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Choose Healthy Here Pilot Program: A Secondary Analysis of Consumers' Behaviors and Perceptions to Access and Affordability of Healthy Foods

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CHOOSE HEALTHY HERE PILOT PROGRAM:

A SECONDARY ANALYSIS OF CONSUMER PERCEPTIONS AND BEHAVIORS TO ACCESS AND AFFORDABILITY OF HEALTHY FOODS

By

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Over one-third of adults in the United States are obese. Recent shifts in research focus on environmental issues to understand and address this epidemic, primarily within the food environment. Interventions are focusing on perceptions of and behaviors in food environments to elicit healthy behavior changes. The goal of this study included examining customer perceptions and behaviors towards access and affordability of healthy foods in rural food retail venues across Nebraska. Additionally, differences were assessed between 12 treatment and 7 control stores, with the Choose Healthy Here (CHH) pilot program and associated food demonstrations implemented at treatment stores and assessments only at control stores. Process surveys were completed by participants ≥19 years of age who shopped in their primary food store when recruited. The survey included questions regarding perceptions of food environments and shopping behaviors. Treatment store participants also were asked about CHH program components. Statistical analysis was performed using nonparametric tests using SPSS Statistics (Version 24.0, IBM Corp.). A $p \leq 0.05$ level of significance was used.

Overall, participants (n=148) were rural residents, primarily white, female, with an education level of some college or higher, and had a mean age of 48 years.

Participants generally agreed they had adequate access to healthy food, but also highly agreed they had access to unhealthy foods. Significant correlations were found across the total sample between income and education, income and perceived health status, and education and perceived health status. Over half used nutrition labels when shopping and a positive correlation was found between using labels and age. Over one-third reported consuming 1 cup or less of fruits and vegetables each per day. Fruit consumption was significantly higher in the treatment group (n=90). Purchasing of fruit and vegetables and fruit consumption were positively correlated with education level across total sample. Treatment participants noticed more healthy signage, whereas control (n=58) noticed more unhealthy signage. Over half of treatment participants viewed a food demonstration. Of those, approximately 40% reported they would likely use the recipe and 28.6% reported already using it. Further exploration of healthy food retail programming could positively influence consumer behaviors which may affect dietary intake.

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CHAPTER 1
INTRODUCTION

Since the late 1990's, obesity rates have dramatically risen for both adults and children alike. Potential factors contributing to rising rates include poor eating habits, lack of physical activity, and environmental influences. In previous years, researchers have focused on individual behavior modifications and exploring ways to reduce obesity rates. More recently, efforts have shifted to investigating how environmental influences may impact obesity. Focusing on environmental interventions may be more cost effective, reach a wider range of people, and have a greater potential to be more sustainable.

Food environments can have a significant impact on dietary intake depending on the nutritional quality of food sources available such as restaurants, convenience stores, and fast food restaurants and whether there is access to healthy and affordable foods (Milliron, Woolf, & Appelhans, 2012). Policy, Systems, and Environment (PSE) change approaches are evidence-based strategies that create a collaboration of sectors to build a supportive environment where individuals can make healthy lifestyle choices without the negative external forces acting upon them (American Cancer Society, 2015). While some studies have been done in this area, there is still expansive room for further research, program development, intervention strategies, and evaluation methods.

This thesis provides a background to the obesity epidemic and how food environments can play a large role in prevention and positively impact behaviors. Additionally, consumer behaviors and perceptions based on pilot program data regarding

access and affordability of healthy foods in their environments and different demographic variables will be discussed. Finally, intervention strategies, specifically food demonstrations and the effect they can have on consumers will be explored. This thesis explores the Choose Healthy Here (CHH) pilot program data in-depth to gain a more accurate depiction of consumers' perceptions and behaviors. This information may in turn help design and/or modify existing components of the healthy food retail program to produce better outcomes.

Goals and Objectives

The primary goal of this pilot study was to evaluate consumers' perceptions and shopping behaviors regarding access, affordability, and availability of healthy food items in their community food retail venues using CHH, a multicomponent healthy food retail intervention program. This thesis also aims to strengthen the theory that healthy signage and its' promotion can raise awareness in consumers, especially in regard to certain characteristics. In addition, by reviewing survey responses about food demonstrations by intervention participants (control versus treatment), the impact that this type of nutrition education may have on their perceptions and behaviors will be explored. This includes perception in cost of healthier foods and availability of healthier foods in their most frequented food retail store.

Research Questions

1. Does implementing healthy signage increase consumer's awareness of signage? If so, what characteristics are associated with increased awareness?
2. Are in-store food demonstrations an effective intervention tool in increasing the purchasing of healthy food items?
3. What are consumer's perceptions and behaviors towards access and affordability of healthy foods in their communities regarding income, age, education level, and perceived health status?

Hypotheses

The expected outcomes of this study include four separate hypotheses based on review of current literature. First, we expect to see perceived barriers to access to healthier food options, given the sample is from rural areas of Nebraska. We also expect to see greater perceptions of cost as a barrier in low-income and older populations. It is also expected that intervention consumers will report noticing CHH signage within the treatment stores. Finally, it is hypothesized that treatment store consumers will report purchasing foods that were used in the food demonstrations.

CHAPTER 2

LITERATURE REVIEW

Health Behaviors and Obesity

According to the most recent obesity data, all states are at least at a 20.2% obesity rate, with the highest being in Louisiana at 36.2% (Trust for America's Health; Robert Wood Johnson Foundation, 2016). Recently, there has been a slower progression of obesity rates, however, it is still alarmingly high and efforts to sustain this slowdown need to be reinforced. The highest rates are being seen in middle-aged individuals, which includes the majority of household primary grocery shoppers. Childhood obesity, affecting about 12.7 million (17%) children (Center for Disease Control, 2016), is strongly correlated to adult obesity rates.

Households generally have a primary shopper who greatly influences the diet of their family. Regardless of parental demographics, many adolescents are not creating healthy eating habits because of inadequate nutrient dense food intake (Xie, Gilliland, Li, & Rockett, 2003). Studies have indicated that if primary shoppers tend to be overweight and have a high fat intake, that diet will reflect the children's as well (Ransley, et al., 2002). A multitude of factors have been associated with obesity, with individual factors being highly researched. These include genetics, dietary patterns, sedentary behaviors, physical activity levels, and certain medication uses (Centers for Disease Control, 2017). However, environments and social determinants may also play a large role in perceptions,

behaviors, and dietary intake and should also be considered as a priority for intervention (Centers for Disease Control, 2017).

Food Environment

Just as the built environment can affect health and physical activity levels, the food environment is important in shaping food choices, nutritional status, and dietary intake. Typically, two different food environments are discussed; the community environment and the consumer environment. Community environments are considered any physical establishment where food can be obtained whether it is a grocery store, supercenter, convenience store, discount store, or farmer's market (Cannuscio & Glanz, 2011). The consumer environment is what an individual is exposed to once inside that community environment such as availability to foods, promotional materials, and pricing (Cannuscio & Glanz, 2011).

Food insecurity is defined by the United States Department of Agriculture's (USDA) Economic Research Services as not having the money or resources to access healthy and affordable food (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017). As of 2016, 12.3% of U.S. households were food insecure with Nebraska statistics at 14.7% (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017). Rates increase when looking at specific groups of individuals such as households with children under the age of 6 years (16.6%), single mother households (31.6%), and low-income households below 185 percent poverty threshold (31.6%) (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017). Rural (nonmetropolitan) areas of the US had a higher rate of food insecurity (15%)

compared to urban counterparts (14.2%) (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017).

Focusing on in-store interventions, or the consumer environment, has become an increasingly popular area of study in recent years. For the majority of people, grocery stores are the main source of food procurement. American families are getting 65%-75% of food from grocery stores and supermarkets (Milliron, Woolf, & Appelhans, 2012) and on average make two trips per week. In 2016, the average U.S. household spent $50 per week on groceries (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017). According to the Thrifty Food Plan (TFP), which estimates the relative cost of a healthy diet as per USDA guidelines based on age and gender of all household members, is 22% higher than the expected cost (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017). As with food insecurity, total dollar amount spent on food per week varies among different demographic groups such as households with children under 6 years of age spending $37.50 per week, single-mother households spending $36.67 per week, elderly living alone spending $60 per week, and low-income households below 185 percent poverty threshold spending $40 per week (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017). On average, both rural (nonmetropolitan) and urban populations spent $50 per week on food (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017).

It is important to assess and understand food environments to be able to identify issues present. Knowing the environment as well as the perceptions, behaviors, and culture of the population it serves can aid in designing and implementing a successful healthy food retail program.

Nutrition Environment Measures Survey (NEMS) Tools

The Nutrition Environment Measures Survey (NEMS) and its associated tools are an important component to include when planning a healthy food retail intervention program. Originally, this environmental measurement tool was used for restaurants, food outlets, and convenience stores and has since expanded to vending machines, farmer's markets, food-on-the-go, and others. These tools are used as an observational tool to assess the community and consumer nutrition environments (Glanz, Sallis, Saelens, & Frank, 2013). These tools are available for use by researchers as a means of evaluating a particular food environment and the perceptions of consumers who frequent there. This can be informative when designing or adapting a program for a specific area.

The NEMS-Store (NEMS-S) tool was specifically designed for retail food stores. This assessment includes availability of healthy food options, price, and quality (Glanz, Salllis, Saelens, & Frank, 2007). The assessment is done by two trained independent recorders at different points in time to assess for inter-rate reliability of scores. In the 2007 study of the evaluation of the NEMS-S tool, inter-rate reliability scores were 0.84-1.00 and test-retest reliability was 0.73-1.00 (Glanz, Salllis, Saelens, & Frank, 2007). The NEMS-S provides an overall healthy access score (0-5) as well as a total access score. The healthy access score provides a brief overview of the store's access and affordability of healthy food items over the five MyPlate food groups. It is to be noted that suggestions from this study include modification to this tool for specific variables other researchers may be interested in, as long as reliability is tested.

Observable components of the food environment are important, but just as vital is consumer's perceptions of their food environments. Thus, the NEMS-Perception (NEMS-P) tool was created in an attempt to comprehensively measure consumer perceptions. The model for the creation of this tool is based off previous research that individual characteristics, such as socioeconomic (SES) status, health status, and psychosocial factors, all influence how nutrition and food environments are perceived (Green & Glanz, 2015). The original survey includes 118 questions including perceived food environment (53), psychosocial factors (9), health behaviors (7), sociodemographic factors (18), shopping behaviors (11), and eating behaviors (10) (Green & Glanz, 2015). This survey is also modifiable to suit the needs of the researcher's interests. There is also a version with core items that is shorter for respondents to complete.

Consumer Perceptions

How consumers perceive their food environment plays a big role in shopping and eating behaviors. One study suggested that an individual's subjective experiences and perceptions to access to resources are linked to dietary intake (Dean & Sharkey, 2011). Food stores, including grocery chain stores, are found to be significantly fewer among rural populations than that of urban counterparts which can create a barrier of travel time (Powell, Slater, Mirtcheva, Yanjun, & Caloupka, 2007). In accordance with that, relative prices are usually higher with fewer shopping options and can be even more of a barrier for low-income, rural populations (Powell, Slater, Mirtcheva, Yanjun, & Caloupka, 2007). Researchers found in one study of consumer responses, over 75% believed fruit and vegetables to be reasonably priced, yet contrary to this statement, more than half

believed that increasing fruit and vegetable purchases would be too expensive (Dibsdall, Lambert, Bobbin, & Frewer, 2002). The same study noted that even though low-income populations are not consuming the recommended 5 servings per day, neither are higher-income groups, so income may not necessarily correlate with a healthier diet (Dibsdall, Lambert, Bobbin, & Frewer, 2002). Studies have found that as age increases, people thought they were already eating healthy but were less likely to change their diet to consume more fruits and vegetables (Dibsdall, Lambert, Bobbin, & Frewer, 2002). Education level has recently been studied as a potential barrier to healthy eating with studies suggesting that a higher education level may indicate the ability to better understand nutritional quality of foods, which can affect dietary intake (Hiza, Casavale, Guenther, & Davis, 2013). Obtaining demographic statistics as well as consumer input from the targeted community in is important. In addition, eating "healthy" is a broad term and can be interpreted differently from person to person. Many consumers are confused by what foods are considered healthy with recommendations changing regularly (Byker-Shanks, Haack, Tarabochia, Bates, & Christenson, 2017) and the massive amount of science media suggesting conflicting health claims. Differentiating populations by social determinants provides insight regarding perceived barriers to healthy eating and, in turn, can aid in designing more successful, tailored intervention programs.

Rural Population

When looking at food access, it is important to know the built environment that surrounds the consumers. Rural communities tend to have higher obesity rates compared to those in urban communities (Befort, Niaman, & Perri, 2012). Younger rural

populations, ages 20-39, were noted as having the most significant difference in obesity compared to urban counterparts. Studies suggested that dramatic changes in environments over recent years could account for these differences. An example of changes included technological advancements to jobs that were once more labor demanding, such as farming and ranching (Befort, Niaman, & Perri, 2012). Higher rates of obesity in rural populations are also attributed to less access to healthy foods and the "country cooking" pattern which uses more saturated fats in cooking methods (Befort, Niaman, & Perri, 2012).

Studies have also linked better access to a supermarket with a reduced rate of obesity (Larson, Story, & Nelson, 2009). Urban communities with higher populations have a higher density of supermarkets and grocery store retailers compared to rural communities. Populations with more supermarkets were found to have higher fruit and vegetable consumption (Baker, Schootman, Barnidge, & Kelly, 2006). Communities that are not within reasonable distance to a retailer that provides fresh produce, lean meats, whole grains, and low-fat dairy products may be at an increased risk for poorer nutritional intake (Baker, Schootman, Barnidge, & Kelly, 2006).

Income, Age, and Education

It has been found that many low-income populations perceive cost as the greatest barrier to healthy eating. One study found that perception of cost was a barrier to consuming higher amount of fruits and vegetables for younger and low-income populations (Chapman, et al., 2017). USDA researchers found that determining the actual price of foods depends on how it is measured. Most food companies and grocery stores

advertise the price of food based on weight, but this is not edible weight or the nutritional value (Carlson & Frazao, 2012). When measuring in these ways, fruits and vegetables were found to be less expensive compared to protein, dairy, and other less healthier foods (Carlson & Frazao, 2012). In terms of recommended servings per day, fruits and vegetables should account for half of one's plate and have the higher recommended servings per day, yet many consumers are not allocating that much of their budget towards produce (Carlson & Frazao, 2012).

Low-income populations may already have the belief that healthier foods are more expensive and therefore not even shop for them once entering the store. In an effort to save money, many low-income consumers may choose more calorically-dense food options high in fat and refined sugars (Drewnowski & Darmon, 2005). In a study focused on shopping behaviors of low-income women, meat was reported as the most important and expensive item to buy with some women allocating up to 50% of their budget on meat (Wiig & Smith, 2008). While most women in the study reported vegetables as a main component of the meal, grocery store purchases did not reflect this pattern. Perception of high costs of fresh fruit also deterred participants to purchase more canned alternatives (Wiig & Smith, 2008). In another study, low-income (below 130% of poverty level) women ranked the following as most important when making food purchasing decisions: how well the food would keep, the price, and ease of preparation (Hershey, et al., 2001). Low fruit and vegetable intake can be attributed to things such as dislike for the foods by children in the house, spoilage rate of fresh fruits and vegetables, and lack of knowledge of recommended intake (Wiig & Smith, 2008). High rates of overweight and

obesity among low-income populations may be attributed to trying to stretch food dollars by foregoing perceived healthier items such as fresh fruits and vegetables for ready-to-eat, cheaper meals which supports the assumption that purchasing habits reflects consumption (Wiig & Smith, 2008).

According to one study, because many older populations are on a fixed-income, affordability of healthy food was perceived as the largest barrier (Byker-Shanks, Haack, Tarabochia, Bates, & Christenson, 2017). The same study also found many responses referencing the preference for and consumption of "traditional foods." Much of the older population, especially in rural communities, will eat the foods that they grew up on, noting that if parents and grandparents ate it and lived long enough, then it was good enough for them to eat (Byker-Shanks, Haack, Tarabochia, Bates, & Christenson, 2017).

Personal demographics such as education level have been found to be positively associated with food security (Dean & Sharkey, 2011). In a study to measure adherence to the 2005 Dietary Guidelines, it was found that adults with higher education attainment had higher total intake scores than each subsequent lower level of education (Hiza, Casavale, Guenther, & Davis, 2013). It was also reported that the higher the education level of an individual may suggest the ability to translate nutrition knowledge to a more positive dietary intake (Hiza, Casavale, Guenther, & Davis, 2013). Additionally, education level is an impactful influence on socio-economic status and when compared with others, such as income, employment, or occupation, tends to be the strongest determinant in developing healthy behaviors (Irala-Estevez, et al., 2000). Not only does education level affect the individual, but can set the precedence for the dietary intake and

quality for a family. Adolescents from families whose parent(s), especially the mother, had a higher education level tended to meet dietary recommendations for dairy, fruits, and vegetables more frequently (Xie, Gilliland, Li, & Rockett, 2003).

Shopping Behaviors

Health Symbols

Health symbols are marketing strategies used to guide consumers to a food item that may be a healthier option compared to similar products. With a myriad of choices to choose from for one specific item, using nutrition symbols on the front of packaging has the potential to help consumers make healthier choices. Symbols that promote heart health, gluten-free, GMO-free, or organic are all meant to highlight the nutritional value of food items. However, some of these symbols are not self-explanatory and therefore the consumer must have prior knowledge of the meaning to make a truly informed decision. Different studies have been conducted and shown that symbols can either have a positive, negative, or no effect on purchasing behavior. This may be attributed to the promotion and education prior to and during implementation of the symbol (Mork, Grunert, Fenger, Juhl, & Tsalis, 2017). Having a strong educational component for a nutrition symbol may increase purchasing of promoted items.

Shopping Lists

Use of shopping or grocery lists are another consumer shopping behavior that could have a positive effect on dietary intake. There have been different studies of varying designs and outcomes that suggest using a grocery list while shopping can

improve dietary quality and have a positive effect on weight status (Dubowitz, Cohen, Huang, Beckman, & Collins, 2015). One study found that out of a sample of 1,499 women, 35% always and 26% most of the time wrote a shopping list to take with them. This same study concluded that women who rarely or never used a shopping list are less likely to consume two or more daily servings of vegetables (Crawford, Ball, Mishra, Salmon, & Timperio, 2006). In another study that compared list use with poverty level, 55.6% of those living above 75% of poverty reported using a shopping list while only 47.2% of those living below 75% of poverty reported using one (Hershey, et al., 2001). This may indicate the usefulness of including shopping list behaviors in the educational aspect of an intervention program.

Healthy Food Retail Intervention Strategies

Point-of-Purchase

Point-of-purchase (PoP) includes a variety of different marketing strategies to attempt enhancement of consumers' perceptions and behaviors regarding healthy foods. Some examples include, but are not limited to, shelf talkers, signage, posters, recipes, nutrition education, and in-store food demonstrations. Unfortunately, consumers are often mentally overwhelmed regarding signage within a grocery store (Cannuscio & Glanz, 2011). A key component of intervention program signage is having it up for an extended period to allow information to be retained (Ogawa, et al., 2010). One study recommended changing the contents of posters and signs every 2 weeks to maintain customer interest (Ogawa, et al., 2010). It has been hypothesized that the more frequent the dissemination of information, the better chance of retention of the presented health information

(Colapinto & Malaviarachchi, 2009). Along with the amount of exposure, the positioning is essential as well. Not only should signage be placed where the healthy food option is stocked, but also at high points of interest such as checkout counters or store entrances (Colapinto & Malaviarachchi, 2009).

What is included in PoP materials is important as well. Most research has utilized materials and nutrition education strategies to promote the healthfulness or nutrient benefits of a specific food. In a recent report, it was found that 66% of consumers looked for product claims avoiding negative ingredients, such as “low-sodium” or “fat free” compared to 22% of consumers that looked for those that boasted positive benefits, such as “calcium fortified” or “rich in antioxidants” (Food Marketing Institute, 2016). It would be beneficial for future research to consider this information when creating PoP materials.

Cooking and food demonstrations have the potential ability to increase consumer’s knowledge and skills for meal preparation which have been shown to improve dietary intake (Reicks, Trofholz, Stang, & Laska, 2014). It was also found that among low-income women, consumption from meals prepared at home as opposed to outside the home increased fruit and vegetable consumption (Reicks, Trofholz, Stang, & Laska, 2014). However, food demonstrations should have a clear foundation for what the outcome should be and contain a strong evaluation component to measure program success (Reicks, Kocher, & Reeder, Impact of Cooking and Home Food Preparation Interventions Among Adults: A Systematic Review (2011-2016), 2017).

PoP intervention strategies are largely implemented both individually and as part of multi-component programs given the strategy has a potential to reach large numbers of people at relatively low costs (Milliron, Woolf, & Appelhans, 2012). However, the amount of exposure, or dose-response level, has had very little research done to support the effects. One limitation to this method is its degree of difficulty to measure. Majority of consumer data is self-reported and most of that data pertains to purchasing behavior as opposed to actual food consumption pattern data. Most families have a primary shopper for multiple members of a family, so sales data may not accurately show the consumption of all members of a household (Food Marketing Institute, 2016).

Access and Availability

Access and availability are key areas to focus on when planning or implementing grocery store-based interventions. Since measurement of individual's consumption is harder to measure, access and availability of healthy foods have been associated with the reported healthfulness of diets of the store's consumers (Glanz & Yaroch, 2004). Retailers generally look for incentives to stock healthier items because of their cost and perishability. By increasing easier access and convenience to these foods, consumers may be more likely to purchase them (Glanz & Yaroch, 2004).

Having a variety of healthy foods provides consumers with more purchasing options and tends to be favorable, especially when it comes to fresh fruits and vegetables. Ready-to-eat options are becoming increasingly popular, such as pre-cut fruits and vegetables served with dips and ready-to-eat meals (Adam & Jensen, 2016).

There are few studies on the effectiveness of increasing access and availability alone (without incorporation of an additional intervention strategy). One study reported that although there is an assumption that increasing access and availability of healthy food in a deprived neighborhood would improve health and diet, the study found no significant evidence of these results. Suggestions for combined intervention approaches, including advertising and price promotion, were hypothesized to increase the impact (Cummins, Petticrew, Higgins, Findlay, & Sparks, 2005).

Pricing

Some researchers have argued that pricing interventions are the most effective way to increase consumers' purchasing of healthier food items. Research has found that the higher the discount on items, the more effective the intervention strategy (Adam & Jensen, 2016). Pricing strategy examples include coupons, discounts, and loyalty programs. Several pricing-only interventions have had positive outcomes but only measured purchasing of healthier foods. One study (Geliebter, et al., 2013) took a deeper evidence-based intervention approach and compared healthy food sales data between two groups. The treatment group received discounted pricing from a list of healthy items while the control group only received the list, no discounted pricing. In addition, both groups performed 24-hour dietary recalls as well as body weight and composition measurements at specific times throughout the study. The results showed that fruit and vegetable purchases in the treatment group were more than three times greater compared to the control group. Additionally, fruit and vegetable consumption increased for the

treatment group versus the control group. However, after the intervention ceased and the discounts stopped, the treatment group returned to baseline measurements.

Out of all the strategies, pricing may be the hardest strategy to implement. This strategy requires a great deal of participation on the store owner's part. Retailers have a vast range of goals for their store, but profit is generally a primary concern. The demand must meet the supply in which store owners are willing to invest. This could be why only certain fruits and vegetables are on sale for a short period of time as well as seasonality pricing. If retailers have more of an incentive to participate then pricing could play a larger role in a store-based program. The Double Up Food Bucks program is an example of a multi-beneficial program which helps Supplemental Nutrition Assistance Program (SNAP) participants stretch their food dollars for healthy produce purchases by matching a set amount of funds and increases profits for local food distributors (Fair Food Network, 2012). Public policy or subsidies could play a role in lessening the burden of price reduction for store owners. For example, the Senior Farmers' Market Nutrition program provides low-income senior citizens with vouchers that are good for purchasing fresh fruits and vegetables from local farmers' markets (Cannuscio & Glanz, 2011). Vouchers, in a way, require the consumer to purchase that particular healthy food item (Adam & Jensen, 2016). Some researchers have stated that the high cost of a healthy diet is merely a perception and intervention strategies should be focused on educating the consumer (Drewnowski & Darmon, 2005).

Promotion and Advertising

Promotion and advertising are used with the intention of increasing sales of a desired product. This strategy is an important part of in-store interventions in hopes of increasing sales of healthy foods. Some common forms include media advertising, posters, games, newsletters, and grocery store tours (Cannuscio & Glanz, 2011).

Cross-promotion is a common strategy that can be used for the sale of nutritious foods. By placing a healthier food item adjacent to another product that is commonly purchased has been shown to increase sales. An example would be placing bananas on a display next to cereals (Glanz & Yaroch, 2004).

Living in a digital age, social media can be an effective platform to reach population segments, especially younger generations. Online grocery shopping is gaining popularity and even for those who do not, many are using some sort of digital tool prior to shopping such as phone apps, social marketing, or text messaging. In the millennial age group (18-37 years old), 59% of consumers used digital coupons and 55% checked for weekly sales specials (Food Marketing Institute, 2016). Even for middle-aged consumers (38-51 years old), over 40% was seen for both categories (Food Marketing Institute, 2016). Regarding cost, digital advertisement can be an effective tool that can reach across gender, age, and income levels.

Multicomponent Intervention Programs

While each type of intervention strategy previously discussed has benefits and limitations, combining these into a multicomponent program may be more strongly

associated with intervention success (Escaron, Meinen, Nitzkie, & Martinez-Donate, 2013). The current food environment as a culture is a supply and demand situation which calls for multicomponent interventions. On the demand side, PoP and promotion and advertising strategies can be utilized while supplementing the supply side with pricing, availability, and access strategies (Escaron, Meinen, Nitzkie, & Martinez-Donate, 2013). Other studies suggest that access alone is not enough and households are more concerned with product prices, level of nutrition education, and food preferences (Ver Ploeg & Rahkovsky, 2016).

Community partnerships and engagement when designing and implementing a multicomponent store-based intervention are also important aspects that contribute to success. Incorporating outside partnerships such as agriculture groups, churches, schools, hospitals, and private businesses open the door for more opportunities to create a sustainable program (Ver Ploeg & Rahkovsky, 2016). These community groups can provide perspective on the demographic variables that will play a critical role in the success of an intervention program. Holding stakeholder workshops can provide an opportunity for community members, health professionals, and store owners to provide insight and ideas as to how each sector can contribute to design an intervention that will work for the community (Gittelsohn, Rowan, & Gadhoke, 2012).

Targeting specific demographic groups could be effective in program implementation. It is suggested that by determining demographic characteristics of a population, health educators can adapt and customize nutrition education and intervention strategies to increase positive dietary habits (Xie, Gilliland, Li, & Rockett, 2003). By

choosing to promote and design these strategies to women and children, who are primarily the target demographic at grocery stores (Adam & Jensen, 2016), low-income, rural, and older populations, intervention costs could be better managed and information delivered at in-store nutrition education events more effective.

Summary

With rates of overweight and obesity still at a high level, intervention research focusing on environmental changes may improve understanding of effective approaches to positively influence consumers' perceptions and behaviors regarding healthy food access and affordability. It is important to understand the nutrition environment before implementing a successful and sustainable healthy food retail program. The NEMS-S tool can give an objective overview of a food retail store and highlight areas that may need improvement for access and affordability of healthy foods from the five group areas. The NEMS-P tool allows researchers to gain a perspective of the perceptions of the consumers of a food retail store. Together, these tools can provide a foundation for creating a healthy food retail program.

This literature review examined consumer perceptions and behaviors that focused on target demographic variables including rural status, low-income populations, older consumers, and education levels. Specifically, it looked at the barriers that each of these demographic groups face regarding access and affordability of healthy foods. The review also discussed shopping habits of these groups. This information, combined with the NEMS tools, substantiates the goals and objectives for a healthy food retail program.

Finally, four different intervention strategies were examined; Point-of-Purchase, Access and Availability, Pricing, and Promotion and Advertising. The strengths and weaknesses of each were considered and discussed in terms of a multi-component program. A multi-component program, along with community engagement, has been found to be the most effective strategy in creating a healthy food retail program that aims to increase access and affordability of healthy foods to target demographic populations.

Justification for Study

Food environments have been identified as a key influencer of dietary intake. To effectively target consumer health, perceptions and shopping behaviors of a given community or population should be taken into consideration to create the most appropriate and sustainable program. This shows justification for a study of this kind to be able to explore consumer perceptions and behaviors as well as reviewing outcomes of in-store food demonstrations through quantitative analysis.

CHAPTER 3

METHODOLOGY

Choose Healthy Here Pilot Program

The Choose Healthy Here (CHH) program is a 9-month healthy food retail program that was launched and piloted in summer 2016. CHH addresses four areas of food access: Find, Afford, Choose, and Use. Preliminary Nebraska Nutrition Environmental Measures Survey for Stores (NebNEMS-S; Appendix B) data was collected on 1,167 stores by trained staff across the state to determine areas of needed improvement. Based on the healthy food access scores, stores were selected for treatment stores and similar stores were chosen for comparison. CHH provides an adaptable and supportive link between community partnerships and food retailers to increase access, availability, and affordability of healthy foods to the community in which it serves. Through a supply and demand model, CHH provides promotional materials, nutrition expertise, and support to the retail store while also creating demand through community partnerships, in-store food demonstrations and nutrition education events.

Participants

Five local public health departments were chosen to participate in the 9-month pilot program of CHH as a part of the Nebraska Department of Health and Human Services (NEDHHS) 1422 grant. Based on the NebNEMS-S healthy food access scores (0-5), 12 locations were chosen to voluntarily participate in the pilot program as treatment stores (Appendix C). Ten were grocery stores while two were convenience

stores. Stores receiving less than a 5 for a healthy food access score were eligible for the pilot program. Seven comparison (control) stores were chosen with similarity to treatment stores regarding NebNEMS-S healthy food access score, store type, Supplemental Nutrition Assistance Program (SNAP) or Women, Infant, and Children (WIC) participation, number of cash registers, and approximation of customer base size and demographics. One store could serve as a control to two intervention stores. This was due to smaller, rural communities having fewer stores available. Store owners provided a letter of support to show understanding of and willingness to participate in the pilot program.

Consumer participants were adults, at least 19 years of age or older, and were asked if the store they were shopping at that day (treatment or control store) was the primary store in which they shopped. Responses were voluntary and participants could choose to not answer a question or discontinue the survey at any point in time.

Recruitment Methods

Survey participants were recruited at CHH treatment and control stores by staff from local public health departments and Nebraska Extension. This was done throughout program implementation using a process evaluation method. Participants were initially screened for participation. Eligible survey respondents were given the option to complete the survey through a follow-up phone call or online survey hosted on Qualtrics (Qualtrics Labs Inc., Provo, UT, Version 2016). Participants were asked to complete the survey within one week of their store visit. At least one reminder was sent by email or phone call to participants to complete the survey. Qualified participants who completed the survey

were mailed a $5 incentive check, which was coordinated by the Gretchen Swanson Center for Nutrition (GSCN).

Data Collection Instrument

Data collection consisted of a 65-question survey (Appendix A) completed by the participant. Surveys took approximately 10-15 minutes to complete. The customer survey was modified from the NEMS-P, developed by Dr. Karen Glanz and Sarah Green (Green & Glanz, 2015). The survey included various questions regarding consumer perceptions, behaviors, home environment, experience with the CHH food demonstration, and demographics. For a complete view of the survey question measurability and distribution, see Table 1.

Data Analysis

Initial analysis of pilot data was conducted by GSCN. The original project had Institutional Review Board (IRB) approval through the University of Nebraska Medical Center. Secondary analysis was conducted using IBM SPSS (Version 24.0). Due to the nature of this thesis as a secondary analysis of a de-identified data set, IRB approval from the University of Nebraska-Lincoln was deemed not necessary (Appendix D). Quantitative methods were used to analyze more in-depth common themes and barriers to consumers' perceptions to access and affordability of healthy foods in their community across various demographic variables. Consumer shopping behaviors were also analyzed. Analyses were also performed to estimate the awareness of CHH signage and effectiveness of in-store food demonstrations for treatment participants. CHH signage

was placed throughout treatment stores for the entire length of the program and food demonstrations were held 4 different times for approximately 2-3 hours each. Analysis was conducted on self-reported healthy food purchases between treatment and control groups. Statistical significance levels were set at $p \leq 0.05$.

Because quantitative data from this pilot study was not normally distributed, nonparametric tests were used. For statistical tests regarding difference in control and treatment groups, the Mann-Whitney test was performed. For analysis among variables such as income, age, education, and health status, the Kruskal-Wallis test was used for associations. Spearman Rho two-tailed significance was used for correlations. For dichotomous responses to survey questions, a Chi-Square analysis was used. Frequencies and distributions were run for analyses looking at the entire sample population.

CHAPTER 4

RESULTS

Demographics

Of the customers screened for survey eligibility (n=521), total customer surveys completed included 148 respondents, both from treatment (n=90) and control stores (n=58). Majority of survey respondents were white (85%) and female (84.9%), with a mean age of 48.6±14.9 years old. Household income levels varied between less than $10,000 to over $100,000 per year. Income levels were further divided into lower ($0-$30,000), middle ($30,001-$60,000), and upper ($60,0001 and above) with respondents being at 29.5%, 36.1%, and 34.4%, respectively. About 65% of participants reported completing some college or higher. Approximately 47% worked one full-time job, 12.7% worked one part-time job, and 30.2% reported being unemployed or retired.

Regarding perceived overall health status, 86.5% reported their health as good to excellent. About 30% self-reported having high blood pressure while only 7.4% reported having diabetes. Approximately 90% described their physical activity level as moderately to very active. Over 73% reported consuming 1-2 cups or less of fruit per day and about 65% reported consuming 1-2 cups or less of vegetables per day. All participants were recruited from stores in rural (non-metro) areas of Nebraska. Participants were asked if they received SNAP, WIC, or other government assistance for food, with 10.3% receiving SNAP, 5.6% receiving WIC, and 6.4% reported receiving other government assistance. For a full description of demographics, refer to Table 2.

A strong positive correlation was found between income and education ($r=0.491$, $p<0.001$) as well as income and perceived health status ($r=0.436$, $p<0.001$). Results also showed a strong positive correlation between education and perceived health status ($r=0.384$, $p<0.001$). No other significant results were found between income and other demographic variables.

Control versus Treatment

Travel Barriers and Store Selection

Travel time was found to be significantly higher in the treatment group ($U=1717$, $p=0.05$) than the control group. In both treatment and control groups, over 96% drove their own car to the grocery store. The most reported reason for shopping at the store they do was that it was near their home with 44.4% and 39.7% of treatment and control customer responses, respectively. See Table 3 for other reported reasons. There was a significant negative correlation between income and choosing a store based on perceived quality ($r=-0.184$, $p=0.042$) and perceived price ($r=-0.232$, $p=0.010$). There was also a significant negative correlation between education level and choosing a store based on perceived price ($r=-0.235$, $p=0.008$).

Fruit and Vegetable Purchasing and Consumption

Out of all fruits and vegetables purchased reported from total survey responses, participants at treatment stores purchased 57.3% of them. Fruit consumption was reported to be significantly higher in the treatment group ($p=0.05$) than in the control group based off the metric used in the survey. Participants selected from the following options: None,

½ cup or less, ½ to 1 cup, 1-2 cups, 2-3 cups, 3-4 cups, or 4 cups or more. Among the treatment group respondents, there was a significant association with fruit consumption and education level (r=9.021, p=0.029). No differences were found between treatment and control groups for vegetable consumption.

Signage

In the treatment stores, almost 60% of respondents reported seeing the CHH logo. Reporting to have noticed healthy signage was significantly higher in the treatment group (54.6%) than in the control group (32.2%) (p=0.020). In the treatment group, there was a significant negative correlation between age and noticing healthy signage (r=-0.283, p=0.016). In the control stores, there was a significant positive correlation between education level and perceiving a high amount of unhealthy signage in their grocery store (r=0.301, p=0.029).

Food Demonstrations

Data analyses for food demonstrations looked only at the treatment stores as demonstrations were only held at those locations, thus only those respondents' answers who visited a treatment site were used. Almost 52% of treatment respondents reported observing a food demonstration on their store visit, however, only 15% knew about the food demonstration at the store ahead of time. For a complete list of food demonstration responses, see Table 4.1. The top five demonstrations observed are listed in Table 4.2. When looking at food demonstration observation by age group, 21.4% of the 21-35 year-old age group reported viewing, 34% of the 36-50 year-old age group reported viewing,

35.7% of the 51-64 year-old age group reported viewing, and 45.5% of the 65 years and older group reported viewing. There were negative correlations noted between perceived health status and observing a food demonstration (r=-0.253, p=0.031) as well as income and observing a food demonstration (r=-0.261, p=0.027). About 30% reported they had already used the recipe being demonstrated in their home, with about 40% reporting it was likely they would use the recipe they saw demonstrated.

Consumer Perceptions and Behaviors

Because there were many areas where significant differences were not found between control and treatment participants, the following results were analyzed by considering total survey respondents (both treatment and control) to examine common trends and patterns.

Income, Age, and Education Perceptions of Access and Affordability

Participants generally agreed that it was easy to get fresh fruits and vegetables (80%) and canned fruits and vegetables (82%). Over two-thirds of respondents agreed that it was easy to get lean meats at their store. Income was found to be moderately positively correlated (r=0.182, p=0.45) with agreeance to access to lean meats. Over 82% reported it was easy to get low-fat dairy products. While there was a high agreeance to access of healthy foods, results also showed that candy, snacks, chips, and sugary drinks were easy to access as well. Almost 88% agreed candy, snacks and chips were easy to access and about 83% agreed for easy access to soda and sugary drinks. See Table 5.1 for complete list of perceptions to access and affordability. Among respondents, 22% agreed

that fresh fruits and vegetables cost too much. There was a negative correlation found between reported health status and perception of cost of fruits and vegetables ($r=-0.220$, $p=0.014$).

Use of Nutrition Labels

Over 56% of respondents agreed that they use nutrition information on packaging when they shop. For the treatment group, there was a positive correlation found between age and the use of nutrition labels ($r=0.399$, $p<0.001$). Across treatment and control groups, there was a strong positive correlation overall for age and the use of nutrition labels ($r=0.306$, $p<0.001$). Tests showed a statistically significant difference in using nutrition labels and age range ($p=0.008$). After post-hoc analysis, there was a significant difference between the 21-35 year-old age group and the 65 years and older age group ($p<0.001$) with the 65 years and older group using nutrition labels more frequently.

Use of a Shopping List

Almost 82% of respondents said they shopped for food at least once a week. About 60% reported often or always using a grocery list when they shopped (Table 5.2). There were no significant correlations or differences associated with the use of a grocery list regarding demographics of respondents.

Fruit and Vegetable Purchasing & Consumption

Respondents were asked to select which fruits and vegetables were purchased during their trip. The most purchased foods were bananas (31.8%), lettuce of any variety (23.6%), onions (23.6%), and apples (23%). For a complete list of fruits and vegetables

purchased, see Table 5.3. Over 53% of respondents reported only purchasing 1 or less variety of fruits and vegetables combined (Table 5.4). There was a significant difference found between age groups and the variety of fruits and vegetables purchased (r=9.020, p=0.029) with the 36-50 year-old age group purchasing the most variety. It was also observed that purchasing of fruits and vegetables increased as level of education increased. Data not reported in tabular form.

Approximately thirty-eight percent of respondents reported consuming 1 cup or less of fruit per day and 35.4% reported consuming 1 cup or less of vegetables per day (Table 5.5). Tests showed a statistically significant association between fruit consumption and education level (r=10.388, p=0.016). Specific differences were found using post-hoc analysis between those with “some college or technical school” and “some high school or less” (p=0.011) and between “college graduate or more” and “some college or technical school” (p=0.011). A positive association was seen between perceived health status and fruit consumption (r=0.261, p=0.003). There was no difference between health status and vegetable consumption. There was a positive correlation between reported fruit consumption and total fruit and vegetables purchased (r=0.184, p=0.036) but not for reported vegetable consumption.

CHAPTER 5

DISCUSSION

The primary goal of the Choose Healthy Here (CHH) pilot program was to determine if a healthy food intervention program can improve outcomes over a 9-month period in the four areas of food access; Find, Afford, Choose, and Use. Through the use of multiple intervention strategies, it was expected to see improvements in purchasing and consumption of healthier foods, especially in the foods used in the in-store food demonstrations. The information to determine these improvements was collected from treatment (n=98) and control (n=50) store participants. In addition to behavior change, data collection was also used to examine overall consumer perceptions of access, affordability, and barriers to healthy eating.

Demographics

For this pilot study, all consumer participants were considered as having rural community status. While this gave great insight to perceptions and barriers of those communities, we did not have an urban counterpart for comparison. In addition, about 85% of respondents were middle-aged white females. Primary shoppers are most often the female head of household and generally the most at-risk for overweight and obesity (Ransley, et al., 2002). Also, they can set the precedent for dietary intake for the entire family (Ransley, et al., 2002).

The results from the demographic information collected showed relationships between income, age, education, and perceived health status. Many of the results for this

pilot study suggested higher education levels as well as age were associated with more positive health habits and perceptions of health. Other studies looking at education levels found similar results as those with higher education levels may better be able to translate nutrition education and knowledge to behavior and dietary intake (Hiza, Casavale, Guenther, & Davis, 2013).

Control Vs. Treatment

Fruit consumption was reported to be higher in the treatment group compared to the control group. This could partially be attributed to the food demonstrations being held at the treatment stores. As seen in Table 4.2, the two most viewed food demonstration events contained fruit. Furthermore, among treatment group respondents, there was a positive association found between fruit consumption and education level. Similar studies have found positive associations between increased fruit and vegetable intake and higher education levels (Irala-Estevez, et al., 2000). Discussing health benefits of eating the recommended servings of fruit and vegetables per day in addition to the recipe demonstration could potentially help bridge this gap. Additionally, having health benefits on a recipe card could serve as an educational component as well.

Treatment store respondents reported noticing healthy signage more frequently than the control group. This could have been attributed to the CHH program increasing the amount of signage in the store. As part of the intervention, CHH promotional signage was placed throughout the treatment store for the duration of the program. Almost 60% of treatment participants reported specifically seeing the CHH signs. According to some researchers, signage in a grocery store can be mentally overwhelming (Cannuscio &

Glanz, 2011). For the CHH program, it was suggested to store owners to remove as much unhealthy advertisements as possible so attention could be drawn to the healthy signage placed in the store. Among treatment store responses, there was a negative association seen between age and noticing healthy signage. Studies have shown that different signage or health symbols can have a positive, negative, or no effect on purchasing and that increasing the information on the symbol may increase purchasing the item (Mork, Grunert, Fenger, Juhl, & Tsalis, 2017). Background information on the CHH logo prior to or at the beginning of program implementation could potentially be beneficial so consumers understand what the logo stands for including older populations. There was a positive correlation found in control stores for education level and perceiving their store to have high amounts of unhealthy signage. This may be attributed to control stores having no additional healthy signage from the CHH program and those with higher levels of education more attuned to store signage.

Food Demonstrations

As part of the CHH intervention program, four food demonstrations were held throughout the program. Therefore, only treatment group responses were analyzed for effectiveness of this strategy. CHH program leaders chose from a list of Nebraska Extension pre-approved recipes. While over half of respondents reported viewing a food demonstration, only 15% knew this was happening ahead of time. Advertisement and information materials could prove beneficial in increasing awareness of upcoming nutrition events. However, of those who viewed a food demonstration, about 43% reported that it was likely they would use the recipe at home. It was found that a higher

percentage of the older age groups reported viewing the food demonstrations more than the younger age groups. There were negative correlations seen between perceived health status and observing a food demonstration, as well as income and observing a food demonstration. This finding agrees with previous studies which found that groups from higher socio-economic groups, such as higher income and education, may actually perceive their health to be better than it actually is and therefore not see a need to improve any aspects of their diet (Variyam, Shim, & Blaylock, 2001). This could indicate that tailoring messages in promotional and education materials within a healthy food retail program to target demographic groups could increase engagement.

In addition to increased advertisement, consumer input on type, time and date, and foods used in demonstration could increase the number of consumers reached by the intervention. Additionally, using food items that are currently on sale at the store in the food demonstration could increase the perception of affordability for the consumer. This could be accomplished by planning with the store owner. A common barrier tends to be familiarity with foods and cooking demonstrations provide the opportunity for shoppers and their families to try a new food and learn how to prepare it (Reicks, Trofholz, Stang, & Laska, 2014). During the pilot, there were no requirements on when the food demonstration occurred nor how long it lasted. While a large component of this program is the adaptability for each store and community, having more set requirements on nutrition events could increase program fidelity as well as positive results. Furthermore, it has been reported that it is difficult to address multiple barriers in one demonstration setting and should instead be incorporated into a complete intervention with community

stakeholders helping to address food access and affordability barriers (Reicks, Trofholz, Stang, & Laska, 2014). When conducting an assessment of the community needs for a healthy food retail intervention, information regarding consumer knowledge of healthy foods and food preparation skills could prove useful to delivering effective, more tailored food demonstrations.

Consumer Perceptions and Behaviors

Because there were several areas where treatment and control responses were not significantly different, consumer perceptions and shopping behaviors in relation to healthy food retail were analyzed with the total sample. Overall, respondents generally agreed that it was easy to access fresh and canned fruits and vegetables, lean meats, and low-fat dairy at the store they shopped at. However, there was also high agreeance to easy access of chips, snacks, soda, and other sugary beverages. It was found that even though participants perceived access to healthy foods as acceptable, purchasing did not reflect those results. Researchers in Philadelphia reported on consumer perceptions regarding a new supermarket open and found that even though perceptions of access increased, this did not elicit an increase in fruit and vegetable intake (Cummins, Flint, & Matthews, 2014). Other researchers have found that, in an effort to save money, many shoppers will choose cheaper, calorically-dense food items as opposed to nutrient-dense, healthier items (Drewnowski & Darmon, 2005). Product placement could affect these purchases by interchanging the unhealthy items on aisle endcaps and front of the store with more nutrient-dense foods (Colapinto & Malaviarachchi, 2009) or by cross-promoting items and placing healthy items with popular purchases (Glanz & Yaroch,

Strategies for increasing fruit and vegetable intake in grocery stores and communities: policy, pricing, and environmental change, 2004).

The customer survey, which was adapted from the NEMS-P, only asked about pricing of fresh fruits and vegetables. Only 22% believed that fresh fruits and vegetables cost too much. In addition, there was a negative correlation for those who perceived themselves as healthier and perceiving cost as a barrier to fresh fruits and vegetables. However, cost may become a barrier if respondents were to increase their fruit and vegetable purchases due to inadequate consumption. In a study examining perceived health status and actual dietary consumption, it was found that around 40% of Americans perceived their dietary intake to be much higher than it really was (Variyam, Shim, & Blaylock, 2001).

While there was a high agreeance to access to lean meats, results also showed there was a positive correlation between access to lean meats and income. Had the survey for CHH asked about price perception of lean meats, there is a possibility we could have seen a significant correlation between income and perceived affordability of lean meats. From the literature review it was found that meat was considered the most important grocery item to buy, yet also the most expensive (Wiig & Smith, 2008). Perhaps the perception of affordability and actual cost of lean meats are accurately aligned.

Travel time to the store can be a factor for many rural populations. The most reported reason our sample stated for shopping at the store they did was related to proximity to home. According to the Nebraska Rural Poll, 64% of 19-29 year-old rural community members reported this to be true while only 39% of 40-49 year-olds reported

this (Vogt, et al., 2017). Studies have found that there is a link between increased access to supermarkets and obesity risk (Larson, Story, & Nelson, 2009). Similar studies have also reported that rural communities have 14% fewer supermarkets than urban counterparts (Larson, Story, & Nelson, 2009). However, almost 68% of rural Nebraskans report shopping at a supercenter or supermarket with over half saying travel time takes 10 minutes or less (Vogt, et al., 2017). Those living in smaller communities may travel up to 30 minutes or more to shop for food (Vogt, et al., 2017). The CHH pilot program chose rural stores with a NebNEMS-S healthy food access score less than 5 to work with, having the goal of increasing the access and affordability of healthy food items. With increased healthy food access scores as one of the goals of the program, this change potentially reduces the need for rural consumers to travel further to a supermarket and instead, can support local community stores while also having adequate access to a healthy diet.

Over half of respondents (56%) reported using the nutrition label information on foods when shopping. This finding supports previous research which reports 45-80% of U.S. adults are using nutrition labels (Ollberding, Wolf, & Contento, 2010). It was found in our sample that as age increased, so did the use of nutrition labels, specifically in the 65 years and older age range as well as treatment group participants. In agreeance with this pilot study, a positive correlation has been found among age and education with the use of nutrition labels (Ollberding, Wolf, & Contento, 2010). Older age groups reported less frequently noticing healthy signage, yet the use of nutrition labels was reported higher than younger populations. There is potential benefit to be seen by incorporating

healthy signage that highlights nutritional value in specific foods. Previous research has reported positive associations between the use of nutrition information and improved dietary intake (Ollberding, Wolf, & Contento, 2010). However, majority of research has used self-reported data regarding using nutrition labels and cannot provide a causal relationship with dietary intake (Soederberg-Miller, et al., 2015).

There were no significant findings from this data in relation to the use of a grocery shopping list. However, that is not to say that it would not be beneficial to incorporate shopping list related education and resources into the CHH program. Over 60% of respondents said they either often or always use a grocery shopping list (Table 5.2). According to USDA's My Plate, adults 19 years of age and older should consume 2 cups of fruit per day and 2 ½ to 3 cups of vegetables per day, or 5 servings of fruits and vegetables as a rule of thumb (United States Department of Agriculture, 2018). Studies have found that the use of a shopping list can improve diet quality (Dubowitz, Cohen, Huang, Beckman, & Collins, 2015). Since women tend to be the primary shopper, one study found that those women who never or rarely use a shopping list are less likely to consume at least two servings of vegetables per day (Crawford, Ball, Mishra, Salmon, & Timperio, 2006). The CHH pilot data found that over 73% of respondents were consuming 1-2 cups or less of fruit per day and over 65% were consuming 1-2 cups or less of vegetables per day (Table 5.5). By incorporating a shopping list template along with education regarding use of one, there is a potential to increase fruit and vegetable consumption among primary shoppers.

As previously stated, it was found that over one-third of survey respondents reported consuming 1 cup or less of fruit and vegetables each, per day. This is less than half of the recommended daily servings of fruits and vegetables. The USDA reports that American diets are usually lower in fruits and vegetables, especially for low-income households (Mancino & Guthrie, 2018). Education and income are generally positively associated with higher socio-economic status (Irala-Estevez, et al., 2000). Regarding fruit consumption in this study, there was a significant association found between education level and fruit consumption, especially in the "some college" or "college graduate" groups. In addition, there was also a positive association found between perceived health status and fruit consumption. The healthier someone perceived themselves, the higher they reported fruit consumption per day. One study, however, reported large variances between one's reported consumption of fruits and vegetables and actual calculated consumption, especially among those with low consumption (Variyam, Shim, & Blaylock, 2001). Increasing nutrition education directly into the food demonstrations and the program material could be beneficial in increasing fruit and vegetable consumption. Additionally, research has suggested incorporating making people aware of their actual consumption could be an important component of an education intervention program (Variyam, Shim, & Blaylock, 2001).

A common question seen among this type of research is whether there is a correlation between purchasing and consumption. From the CHH pilot data, those who reported consuming more fruit per day also reported purchasing more total fruit and vegetables on their shopping trip. The most purchased food item among our survey

respondents for fruit and vegetables were bananas (Table 5.3). Additionally, the most commonly viewed food demonstration was the Banana in a Blanket recipe. This could suggest that food demonstrations have the potential for increasing sales of a particular food, in turn possibly increasing consumption (Hawkes, 2009). On the other hand, over half of respondents reported only purchasing 1 or less variety of fruits and vegetables on their shopping trip. The USDA My Plate recommends a variety of fruits and vegetables in a healthy diet (United States Department of Agriculture, 2018). Increasing the amount of different food demonstrations or demonstrating recipes that use a variety of healthy foods have the potential to increase purchasing of different types of healthy foods. However, studies have found that promotional food items used in tastings or demonstrations may only increase sales short-term and do not necessarily correlate to consumption (Hawkes, 2009). Even with this lack of sustainability for purchases, food demonstrations can be an effective educational tool when incorporating nutrition knowledge and cooking skills and should still be considered for interventions (Reicks, Kocher, & Reeder, 2017).

Limitations

Pilot studies are designed with the intent to sample a small portion of the population of interest to determine if study components are realistic, reliable, measurable, and sustainable. Because of the small sample size, non-parametric measures were used to analyze results in the case of non-normally distributed results and data (treatment and control) and were also grouped to examine trends in perceptions and behaviors rather than program effectiveness. Increase in statistically significant results may have been

seen had there been a larger sample size. Furthermore, due to small sample size and responses grouped together, future research would benefit to look specifically at low-income participants' responses to access and affordability. Additionally, grocery list usage could be further investigated by household size.

Secondly, surveys were completed through the process of the intervention program at both treatment and control sites. In retrospect, pre- and post-surveys may have been more beneficial in seeing an increase in positive program outcomes. While multicomponent programs such as CHH have proven to be more successful, issues of standardization arose. Adaptability is an important part of the program, however having increased standards for food demonstrations types and times as well as signage standards would be beneficial for program fidelity and evaluation.

In addition, all of the pilot stores were located in rural areas. While this gave us insight to rural population perceptions, there was not an urban counterpart for comparison. Another limitation was low participation of minority populations. This may have been attributed to the rural location of the stores. For future expansion of the program into urban areas and those that are more culturally diverse, it would be beneficial for the NEMS observation tools to be adapted so they are more culturally appropriate. There is a potential for ethnic stores to receive lower healthy access score according to the original NEMS tool. However, many of these stores may actually provide healthy options based upon their culturally traditional foods. Finally, we did not have access to sales data from the stores to see if healthy items that were promoted increased in purchasing. We only had the self-reported purchasing and consumption data

from the consumer surveys. It has been noted from previous studies that over-reporting consumption of healthy foods is possible, especially for higher socio-economic groups as they tend to have a better knowledge base of what constitutes a “healthy” food item and therefore may over report purchasing and consumption (Irala-Estevez, et al., 2000).

CHAPTER 6

CONCLUSION

Overall, the implementation of the CHH pilot program provided valuable information regarding healthy food retail intervention strategies. Through identifying common perceptions and behaviors from the customer survey responses along with feedback from the treatment store food demonstrations, different areas of improvement were identified.

Among all respondents, there was a high agreement to access to healthy foods. Both CHH and control stores perceived it just as easy to access unhealthy foods items compared to healthy ones. Focusing efforts on decreasing access to unhealthy foods may elicit more desirable outcomes such as increase in purchasing of healthier foods. CHH respondents also reported a higher consumption of fruit compared to control stores, especially when factoring in education level and perception of health status of the respondent. This could substantiate tailoring education materials and food demonstrations to specific demographic groups such as education level, income, and/or age.

Income, age, and education all proved to be important demographic variables when assessing consumer perceptions and behaviors. However, in contrast to the initial hypothesis, cost was not found statistically significant among this sample as a barrier for low-income or older populations. Pricing strategies could create a bigger impact on certain communities where there is a higher rate of low-income populations. Tailoring food demonstrations, nutrition education, and promotional materials could prove more

effective if a large proportion of shoppers are in a certain age group. In addition, future research should examine peak times of food demonstration observation and how long the event needs to take place for maximal population exposure.

CHH store respondents reported noticing healthy signage, specifically CHH materials, more frequently compared to control stores. In contrast, control stores reported noticing a higher amount of unhealthy signage. Almost half of CHH store respondents said it was likely they would use the observed food demonstration recipe at home. The use of nutrition labels tended to be higher overall for older age groups than younger age groups. Older age groups also tended to buy more of a variety of fruits and vegetables during a shopping trip compared to younger age groups.

While the most commonly reported food item bought, bananas, was used in the top viewed demonstration, improvements to build upon food demonstrations with a stronger evaluation component are critical in improving effectiveness of this type of intervention. Promotion of these food demonstration events should be increased as well. Incorporating the use of shopping lists could be a valuable strategy to add to the CHH toolkit. Adapting and modifying a healthy food retail program such as CHH could prove to be more impactful if there is a general idea of population demographics. In summation, the CHH pilot provided positive feedback from consumers to improve upon existing multicomponent healthy food retail interventions that aim to build off positive consumer perceptions regarding food environments and elicit positive healthy behavior changes.

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TABLES

Table 1: Survey Question Measurability and Distribution

Perceptions of Store Environment	
13	Did you observe the Choose Healthy Logo (pictured) while inside the store?
14	Fresh fruits and vegetables at this store cost too much.
15-20	It is easy to get… (fresh or canned F&V, lean meats, candy/snacks, low-fat dairy, sugary drinks).
21-22	I notice healthy signs, I notice CHH signs at this store.
23	The unhealthy foods are at the ends of the aisles at this store.
24	There are lots of signs for unhealthy foods at this store.
Motivations for Purchases	
37-41	Rate your importance of…Taste, Nutrition, Cost, and Convenience, then order them.
Behavior	
3	What type of store is the store you buy most of your food?
4	Why do you choose to shop at this store?
5	Did you purchase any of the following foods?
6	Have you or someone in your household already eaten the purchased foods?
7	How likely will it be that all foods are consumed before they need to be thrown away due to spoilage or expiration?
25	I use nutrition labels or info when choosing foods at this store.
33	How often do you shop for food?
34	How do you usually travel to the store?
35	How long does it take to get the store?
36	How often do you use a list when you grocery shop?
45	How many cups of fruit each day? (Consumption)
46	How many cups of vegetables each day? (Consumption)
Home Environment	
26	Which of these do you have in your home to cook or store food in?
27-30	In your home, how often to do you have…F&V, candy/chips, Fruit on counter, sweets?
31	How often does your family eat meals together?
32	How often does your family eat meals in front or TV or TV on?
Food Demo	
8	Did you observe a food demonstration while inside the store?
9	Select the recipe you observed being prepared in the food demo.
10	Did you learn there would be a food demo at the store ahead of time?
11	Have you or someone used the recipe demonstrated?
12	How likely will it be that someone in your house used the demo recipe?
Demographic	
47	Who is the primary shopper in the household?
48	Gender
49	Age
50	How many people in your household?
51	Hispanic/Latino

52	Race/Ethnicity
53-55	Do you receive…SNAP, WIC, Other Assistance?
56	Income
57	Zip Code (Where you live)
58	Where were you born?
59	Employment Status
60	Education Level
61	Describe your overall health.
62	Describe your weight.
63-64	Blood Pressure, Diabetes
65	Describe level of physical activity.
Food Security	
42	Where else do you or your family get food from?
43	Within last 12 months, worried about running out of food before you got more money?
44	Within last 12 months, bought food that didn't last before you got money to buy more?
Uncategorized	
1	Select the store you visited.
2	Is this the store where you do most of your food shopping?

Table 2: Demographic Summary of Consumer Survey Participants (n=148)

	Total n (%)	Treatment n (%)	Control n (%)
Gender[a]			
Male	19 (15.1)	14 (19.2)	5 (9.4)
Female	107 (84.9)	59 (80.8)	48 (90.6)
Age (Mean±SD)	48.61±14.9	51.65±14.9	44.47±14.0
Age Range (in years)	21-87	21-87	22-76
Household size other than you [c]			
0	13 (10.7)	11 (15.9)	2 (3.8)
1	42 (34.7)	25 (36.2)	17 (32.7)
2	20 (13.5)	9 (13.0)	11 (21.2)
3	19 (12.8)	10 (14.5)	9 (17.3)
4	9 (7.4)	5 (7.2)	4 (7.2)
5 or more	18 (14.9)	9 (13.0)	9 (17.3)
Hispanic/Latino (% said yes)	7.1%	8.2%	5.7%
Race			
White	125 (85.0)	73 (82.0)	52 (89.7)
Black or African American	2 (1.4)	0 (0)	2 (3.4)
Asian	2 (1.4)	1 (1.1)	1 (1.7)
American Indian or Alaskan Native	0 (0)	0 (0)	0 (0)
Pacific Islander	0 (0)	0 (0)	0 (0)
Native Hawaiian	0 (0)	0 (0)	0 (0)
Other	0 (0)	0 (0)	0 (0)
SNAP (% said yes)	10.3%	15.1%	3.8%
WIC (% said yes)	5.6%	5.6%	5.7%
Government Assistance (% said yes)	6.4%	9.7%	1.9%
Income Level			
Less than $10,000	16 (13.1)	12 (16.7)	4 (8.0)
$10,001-$20,000	10 (8.2)	9 (12.5)	1 (2.0)
$20,001-$30,000	10 (8.2)	7 (9.7)	3 (6.0)
$30,001-$40,000	17 (13.9)	7 (9.7)	10 (20.0)
$40,001-$50,000	14 (11.5)	7 (9.7)	7 (14.0)
$50,001-$60,000	13 (10.7)	8 (11.1)	5 (10.0)
$60,001-$70,000	11 (9.0)	9 (12.5)	2 (4.0)
$70,001-$80,000	6 (4.9)	1 (1.4)	5 (10.0)
$80,001-$90,000	8 (6.6)	3 (4.2)	5 (10.0)
$90,001-$100,000	7 (5.7)	3(4.2)	4 (8.0)
More than $100,000	10 (8.2)	6 (8.3)	4 (8.0)
Education[a]			
Some high school or less	8 (6.3)	7 (9.6)	1 (1.9)
High school graduate or GED	21 (16.7)	14 (19.2)	7 (13.2)
Some college or technical school	47 (37.3)	32 (43.8)	15 (28.3)
College graduate or more	50 (39.7)	20 (27.4)	30 (56.6)
Employment Status[a]			
Work one full-time job	59 (46.8)	32 (43.8)	27 (50.9)
Work one part-time job	16 (12.7)	11 (15.1)	5 (9.4)
Work more than one full-time job	6 (4.8)	4 (5.5)	2 (3.8)

Work more than one part-time job	5 (4.0)	2 (2.7)	3 (5.7)
Unemployed, actively seeking employment	3 (2.4)	2 (2.7)	1 (1.9)
Not employed, not seeking employment	32 (25.4)	19 (26.0)	13 (24.5)
Retired	3 (2.4)	3 (1.4)	0 (0)
Other	2 (1.6)	0 (0)	2 (3.8)
Overall Health[a]			
Poor	2 (1.6)	1 (2.7)	0 (0)
Fair	15 (11.9)	10 (13.7)	5 (9.4)
Good	65 (51.6)	37 (50.7)	28 (52.8)
Very Good	38 (30.2)	21 (28.8)	17 (32.1)
Excellent	6 (4.8)	3 (4.1)	3 (5.7)
Weight[b]			
Very underweight	0 (0)	0 (0)	0 (0)
Underweight	4 (3.2)	4 (5.6)	0 (0)
About the right weight	46 (36.8)	25 (34.7)	21 (39.6)
Slightly Overweight	58 (46.4)	34 (47.2)	24 (45.3)
Very Overweight	17 (13.6)	9 (12.5)	8 (15.1)
High Blood Pressure (% said yes)	29%	38.4%	17%
Diabetes (% said yes)	7.4%	11.6%	1.9%
Physical Activity Level[a]			
Not at all active, mostly sedentary	13 (10.3)	7 (9.6)	6 (11.3)
Moderately active	79 (62.7)	47 (64.4)	32 (60.4)
Moderately to very active	23 (18.3)	12 (16.4)	11 (20.8)
Very active	11 (8.7)	7 (9.6)	4 (7.5)

[a] Missing 22

[b] Missing 23

[c] Missing 27

Table 3: Why do you choose to shop at this store?

	Total n (%)	Treatment n (%)	Control n (%)
It is near my home	63 (30.4)	40 (44.4)	23 (39.7)
It is near other places where I spend time	10 (4.8)	6 (6.7)	4 (6.9)
It is conveniently located on my commute	19 (9.2)	13 (14.4)	6 (10.3)
My friend and/or relatives shop there	12 (5.8)	8 (8.9)	4 (6.9)
Selection of foods	32 (15.5)	26 (8.9)	6 (10.3)
Quality of foods	35 (16.9)	29 (32.2)	6 (10.3)
Prices of foods	32 (15.5)	26 (28.9)	6 (10.3)
Accessible to public transportation	4 (1.9)	3 (3.3)	1 (1.7)

Table 4.1: Food Demonstration Summary of Treatment Survey Participants (n=90)

	Treatment n (%)
Observed "Choose Healthy Here" Logo	25 (59.5)
Observed a Food Demonstration	42 (51.9)
Learned about the Demonstration Ahead of Time	6 (15)
Used the Recipe Demonstrated	10 (28.6)
How likely are you to use the recipe?	
Extremely Unlikely	2 (6.7)
Unlikely	7 (23.3)
Neutral	8 (26.7)
Likely	12 (40.0)
Extremely Likely	1 (3.3)

Table 4.2 Top Viewed Food Demonstrations

Food Demonstration	Views n (%)
Banana in a Blanket	8 (23.5)
Smoothie	5 (14.7)
Salsa Yogurt Dip	4 (11.8)
Tomato Cucumber Salad	4 (11.8)
Vegetable Pasta Salad	4 (11.8)

Table 5.1. Consumer Perceptions to Access of Healthy Foods

	Total n (%)	Treatment n (%)	Control n (%)
It is easy to get…[1]			
Fresh Fruits and Vegetables			
Strongly disagree	2 (1.5)	1 (1.3)	1 (1.8)
Disagree	6 (4.5)	3 (3.9)	3 (5.4)
Neither agree or disagree	18 (13.5)	12 (15.6)	6 (10.7)
Agree	76 (57.1)	43 (55.8)	33 (58.9)
Strongly agree	31 (23.3)	18 (23.4)	13 (23.2)
Mean±SD	**3.96±0.829**	**3.96±0.818**	**3.96±0.852**
Canned or Frozen Fruits and Vegetables			
Strongly disagree	2 (1.5)	1 (1.3)	1 (1.3)
Disagree	4 (3.1)	4 (5.3)	0 (0)
Neither agree or disagree	17 (13.0)	9 (11.8)	8 (14.5)
Agree	78 (59.5)	44 (57.9)	34 (61.8)
Strongly agree	30 (22.9)	18 (23.7)	12 (21.8)
Mean±SD	**3.99±0.789**	**3.97±0.832**	**4.02±0.733**
Lean Meats			
Strongly disagree	4 (3.0)	2 (2.6)	2 (3.6)
Disagree	5 (3.8)	5 (6.6)	0 (0)
Neither agree or disagree	22 (16.7)	10 (13.2)	12 (21.4)
Agree	71 (53.8)	40 (52.6)	31 (55.4)
Strongly agree	30 (22.7)	19 (25.0)	11 (19.6)

Mean±SD	**3.89±0.902**	**3.91±0.941**	**3.88±0.854**
Low-Fat Dairy			
Strongly disagree	0 (0)	0 (0)	0 (0)
Disagree	9 (6.8)	6 (7.8)	3 (5.4)
Neither agree or disagree	15 (11.3)	8 (10.4)	7 (12.5)
Agree	81 (60.9)	46 (59.7)	35 (62.5)
Strongly agree	28 (21.2)	17 (22.1)	11 (19.6)
Mean±SD	**3.96±0.773**	**3.96±0.802**	**3.96±0.738**
Candy and Snack Chips			
Strongly disagree	0 (0)	0 (0)	0 (0)
Disagree	2 (1.5)	2 (2.6)	0 (0)
Neither agree or disagree	14 (10.6)	7 (9.2)	7 (12.5)
Agree	80 (60.6)	46 (60.5)	34 (60.7)
Strongly agree	36 (27.3)	21 (27.6)	15 (26.8)
Mean±SD	**4.14±0.651**	**4.13±0.680**	**4.14±0.616**
Regular Soda or Other Sugary Drinks			
Strongly disagree	2 (1.5)	2 (2.6)	0 (0)
Disagree	5 (3.8)	3 (3.9)	2 (3.6)
Neither agree or disagree	16 (12.0)	9 (11.7)	7 (12.5)
Agree	79 (59.4)	44 (57.1)	35 (62.5)
Strongly agree	31 (23.3)	19 (24.7)	12 (21.4)
Mean±SD	**3.99±0.802**	**3.97±0.873**	**4.02±0.700**

[1]Coding Scale: Strongly disagree=1, Disagree=2, Neither agree or disagree=3, Agree=4, Strongly agree=5

Table 5.2. Use of a Shopping List

	Total n (%)	**Treatment n (%)**	**Control n (%)**
Never	9 (6.8)	6 (7.9)	3 (5.4)
Rarely	5 (3.8)	3 (3.9)	2 (3.6)
Sometimes	37 (28.0)	24 (31.6)	13 (23.2)
Often	38 (28.8)	20 (26.3)	18 (32.1)
Always	43 (32.6)	23 (30.3)	20 (35.7)
Mean±SD	3.77±1.152	3.67±1.182	3.89±1.107
Total	**132 (100)**	**76 (100)**	**56 (100)**

Missing:

Total n=16

Treatment n=12

Control n=2

Table 5.3: Fruits and Vegetables Ordered by "Most Purchased"

Grocery Item	All n (%)	Treatment n (%)	Control n (%)
Bananas	47 (31.8)	24 (26.7)	23 (39.7)
Lettuce (any variety)	35 (23.6)	24 (26.7)	11 (19.0)
Onion (all types)	35 (23.6)	20 (22.2)	15 (25.9)
Apples	34 (23.0)	17 (18.9)	17 (29.3)
Tomatoes	26 (17.6)	17 (18.9)	9 (15.5)
Grapes	20 (13.5)	11 (12.2)	9 (15.5)
Mushrooms	19 (12.8)	11 (12.2)	8 (13.8)
Peppers (bell or spicy – any color)	13 (8.8)	8 (8.9)	5 (8.6)
Oranges	13 (8.8)	7 (7.8)	6 (10.3)
Berries	12 (8.1)	4 (4.4)	8 (13.8)
Celery	12 (8.1)	6 (6.7)	6 (10.3)
Mango	9 (6.1)	7 (7.8)	2 (3.4)
Peaches	9 (6.1)	5 (5.6)	4 (6.9)
Cucumber	9 (6.1)	5 (5.6)	4 (6.9)
Corn	6 (4.1)	5 (5.6)	1 (1.7)
Zucchini	6 (4.1)	4 (4.4)	2(3.4)
Pineapple	6 (4.1)	3 (3.3)	3 (5.2)
Spinach	5 (3.4)	3 (3.3)	2 (3.4)

Table 5.4: Varieties of Fruits and Vegetables Purchased

Variety of FV	All n (%)	Treatment n (%)	Control n (%)
0	55 (37.2)	38 (42.4)	17 (29.3)
1	24 (16.2)	11 (12.2)	13 (22.4)
2	19 (12.8)	13 (14.4)	6 (10.3)
3	18 (12.2)	10 (11.1)	8 (13.8)
4	10 (6.8)	7 (7.8)	3 (5.2)
5	10 (6.8)	5 (5.6)	5 (8.6)
6	2 (1.4)	0 (0)	2 (3.4)
7	3 (2.0)	0 (0)	3 (5.2)
8	2 (14)	2 (2.2)	0 (0)
9	1 (0.7)	1 (1.1)	0 (0)
10	1 (0.7)	1 (1.1)	0 (0)
11	1 (0.7)	1 (1.1)	0 (0)
14	1 (0.7)	1 (1.1)	0 (0)
16	1 (0.7)	0 (0)	1 (1.7)
Mean±**SD**	2.13±2.739	2.0±2.715	2.33±2.787
Total	**148 (100)**	**90 (100)**	**58 (100)**

Table 5.5 Survey Participant Fruit and Vegetable Consumption

	Total n (%)	Treatment n (%)	Control n (%)
Fruit per Day[1]			
None	1 (0.8)	1 (1.3)	0 (0)
½ cup or less	16 (12.3)	8 (10.7)	8 (14.5)
½ to 1 cup	33 (25.4)	24 (32.0)	9 (16.4)
1-2 cups	45 (34.6)	27 (36.0)	18 (32.7)
2-3 cups	25 (19.2)	13 (17.3)	12 (21.8)
3-4 cups	4 (3.1)	2 (2.7)	2 (3.6)
4 cups or more	6 (4.6)	0 (0)	6 (10.9)
Mean±SD	3.87±1.241	3.65±1.020	4.16±1.450
Vegetables per Day[1]			
None	0 (0)	0 (0)	0 (0)
½ cup or less	14 (10.8)	7 (9.3)	7 (12.7)
½ to 1 cup	32 (24.6)	23 (30.7)	9 (16.4)
1-2 cups	39 (30.0)	24 (32.0)	15 (27.3)
2-3 cups	32 (24.6)	17 (22.7)	15 (27.3)
3-4 cups	10 (7.7)	4 (5.3)	6 (10.9)
4 cups or more	3 (2.3)	0 (0)	3 (5.5)
Mean±SD	4.01±1.204	3.84±1.053	4.24±1.360

[1]Coding Scale: None=1, ½ cup or less=2, ½ cup to 1 cup=3, 1-2 cups=4, 2-3 cups=5, 3-4 cups=6, 4 cups or more=7

APPENDICES

University of Nebraska Medical Center IRB # 494-16-EX

Evaluation of the Choose and Use components of the Nebraska Healthy Food Retail Recognition Pilot Program

You are invited to take part in this research study because you are a customer of a grocery or convenience store in Nebraska. The purpose of this study is to assess current Nebraska consumer attitudes toward and behaviors related to grocery or convenience stores across the state of Nebraska.

In this survey, you'll be asked about which foods or beverages you purchased from this grocery or convenience store, your intentions for the foods you purchased, your beliefs and attitudes regarding foods and beverages available at this grocery or convenience store, and some demographic questions. This survey should take about 10 to 15 minutes to complete. There are no known risks to you from being in this study. You may benefit from the data collected via this survey being used to potentially inform improvements in the healthfulness of the foods and beverages available in grocery or convenience stores in your community. There is no cost to you to complete this survey. You will be mailed $5 for your time. A mailing address will need to be provided to receive compensation.

The only persons who will have access to your research records are the study personnel, the Institutional Review Board (IRB), and any other person or agency required by law. The information from this study may be published in scientific journals or presented at scientific meetings but your identity will be kept strictly confidential.

You are freely making a decision whether to complete this survey. Completing this survey means that (1) you have read and understood this page, (2) you have had your questions answered, and (3) you have decided to participate in this survey.

If you have any questions or concerns please contact:

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GRETCHEN SWANSON CENTER FOR NUTRITION
RESEARCH * PARTNERSHIP * EVALUATION

This section asks about your visit to the store. Please select the response or fill in the blanks as instructed.

1. Please select the store you visited.

- ☐ Allen's of Hastings
- ☐ Azteca Market
- ☐ Boogart's
- ☐ Bridgeport Ampride
- ☐ Central Market
- ☐ Family Fresh Market
- ☐ Food Mesto
- ☐ Geneva Superfoods
- ☐ Harvard Foodmart
- ☐ Ideal Market
- ☐ Lee's Service
- ☐ Lobo Market
- ☐ Mason's Market
- ☐ North Gate
- ☐ Panaderia Y Aberrotes Sanch
- ☐ Plaza Station
- ☐ Plum Creek Market
- ☐ Route 26 Mart
- ☐ Russ's IGA
- ☐ Sinclair Super Shop
- ☐ Super Acapulco
- ☐ Other (please specify): _____

2. Is this the store where you do most of your food shopping?

- ☐ Yes [please skip to #4]
- ☐ No

3. What type of store is the store where you buy most of your food?

- ☐ Supermarket
- ☐ Small grocery store
- ☐ Corner store or convenience store
- ☐ Supercenter (like Wal-Mart or Costco)
- ☐ Other (please specify): _____

4. Why do you choose to shop at the store where you do most of your food shopping? *Select all that apply.*

- ☐ It is near my home
- ☐ It is near other places where I spend time (such as work or your child's school)
- ☐ It is conveniently located on my commute
- ☐ My friends and/or relatives shop there
- ☐ Selection of foods
- ☐ Quality of foods
- ☐ Prices of foods
- ☐ Accessible to public transportation

This section asks about what you purchased at the store during your visit. Please select the response or fill in the blanks as instructed.

5. Did you purchase any of the following foods during your recent visit to the store? *Select all that apply.*

Fruits and Vegetables (fresh, frozen or canned)

- ☐ Apples
- ☐ Bananas
- ☐ Berries
- ☐ Celery
- ☐ Corn
- ☐ Mushrooms
- ☐ Cucumber
- ☐ Grapes
- ☐ Peppers (bell or spicy – any color)
- ☐ Lettuce (any variety)
- ☐ Mango
- ☐ Onion (all types)
- ☐ Oranges
- ☐ Peaches
- ☐ Pineapple
- ☐ Spinach
- ☐ Tomatoes
- ☐ Zucchini

Tomato products

- ☐ Salsa
- ☐ Tomato sauce
- ☐ Spaghetti sauce

Grains

- ☐ Brown Rice
- ☐ Whole wheat pasta
- ☐ Whole-wheat tortillas

Dairy

- ☐ Reduced Fat Cheese, any variety
- ☐ Low-fat yogurt, any fruit flavor
- ☐ Plain yogurt, any variety

Meat and Meat Alternatives

- ☐ Chicken, not breaded
- ☐ Lean (90/10) ground beef
- ☐ Nuts
- ☐ Black beans (canned or dried)
- ☐ Garbanzo beans (canned or dried)
- ☐ Pinto beans (canned or dried)
- ☐ Pork tenderloin
- ☐ Sirloin or other boneless steak
- ☐ Tuna in water

- ☐ I did not purchase any of these in my visit.

6. Have you or someone in your household already eaten the foods you purchased?

- ☐ Yes [please skip to #8]
- ☐ No
- ☐ I don't know

7. How likely will it be that all of these foods are consumed by you or someone in your household before they need to be thrown away due to spoilage or expiration?

- ☐ Extremely Unlikely
- ☐ Unlikely
- ☐ Neutral
- ☐ Likely
- ☐ Extremely Likely

8. Did you observe a food demonstration (such as someone demonstrating how to prepare a recipe or providing samples) while you were inside the store?

- ☐ Yes
- ☐ No [please skip to #13]
- ☐ I don't know [please skip to #13]

9. Please select the recipe you observed being prepared in the food demonstration.

- ☐ Banana in a Blanket
- ☐ Chicken Quesadillas
- ☐ Chicken Salad
- ☐ Enchilada Rice
- ☐ Fresh Salsa
- ☐ Fruit and Yogurt Parfaits
- ☐ Hummus
- ☐ Lemon Rosemary Zucchini
- ☐ Mango Tango Black Bean Salsa
- ☐ Mushroom Steak Fajitas
- ☐ Pinto Bean Salsa Dip
- ☐ Salsa Yogurt Dip
- ☐ Skillet Lasagna
- ☐ Smoothie
- ☐ Super Fruit Salad
- ☐ Surfs Up Tacos
- ☐ Sweet And Spicy Pork Tenderloin
- ☐ Tomato And Cucumber Salad
- ☐ Vegetable Pasta Salad

- ☐ I don't know
- ☐ I didn't observe a food demonstration

10. Did you learn that there would be a food demonstration at the store ahead of time?

- ☐ No, I learned of it only when I saw it in the store
- ☐ Yes, I was invited by a community health worker or other health professional
- ☐ Yes, I was invited by the store, farmers' market, food pantry, or other community location
- ☐ Other (please specify): _____

11. Have you or someone in your household used the recipe that was demonstrated?

- ☐ Yes [please skip to #13]
- ☐ No
- ☐ I don't know

12. How likely will you or someone in your household use the recipe that was demonstrated in the store the day of your visit?

- ☐ Extremely Unlikely
- ☐ Unlikely
- ☐ Neutral
- ☐ Likely
- ☐ Extremely Likely

13. Did you observe the logo pictured to the right while you were inside the store?

- ☐ Yes
- ☐ No
- ☐ I don't know

Think about the <u>store you visited today</u>. Please select the response that indicates your level of disagreement or agreement with the following statements.

14. Fresh fruits and vegetables at this store cost too much.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

15. It is easy to get fresh fruits and vegetables at this store.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

16. It is easy to get canned or frozen fruits and vegetables at this store.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

17. It is easy to get lean meats at this store.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

18. It is easy to get candy and snack chips at this store.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

19. It is easy to get low-fat dairy (e.g., milk, yogurt, cheese, etc.) at this store.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

20. It is easy to get regular soda or other sugary drinks (sports drinks, juice drinks, etc.) at this store.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

21. I notice signs about healthy foods at this store.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

22. I notice signs with the Healthy Here logo (pictured) at this store.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

23. The unhealthy foods are usually near the end of the aisles at this store. *Unhealthy foods are those that are high in sugar, salt, fat, and/or calorie, such as candy, cookies, potato chips, French fries, regular soda, sports drinks, fruit drinks, sweetened teas and other drinks with added sugar.*

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

24. There are a lot of signs and displays (for example, window clings, price tags, or end caps) about unhealthy foods at this store. *Unhealthy foods are those that are high in sugar, salt, fat, and/or calorie, such as candy, cookies, potato chips, French fries, regular soda, sports drinks, fruit drinks, sweetened teas and other drinks with added sugar.*

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

25. I use nutrition labels or nutrition information when choosing packaged foods to buy at this store.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

This section asks about your home food environment. Please select the response or fill in the blanks as instructed.

26. Which of these do you have in your home to cook or store food? *Select all that apply.*

a.	Refrigerator	☐ Yes	☐ No
b.	Freezer (attached to refrigerator or stand-alone)	☐ Yes	☐ No
c.	Microwave oven	☐ Yes	☐ No
d.	Stove	☐ Yes	☐ No
e.	Oven	☐ Yes	☐ No
f.	Other countertop cooking appliance (toaster oven, slow cooker, or electric grill)	☐ Yes	☐ No

27. In your home, how often do you have fruits and vegetables in the refrigerator?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

28. In your home, how often do you have candy or chips available to eat?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

29. In your home, how often do you have fruit available in a bowl or on the counter?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

30. In your home, how often do you have ice cream, cake, pastries, or ready-to-eat sweet baked goods (cookies, brownies, etc.)?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

31. How often does your family or members of your household eat meals together?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always
- ☐ I live alone

32. How often do you and/or your family eat meals in front of the TV, with the TV turned on?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

This section of the survey focuses on what is important to you when you buy food. Please indicate your agreement by selecting a response, or select the response or fill in the blanks as instructed.

33. How often do you shop for food?

- ☐ More than once a week
- ☐ Once a week
- ☐ Once every 1-2 weeks
- ☐ Once a month
- ☐ Other (please specify): _____

34. How do you usually travel to the store where you do most of your food shopping?

- ☐ Walk
- ☐ Bicycle
- ☐ Bus of other public transportation
- ☐ Drive your own car
- ☐ Get a ride/borrow a car
- ☐ Other (please specify): _____

35. How long does it usually take for you to travel to the store where you do most of your food shopping?

- ☐ 10 minutes or less
- ☐ 11 – 30 minutes
- ☐ 31 – 45 minutes
- ☐ 46 – 60 minutes
- ☐ More than 60 minutes

36. How often do you use a list when you shop for groceries?

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

37. Taste is important to me when I shop for food.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

38. Nutrition is important to me when I shop for food.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

39. Cost is important to me when I shop for food.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

40. Convenience is important to me when I shop for food.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Neither Agree nor Disagree
- ☐ Agree
- ☐ Strongly Agree

41. Please rank the following in order of importance to you when you shop for food (1 = most important, 4 = least important).

- ___ Taste
- ___ Nutrition
- ___ Cost
- ___ Convenience

42. Where else do you and/or other members of your family or household get your food from? *Select all that apply.*

- ☐ Garden (home garden, someone else's garden, and/or a community garden)
- ☐ Food Pantry
- ☐ Summer Food Program
- ☐ School
- ☐ Soup Kitchen
- ☐ Meals on Wheels
- ☐ Other (please specify): _____

This section of the survey focuses on your ability to purchase foods. Please indicate your agreement by selecting a response.

43. Within the last 12 months we worried whether our food would run out before we got money to buy more.

- ☐ Often true
- ☐ Sometimes true
- ☐ Never true
- ☐ Don't know/Refuse

44. Within the past 12 months the food we bought just didn't last and we didn't have money to get more.

- ☐ Often true
- ☐ Sometimes true
- ☐ Never true
- ☐ Don't know/Refuse

This section of the survey focuses on foods you eat. Please select the response or fill in the blanks as instructed.

45. About how many cups of fruit (including 100% pure fruit juice) do you eat or drink each day? *One cup of fruit could be 1 small apple, 1 large banana, 1 large orange, 8 large strawberries, 1 medium pear, 2 large plums, 32 seedless grapes, 1 cup (8 oz.) of 100% juice, or ½ cup of dried fruit.*

- ☐ None
- ☐ ½ cup or less
- ☐ ½ to 1 cup
- ☐ 1–2 cups
- ☐ 2–3 cups
- ☐ 3–4 cups
- ☐ 4 cups or more

46. About how many cups of vegetables (including 100% vegetable juice) do you eat or drink each day? *One cup of vegetables could be 3 broccoli spears that are 5 inches long, 1 cup of cooked leafy greens, 2 cups of lettuce or raw greens, 12 baby carrots, 1 medium potato, 1 large sweet potato, 1 large ear of corn, 1 large raw tomato, or 2 large celery stalks.*

- ☐ None
- ☐ ½ cup or less
- ☐ ½ to 1 cup
- ☐ 1–2 cups
- ☐ 2–3 cups
- ☐ 3–4 cups
- ☐ 4 cups or more

For the next questions, we will be asking about you. Please select the response or fill in the blanks as instructed.

47. Who is the primary food shopper in your household?

- ☐ I am
- ☐ We take turns or shop together
- ☐ Another adult in the house (like another parent, spouse, partner, etc.)
- ☐ Does not apply

48. Are you male or female?

- ☐ Male
- ☐ Female

49. How old are you?

_____ Years

50. How many people live in your household other than you? We define household as anyone who lives in your home and shares most meals or food with you. *Write the number in the spaces below.*

_____ Adults (aged 18 and older)

_____ Your own children (younger than 18)

_____ Other children (younger than 18)

51. Are you Hispanic/Latino?

- ☐ Yes
- ☐ No

52. Please choose one or more of the following that you would use to describe yourself. *Select all that apply.*

- ☐ White
- ☐ Black or African American
- ☐ Asian
- ☐ American Indian or Alaska Native
- ☐ Other Pacific Islander
- ☐ Native Hawaiian
- ☐ Other (please specify: _____)

53. Do you currently receive Supplemental Nutrition Assistance Program (SNAP) benefits (otherwise known as food stamps)?

- ☐ Yes
- ☐ No
- ☐ I don't know

54. Do you currently receive WIC benefits?

- ☐ Yes
- ☐ No
- ☐ I don't know

55. Do you currently receive Government cash assistance including TANF, SSI, SSDI, or GA (but not including social security benefits)?

- ☐ Yes
- ☐ No
- ☐ I don't know

56. Below is a list of income ranges. Which range best represents the total combined income of all members of your household during the last year?

- ☐ Less than $10,000
- ☐ $10,001 - $20,000
- ☐ $20,001 - $30,000
- ☐ $30,001 - $40,000
- ☐ $40,001 - $50,000
- ☐ $50,001 - $60,000
- ☐ $60,001 - $70,000
- ☐ $70,001 - $80,000
- ☐ $80,001 - $90,000
- ☐ $90,001 - $100,000
- ☐ More than $100,000

57. What is the zip code where you live most of the time?

Zip Code (5 digits):

- ☐ I don't know my zip code
- ☐ I don't want to provide my zip code

58. Where were you born?

- ☐ Nebraska
- ☐ United States, outside of Nebraska (please specify state or city):_____
- ☐ Another country (please specify country):_____

59. What is your employment status?

- ☐ Work one full-time job (35 hours a week or more year-round)
- ☐ Work one part-time job
- ☐ Work more than one full-time job
- ☐ Work more than one part-time job
- ☐ Unemployed, actively seeking employment
- ☐ Not employed, not seeking employment (student, retired, home-maker, disabled, etc.)
- ☐ Other (please specify: _____)

60. What is your highest level of education?

- ☐ Some high school or less
- ☐ High school graduate or GED certificate
- ☐ Some college or technical school
- ☐ College graduate or more

61. How do you describe your overall health?

- ☐ Poor
- ☐ Fair
- ☐ Good
- ☐ Very good
- ☐ Excellent

62. How do you describe your weight?

- ☐ Very underweight
- ☐ Slightly underweight
- ☐ About the right weight
- ☐ Slightly overweight
- ☐ Very overweight

63. Has a doctor or other health professional ever told you that you have high blood pressure? *Select the best response.*

- ☐ Yes
- ☐ No, but a doctor or other health professional has told me that I have high normal/borderline blood pressure
- ☐ No, but a doctor or other health professional has told me that I have high prehypertension
- ☐ No, a doctor or other health professional has never told me that I have high blood pressure
- ☐ I Don't know

64. Has a doctor or other health professional ever told you that you have diabetes? *Select the best response.*

- ☐ Yes
- ☐ Yes, but only during pregnancy (female)
- ☐ No, but a doctor or other health professional has told me that I have pre-diabetes or borderline diabetes
- ☐ No, a doctor or other health professional has never told me that I have diabetes
- ☐ I Don't know

65. How would you describe your level of physical activity?

- ☐ Not at all active, mostly sedentary
- ☐ Moderately active
- ☐ Moderately to very active
- ☐ Very active (vigorous activity at least 5 days a week)

Thank you for completing this survey! Please complete the following information about you. Your contact information will only be used to mail the $5 check for completing the survey within one week. Your contact information will not be shared with outside parties, nor will it be linked to your specific responses.

First Name:_____

Last Name:_____

Home Address: _____

City, State, Zip: _____

Support for this survey is provided by Nebraska Department of Health & Human Services, Chronic Disease Prevention & Control Program: 1U58DP005493-01.

NUTRITION ENVIRONMENT MEASURES SURVEY (NEMS)

State of Nebraska - Observation of Food Outlets

STORE & OBSERVER INFORMATION

Store Name:

Location:

Observer ID: ☐☐☐

What is today's date?

☐☐ / ☐☐ / ☐☐

MM DD YY

Did you talk to a store manager?

- ○ Yes
- ○ No

How many cash registers are in this store?

- ○ 1
- ○ 2 - 4
- ○ 5 or more

What type of store is being rated?

MARK ALL THAT APPLY

- ☐ Convenience store
- ☐ Grocery store
- ☐ Chain superstore
- ☐ Ethnic store
- ☐ Health food store
- ☐ Other (specify in box)

Start time:

☐☐ : ☐☐ ○ a.m. ○ p.m.

HOUR MINUTE

End time:

☐☐ : ☐☐ ○ a.m. ○ p.m.

HOUR MINUTE

Record below any comments that will help us understand your rating of any item or section in the survey *or* of this store overall.

☐ **Page Complete?**

FRESH FRUITS & VEGETABLES

Are fresh fruits available? ○ Yes ○ No ➔ If no, move to **fresh vegetables**.

	Available	Quality	Price	Per
Bananas	○ Yes ○ No	○ A ○ UA	$ ☐☐.☐☐	☐ ○ pc ○ lb
Apples	○ Yes ○ No	○ A ○ UA	*Preferred pricing for Red Delicious* $ ☐☐.☐☐	☐ ○ pc ○ lb
Oranges	○ Yes ○ No	○ A ○ UA		
Grapes	○ Yes ○ No	○ A ○ UA		
Cantaloupe	○ Yes ○ No	○ A ○ UA		

Total kinds (not varieties) of fresh fruits available: ○ 1 - 4 ○ 5 - 9 ○ 10 or more

Are fresh vegetables available? ○ Yes ○ No ➔ If no, move to section on next page.

	Available	Quality	Price	Per
Carrots	○ Yes ○ No	○ A ○ UA	*Preferred pricing for 1-lb whole carrots* $ ☐☐.☐☐	☐ ○ lb
Broccoli	○ Yes ○ No	○ A ○ UA	$ ☐☐.☐☐	☐ ○ bunch/each ○ lb
Cauliflower	○ Yes ○ No	○ A ○ UA		
Tomatoes	○ Yes ○ No	○ A ○ UA		
Lettuce (Green Leaf)	○ Yes ○ No	○ A ○ UA		

Total kinds (not varieties) of fresh vegetables available: ○ 1 - 4 ○ 5 - 9 ○ 10 or more

☐ **Page Complete?**

FROZEN FRUITS & VEGETABLES

Are frozen fruits available? ○ Yes ○ No → If no, move to **frozen vegetables**.

Total kinds of frozen fruits (without added sugar) available: ○ 0 ○ 1-2 ○ 3 or more

Are frozen vegetables available? ○ Yes ○ No → If no, move to **canned fruits**.

Total kinds of frozen vegetables (without sauce) available: ○ 0 ○ 1-2 ○ 3 or more

CANNED FRUITS & VEGETABLES

Are canned fruits available? ○ Yes ○ No → If no, move to **canned vegetables**.

Total kinds of canned fruits (in 100% juice or water) available: ○ 0 ○ 1-2 ○ 3 or more

Price: canned fruit in 100% juice vs. canned fruit in heavy syrup? ○ More ○ Less ○ Equal ○ NC

Are canned vegetables available? ○ Yes ○ No → If no, move to next section.

Total kinds of canned vegetables (without sauce) available: ○ 0 ○ 1-2 ○ 3 or more

MEAT & MEAT ALTERNATIVES

Is ground beef available? ○ Yes ○ No → If no, move to **tuna**.

Is lean (at least 90/10) ground beef available? ○ Yes ○ No

Price: lean (at least 90/10) ground beef vs. less lean (85/15, 80/20) ground beef? ○ More ○ Less ○ Equal ○ NC

Is canned tuna available? ○ Yes ○ No → If no, move to **beans**.

Is canned tuna packed in water available? ○ Yes ○ No

Price: canned tuna packed in water vs. canned tuna packed in oil? ○ More ○ Less ○ Equal ○ NC

Are canned refried beans available? ○ Yes ○ No

Are dried beans (legumes) available? ○ Yes ○ No

Are canned beans available (legumes not green beans)? ○ Yes ○ No

☐ **Page Complete?**

GRAINS

Is loaf bread available? ○ Yes ○ No → If no, move to **tortillas**.

- **Is 100% whole wheat/grain bread available?** ○ Yes ○ No
- **Price: 100% whole wheat/grain bread vs. white bread?** ○ More ○ Less ○ Equal ○ NC
- **Total # of different 100% whole wheat/grain loaf breads:** ○ 0 ○ 1-2 ○ 3 or more

Are tortillas available? ○ Yes ○ No → If no, move to **cereals**.

- **Are whole wheat tortillas (3 g or more of fiber per serving) available?** ○ Yes ○ No
- **Price: whole wheat tortillas vs. refined tortillas?** ○ More ○ Less ○ Equal ○ NC

Is boxed cereal available? ○ Yes ○ No → If no, move to **rice**.

"Healthy" cereal examples: Cheerios, Grape Nuts, Total, Shredded Wheat, Wheaties, Bran Flakes

- **Are "healthy" (100% whole grain with less than 7g of sugar per serving) boxed cereals available?** ○ Yes ○ No
- **Total # of "healthy" (100% whole grain with less than 7g of sugar per serving) boxed cereals available:** ○ 0 ○ 1-2 ○ 3 or more

Is (uncooked) rice available? ○ Yes ○ No → If no, move to **pasta**.

- **Is brown whole grain rice available?** ○ Yes ○ No
- **Price: brown rice vs. refined rice?** ○ More ○ Less ○ Equal ○ NC

Is (uncooked) pasta available? ○ Yes ○ No → If no, move to section on next page.

- **Is 100% whole wheat pasta available?** ○ Yes ○ No
- **Price: 100% whole wheat pasta vs. enriched pasta?** ○ More ○ Less ○ Equal ○ NC

☐ **Page Complete?**

MILK

Is milk available? ○ Yes ○ No ➔ If no, move to next section.

	Pint	Quart	Half Gallon	Gallon	Price Per Gallon Compare within same brand (cheapest, store brand).
Skim	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No	$ ☐ . ☐☐
1%	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No	$ ☐ . ☐☐
2%	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No	$ ☐ . ☐☐
Whole	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No	$ ☐ . ☐☐

Shelf Space for Milk: Measure only if skim and/or 1% milk is available.

How much shelf space is dedicated to skim / 1% milk compared to 2% / whole milk?

○ 50% or more of shelved milk is skim / 1%

○ Less than 50% of shelved milk is skim / 1%

SNACK FOODS

Are chips available? ○ Yes ○ No

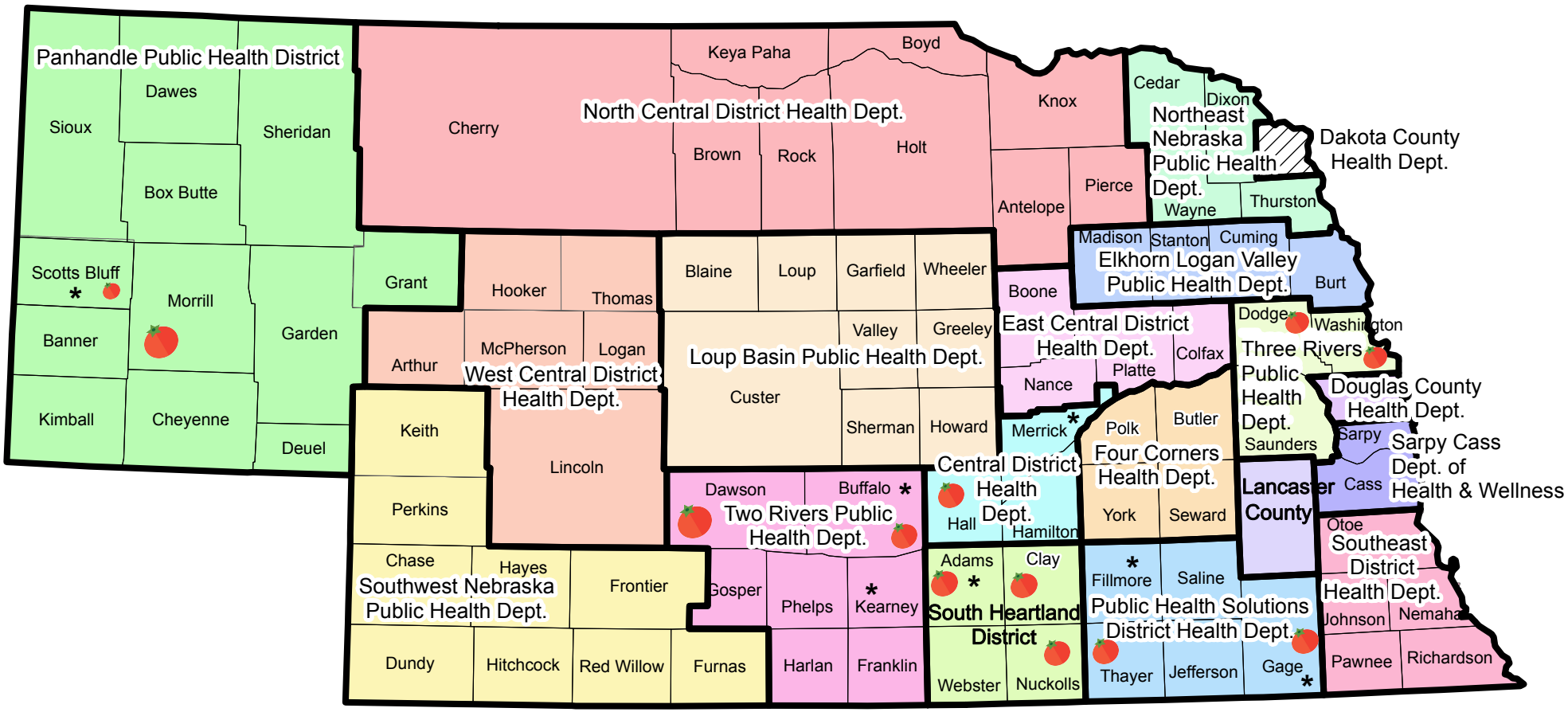
Are baked chips (with less than 3 g of fat per 1 oz serving) available? ○ Yes ○ No

Are hard pretzels (with less than 3 g of fat per 1 oz serving) available? ○ Yes ○ No

Please review this questionnaire to make sure all items are complete. Once each page has been verified as complete, return to Page 1 to record any comments and enter your end time. Please return your finished assessment to the Bureau of Sociological Research using the postage-paid envelope in your assessment packet.

☐ **Page Complete?**

Nebraska Choose Healthy Here Pilot Program Sites



Legend

- Choose Healthy Here intervention county location
- * Comparison store county location

Source: Nebraska Department of Health and Human Services

Choose HEALTHY HERE NEBRASKA

University of Nebraska Lincoln

OFFICE OF RESEARCH AND ECONOMIC DEVELOPMENT
Research Compliance Services

March 1, 2018

Ms. Lindsey R. Anderson

Dr. Lisa Franzen-Castle
Nutrition & Health Sciences
119A LEV 0806

Thesis Title: Choose Healthy Here Pilot Program: A Secondary Analysis of Consumer Perceptions and Behaviors to Access and Affordability of Healthy Foods

Dear Ms. Anderson and Dr. Franzen-Castle,

Based on our discussion via email, we have determined that this project does not meet the definitions of human subjects research under regulatory requirements at 45 CFR 46.102. This project does not require IRB approval.

Human subjects research is defined as "research that involves living individuals and the investigator will obtain data or information about those individuals that is privately identifiable to the subject. In this case, you were provided with two de-identified datasets: 1) research conducted by Teresa Smith at UNMC and 2) NEMS-S assessment data collect by BOSR. Neither of these projects were conducted by you. Your research project involves the analysis of these de-identified datasets. Since you not interact with the individuals nor will you have identifiable information, the project does not meet the definition of human subjects and does not require IRB review.

Based on this assessment, the project will be considered "not human subjects" and no further oversight is required at this time; however, should the scope of your project change, please contact the IRB office at 472-6929 to discuss future procedures.

Cordially,

Becky R Freeman

Becky Freeman
Research Compliance Services
Human Research Protection Program