was also summarized by frequencies and percentages. Responses of "very hard" and "somewhat hard" were grouped into the "low self-efficacy to use shelf labels" category. Responses of "somewhat easy" and "very easy" were grouped into the "high self-efficacy to use shelf labels" category. For the second follow-up self-efficacy question, responses were collected as open-ended, categorized, and summarized with frequencies and percentages.

Customers' reactions to shelf labels— The three measures used to determine customers' reactions to the shelf labels were collected and analyzed as ordinal variables. For analysis, responses of "strongly disagree" and "somewhat disagree" were grouped as "negative response."

Reaction scores were calculated for relatability, comprehensibility, and credibility. Scores ranged from one to four, one indicating the most negative response "strongly disagree" and four indicating the most positive response "strongly agree." For each reaction variable, the mean and standard deviation were calculated across nine variables: gender, age, education, children in household, participation in federal nutrition assistance, awareness of shelf label, use of shelf label, "healthfulness" as the top decisional factor influencing food purchases, and dose received. This was used to determine the types of customers who most often reacted positively or negatively to the shelf labels.

Dose of exposure—Dose of exposure was collected as a continuous variable and presented as a mean and standard deviation. These continuous responses

were later re-categorized into: participants who indicated shopping at the store one to two times a month was listed as “about once a month,” three to five times a month were grouped “about once a week,” six to sixteen times a month were placed into “a few times a week,” and 17 to 30 times a month were grouped as “almost daily.”

Key Informant Interviews

During each key informant interview, the cell-phone application, Voice Record Pro by (Dayana Networks Ltd., 2014), was used on an Apple iPhone 5S to audio record the conversations. (Matchless Transcription LLC, 2015), an external qualitative transcribing agency, transformed the recordings into textual data by making a verbatim transcript of the interview discussions. The transcript captured both the words spoken by the participants and the interviewer and included identification of each speaker. The lead evaluator re-checked each transcript for precision and completeness by comparing the audio recording of the interview to the written transcript, identifying, and correcting any errors or omissions. Names and other identifiers were removed from the transcript to preserve participant confidentiality. These identifiers were replaced with descriptive words to indicate what was removed such as “employee name” and “job title.”

Once data had been transcribed and identifiers removed, deductive codes were developed for macro-level analysis. Deductive content analysis was used as the primary research method in order to condense words into fewer content-related categories and provide knowledge, new insights, and a guide for action (Elo & Kyngas, 2008). A deductive approach was useful since the general aim of

the key informant interviews was to answer four specific evaluation questions, which were conceptually and empirically grounded in research. Further, the lead evaluator's familiarity with the topic area allowed for appropriate recognition of codes (Hennink, Hutter, & Bailey, 2011). In order to allow the data to speak for themselves, the lead evaluator was careful not to impose deductively derived codes on the data where they are not validated within the text (Hennink et al., 2011).

A codebook with seven codes (21 sub-codes) and operational definitions was developed to serve as a reference for all codes used in the analysis (see Appendix N). For each code in the codebook, the code name, and a description was included; the description stated the meaning of the code, how it was recognized in the data, and an example of relevant text. Code development was conducted until a clear understanding of the issues was obtained.

Using the software program (MAXQDA, 2014), content was first coded by topic area, identifying a priori codes as recognized in the evaluation questions and following the interview guide. Topics included: reach, feasibility, acceptability, and sustainability; customers' reactions to shelf labels, and suggestions for program improvement. These codes were formed in the initial codebook. Second, the lead evaluator actively reviewed the data in order to notice repetition, explore underlying concepts, and develop in vivo codes. Using this method, one new code, community culture, was added to the codebook. Third, within each topic, the lead evaluator documented issues that repeatedly emerged within each interview and across multiple interviews. Where relevant, the intensity and context of the mentions were also noted, as well as the level of

agreement or disagreement between sources. Salient points from the analysis were extracted for use in reports along with quotations that were reflective of the discussion.

In-Store Observations

In-store observation data were recorded using a paper version of the in-store observation forms entered into Microsoft Excel for initial analysis, and then transferred to the SPSS (Version 17.0, SPSS Inc., Chicago, IL) for further analysis. Descriptive statistics were calculated to summarize data.

Chapter 4. Results

Overview

The purpose of this chapter is to report the results of the evaluation. Results are presented by evaluation topic, with qualitative themes illustrated by representative quotes. Major topics include: fidelity, reach, dose delivered, dose received, acceptability, feasibility, awareness and use, customer reactions, sustainability, and suggestions for program improvement.

Description of Participants

A total of 72 Super Giant Food store customers agreed to participate in the survey and 72 customer intercept surveys were completed. The data in Table 4 provide descriptive statistics for the participants' sociodemographic characteristics. The mean age of the participants was 50.2 (*SD*= 14.87). The majority of participants were female (66.7%), non-Hispanic (95.8%), and African-American (95.8%). Among respondents, the majority (53.5%) received a high school diploma or General Education Development (GED) diploma. Participants most commonly reported (55.6%) living in a home with no children under the age of 18. The majority of participants (57.7%) received federal nutrition assistance in the form of either SNAP or WIC; all participants who received WIC benefits were also SNAP recipients.

Six Super Giant Food store employees agreed to participate in the key informant interview. Both male (n= 3) and female (n= 3) employees were interviewed. Employees also had varying Super Giant Food store responsibilities

(i.e., manager, cashier, customer service, meat manager), and store tenure ranged from five to over thirty years.

Table 4. Sociodemographic characteristics of customer intercept survey participants

Characteristic	*n* (%)
Age	
18 to 29	6 (8.5%)
30 to 49	27 (38.0%)
50 to 64	27 (38.0%)
65 +	11 (15.5%)
Total [a]	71 (100.0%)
Gender	
Female	48 (66.7%)
Male	24 (33.3%)
Total	72 (100.0%)
Hispanic, Latino/a, or Spanish Origin	
Yes	3 (4.2%)
No	69 (95.8%)
Total	72 (100.0%)
Race	
Black/African-American	68 (95.8%)
Multi-race	3 (4.2%)
White	0 (0.0%)
Total [a]	71 (100.0%)
Education	
Some high school	8 (11.3%)
High school graduate or equivalent	38 (53.5%)
Some college or vocational school	16 (22.5%)
College graduate	9 (12.7%)
Total [a]	71 (100.0%)
Child under the age of 18 in household	
Yes	32 (44.4%)
No	40 (55.6%)
Total	72 (100.0%)
Federal Nutrition Assistance: SNAP and WIC benefits (multiple responses recorded)	
Yes	41 (57.7%)
SNAP benefits	41 (57.7%)
Both SNAP and WIC benefits	6 (8.5%)
No	30 (42.3%)
Total [a]	71 (100.0%)

[a] Data missing on 1 participant

Fidelity of Program Implementation

Three dimensions of fidelity were assessed: (1) shelf label placement; (2) shelf talker placement; and (3) poster placement. The quality and consistency of all three measures were conducted through in-store observations. Overall, the program achieved high fidelity in terms of shelf label placement, as shown in Table 5 below. At the first in-store observation, shelf labels were placed correctly 78.3% of the time. Six store aisles demonstrated high fidelity of shelf label placement; the remaining three aisles achieved moderate fidelity. At the second in-store observation fidelity showed improvement, to 87.0% overall shelf label placement. During the second observation, eight store aisles demonstrated high fidelity and one aisle demonstrated moderate fidelity of shelf label placement. Although fidelity was higher in a greater number of aisles, fidelity decreased in three aisles between the two observation periods: aisle two, aisle 4, and the meat case. Shelf label fidelity was lowest in the meat case, at both observations: 57.1% at the first in-store observation and 56.3% at the second in-store observation. The program also achieved a high level of fidelity for the implementation of the shelf talkers, at both observation periods. In assessing the shelf talkers, 90.6% were in place at the first in-store observation and 75% were in place at the second in-store observation. Fidelity of poster placement was unable to be evaluated. Although posters were an intended element of the evaluation, they were never placed in the store.

To provide context to the fidelity check, the lead evaluator also documented observable factors that may have influenced the implementation of the shelf labels. There were a few aisles that had various problems that may have limited the shelf

label visibility. Within the dairy case, all shelf labels were placed to the left of the price tag; however, under the majority of other foods the shelf label was placed on the right of the price tag. Although all eggs were listed on the Healthy Food to Label List, there were only three shelf labels for the entire egg section instead of under individual products. In aisle 10, there were 19 foods on the Healthy Food to Label List that had the first iteration of the shelf label placed under the food item. This previous version of the shelf label had the same image, though it is about half the size. In aisle 2, food products were incorrectly placed on the shelf (i.e., white rice is placed where the brown rice price tag is located); although the shelf labels were placed correctly under the brown rice, it may be unclear to the customer. The meat case was particularly problematic. The same food products were in multiple locations and food products were moved without also relocating the shelf labels, causing the shelf labels to be placed incorrectly. Between the first and second observations, the lead evaluator also noticed that there were new store products that had yet to be considered for the Healthy Food to Label List. These include dried fruits, bread, frozen vegetables, and meat products. Additionally, there were aisles in which the food products and price tags were placed so closely, that there was not room to place a shelf label on the foods that were on the Healthy Food to Label List.

Table 5. Fidelity of placement of shelf labels by aisle and overall

Aisle Number	Food Type	Total no. products in inventory	Shelf labels placed correctly	
			First in-store observation *n* (%)	Second in-store observation *n* (%)
Aisle 1	Condiments	22	18 (81.8%) †	20 (90.9%) †
Aisle 2	Rice, dried beans, canned veg., soups	50	42 (91.3%) †	37 (80.4%) †
Aisle 3	Dried & canned fruit, canned milk, nuts	37	21 (61.8%)	33 (91.7%) †
Aisle 4	Snack nuts	12	10 (90.9%)	10 (83.3%) †
Aisle 5	Canned meats, bread	24	16 (72.7%)	17 (81.0%) †
Aisle 6	Snack nuts, breakfast cereals	45	34 (77.3%) †	35 (83.3%) †
Dairy Case & Eggs	Milk, cheese, eggs	18	18 (100%) †	18 (100.0%) †
Aisle 10	Frozen vegetables	99	75 (76.5%) †	88 (93.6%) †
Meat Case	Meat, frozen fish, frozen vegetables	16	8 (57.1%)	9 (56.3%)
	Overall Fidelity	323	242 (78.3%) †	267 (87.0%) †

Note: The aisles monitored directly matched the Healthy Food to Label List. Aisles not monitored either did not contain food items or did not have food items that met the criteria of the Healthy Food to Label List.

† Indicates high fidelity, between established 75-100% threshold

Reach

Reach was assessed through the customer intercept surveys and key informant interviews. Sociodemographic characteristics are described in more detail above, under Participant Characteristics. During the key informant interviews, employees were asked to provide an estimate of the number of customers that shop in the Super Giant Food each day. Only two employees were able to provide approximations: one suggested about 570 customers shop in the store each day and another estimated about 400 customers shop in the store each day. During the formative research phase of the project, the store owner provided the Urban Health Initiative with an average of 510 customers per day, which is within the estimated range provided during the interviews.

Dose Delivered

Dose delivered was assessed through in-store observations. In order to assess dose delivered, the total number of shelf labels, shelf talkers, posters, and flyers placed and given to the store were reported. In terms of shelf labels visible to customers, there were 323 shelf labels placed at the start of the program, 242 present at the first in-store observation, and 267 present at the second in-store observation. There were 32 shelf talkers placed at the start of the program; at the first and second observations there were 29 and 24 shelf talkers, respectively. There were no posters placed in the store during the measurement period. At two time points, flyers were provided to store cashiers for distribution to customers; a total of 500 flyers were provided on December 7, 2014 and another 500 flyers were provided on January 18, 2015.

Dose Received

Dose received was assessed through both the customer intercept surveys and the key informant interviews. In assessing the first evaluation question, the survey asked participants to report the average number of times they shop at Super Giant Food. Participants reported an average of 5.2 (*SD*= 6.76) shopping trips each month. Among respondents, 22 (30.6%) reported that they shopped at Super Giant Food about once a month (i.e., one to two times each month), 32 (44.4%) participants reported that they shopped at Super Giant Food about once a week (i.e., three to five times each month), 14 (19.4%) participants reported that they shopped at Super Giant Food a few times a week (i.e., six to sixteen times each month), and 4 (5.6%) participants reported that they shopped at Super Giant Food almost daily (i.e., seventeen to thirty times each month).

Acceptability and Feasibility

The key informant interview included questions on program acceptability and feasibility. Within the topic of acceptability, one theme emerged: employees' personal use of the program. The majority of employees interviewed reported that while sometimes they personally used the shelf labels, they did not regularly use the shelf labels for their own grocery shopping. As for reasons why employees may not choose to use the shelf label, employees cited: (1) they are not the primary grocery shopper for their family; (2) if they have a shopping list, they tend not to deviate from what is recorded; (3) they only purchase groceries for themselves. Two employees shared that if the shelf labels were placed below foods they would purchase anyways, they would use them when deciding between items. Another employee expressed particular enthusiasm for the shelf labels, noting that the shelf

labels have helped him/her to recognize healthy food items, purchase these items, and prepare the healthier food items at home. This employee commented:

> *I learned that a lot of things on the shelf were healthy by your labels. Before then, I did not really understand it, but with your labels up there I could understand…when I used to go to the grocery store, and say oh no, I don't like that…but now I like the brown rice and the wheat and the different, healthier foods I've started eating. Your program really made me feel much - I guess I could say healthier, because I started buying some of those things. (Employee 3).*

Employees were also asked during the key informant interview to provide their opinions about the feasibility of the shelf labeling program. Overall, the employees expressed that they considered the program feasible in this context, noting various reasons. These reasons included dedicated volunteers, nutritional awareness, and interactive activities. According to two employees, one of the elements of the program that facilitated program implementation was the dedicated and consistent volunteer efforts. In regards to nutritional awareness, the store employees explained that previously, many customers would simply purchase items without considering the nutrition of the food. A few employees noted that the customers are beginning to become aware of the shelf label program and are gaining a better understanding about the importance of healthy eating and which foods are healthy choices. One employee shared: [The shelf labels] really show the people exactly what's healthy for them, and I've seen a lot of [customers] picking those healthy, you know, tags and they want to know what the tags is all about. (Employee 3)

The employees also discussed that the interactive activities, such as the food demonstrations were well-received by customers. One particular employee

expressed that the food demonstrations were one of the most compelling aspects of the program. The employee described that s/he observed a customer discuss their health conditions with the chef; the customer indicated that reducing blood pressure was important to them and that was why they were choosing the healthy food options. The employee reflected:

> *The most successful part has been when the cooks came in and [the customers] tasted the food, then they start buying it. [The customer said] this is good, right? This is good for my heart or my blood pressure… that was one reason why they chose that healthy choice.* (Employee 5)

One employee explained with the following statement that the food demonstrations were a unique opportunity for community members to try healthy food options: "[The food demonstrations] are really good for this community, because you've got a lot of people that really don't know what healthy food is and have never tried it." (Employee 3)

One of the employees commented during interviews that the program prompted the store to expand their stock of produce during the program period. They described how the stock of vegetables and fruit available in the store increased, due to the *Healthy Food, Healthier You* initiative. Additionally, there were seven mentions of the on-site community garden across three interviews with employees. These three employees brought up the garden in reference to how they first learned about the *Healthy Food, Healthier You* program.

Customers' Reactions

Customers' reactions to the program were measured using the key informant interviews and customer intercept surveys. During the key informant interviews, nearly all employees recalled some type of interaction with the customers related to

the program; some employees indicated that they spoke directly with customers about the shelf labels, others simply observed customers looking at the shelf labels, and a few recalled that they experienced a combination with the two – speaking with customers directly and observing their behavior. One employee who expressed active involvement in speaking with the customers about the shelf labels shared encouraging an elderly female customer to select the brown rice that is marked with the shelf label over the white rice that is not labeled: “I said, well, listen, why don't you try it. You might like it. So she bought some and she said she tried it for her Sunday dinner. Her family liked it so now she buys brown rice." (Employee 3) This employee also indicated the strong sense of satisfaction from helping customers make healthy food choices and viewed this interaction as a positive opportunity to help customers eat healthier: "I feel comfortable when I tell the customers about [the shelf label].... I've had quite a few pick those choices and I kind of like that." (Employee 3) Another employee suggested the shelf labels were appealing to customers and viewed as trustworthy and accurate. Based on the employee’s observations of customers, they suggested that the program seems to resonate best with the health-focused customers. However, some specific program goals were less understood by employees. One employee stated that they did not feel as though they knew enough to explain the program to customers; the employee described that they handed the customer the *Healthy Food, Healthier You* flyer instead. The employee shared, "They've asked about it and I have to give them the flyer because I don't really know that much about it, you know?" (Employee 2) In these examples, employees described varying levels of engagement with customers, knowledge

about the program, and confidence in their ability to help customers make healthy food decisions.

Three types of reactions were assessed through customer intercept surveys: relatability, comprehensibility, and credibility. Customers' reactions to the shelf labels are reported in Table 6. For relatability, 68.1% participants "strongly agree" that the shelf labels catch their eye; only 5.6% of participants provided a negative response to relatability. In regards to comprehensibility, 81.7% of participants "strongly agree" that the shelf labels are easy to understand. In regards to credibility, just over half (55.6%) of participants reported to "strongly agree" that the shelf label is trustworthy; only 9.7% of respondents "strongly agree" or "somewhat disagree" to credibility.

Table 6. Customers' reactions to shelf labels

Variable	Negative Response	Positive Response		Total *n* (%)
	Strongly disagree or Somewhat disagree *n* (%)	Somewhat agree *n* (%)	Strongly agree *n* (%)	
Relatability				
This shelf label catches your eye.	4 (5.6%)	19 (26.4%)	49 (68.1%)	72 (100.0%)
Comprehensibility				
This shelf label is easy to understand.	1 (1.4%)	12 (16.9%)	58 (81.7%)	71 (100.0%)[a]
Credibility				
This shelf label is trustworthy.	7 (9.7%)	25 (34.7%)	40 (55.6%)	72 (100.0%)

[a] Data missing on 1 participant

Customers' reaction scores compared across sociodemographic variables – As detailed in Table 7, customers' reaction scores for reliability, comprehensibility, and credibility were compared across nine sociodemographic variables: gender, age, education, children in household, participation in federal nutrition assistance, awareness of shelf label, use of shelf label, "healthfulness" as the top decisional factor influencing food purchases, and dose received. Based on the results, there were five notable observations. First, females had higher mean scores than males across all three reaction categories. Second, when the mean relatability scores were compared between the lowest age group (i.e., 18 to 29) (M= 2.7, *SD* = 1.03) and the highest age group (i.e., 65+) (M= 3.6, *SD*= 0.51) the older age group had an average score of 1.1 points higher. Third, there were no meaningful differences between those who were aware of the shelf label and those who were not, for relatability, comprehensibility, and credibility. Fourth, participants who reported that they used the shelf label to any extent had higher customer reaction scores—relatability (M= 3.8, *SD*= 0.44), comprehensibility (M= 3.9, *SD*= 0.38), and credibility (M= 3.8, *SD*= 0.44)—compared to those who reported they did not use the shelf label. Fifth, the largest difference between reaction scores was generally found between the lowest and highest dose received categories: "about once a month" to "almost daily."

Overall, comprehensibility had the highest of all mean reaction scores, at 3.8 (*SD* = 0.51), credibility had the lowest of all mean reaction scores overall, at 3.4 (*SD* = 0.71), and relatability fell in between the two at 3.6 (*SD* = 0.64). In general, those who were female, ages 30 to 49, had completed college, and shopped at the store

almost daily found the shelf labels most relatable. Those who were female, ages 30 to 49, had attended some college or vocational school, did not receive SNAP or WIC benefits, had used the shelf label to some extent, and shopped at the store almost daily tended to find the shelf labels the most comprehensible. Customers who were female, ages 18 to 29, had completed some high school, had used the shelf label to some extent, and shopped at the store almost daily generally found the shelf labels to be most credible.

Table 7. Customers' reaction scores compared across sociodemographic variables

Variable	*n* (%)	Reaction Score M (*SD*)		
		Relatability	Comprehensibility	Credibility
Overall	72 (100.0%)	3.6 (0.64)	3.8 (0.51) [a]	3.4 (0.71)
Gender				
Female	48 (66.7%)	3.7 (0.66)	3.8 (0.38)	3.5 (0.72)
Male	24 (33.3%)	3.5 (0.59)	3.7 (0.70)	3.3 (0.70)
Age				
18 to 29	6 (8.5%)	2.7 (1.03)	3.7 (0.52)	3.8 (0.41)
30 to 49	27 (38.0%)	3.8 (0.48)	3.9 (0.36)	3.4 (0.79)
50 to 64	27 (38.0%)	3.6 (0.57)	3.7 (0.67)	3.4 (0.75)
65 +	11 (15.5%)	3.6 (0.51)	3.8 (0.41)	3.5 (0.52)
Education				
Some high school	8 (11.3%)	3.5 (0.54)	3.8 (0.46)	3.8 (0.46)
HS grad or GED	38 (53.5%)	3.5 (0.76)	3.7 (0.61)	3.3 (0.75)
Some college or vocational school	16 (22.5%)	3.8 (0.40)	4.0 (0.00)	3.6 (0.73)
College graduate	9 (12.7%)	3.9 (0.33)	3.8 (0.44)	3.4 (0.73)
Child under the age of 18 in household				
Yes	32 (44.4%)	3.7 (0.64)	3.8 (0.42)	3.4 (0.62)
No	40 (55.6%)	3.6 (0.64)	3.8 (0.57)	3.5 (0.78)
Federal Nutrition Assistance: SNAP and WIC benefits				
Yes	41 (57.7%)	3.6 (0.70)	3.7 (0.59)	3.4 (0.70)
No	30 (42.3%)	3.6 (0.56)	3.9 (0.35)	3.5 (0.73)
Aware of Shelf Label Program				
Yes	19 (26.4%)	3.7 (0.56)	3.8 (0.42)	3.5 (0.84)
No	53 (73.6%)	3.6 (0.67)	3.8 (0.54)	3.4 (0.66)
Used Shelf Labeling Program				
Used to any extent	13 (68.4%)	3.8 (0.44)	3.9 (0.38)	3.8 (0.44)
Did not use	6 (31.6%)	3.7 (0.82)	3.7 (0.52)	3.0 (1.27)
Factors influencing food purchases				
Healthfulness	21 (29.2%)	3.6 (0.59)	3.8 (0.40)	3.4 (0.92)
Other	51 (70.8%)	3.6 (0.67)	3.8 (0.55)	3.5 (0.61)
Dose received				
About once a month	22 (30.6%)	3.6 (0.59)	3.7 (0.46)	3.3 (0.77)
About once a week	32 (44.4%)	3.7 (0.65)	3.7 (0.63)	3.5 (0.62)
A few times a week	14 (19.4%)	3.5 (0.76)	3.9 (0.27)	3.5 (0.86)
Almost daily	4 (5.6%)	3.8 (0.50)	4.0 (0.00)	4.0 (0.00)

[a] Data missing on 1 participant

Awareness and self-reported use of shelf labels—In addition, the survey asked customers about their awareness and use of the shelf label program (see Table 8 below). When asked if they had ever seen or heard about the *Healthy Food, Healthier You* shelf labeling program, 26.4% participants responded "yes." Among the participants who had seen or heard about the *Healthy Food, Healthier You* shelf labeling program, the majority (31.6%) had seen the shelf labels in the store.

Within the group of participants who were aware of the shelf labels, 68.4% reported using the program to some extent. Participants that used the shelf label reported using shelf label to select frozen foods and canned soups 69.2% of the time. Based on awareness and use responses, participants were classified into one of four Transtheoretical Model stages of change categories: 3 (4.4%) participants were placed in the pre-contemplation stage, 10 (14.7%) participants were categorized into the contemplation stage, 42 (61.8%) were classified into the preparation stage, and 13 (19.1%) participants were considered to be in the action stage.

Table 8. Awareness and use of shelf label program

Variable	*n* (%)
Have you ever seen or heard about the *Healthy Food, Healthier You* shelf labeling program?	
Yes	19 (26.4%)
No	53 (73.6%)
Total	72 (100.0%)
How did you first learn about the *Healthy Food, Healthier You* shelf labeling program?	
Saw shelf labels in store	6 (31.6%)
Signs, posters, or store flyer	5 (26.3%)
Event (i.e., Food demonstrations or store tours)	4 (21.1%)
Family or friend	2 (10.5%)
Television	2 (10.5%)
Total [a]	19 (100.0%)
On average, how often do you use the shelf label to help you select foods?	
Did not use	6 (31.6%)
Used program to any extent	13 (68.4%)
Sometimes	6 (31.6%)
About half the time	7 (36.8%)
Most of the time	0 (0.0%)
Regularly	0 (0.0%)
Total [b]	19 (100.0%)
Which types of food did the label help you purchase? (multiple responses recorded)	
Frozen or canned fruits or vegetables, canned soups	9 (69.2%)
Meat	4 (30.8%)
Dairy	3 (23.1%)
Dried Beans	3 (23.1%)
Whole grain pasta, rice, bread, or cereal	1 (7.7%)
Total [c]	13 (100.0%)

[a] Data reflects responses from 19 participants who were aware of the shelf label. The remaining 53 participants were not asked this question due to previous responses. There were no missing responses.
[b] Data reflects responses from 19 participants who were aware of the shelf label. The remaining 53 participants were not asked this question due to previous responses. There were no missing responses.
[c] Data reflects responses from 13 participants who had used the program to any extent. The remaining 59 participants were not asked this question due to previous responses. There were no missing responses.

Factors that contribute to or impede upon use of shelf labels—The data in Table 9 provides descriptive statistics for factors that contribute to or impede upon the use of shelf labels. The two most common responses for reporting factors influencing food purchases were: "price" (34.7%) and "healthfulness" (29.2%). In regards to self-efficacy, the majority (74.6%) of participants reported it would be "very easy" to use the shelf labels if they decided to shop for healthy foods. When the two categories "somewhat easy" and "very easy" were combined, 95.8% of participants could be categorized as having high self-efficacy to use the shelf labels. Among the participants who reported it would be "somewhat hard" or "somewhat easy" to use the shelf label, 52.6% reported that it would be difficult to follow the shelf labels when staying within a budget. The second most common response (15.8%) was that following shelf labels may be difficult when the food is physically difficult to reach.

Table 9. Factors that contribute to or impede upon use of shelf labels

Variable	*n* (%)
Factors influencing food purchases	
Which of the following is important to you when making food purchases?	
Price	25 (34.7%)
Healthfulness	21 (29.2%)
Convenience	18 (25.0%)
Taste	3 (4.2%)
Sustainability	2 (2.8%)
Variety	2 (2.8%)
Quality	1 (1.4%)
Total	72 (100.0%)
Self-efficacy	
If you decided to start shopping for healthy food, how hard or easy would it be to use the shelf label?	
Low self-efficacy	3 (4.2%)
Very hard	0 (0.0%)
Somewhat hard	3 (4.2%)
High self-efficacy	68 (95.8%)
Somewhat easy	15 (21.1%)
Very easy	53 (74.6%)
Total [a]	71 (100.0%)
What are some things that make it hard to follow the shelf labels?	
Staying within budget	10 (52.6%)
Food is physically difficult to reach	3 (15.8%)
Choosing foods that are familiar and taste good	2 (10.5%)
Not having enough time to look for the shelf labels	1 (5.6%)
Shopping with children	1 (5.3%)
Not sure	1 (1.4%)
Total [b]	18 (100.0%)

[a] Data missing on one participant
[b] Data reflects responses from 18 participants. There was one missing response. The remaining 53 participants were not asked this question due to previous responses.

Awareness and use compared across sociodemographic groups –Bivariate tests (i.e., chi square tests of independence, independent t-tests, Fisher's exact tests, and Wilcoxon-Mann Whitney tests) were performed to examine the association between proposed predictor variables (i.e., gender, age, education, child in household, federal nutrition assistance, healthfulness as a factor influencing food purchases, and dose received) and the first outcome variable, awareness of the shelf label. Bivariate analyses suggest that education ($p= .07$), healthfulness as a factor influencing food purchases ($p= .04$), and dose received ($p= .01$) were independently, significantly associated with the first outcome variable, awareness of shelf labels. The remaining variables (i.e., gender, age, child in household, and federal nutrition assistance) did not meet the $p<.10$ criteria for inclusion; therefore, based on an empirical approach, education, healthfulness as a factor influencing food purchases, and dose received were included in the subsequent logistic regression model using the Enter method.

Bivariate analyses were conducted to examine the association between predictor variables (i.e., gender, age, education, child in household, federal nutrition assistance, healthfulness as a factor influencing food purchases, and dose received) and the second outcome variable, use of the shelf label. As detailed in Table 10, age ($p= .002$) was significantly associated with the use of shelf labels. The remaining variables (i.e., gender, education, child in household, federal nutrition assistance, healthfulness as a factor influencing food purchases, and dose received) did not meet the $p< .10$ criteria for inclusion in the logistic regression model.

Table 10. Cross tabulation of awareness and use across sociodemographic groups

Variable	Aware of shelf label			Used shelf label		
	Yes	No	*p*	Yes	No	*p*
Gender *n* (%)						
Female	12 (25.0%)	17 (23.6%)	.71 [a]	8 (66.7%)	2 (10.5%)	1.0 [b]
Male	7 (29.2%)	36 (50.0%)		5 (71.4%)	4 (21.1%)	
Age *M* (*SD*)	53.2 (12.2)	49.1 (15.6)	.31 [c]	58.9 (9.1)	42.0 (9.8)	.002 [c]
Education *n* (%)						
Some HS	2 (25.0%)	6 (8.5%)	.07 [a]	2 (100.0%)	0 (0.0%)	.54 [b]
HS graduate or equivalent	6 (15.8%)	32 (45.1%)		4 (66.7%)	2 (10.5%)	
Some college or vocational school	6 (37.5%)	10 (14.1%)		3 (50.0%)	3 (15.8%)	
College graduate	5 (55.6%)	4 (5.6%)		4 (80.0%)	1 (5.3%)	
Child under the age of 18 in household *n* (%)						
Yes	8 (27.5%)	24 (33.3%)	.81 [a]	6 (75.0%)	2 (10.5%)	1.0 [b]
No	11 (25.0%)	29 (40.3%)		7 (63.6%)	4 (21.1%)	
Federal Nutrition Assistance: SNAP and WIC benefits *n* (%)						
Yes	13 (20.0%)	28 (38.9%)	.27 [a]	8 (61.5%)	5 (26.3%)	.61 [b]
No	6 (31.7%)	24 (33.3%)		5 (83.3%)	1 (5.3%)	
Healthfulness as a factor influencing food purchases *n* (%)						
Yes, healthfulness	9 (42.9%)	12 (16.7%)	.04 [a]	5 (55.6%)	4 (21.1%)	.35 [b]
No, another factor	10 (19.6%)	41 (56.9%)		8 (80.0%)	2 (10.5%)	
Dose received *M* (*SD*)	8.4 (7.7)	4.1 (4.4)	.01 [d]	10.4 (8.6)	4.0 (1.7)	.24 [d]

Note. Covariates that met the 0.1 α level were included in the multivariate model (Table 11)

[a] Chi-square test conducted

[b] Fisher's exact test conducted since 25% or more cells had an expected frequency < 5; therefore, failed to meet chi-square test criteria

[c] T-test conducted on continuous variable with parametric distribution

[d] Wilcoxon-Mann Whitney test conducted on continuous variables with non-parametric distribution

A multivariate logistic regression was performed to determine which predictor variables (i.e., age, education, healthfulness as a factor influencing food purchases, and dose received) had the most influence on shelf label awareness and subsequent use of the shelf labels. Statistical significance was set at $\alpha < 0.05$. As shown in Table 11, education, reporting healthfulness as an important factor, and dose received were significantly associated with shelf label awareness. Compared to those with some high school education, customers who graduated from high school or received an equivalent diploma were nearly seventeen times less likely to report awareness of the shelf label (OR= 0.06; 95% CI= 0.004, 0.81; p= .034). Individuals who completed some college or vocation school were sixteen times less likely to report awareness of the shelf label compared to individuals with some high school education (OR= 0.06; 95% CI= 0.01, 0.43; p= .005). Customers who graduated college were more than three times less likely to report awareness of the shelf label compared to those with some high school education (OR= 0.28; 95% CI= 0.04, 1.80; p= .18).

Further, customers who reported healthfulness as the most important factor influencing decision making during grocery shopping were more than eight times less likely to report awareness of the shelf label (OR= 0.12; CI 95%= 0.03 0.56; p= 0.006). In addition, for each one unit increase in dose (i.e., number of times per month shopping Super Giant Food), the odds that survey respondents were aware of the shelf labels increased by 17.0% (OR= 1.17; 95% CI= 1.05, 1.30; p= .003). Age was significantly associated with shelf label use. For

each one year increase in age, the odds that customers used the shelf labels increased by 26% (OR= 1.26; 95% CI 1.01, 1.57; p= .04).

Table 11. Logistic regression models for awareness and use of shelf labels

Variable	Aware of shelf label			Used shelf label		
	OR [a]	**95% CI** [b]	***p***	**OR** [a]	**95% CI** [b]	***p***
Age				1.26	1.01, 1.57	.04*
Education						
Some HS	Reference group					
HS graduate or equivalent vs. some HS	0.06	0.004, 0.81	0.03*			
Some college or vocational school vs. some HS	0.06	0.009, 0.43	0.005*			
College graduate vs. some HS	0.28	0.043, 1.80	0.18			
Healthfulness as a factor influencing food purchases [c]	0.12	0.03, 0.55	.006*			
Dose received	1.17	1.05, 1.30	.003*			

Note. Covariates were included in the multivariate model above only if they met the 0.1 α level, as shown in Table 10

Note. For the purpose of the logistic regression model, age and dose received were entered as continuous variables. 'Healthfulness as a factor influencing food purchases' was dichotomized into two groups– individuals who chose 'healthfulness' as a top factor and those who chose any other factor. 'Education' was categorized into four groups – some high school, high school graduate or equivalent, some college or vocational school, and college graduate.

* Indicates significance at p <.05

[a] Abbreviation: OR, odds ratio

[b] Abbreviation: CI, confidence interval

[c] (Eikenberry & Smith, 2004; National Cancer Institute, 2005; Ohri-Vachaspati et al., 2014; Story et al., 2008)

Sustainability

Throughout the interviews, employees were asked to reflect on the future of the *Healthy Food, Healthier You* program. From these discussions, three themes emerged: employee support for the program, dependence on the Urban Health Initiative, and suggestions for improvement. The majority of employees voiced strong support of the health improvement intentions of the program, which may be seen as a facilitator to the sustainability of the program. Employees explained the strong need in the community for a health-promotion program, such as the shelf label initiative. One employee discussed the importance of meeting the customer where they are and helping them understand the importance of the program and eating healthy, this will bring about change. One employee indicated that the program was accepted by the neighborhood: "We got some customers who are real sick [with] high blood pressure or heart disease…so they was kind of glad to, you know, see [the shelf label] in here." (Employee 5) Another employee echoed the importance of a nutrition program in the community by saying, “They needed somebody like you all to come in this neighborhood and start this, because these people, they wasn't eating healthy." (Employee 3) When asked where the employee sees this program in the future, many of the employees seemed to want the program to continue and to grow. One employee shared that they would like to see it grow because it is for health and that was important to them. Nearly all employees recognized that behavior change was a long-term goal and takes time.

Employees also discussed the program’s dependence on the Urban Health Initiative and how this may influence the program’s future. Two sub themes

emerged within these discussions: no formal employee introduction and minimal employee involvement. Both of these may be seen as barriers towards program sustainability. All employees indicated that there was not a formal employee introduction to the *Healthy Food, Healthier You* program by the Urban Health Initiative program staff or the store management. When asked about how they were first introduced to the program, employees noted that they learned about the program when they saw Urban Health Initiative volunteers labeling the shelves beneath the healthy food items. Only one employee referenced speaking to the store owner about the program.

When asked about their involvement in the program, the employees interviewed reported no involvement in the development of the program and minimal active involvement in programming efforts. Active program efforts that were discussed were hanging shelf labels and distributing flyers to customers. Between the two employees that noted involvement with one-time shelf label hanging, one employee responded negatively, discounting active participation as though it was not a significant task. Another two employees noted that they helped with handing out flyers on a regular basis, because they were asked to do this task by the store manager and owner. One employee noted that without volunteer involvement, s/he did not anticipate that the program would be able to continue: “If Emory was depending on the store to continue [the *Healthy Food, Healthier You* program], it wouldn't go forward. It would stop the same day." (Employee 4)

When prompted about their interest in participating in the program in the future, two employees explicitly expressed interest, two stated that time was a

concern, and two were unsure. One employee explained the difficulty of adding another task on top of their busy job: "There's quite a few employees here. If you ask them, I'm quite sure some would be interested. Me, personally, I have enough work to do... so I couldn't." (Employee 6) One of the employees emphasized that incorporating employees in the program would be a critical factor in determining success because of the amount of time-spent interfacing with customers. Another employee responded that while s/he believed the employees would be interested, the best people to contribute were volunteers, rather than employees.

Suggestions for Program Improvement

Employees had few suggestions for improvement of the shelf label program aside from creating a more prominent sign for the shelf labels in the meat department. However, employees did have suggestions for new activities that may be beneficial, and would supplement the existing shelf label program. Within these discussions, two themes emerged: interpersonal nutrition education component and community outreach. Three out of the six employees brought up similar ideas to add an interpersonal nutrition education component to the current programming, in order to inform customers about the shelf label program. One employee suggested having an individual at the store that would be in charge of greeting customers and providing an explanation of the shelf label program. This sentiment was echoed by a second employee:

> *Maybe if we can get some kind of buttons that [the employee] can wear with the [Healthy Food, Healthier You] logo on it; then maybe the customers see them wearing it and the customer will ask them what does it mean.* (Employee 4)

A third employee also independently brought up the idea of having Urban Health Initiative volunteers come to the store to teach Super Giant Food cashiers about the shelf label program. This employee also mentioned other topics that may be useful for the cashiers to know, including nutrition, healthy food options, and ways to engage customers. The basic idea underlying all three of these suggestions is the importance of an interactive element. Incorporating an educational component can build upon the current shelf labeling intervention, increase awareness and understanding about the program, and promote healthy food decisions. Employees had differing opinions about what type of person would be best in this educator role – whether this would be an Urban Health Initiative volunteer, community member, or Super Giant Food employee.

Another idea introduced by one employee was around increasing community outreach. This employee was passionate about the need to target community members to change attitudes about healthy eating before they come to the store. This employee suggested that the Urban Health Initiative reach out to neighborhood religious organizations and speak to community leaders about promoting the program. Another employee noted that an essential part of outreach will occur through word of mouth, once customers become more familiar with the *Healthy Food, Healthier You* program.

Chapter 5. Discussion

Several studies have evaluated outcomes related to grocery store-based nutrition programs, such as increases in purchases of healthy foods or decreases in overweight or obesity. However, given the complexity of grocery store-based nutrition programs, the unique target population in Northwest Atlanta, and the scope of this particular evaluation, a process and outcome evaluation methodology was applied. The purpose of this evaluation was to understand how the *Healthy Food, Healthier You* program was implemented and to comprehend early outcomes of the program. The findings corroborate the utility of combining process and early outcome evaluation methodologies.

Evaluation Question 1: Was the *Healthy Food, Healthier You* program implemented with high fidelity, reach, and dose?

Fidelity—Overall, the program was implemented with high fidelity. In regards to shelf label placement, fidelity levels were high at both observation times, though overall fidelity improved at the second observation. During the first observation, the lead evaluator replaced five missing shelf labels; however, this does not explain the near 9% increase in fidelity. Key informant interviews did not offer additional explanation. Moving forward, it will be important to monitor shelf labels approximately once per month, paying careful attention to the aisle with the lowest rate of fidelity—the meat case. While fidelity was high overall for shelf talkers, the 15% reduction in fidelity over the course of six weeks indicates the need for closer monitoring in the future. Fidelity for shelf labels were consistent with similar studies; (Curran et al., 2005) found shelf labels were placed correctly 91% of the

time and (Gittelsohn, Suratkar, et al., 2010) reported that food restocked by external vendors was frequently rearranged.

Reach—In this evaluation, all customer intercept survey participants considered themselves to be either Black/American-American or multi-race and 57% of participants reported receiving SNAP or WIC benefits. The distribution of race is consistent with the reported statistics in the five census tracts immediately surrounding the grocery store (Austin et al., 2012; U.S. Census Bureau, 2010). There is a slight discrepancy in the percentage of individuals surveyed who receive SNAP (57%) and store owner's reported percentage of SNAP customers (approximately 70%); one explanation for the findings may be that this figure has changed in the last year since this estimate was provided. Given that the majority of survey participants received SNAP or WIC, it was not surprising that price was the most commonly reported factor influencing food purchases and staying within a budget was the most commonly reported barrier to using the shelf label. This has implications for the *Healthy Food, Healthier You* program. Cost should be taken into account when determining which foods receive a shelf label and also incorporated into other program components, such as helping customers develop a monthly food shopping budget or highlighting the low cost of meals during food demonstrations.

It was estimated by store staff that between 400 and 570 customers shop in the store each day. Further, since the majority of customers reported shopping at Super Giant Food one to two times a month, over the 10-week program period the majority of customers were likely exposed to the shelf labels (i.e., the 242 shelf labels placed correctly) about three to five times. Therefore, there were many

opportunities for customers to be exposed to the shelf labels and supplemental educational materials.

Dose delivered and received—Overall, the in-store components were implemented with a moderate to low dose. The measure for flyer dose delivered provided unclear data. The method of speaking with one cashier to confirm whether all customers received the *Healthy Food, Healthier You* flyer at checkout did not provide sufficient information to accurately measure flyer dose. One of the more significant barriers to the effective implementation of the *Healthy Food, Healthier You* intervention was communication with the store owner. Although posters were provided to the store, the posters were not present in the store at the time of either of the in-store observation; it is recommended that the Urban Health Initiative follow-up with the store owner about the placement of these materials. Although the overall dose delivered was high, the dose delivered per aisle varied; only eight out of 16 food products in the meat case were properly labeled at the first observation and nine at the second. This finding is significant considering that the store owner reported that 40% of sales occur from the meat department. The literature suggests that higher intensity nutrition interventions, or those with a higher dose delivered and dose received, yield more favorable behavioral outcomes (Gittelsohn et al., 2013). This emphasizes the need to increase the prominence of *Healthy Food, Healthier You* educational materials in aisles with the highest traffic.

Evaluation Question 2: Is the *Healthy Food, Healthier You* program an acceptable, feasible, and sustainable model for this context?

In order for a program to be successful, it is important that it is accepted by the target population, and feasible and sustainable in the chosen context. One of the facilitators of the effective implementation was the store's commitment to program success. This is consistent with the literature and recommendations by the Food Trust, which suggested that building strong relationships with store owners was critical in terms of making substantial store changes and following through with the program's intervention guidelines (Food Trust, 2012). This idea is further emphasized by the tenets of community-based participatory research, demonstrating the importance of working with community leaders to establish long-term changes (Israel et al., 2001). The medium-sized store setting allowed for a strong shelf label program presence despite limited Urban Health Initiative resources. Another important facilitator was the low turnover of store stock. Since stock did not change often, this reduced the number of shelf labels that needed to be adjusted. One of the difficulties with shelf label implementation in this context was the limited space on many store shelves, making it difficult to find adequate space to place a shelf label under all the foods on the Healthy Food to Label List. It is recommended that the program team work with the store owner on how to label the shelves under these products.

Acceptability—From the key informant interviews, this evaluation indicated that the store staff viewed the *Healthy Food, Healthier You* program as acceptable for this store and community. Quantitative results from the customer intercept surveys reiterated this finding; additional detail can be found under

Evaluation Question 4. In addition, employees expressed that customers were interested in learning more about the shelf labels but that the employees did not feel adequately equipped to provide sufficient information to the customers about the program. Anecdotal evidence suggests the need to promote the store employees' understanding of the program and give them the knowledge and tools to advocate for customers' use of the labels. Providing employees a basic overview of the *Healthy Food, Healthier You* program and how to engage with customers may better prepare employees for future customer interaction.

Feasibility—Regarding program feasibility, the evaluation showed that this point-of-purchase program can be successful in increasing awareness and use of the shelf labels, as triangulated by quantitative data and described under Evaluation Question 5. From the employees' perspective, dedicated Urban Health Initiative volunteers and interactive activities incorporated in the program were large contributors towards customers' increased awareness of the labels and interest in purchasing healthy foods.

Of note was a comment by one of the employees during the interview, about how the shelf label program may have prompted the store to expand their stock of produce during the program period. Although fruits and vegetables were not the focus of the *Healthy Food, Healthier You* program, this is a positive outcome that may facilitate customers' healthy purchasing decisions and will complement the other healthy activities taking place in the store. During the in-store observations, the lead evaluator also noted that other new items were added to the shelves during this program such as 1% milk and turkey burgers. With the information at

hand, it cannot be determined if this occurred as a result of the shelf label program.

Additionally, there were seven mentions of the on-site community garden across three interviews with employees. These three employees brought up the garden in reference to how they first learned about the *Healthy Food, Healthier You* program. While the existing community garden was implemented under the same Urban Health Initiative program umbrella, the *Healthy Food, Healthier You* program is not directly related to the garden. Given the employees' strong association between the two programs, it may be of interest to the Urban Health Initiative to explore ways to link the programs together.

Sustainability—While quantitative data demonstrated the short-term success of the program, the key informant interviews shed light on longer-term program sustainability. In general, employees appreciated the shelf label program, recognized its importance, and wanted to see it grow. This was made particularly clear during the key informant interviews when employees asserted the community's need for a nutrition intervention. However, according to the key informant interviews, the majority of employees were not involved in the program during the development or implementation stages. One possible explanation is that interested employees were not given sufficient opportunity for involvement. The employees provided conflicting opinions about employee versus volunteer involvement. Many employees considered the Urban Health Initiative *Healthy Food, Healthier You program* volunteers vital to the program's continued success, while others believed that expanding the employees' role in the program would be more beneficial. The lead evaluator recognized that in the

interviews the employees tended to discuss the program as though it was developed by outsiders, which may negatively impact the future acceptance and feasibility of the program. For this reason, it may be necessary to shift involvement towards the employees and other community members; however, if the Urban Health Initiative chooses to incorporate employees in the future, it may be best to include only employees who demonstrate a true passion for the program.

Looking to the principles of community-based participatory research for guidance may offer insight into how to increase employee and community participation. Employees were excited and willing to provide suggestions for program improvement, which included ideas for community outreach and an interpersonal nutrition education component. Outreach through trusted channels will help to build credibility for the program and increase awareness. Additionally, the aforementioned nutrition education component is particularly innovative and has been demonstrated as effective in the literature. A study by (Milliron et al., 2012) combined point-of-purchase strategies with an in-person food shopping education provided by a nutrition educator. Only 29% of individuals receiving point-of-purchase information (similar to the *Healthy Food, Healthier You* program) were aware of the shelf labels; in comparison, 65% of individuals exposed to both point-of-purchase and in-person nutrition were aware of the shelf labels. During the key informant interviews, a few employees identified themselves as natural helpers and described how they have taken initiative to educate customers about healthy food purchases. These characteristics may be useful for lay health educators.

Evaluation Question 3: What external factors facilitated or inhibited *Healthy Food, Healthier You* program implementation?

This evaluation was unable to identify external factors that influenced program implementation. Internal store measures were more salient and were therefore included more frequently in the three evaluation tools. Future evaluation efforts may explore how factors external to the store environment may influence implementation.

Evaluation Question 4: What are the customers' reactions to the *Healthy Food, Healthier You* shelf labels?

There are a limited number of store-based nutrition education shelf label programs that measure the impact on minority and lower socioeconomic status communities. Further, since there were no published articles found from the southeast United States that use nutrition education programs, understanding how the population responded to this program was a critical element of this evaluation. Customer intercept survey data suggested that the majority of customers found the *Healthy Food, Healthier You* shelf label to be relatable, comprehensible, and credible. Across all reaction measures—relatability, comprehensibility, and credibility—customers who were female, who had used the shelf label to some extent, and those who shopped at the store almost daily tended to have the highest mean scores. By understanding the population who responded positively and negatively to the shelf labels, this will allow the program team to focus efforts on the segment of the population with more negative attitudes. Based on the scores, the shelf labels appeared to be very easy to understand. Credibility had the lowest score. Anecdotal evidence from

interactions with the community during customer intercept surveys suggests the importance of gaining trust before customers will "buy-in" to an idea; the *Healthy Food, Healthier You* program is no exception. It is suggested that the Urban Health Initiative continue to work in the store to inform the community about the program and to build trust. Further, increasing employee knowledge about the program may enable them to provide more information to the customers about the program. If the customers view the program as something that others in their community support and trust, this may help generate positive opinions about the program.

Evaluation Question 5: What factors are associated with customer awareness and use of the *Healthy Food, Healthier You* shelf labels?

Awareness and use of shelf labels—More than a quarter of participants were aware of the *Healthy Food, Healthier You* shelf label program. The overwhelming majority of those aware of the program reported using it (68.4%) Findings were consistent with other point-of-purchase nutrition education programs such as the M-Fit Supermarket Shelf-Labeling Program put forth by Lang et al. (2000) and the Eat Smart program by (Milliron et al., 2012); both studies had an awareness rate of 29%. Only M-Fit measured shelf label use, finding that 56% of customers reporting using the program. Although awareness was slightly lower in the *Healthy Food, Healthier You* evaluation, this may reflect the shorter duration of the program. Notable is the substantially higher percentage of program use in the current evaluation. When surveyed, two individuals gave unprompted responses that they learned about the *Healthy Food, Healthier You* shelf labeling program via "television." *Healthy Food, Healthier You*

did not use mass media to advertise the program; therefore, it may be concluded that they either misunderstood the question or they were eager to acquiesce to the interviewer that they responded positively when, in fact, they had never heard of the program before. In order to avoid confusion, it is recommended for future assessments that the interviewers provide a very clear explanation of the *Healthy Food, Healthier You* shelf labeling program prior to beginning the survey with each participant.

The evaluation also identified that the majority of survey participants were in the Preparation or Action stages of change for shelf label use, meaning that they intended to use the shelf labels or were already using the shelf labels. This has implications for the future of the shelf label program at Super Giant Food. The Urban Health Initiative should consider conducting a second assessment of customers' awareness and use of shelf labels as well as their stage of change in order to determine change over time. Using a pre-post assessment model, the same variables of interest are measured a second time during the intervention period, revealing the program effects as participants are exposed to the intervention (Web Center for Social Research Methods, 2006).

Factors that contribute to or impede upon use of shelf labels—Notably, there were three variables significantly related to awareness of shelf labels: level of education, healthfulness as a factor influencing food purchases, and dose of the program received. The results suggest that this program is most noticeable to individuals with higher education, those who consider healthfulness important, and those who shop at this store often. In addition, being older significantly increased the odds of using the shelf labels, thus suggesting that the program may be best

used by older adults. As documented by Lang et al. (2000) and Reid et al. (2004), shelf label programs were more appealing to individuals who were concerned about their health. Other variables (i.e., higher education, age, and frequency of shopping) associated with awareness and use in this evaluation were unable to be validated in the literature. Since this shelf label was developed exclusively for the *Healthy Food, Healthier You* program and Northwest Atlanta population, it would be expected that the label would generate different results than other studies. These findings stress the importance of understanding the target population and developing a program to suit their specific needs.

Strengths and Limitations

One of the strengths of this evaluation is that it utilized three methods of data collection—customer surveys, key informant interviews, and in-store observations. Used together, these methods produce more complete insight; triangulation of data helps to provide stronger evidence to inform programming. Further, the use of an internal evaluator to complete the evaluation design, data collection, and analysis had a number of advantages. Internal evaluation was cost-effective and capitalized on the evaluator's existing knowledge of the *Healthy Food, Healthier You* program as well as the community in which the program was taking place. The internal evaluator also had existing relationships with the store owner and staff, allowing for easier access to the population (Conley-Tyler, 2005). Further, the internal evaluator's observations and subsequent action to improve shelf label placements led to immediate changes and improvement of the implementation of the shelf label program. The internal evaluator was able to communicate with the

Urban Health Initiative's *Healthy Food, Healthier You* program team to prepare for acceptance and utilization of evaluation results as well as to spread evaluation skills as widely as possible.

This evaluation developed a platform for the Urban Health Initiative to improve internal analysis and conduct future program evaluation. This evaluation generated beneficial information on assessment procedures. It was previously less understood by the Urban Health Initiative how to best conduct an evaluation in this setting and within this population. The results of this evaluation may be used to enhance future program performance. Additionally, the process and early outcome data may be used to assess progress in achieving goals within the funding period and for future applications for funding.

There are several limitations to the evaluation. It collected data from one small, independently owned grocery store in a predominately low-income, African-American neighborhood; therefore, the results cannot be generalized to a wider population. In addition, the absence of baseline measures and the short implementation period before collection of data may have influenced customer awareness and use, as well as other variables. Another limitation is that the reliability and validity of the customer intercept survey was not established prior to data collection. Since there were no published scales that incorporated all measures of interest, the customer intercept survey was developed exclusively for this evaluation and this population. Although the current customer intercept survey used past scales that had high reliability and validity as a model, these scales were often developed for different populations thus changing reliability of the scale.

Another limitation of the study is related to the measurement of the constructs of the Transtheoretical Model. Although numerous questions were developed to directly link to the theory, not all measures made sense in relation to food purchasing behavior. Since there are few published studies that have operationalized this particular topic, it is possible that the constructs operationalized (i.e., self-efficacy, stage of change) may not accurately measure the constructs as intended. One way to improve the validity of this survey could be to involve researchers more familiar with the use of the Transtheoretical Model and food purchasing behavior. These researchers may be able to provide valuable insight into whether the customer intercept survey questions relate to their respective categories within self-efficacy and stage of change. In anticipation of these concerns, the customer intercept survey was pilot tested to reduce measurement error. Further evaluation efforts should include follow-up measures to determine and improve reliability and validity.

Additionally, the timing of the customer intercept survey—given to customers as they entered the store—may have produced lower awareness and use rates than if the survey had been given as customers exited. However, by explaining the *Healthy Food, Healthier You* program before the customer began their food shopping primed the customer to look for the shelf label, and to use the program during the current and also subsequent shopping trips. Face-to-face customer intercept surveys are a valuable method for collecting data but this method has its own limitations. This created the risk of acquiescence bias; customers may have overestimated awareness and use and may have changed their responses based on

perceived expectations of the interviewer. Despite these limitations, this method allowed participants to ask any clarifying questions necessary to answer the interviewer's questions rather than making an assumption about meaning and thus risking compromised or missing data. Further, the response rate was high, the number of skipped questions was low, and this type of survey administration accommodated participants with lower literacy levels.

Process evaluation indicators—dose delivered, dose received, and reach—proved difficult to measure. It was not feasible to assess these indicators in relation to the entire target population (i.e., the community of Northwest Atlanta, or the store's 30318 ZIP code); therefore, the lead evaluator set the standards at the store level instead. Future evaluation efforts should consider more robust measures of dose delivered, specifically in flyer measurement. For instance, it would be recommended that the next evaluation take into account how many flyers were distributed in total, rather than the number of flyers only one cashier distributed. Lastly, another limitation of this evaluation was the fidelity measurement. During the first in-store observation, the lead evaluator attempted to replace missing shelf labels; however, due to an inadequate supply of shelf labels this effort was halted after replacing only five labels. Future evaluations should incorporate shelf label replacement into fidelity checks when possible. Additionally, owing to resource limitations, using more robust measures such as monitoring product sales or following individuals' purchase and consumption behaviors was not feasible.

Another limitation that is common among interview methodology is response bias. While the interviewer was careful to remain neutral during the

interview, the participants were aware that the interview was being conducted as an evaluation of the *Healthy Food, Healthier You* program and may have felt obligated to respond in a manner that they believed to please the interviewer. Although the findings cannot be compared to or generalized for other populations, these interviews enabled the lead evaluator to gain a detailed understanding of the context and meaning of quantitative findings.

Implications

For the Healthy Food, Healthier You program

The *Healthy Food, Healthier You* program was successfully implemented in the Super Giant Food store in a low-income, predominately African-American area of Atlanta, Georgia. To the knowledge of the evaluator, there are no shelf labeling interventions that have taken place in a similar African-American community in the Southeastern United States; therefore, evaluation strategies were designed exclusively for *Healthy Food, Healthy for You*. Process evaluation is essential to assessing how program components are implemented and to ensure that a Type III error has not occurred. Although it was too early in the program implementation phase to make broad conclusions about long-term behavioral outcomes, the evaluation documented progress towards achieving short-term outcomes. The program has now established measures for individual-level short-term outcomes such as awareness and use of the shelf label program. The *Healthy Food, Healthier You* program staff have learned many useful lessons from the evaluation activities, suggesting progress towards reaching community-level short-term outcomes such as an improved understanding of customers' needs as well as enhanced community

partnerships. Ultimately, this evaluation seeks to provide tangible suggestions to improve upon the implementation of the current *Healthy Food, Healthier You* program, which was designed to make healthy choices easy, accessible, and desirable for customers.

For future research in public health

Grocery store-based shelf labeling interventions aimed at reducing the complexity of decision making and promoting healthier food purchasing habits may be a viable approach to increasing customer awareness and knowledge about nutrition. As the evaluation indicates, it is important to design grocery store-based programs that target a specific population, engage customers in intensive programs with frequent activities and various methods of nutrition messaging, and include store employees in decision-making and program activities. Given the results of this evaluation, it would be useful to evaluate program outcomes at later points in time as well as behavior change outcomes such as purchasing behavior, dietary intake, and weight status.

Recommendations

Five specific recommendations will be provided to the Urban Health Initiative:

1. Improve communication channels—In the interest of the longevity of this program, it is critical to improve communication channels between the Urban Health Initiative *Healthy Food, Healthier You* program team and store leadership and staff. Strengthening communication will ensure all program components are implemented consistently and will encourage discussions about programming efforts and program goals. Building a strong relationship between

the Urban Health Initiative *Healthy Food, Healthier You* program team and store leadership and staff will promote consistency throughout the delivery of the program.

2. Establish regular program monitoring efforts—First, it is recommended that fidelity checks are conducted approximately once a month in order to maintain high fidelity rates while balancing the burden of time-consuming monitoring efforts on the volunteer program team. It is also advised that the Healthy Foods to Label List is updated regularly to account for changes in product placement and stock. It would also be beneficial for the foods to be listed in order of the products in the aisles, for a more efficient fidelity check. Second, it is recommended for the project team to conduct follow-up customer intercept surveys to measure change over time. Third, the Urban Health Initiative should consider encouraging store leadership to establish a cash register system to monitor product sales of all items with a shelf label. With limited resources, an alternative would be to monitor a limited number of food items that have a shelf label. Foods should be chosen based on frequency of purchase and the list should approved by community nutritionists.

3. Increase intensity of current program components—Given the evidence of a dose-response relationship between the amount of health education materials and health behavior change, it is recommended to increase the intensity of current program components (Cheadle et al., 1991; Gittelsohn et al., 2013). A greater number and frequency of program components will offer more

opportunities for customers to be exposed to the program. It will be important to create a regular schedule for food demonstrations and store tours. When possible, it is recommended that these activities are promoted using giveaways, as this has been established as an important method of attracting customers. It is also recommended that the program team explore an alternate way to highlight healthy foods in the meat section. It would be beneficial to modify current efforts in this aisle since shelf labels were frequently misplaced and this is one of the aisles with the highest traffic flow in the store. Last, it is suggested that program components incorporate information about eating healthy on a budget, since price was reported as one of the most influential factors in food purchasing behaviors.

4. Add additional program components—Once the current program components become more established, additional program activities should be considered. Suggested activities include: community outreach and promotion and an in-store health education program. Possible outreach channels include advertising in the store circular, working with local elementary schools and religious organizations, and pushing messaging through social media or other mass media platforms. Additionally, an interactive, in-store health education program led by community members and store employees will create a viable channel for knowledge dissemination and help close the gap between knowledge and purchasing behavior. Among the literature reviewed, interventions which combined both point-of-purchase and

promotion/advertising strategies tended to be the most promising (Escaron et al., 2013).

5. Secure dependable, long-term funding and program staff—Given that Urban Health Initiative programs are funded predominately with grants, the future of the *Healthy Food, Healthier You* program is uncertain. It is recommended to secure a regular source of funding to ensure the program can continue as planned. In the future, the program should consider having at least one dedicated volunteer in charge of the program implementation and activities, and another volunteer dedicated to monitoring and evaluation. As this program grows, it will become more important to share the responsibilities and burden of the added program components. These efforts will facilitate longer program duration, thus allowing more time for customers to catch on and become aware of and use the shelf label program.

Dissemination

Urban Health Initiative, as well as its partners Super Giant Food, Open Hand, and Georgia Food Oasis, will be provided access to this report. It will also be made available for other stakeholders who have expressed their interest in program evaluation, such as funders and Urban Health Initiative Advisory Board members.

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Appendices

Appendix A. *Healthy Food, Healthier You* Shelf Label

Appendix B. *Healthy Food, Healthier You* Shelf Label on the store shelf

Appendix C. *Healthier Food, Healthier You* shelf label guidelines

Healthy Food, Healthier You Shelf Label Guidelines

This document outlines the process by which the Healthy Food to Label List was developed. All foods on the Healthy Food to Label List received a shelf label.

Produce: In accordance with the USDA dietary recommendations, half of your plate should be comprised of fruits and vegetables. All produce items at Super Giant Food should receive a *Healthy Food, Healthier You* label. All of these items can also receive a "WIC Approved" label, with the exception of potatoes and any prepared salads with dressings.

Meat: The USDA advises the public to choose lean or low-fat cuts of meat and skinless poultry. Ground sirloin and meat that is 90% lean should be labeled, when it is offered at the store. Meat and poultry items that met these specifications should receive a *Healthy Food, Healthier You* label as indicated on the Healthy Food to Label List. Canned meat items packaged in water were also included on the Healthy Food to Label List; this was an effort to reduce additional saturated fat found in meats that are packaged in oil. The meats that are packaged in oil are not WIC approved and therefore should also not receive a *Healthy Food, Healthier You* label.

Dairy: The USDA recommends choosing low-fat or fat-free dairy, as well as "reduced fat" and "low-fat" cheeses. Since Super Giant Food did not have any low-fat milk, we indicated that the 2% milk should be labeled until a lower fat option is available. The cheeses that specified "part-skim" on the packaging should receive a *Healthy Food, Healthier You* label as well. Although there was one cream-cheese item that received a "B" Fooducate rating, the USDA does not recommend any cream cheese because they are high in saturated fat and have little or no calcium. Although Silk Original Soy Milk received a "B-"Fooducate rating, we indicated that it should be given a *Healthy Food, Healthier You* label as an alternative for those that cannot tolerate dairy. Lactaid 2% milk was also recommended to receive a label, as an additional alternative. According to the USDA, beverage choices should be water, low-fat or skim milk, and 100% fruit juice. Although bottled water was not included on the Healthy Food to Label List, it should also receive a *Healthy Food, Healthier You* label. We did not recommend labeling 100% fruit juice, because it did not receive a high enough Fooducate rating, although certain 100% fruit juices are WIC approved and should receive a "WIC Approved" label according to the brands and sizes indicated on the Healthy Food to Label List.

Canned and Frozen Fruit: According to the USDA, canned fruits packaged in 100% fruit juice or water can be part of a balanced diet. All canned fruits packaged in 100% fruit juice should receive a *Healthy Food, Healthier You* label. Although some canned fruits received a high Fooducate rating, we did not include them on the list of items to be

labeled because they did not fit within the USDA recommendations. All frozen fruits with no added ingredients (i.e. sugar and syrup) should also receive a *Healthy Food, Healthier You* label. Both canned fruits packaged in 100% fruit juice and frozen fruits should receive a "WIC Approved" label.

Canned and Frozen Vegetables: The USDA recommends selecting canned vegetables that are labeled "reduced sodium" , "low-sodium," or "no salt added." The USDA classifies "low-sodium" as less than 140 mg of sodium per serving. The canned vegetables with these specifications indicated on the packaging should receive a *Healthy Food, Healthier You* label. Any canned vegetables that did not have any indicators of being low or reduced in sodium on the packaging but did have less than 140 mg of sodium should also receive a *Healthy Food, Healthier You* label. These items and their sodium content are included on the Healthy Food to Label List. Frozen vegetables that received a Fooducate rating of a "B" or above were included on the list of items to receive a *Healthy Food, Healthier You* label.

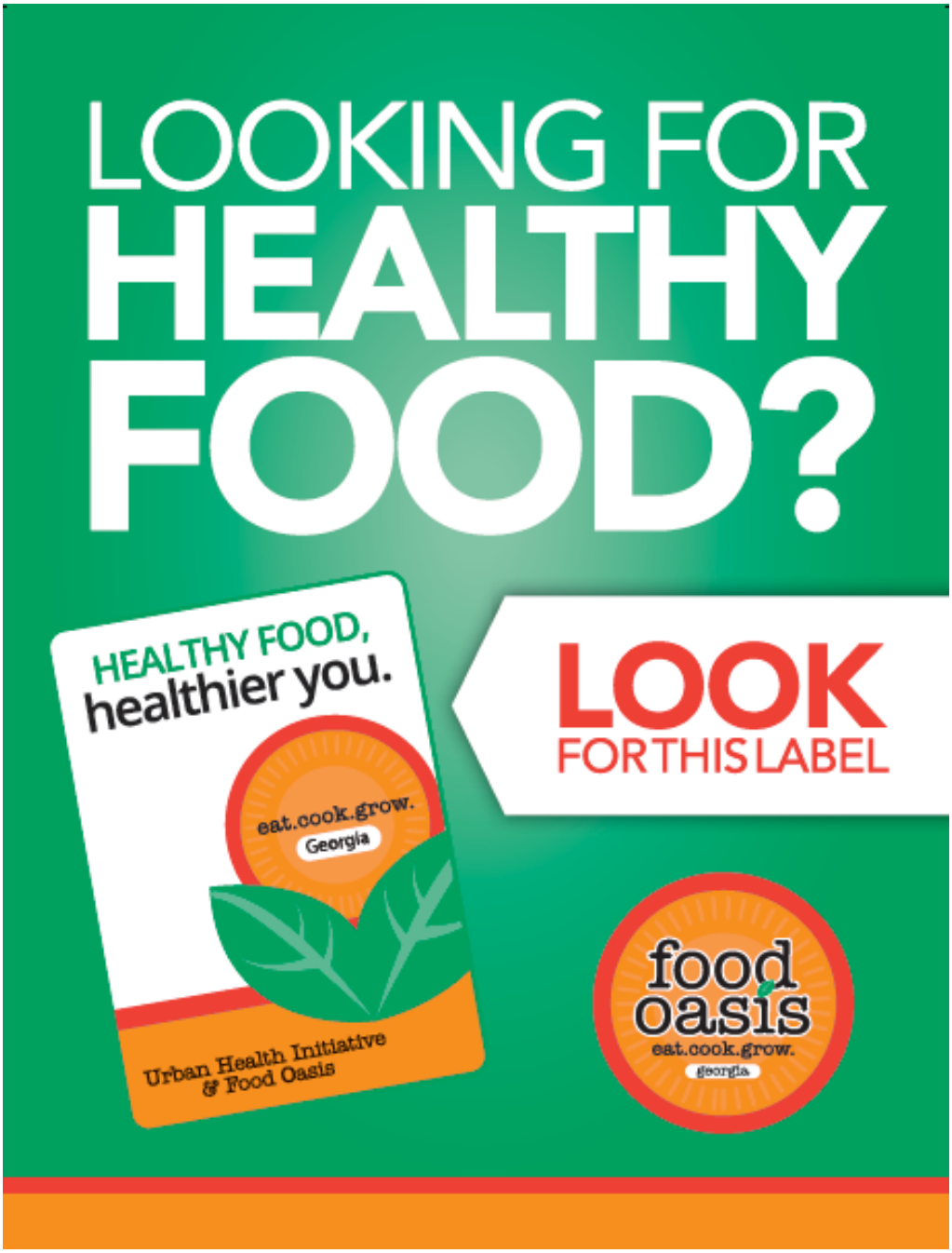
Grains: The USDA recommends making half of your grains "whole grains" as part of a healthy diet. In accordance with these recommendations, only bread labeled as "100% Whole Wheat" and brown rice should receive a *Healthy Food, Healthier You* label. These items can also receive a "WIC Approved" label according to the brands and sizes indicated on the Healthy Food to Label List. Super Giant Food did not have any whole wheat tortilla options, which would be a WIC approved item when offered.

All other inventory items: The remaining items were assessed using the Fooducate Rating Application. This application uses a team of dietitians to analyze information found in each product's nutrition label and ingredient list to determine a letter grade. The food items that were not included in the above specifications were assessed based on receiving a Fooducate rating of a "B" or above. These items should receive a *Healthy Food, Healthier You* label according to our recommendations on the Healthy Food to Label List.

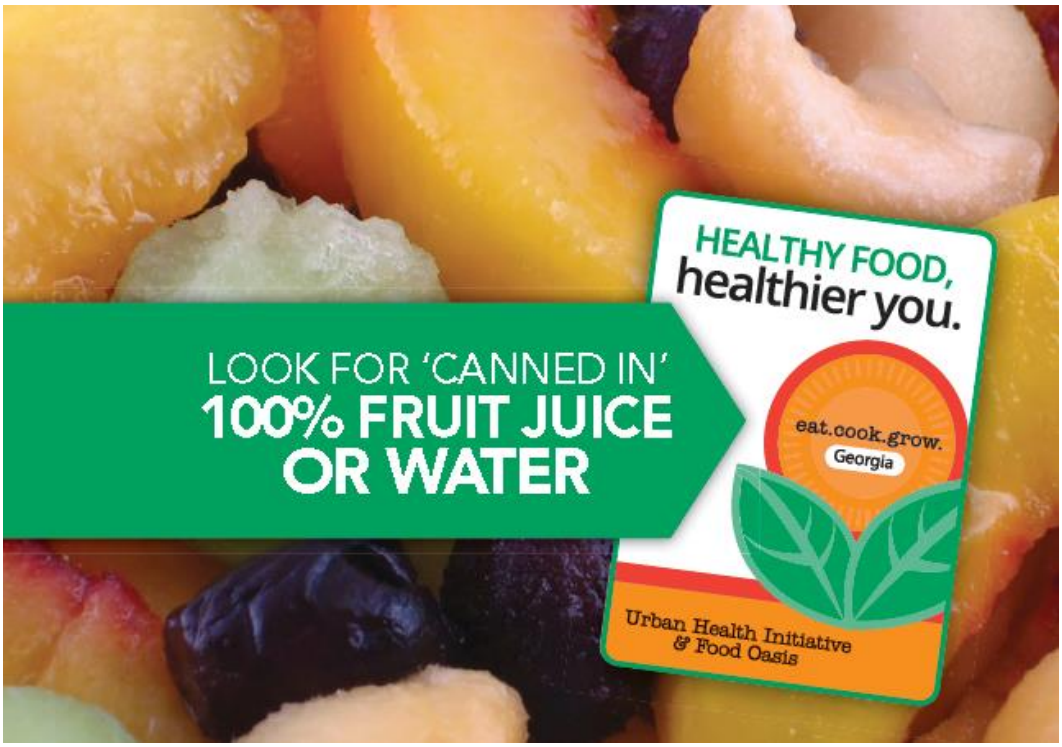
All dietary recommendations can be found on the USDA's ChooseMyPlate.Gov website.

Recommendations produced by Georgia Department of Public Health Dietetic Interns
Dannah Burch, MPH
Jamie Jones, CLC

Appendix D. *Healthy Food, Healthier You* Poster



Appendix E. ***Healthy Food, Healthier You*** **Shelf Talker**



Appendix F. *Healthy Food, Healthier You* Shelf Talker on the store shelf

Appendix G. *Healthy Food, Healthier You* Flyer

Why choose foods with the label?

You care about your health, family, and your time. Our label makes healthy choices easier to find. We encourage you to pick foods with the shelf label versus similar options that do not have a label.

Why do certain foods have a label?

Shelf labels are placed under foods that are healthy for your family. A team of community nutritionists analyzed and specially selected these products. They used nutrition labels, ingredient lists, USDA recommendations, and ratings from the Fooducate cell-phone application.

About Us

The Urban Health Initiative has partnered with Food Oasis and Open Hand to create the Healthy Food, Healthier You shelf label. This shelf label serves as a guide to making healthy food choices. Funding for this project was provided by a grant received from the Georgia Healthy Family Alliance.

Appendix H. Customer Intercept Survey

Urban Health Initiative *Healthy Food, Healthier You*
CUSTOMER INTERCEPT SURVEY

Interviewer Name: Interview Date: Time:

INSTRUCTIONS TO INTERVIEWER:

[GREET POTENTIAL PARTICIPANT] "Hello –Do you a few minutes to answer some questions about your shopping experience at Super Giant Food?"

[IF NO:] "Thank you. Have a good day!"

[IF YES - ASK TO DETERMINE ELIGIBILITY] "My name is [insert name(s) here] and I work with the Urban Health Initiative. Before we begin, may I ask if you are 18 or over?"

[IF NO:] "Thank you for your time, but I cannot administer the survey to anyone under 18. Sorry, and have a great day!"

[IF YES:] "You are eligible to participate in this survey. Before we start, I'm going to explain a little bit more about the evaluation and how this survey fits in.

I am conducting an evaluation on behalf of the Urban Health Initiative, to gather information about how the Super Giant Food nutrition program is working. As part of this I would like to learn about your opinions about the program. If you choose to participate you will receive [insert incentive here] to thank you for your time.

The information you provide will be kept confidential and will not be linked directly to you. Your responses to the survey will not affect SNAP benefits or your shopping experience at Super Giant Food. There are no costs for participating in this survey and even if you agree to participate, you are not required to answer all the questions and may stop at any time without penalty. Do you have any questions, or may I begin?

[IF YES, ANSWER QUESTIONS.] [IF NO, BEGIN SURVEY]

I would like to provide a brief explanation of the program we will be discussing:

The Urban Health Initiative has partnered with Food Oasis and Open Hand to create the *Healthy Food, Healthier You* shelf label. *[SHOW PARTICIPANT EXAMPLE OF LABEL]* We brought a team of nutritionists into the store and they analyzed all the food products in the store. They used nutrition labels, ingredient lists, USDA recommendations, and ratings from the Fooducate cell-phone application. Of the products analyzed, they found 300 products that met the guidelines of a "healthy food, healthier you" food. To highlight these healthy foods, a shelf label has been placed under foods that they considered healthy for you and your family. The shelf label serves as a guide to make healthy choices easier to find.

Dose Received

1 . On average, how many times a month do you shop at Super Giant Food?

[FILL IN RESPONSE:] _____times per month

*This question was adapted from (Paek et al., 2014).

Factors Influencing Food Purchases

2 . Which of the following is most important to you when making food purchases?

1 ..... Convenience

2 ..... Healthfulness

3 ..... Price

4 ..... Taste

5 ..... Sustainability

6 ..... Other *[FILL IN RESPONSE:]* _____

*This question was adapted from (Henry et al., 2006).

Awareness of Shelf Label

3 . Have you ever seen or heard about the *Healthy Food, Healthier You* shelf labeling program? *[SHOW PARTICIPANT EXAMPLE OF LABEL]*

1..... Yes

2..... No [*SKIP TO Q7. BRIEFLY EXPLAIN PROGRAM*]

*This question was adapted from (Paek et al., 2014), (Reid et al., 2004), and (Lang et al., 2000).

4 . How did you first learn about *Healthy Food, Healthier You* shelf labeling program? *[READ LIST AND CIRCLE ALL THAT APPLY.]*

1 ..... Saw Shelf Labels in store

2..... Signs, Posters, or Store Flyer

3..... Event (i.e., Food Demonstrations or Store Tours)

4..... Store Circular Advertisement

5..... Other *[FILL IN RESPONSE:]* _____

*This question was adapted from (Paek et al., 2014) and (Kristal et al., 1997).

Stage of Change/ Use of Shelf Label and Extent of Use

5 . On average, how often do you use this shelf label to help you select foods? *[READ LIST AND CIRCLE RESPONSE.]*

1 ..... Never (i.e., 0% of decisions) – (Stage of Change: Pre-contemplation or Contemplation) *[SKIP TO Q7]*

2 ..... Sometimes (i.e., 1-40% of decisions) – (Stage of Change: Action)

3 ..... About half the time (i.e., 41-59% of decisions) – (Stage of Change: Action)

4 ..... Regularly (i.e., 60-100% of decisions) – (Stage of Change: Action)

5 ..... Not sure

*This question was adapted from (Reid et al., 2004), (Lang et al., 2000), and (Henry et al., 2006).

6 . Which types of food does the shelf label help you purchase? *[LEAVE QUESTION OPEN ENDED. CIRCLE ANSWERS AS PARTICIPANT RESPONDS.]*

1 ..... Dairy
2 ..... Meat
3 ..... Frozen or Canned Fruits or Vegetables/ Canned Soup
4 ..... Whole Grain Pasta, Rice, Bread, or Cereal
5 ..... Dried Beans
6 ..... Other *[FILL IN RESPONSE:]* _____
7 ..... Not Sure

*This question was adapted from (Gittelsohn et al., 2013) and (Paek et al., 2014).

Self-Efficacy

7 . If you decided to start shopping for healthy food, how hard or easy would it be to use the shelf label?

1..... Very Hard
2..... Somewhat Hard
3..... Somewhat Easy
4..... Very Easy [SKIP TO Q9]

8 . What are some things that make it hard to follow the shelf labels? *[LEAVE QUESTION OPEN ENDED. CIRCLE ANSWERS AS PARTICIPANT RESPONDS.]*

1..... Not having enough time to look for the label
2..... Staying within budget
3..... Choosing foods that are familiar and taste good
4..... Shopping with children
5..... I am already following my doctor's dietary recommendations
6..... Other *[FILL IN RESPONSE:]* _____
7..... Not Sure

*This question was adapted from (Henry et al., 2006).

Consumer Reactions to Shelf Label

I will now read you a few statements. For each, please tell me if you "Strongly Disagree," "Somewhat Disagree," "Somewhat Agree," or "Strongly Agree."

Relatability –

9 . This shelf label catches your eye. *[SHOW PARTICIPANT EXAMPLE OF LABEL]*

1..... Strongly Disagree
2..... Somewhat Disagree
3..... Somewhat Agree
4..... Strongly Agree

Comprehensibility –

10. This shelf label is easy to understand. *[SHOW PARTICIPANT EXAMPLE OF LABEL]*

1..... Strongly Disagree
2..... Somewhat Disagree
3..... Somewhat Agree
4..... Strongly Agree

Credibility –

11. This shelf label is trustworthy. *[SHOW PARTICIPANT EXAMPLE OF LABEL]*

1..... Strongly Disagree
2..... Somewhat Disagree
3..... Somewhat Agree
4..... Strongly Agree

*This question was adapted from (Reid et al., 2004).

[ONLY ASK THIS QUESTION IF PARTICIPANT RESPONDED 'Never' to Q5 Stage of Change]

Readiness to Change/ Intention to use Shelf Label

12. Knowing what you know now about the shelf labels, do you plan on using them to guide your food purchases in the next…?

1..... 6 months? (i.e., Stage of Change - Contemplation)
2..... 30 days? (i.e., Stage of Change - Preparation)
3..... No intention to use shelf labels (i.e., Stage of Change – Pre-Contemplation)
4..... Not Sure

*This question was adapted from Henry et al., 2006 and (Kristal et al., 1997).

Sociodemographic Characteristics

13. What is your age?

[FILL IN RESPONSE:] _____ years

*This item is from the Behavioral Risk Factor Surveillance System Questionnaire (Centers for Disease Control and Prevention, 2013b).

14. *[BY OBSERVATION. ASK GENDER IF NECESSARY:* Are you male or female?]

1 ..... Male
2 ..... Female

*This item is from the Behavioral Risk Factor Surveillance System Questionnaire (Centers for Disease Control and Prevention, 2013b).

15. Are you Hispanic, Latino/a, or Spanish origin?

1 ..... Yes
2 ..... No
3 ..... Don't Know/Not Sure

*This item is from the Behavioral Risk Factor Surveillance System Questionnaire (Centers for Disease Control and Prevention, 2013b).

[*IF (Q15=YES) HISPANIC, READ]*: Some people, aside from being Hispanic, also consider themselves to be a member of a racial group.

16. Which one or more of the following would you say is your race? *[MULTIPLE RESPONSES ARE ACCEPTABLE.]*

1 ..... White

2 ..... Black/African-American

3 ..... American Indian or Alaska Native

4 ..... Asian

5 ..... Pacific Islander

6 ..... Other/ Multi-race

*This item is from the Behavioral Risk Factor Surveillance System Questionnaire (Centers for Disease Control and Prevention, 2013b).

17. What is the highest grade or year of school you completed?

[FILL IN RESPONSE:] _____

*This item is from the Behavioral Risk Factor Surveillance System Questionnaire (Centers for Disease Control and Prevention, 2013b).

18. Do you have children under the age of 18 in your household?

1 ..... Yes

2 ..... No

*This question was adapted from (Paek et al., 2014).

19. Do you or anyone in your household receive… [*READ LIST AND CIRCLE ALL THAT APPLY.*]

1 ..... SNAP or EBT Benefits (i.e., Food Stamps)

2 ..... WIC Benefits

3 ..... None of the Above

4 ..... Not Sure

*This question was adapted from (Henry et al., 2006).

Appendix I. Key Informant Interview Guide

Urban Health Initiative *Healthy Food, Healthier You*
KEY INFORMANT INTERVIEW GUIDE:
STORE EMPLOYEES

Name of Individual Interviewed and Title:

Interviewer:

Date: Start Time: End Time:

Introduction—

Good morning/ afternoon. My name is Marian Creasy and I am working with Emory University's Urban Health Initiative. Thanks for taking the time out of your busy day to speak with me. I will try to keep our time to 30 minutes. Is this okay with you?

The Urban Health Initiative is conducting an evaluation of the *Healthy Food, Healthier You* nutrition program. You have been selected for a key informant interview because of your knowledge, insight and familiarity with the community and Super Giant Food store. The purpose of the interview is to gather information about your experience with the *Healthy Food, Healthier You* shelf label program, customers' reactions to the shelf label, ways to improve upon the current program, and the best ways to ensure the program will continue. The themes that emerge from these interviews will be used to help the Urban Health Initiative to improve upon the current program.

Everything you tell me today will be kept confidential. To protect your privacy, we won't connect your name to anything you say. The report will be written in a manner that no individual comment can be attributed to a particular person. [*FOR EMPLOYEES:* Your responses to the interview will not affect your employment Super Giant Food and will not be reported to your supervisors.]

At any time during our conversation, please feel free to let me know if you have any questions or if you would rather not answer any specific question. You can also stop the interview at any time for any reason. Please remember that we are just as interested in negative comments as positive comments and at times the negative comments are the most helpful. There are no wrong answers to any of the questions. Your participation is completely voluntary. Are you willing to answer my questions?

With your permission, I would like to record this interview so I do not miss any of your helpful comments. Is it okay if I audiotape this interview today? *[IF YES, TURN ON AUDIO RECORDER.]*

Do you have any questions before we begin? *[IF YES, ANSWER QUESTIONS.]*

Well, let's begin.

Background

I'd like to begin by asking you some questions about your current job.

1. Can you tell me briefly about your current position at Super Giant Food and your major responsibilities?

Reach

2. On average, how many customers shop in the store each week?

Thank you. Next, I'll be asking you a series of questions about your thoughts and experience at Super Giant Food with the *Healthy Food, Healthier You* nutrition program. *[BRIEFLY DESCRIBE PROGRAM.]* As you may know, the Urban Health Initiative partnered with Food Oasis and Open Hand to create the Healthy Food, Healthier You shelf label. The shelf labels are placed under foods that are healthy for your family. A team of community nutritionists analyzed and specially selected these products. They used nutrition labels, ingredient lists, USDA recommendations, and ratings from the Fooducate cell-phone application. The shelf label serves as a guide to make healthy choices easier to find.

Experience with the Program

Now, let's talk about your experience with the *Healthy Food, Healthier You* program.

3. How did you first learn about the *Healthy Food, Healthier You* program?
    a. Perhaps you may have heard through another store employee, or directly approached by UHI or Food Oasis?

4. Please talk briefly about your experience with the *Healthy Food, Healthier You* program
    a. To what extent did you participate in the development of the program? (i.e., working with UHI on developing shelf labels and/ or signage?, etc.)
    b. To what extent did you participate in the implementation of the program? (i.e., placement of labels, etc.)
    c. Do you use the shelf labels during your own grocery shopping?

Acceptability

Next, we will talk about customers' reactions to the shelf labels.

5. Can you tell me why feel as though the *Healthy Food, Healthier You* program is working, or not working?
    a. Can you explain why or why not?

6. Have customers come up to you asking about the shelf label or the *Healthy Food, Healthier You* program?
    b. Could you tell me a bit more about what they asked you?

Feasibility

As you know, we are working to improve the current program in order to best engage employees and customers. We'd like to get your input on ways to make improvements.

7. Based on your observations, what do you think has been the most successful part of the *Healthier Food, Healthier You* program?

8. What are some of the challenges of having this shelf labeling program at your store?

Sustainability

For the next few questions, we are interested in learning about the best ways to ensure the program can continue.

9. Based on your experience, would you like to see the shelf label program continue, grow, or change?

10. What suggestions do you have *[BASED ON PREVIOUS Q9:* how you would like to see the program continued/ expanded/ or changed]?
    a. What are some ways the shelf labels, food demonstrations, store tours can be improved?
    b. Any other activities you would like to see?

11. In some cases, programs like these only exist when there is a strong volunteer base. How could the program be changed so it's less dependent on UHI?

12. Do you/ your employees have an interest in participating in the *Healthy Food, Healthier You* program in the future?
    a. Would you be interested in helping to monitor the placement of shelf labels, organizing food demonstrations, leading store shopping tours, etc.

13. What makes you *[BASED ON PREVIOUS Q12:* interested/ not interested]?
    b. If not, why not? Is there anything that would make you more interested?
    c. If yes, what makes you interested in this program?

Conclusion –

14. What other comments do you have about the shelf label program?

Those are all the questions I have for you today. Thank you for your time and participation! Before we conclude the interview, are there any questions you have for me? The information that you provided will help develop a better understanding of how to improve the shelf labeling program. As a reminder, summary results will be used by the Urban Health Initiative to improve upon the current program. If you have any questions, please feel free to contact me.

Here is my contact information *[PROVIDE CONTACT INFORMATION].* Thanks again for your time. It's been a pleasure to speak with you!

Appendix J. In-Store Observation Form: Shelf Labels (sample page)

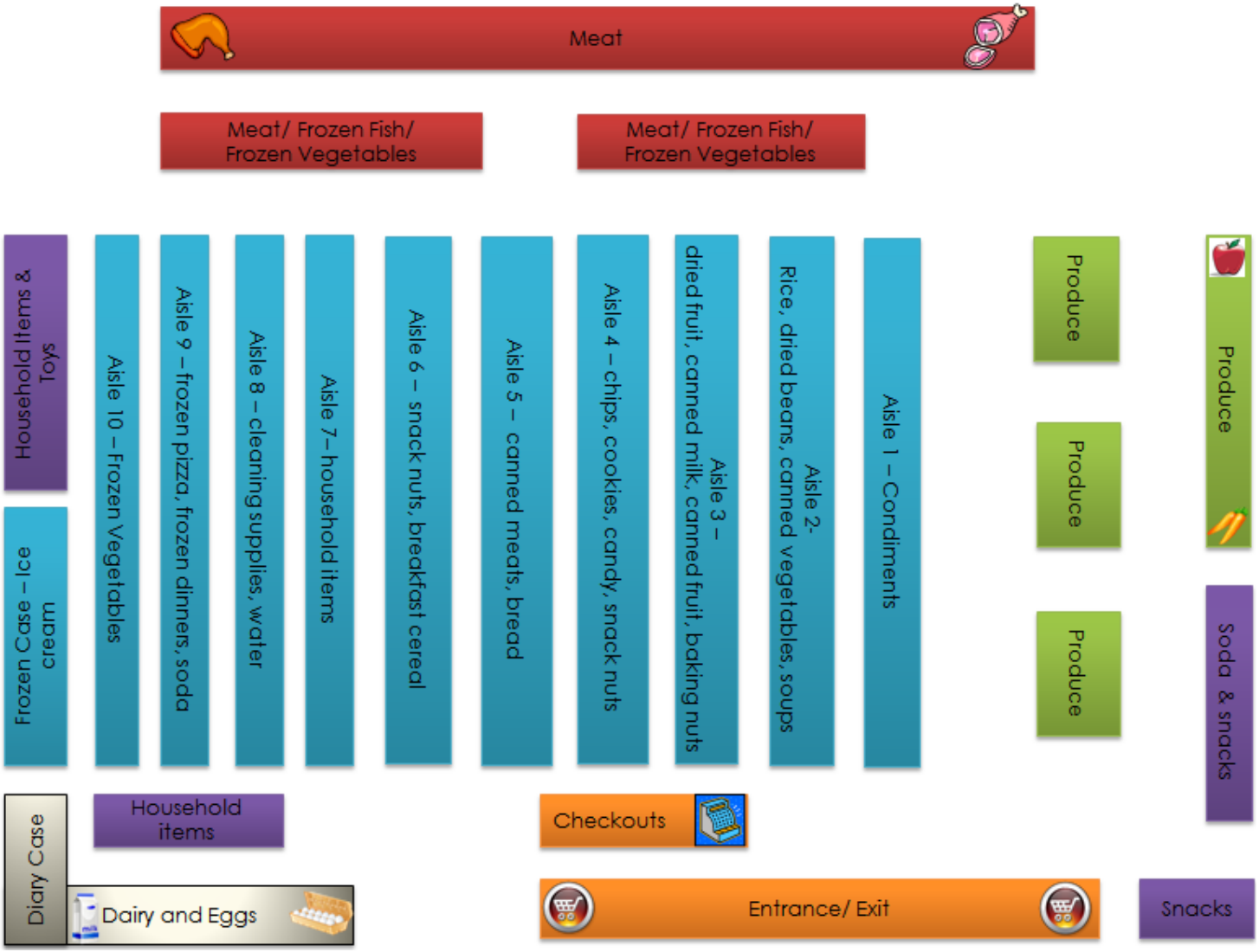
Urban Health Initiative ***Healthy Food, Healthier You***

IN-STORE OBSERVATION FORM: SHELF LABELS

Date of Observation:	
Evaluator Name:	
Time Start:	
Time End:	

Product Number	Aisle #	Food Category	Brand	Product Name	What is the condition of the label? Indicate either: 1…. shelf label is placed correctly 0…. shelf label is placed incorrectly	If indicated "0," was the label replaced? Indicate either: Yes/ No	Notes
1	1	Salad Dressing	Ken's	Light Olive Oil and Vinegar			
2	1	Mustard	French's	100% Natural			
3	1	Mustard	French's	Honey Dijon			
4	1	Mustard	French's	Spicy Brown			
5	1	Mustard	French's	Honey			
6	1	Mustard	Essential Everyday	Mustard (2 different sizes)			
7	1	Mustard	Plochman's	Mustard			
8	1	Mustard	Shop Value	Mustard			
9	1	Hot Sauce	Texas Pete	Original Hot Sauce			
10	1	Hot Sauce	Frank's	Red Hot			
11	1	Vinegar	White House	Distilled Vinegar			
12	1	Vinegar	Heinz	Distilled Vinegar			
13	1	Vinegar	Essential Everyday	Distilled Vinegar			
14	1	Vinegar	Heinz	Salad Vinegar			
15	1	Vinegar	Heinz	Red Wine Vinegar			
16	1	Vinegar	Essential Everyday	Red Wine Vinegar			
17	1	Vinegar	Pompeian	Red Wine Vinegar			
18	1	Vinegar	Regina	Red Wine Vinegar			
19	1	Vinegar	Heinz	Apple Cider Vineger			
20	1	Vinegar	Essential Everyday	Apple Cider Vineger			
21	1	Peanut Butter	Jif	Simply			
22	1	Peanut Butter	Jif	Natural Honey			
23	2	Rice	Success Boil in Bag	Whole Grain Brown Rice			
24	2	Rice	China Doll	Brown Rice			
25	2	Rice	Minute	Brown Rice			
26	2	Rice	Uncle Ben's	Whole Grain Brown Rice			
27	2	Dried Pasta	Muellers	Angel Hair, Whole Grain			
28	2	Dried Beans	Essential Everyday	Pinto			
29	2	Dried Beans	Essential Everyday	Black Beans			
30	2	Dried Beans	Essential Everyday	Black-eyed Peas			
31	2	Dried Beans	Essential Everyday	Navy			
32	2	Dried Beans	Essential Everyday	Red Kidney			
33	2	Dried Beans	China Doll	Lima			
34	2	Dried Beans	China Doll	Pinto			
35	2	Dried Beans	China Doll	Black Beans			
36	2	Dried Beans	China Doll	Black-eyed Peas			
37	2	Dried Beans	China Doll	Navy			
38	2	Dried Beans	China Doll	Red Kidney			
39	2	Tomatoes	Del Monte	Diced No Salt Added (5 mg NA /serving)			
40	2	Canned Vegetables	Del Monte	Diced Tomatoes (130 mg NA/serving)			

Appendix K. Map of Super Giant Food



Appendix L. In-Store Observation Form: Posters, Flyers, and Shelf Talkers

Urban Health Initiative *Healthy Food, Healthier You*
IN-STORE OBSERVATION: POSTERS, SHELF TALKERS, FLYERS

Evaluator Name: Date of Observation: Time:

Instructions: Using the list of posters, shelf talkers, and flyers that were placed in the store at the start of the program, cross-check these items with the signs currently in the store.

Posters in store window

At the start of the program, there were ____ posters placed in the store window.

1. How many posters are now in the window? [FILL IN HERE]____

2. What is the condition of the posters? (i.e., correct, missing, incorrect location, physical damage, etc.) [FILL IN HERE]____

Hanging Posters

At the start of the program, there were ___ hanging posters placed above ___ aisles.

3. How many posters are now hanging from the ceiling? [FILL IN HERE]____

4. What is the condition of the posters? (i.e., correct, missing, incorrect location, physical damage, etc.) [FILL IN HERE]____

Flyers

[SHOW EXAMPLE OF FLYER TO 1 CASHIER AND ASK THE FOLLOWING:]

1. Have you been distributing the shelf label promotion flyers? [CIRCLE ONE RESPONSE] Yes/ No

2. Do you need more copies? [CIRCLE ONE RESPONSE] Yes/ No
   [IF YES, PROVIDE ADDITIONAL COPIES.]

3. How many copies did you provide? [FILL IN HERE] ___

Shelf Talkers

At the start of the program, there were a total of 32 shelf talkers placed in 5 aisles.

Aisle	No. shelf talkers and type	Food Placement	Fidelity Check Indicate # of shelf talkers placed correctly	Fidelity Check Indicate # of shelf talkers placed incorrectly
Aisle 2	9 Canned Vegetables/ Beans Talkers	Canned Beans		
Aisle 2	2 Whole Grain Talkers	Rice		
Aisle 2	1 Whole Grain Talker	Pasta		
Aisle 3	3 Spice Talkers	Spices		
Aisle 3	4 Canned Fruit Talkers	Canned Fruit		
Aisle 5	4 Whole Grain Talkers	Bread		
Aisle 5	3 Canned Vegetables/ Beans Talkers	Canned Beans		
Aisle 8	3 Water Talkers	Water		
Diary Case	3 Milk Talkers	Milk		
		TOTAL		

1. Number of shelf talkers correctly placed during fidelity check: _____

2. If there were problems, did you replace the educational signage? [CIRCLE ONE RESPONSE] Yes/ No

Appendix M. Customer Intercept Survey Codebook (sample)

Variable Name	Variable Label	Analysis Plan	Valid Range	Value (numeric code)	Value Label	Value indicating missing data	Value indicating inapplicable data
Participant_ID	Participant Identifier		Range 1-72				
INTERVIEWER_FIRSTNAME	Name of interviewer						
DATE_SURVEY	Date survey was administered			dd/mm/yy			
Q1_TIMES_MONTH_SHOP	On average, how many times a month do you shop at Super Giant Food?	Mean & SD	Range 1-30			-98	
Q2_DECISIONAL_BALANCE	Which of the following is most important to you when making food purchases?	Frequency & percentage	Range 1-7	1	Convenience	-98	
				2	Healthfulness		
				3	Price		
				4	Taste		
				5	Sustainability		
				6	Variety		
				7	Quality		
Q3_AWARENESS_OF_PGM	Have you ever seen or heard about the Healthy Food, Healthier You shelf labeling program?	Frequency & percentage	Range 0-1	0	No	-98	
				1	Yes		

Appendix N. Key Informant Interview Codebook

Urban Health Initiative *Healthy Food, Healthier You*
KEY INFORMANT INTERVIEW CODEBOOK

1 /PROGRAM DOSE
This refers to discussion about the number of customers who have been exposed to the program. Use this to capture what the respondent says when answering the close-ended dose question. (Q2)

2 /EMPLOYEE EXPERIENCES
This refers to the employees' experiences with the shelf labels

2.1 /Employee Experiences/**Program Introduction** (Q3)
This refers to how the respondent first learned about the Healthier Food, Healthier You shelf labeling program.

2.2 /Employee Experiences/**Program Participation** (Q4)
This refers to the respondent's participation in the development or implementation of the shelf labeling program.

2.3 /Employee Experiences/**Personal Use** (Q5)
This refers to the respondent's personal use of shelf labels during their own grocery shopping.

3 /ACCEPTABILITY
This refers to the respondent's perceptions of the customers' reactions to the shelf labels.

3.1 /Acceptability/**Program Working** (Q6)
This refers to if the respondent feels as though the program is working, and their explanation why or why not.

3.2 /Acceptability/**Customer Interaction** (Q7)
This refers to the discussion about any interactions the respondent had with customers asking about the shelf label or *Healthy Food Healthier You* program.

3.2.1 /Acceptability/Customer Interaction/**Observation**
This refers to information the respondent gathered by observation

3.2.2 /Acceptability/ Customer Interaction/**Talked**
This refers to whether the respondent has talked to customers about the program.

4 /FEASIBILITY
This refers to discussions about feasibility of program and issues that would be relevant for continued implementation and program expansion.

4.1 /Feasibility/**Program Successes** (Q8)
This refers to the employees' opinions about the successes of the shelf labeling program

4.2 /Feasibility/**Program Challenges** (Q9)
This refers to the employees' opinions about the challenges of the shelf labeling program

5 /SUSTAINABILITY
This refers to discussions about the future of the Healthy Food, Healthier You program.

4.1 /Sustainability/**Continue, Grow, or Change** (Q10)
This refers to the employees' opinions about if they would like to see the shelf label program continue, grow, or change.

4.2 /Sustainability/**Suggestions** (Q11)
This refers to the employees' suggestions for how they would like to see the program to continue, grow, or change.

4.2.1 /Sustainability/Suggestions/**Shelf Labels** (Q11a)
This refers to the probe about ways the shelf labels can be improved.

4.2.2 /Sustainability/Suggestions/**Food Demonstrations** (Q11a)
This refers to the probe about ways the food demonstrations can be improved.

4.2.3 /Sustainability/Suggestions/**Store Tours** (Q11a)
This refers to the probe about ways the store tours can be improved.

4.2.4 /Sustainability/Suggestions/**New Activities** (Q11b)
This refers to the probe about any new activities that may be beneficial to the program.

4.3 /Sustainability/**Less Dependent** (Q12)
This refers to the respondent's suggestions for how the program can be changed so it's less dependent on volunteers and more self-sustainable.

4.4 /Sustainability/**Employee Interest** (Q13)
This refers to the respondent's perceptions about employee interest in participating in the Healthy Food, Healthy You program in the future.

4.1.4 /Sustainability/Employee Interest/ **Why or Why Not** (Q14)
This refers to the respondent's reasoning for being interested or not interested in participating in the program.

6 /EXTERNAL FACTORS

This will capture anything interesting the respondent says about external factors influencing implementation when answering other questions.

6.1 /External Factors/**Facilitate Program Implementation**

This refers to any mentions of external factors that facilitate the way this program is working.

6.2 /External Factors/**Inhibit Program Implementation**

This refers to any mentions of external factors that may be considered barriers to the way the program is intended to work

7 /GOOD QUOTES

This will capture anything the respondent says that stands out as an interesting quote. This is subjective to the coder.