

Corner Stores as Food Sources and Third Places for the Youth of Somerville

A Senior Honors Thesis for the Department of Community Health

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ABSTRACT

This project explores the role of the corner store in autonomous food purchases by the youth of Somerville, Massachusetts. I combine quantitative and qualitative data to examine corner stores as both a food source and a “third place”—a public place on neutral ground where people can gather and interact outside of home and work environments. The quantitative data were collected by a 2014-15 Friedman School of Nutrition study aimed at encouraging healthier food choices by youth in corner stores, and the qualitative elements consisted of semi-structured interviews with five corner store owners. The nutritional data confirmed that children are overwhelmingly purchasing energy dense, highly caloric, and cheap products, often after school. The interviews showed that corner stores serve multiple purposes for young consumers, including as community spaces. In conjunction, the data sets suggest that future interventions in this setting should take into account the complex functions of the stores as well as the specific purchases youth are making there. I conclude with a recommendation for using mixed methods in order to gain a fuller picture of the factors and outcomes involved in youth’s autonomous food purchasing decisions.

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Chapter 1: Study Aims, Theoretical Framework, and Background

SPECIFIC AIMS AND HYPOTHESIS:

This thesis attempts to bridge the gap between a variety of disciplines to understand, more holistically, the experience of children purchasing food at a corner store. Researchers in nutrition, public health, economics, sociology, anthropology, and other fields have conducted research on topics related to the health and purchasing habits of children, but few have taken a holistic approach that integrates quantitative and qualitative data. This thesis seeks to better understand the topics of the health, food choice, food environments, and social influence regarding purchasing patterns made at corner stores by looking at how varying disciplines' findings complement or challenge each other. The thesis also aims to develop a set of recommendations to guide future research on the role of corner stores in the lives of youth and to better understand the factors influencing their autonomous purchases, defined as purchases without adult supervision, in Somerville, Massachusetts.¹

The quantitative data for the thesis were collected as part of a study known as Coupons for Healthy Options for Minors Purchasing Snacks (CHOMPS), conducted by Tufts' Friedman School of Nutrition Science and Policy. Beginning in 2014, this study investigated children's purchasing habits of food and beverage items in corner stores in the Somerville community. The study examined how youths' purchasing habits changed when given coupons to discount certain "healthy" snack choices. These snacks were classified based on the United States' Department of Agriculture (USDA) and the Institute of Medicine's (IOM) snack tier system (USDA, 2013). Of interest was the question of whether children were purchasing energy dense foods, defined by the

¹ In this study, corner stores are defined as a retail business with primary emphasis placed on providing the public a convenient location to quickly purchase a wide array of consumable products (predominantly food or food and gasoline) and services (NACS, 2016).

Centers for Disease Control (CDC) as products with high amounts of energy or calories per gram of food (CDC, 2015). The study provides more detailed data than has hitherto been available about what foods children actually buy for themselves in convenience stores.

While the CHOMPS dataset is comprehensive in terms of information about specific purchases and nutritional content of food purchased, it does not give us any insight into the community and the social dynamics that take place at the corner stores. This thesis, therefore, seeks to 1) analyze the quantitative data of the CHOMPS study before the coupon intervention; and 2) provide qualitative data to complement the data collected by Friedman School researchers. Specifically, I investigate the role of the corner store as a food source and “third place” for youth in Somerville. “Third places,” a term coined by Ray Oldenberg, are public places on neutral ground where people can gather and interact outside of their home and work environments (Oldenberg, 1999). This opens the way to an investigation into the many factors that influence the food choices and the ways in which youth use the corner store as a social space.

This thesis seeks to fill gaps in the research on this important food source for the youth of this nation. One third of all teen eating events take place outside of the home, with more than half of these out-of-home experiences at school (52%), 16% taking place at fast food restaurants, 16% at other locations (including convenience stores), and 6% at vending machines (Channel One, 1998). About 5% of all adolescent eating experiences occur from purchases at a convenience store or other grocery outlet (Story et al., 2004), with adolescents spending about \$5.2 billion each year on after-school snacks (Channel One Network, 1998). Where and when youth spend their money can give us great insight into their daily caloric intake and a more comprehensive understanding of the food sources in youths’ lives. A study conducted in

Philadelphia found that purchases by youth in grades 4 through 6 who shopped at a corner store before or after school consisted of nearly 360 calories in foods and beverages, on average, during each visit (Borradaile et al., 2009). This study also found that half the participants shopped at the corner store every day and most were purchasing energy-dense, nutrient-poor products. To better understand childhood obesity rates, it is important to better understand the types of foods youth are eating both inside *and* outside of controlled food environments, like school and home.

Specific Aims and Hypothesis

Guided by the socio-ecological model,² this analysis employs the combination of ethnographic and quantitative methods noted above, in addition to an extensive literature review, to describe the relationship of a) store owners' perceptions of their youth consumers' purchasing patterns and b) purchases of youth in corner stores over a period of October 2014 to June 2016. The ultimate goal of this thesis is to utilize these findings to inform the development of a set of recommendations to guide future research on the role of corner stores in the lives of the youth. It also seeks to understand the advantages and limitations of each of these data sets. My specific aims are:

- 1) To examine food purchasing patterns at local corner stores among youth ages 6-15 living in Somerville. Secondary data analysis based on the CHOMPS study is used to examine:
 - 1) types of snacks purchased; 2) the days and times of the purchases; and 3) the prices and nutrient content of the items purchased. It is hypothesized that youth are spending about \$5 during each trip to the corner store, are purchasing energy-dense foods high in

² This socio-ecological model, as defined by UNICEF, is a theory-based framework to articulate the multifaceted tiers (individual, interpersonal, community, organizational, and policy) of environmental and personal factors that determine behaviors (UNICEF, 2013).

sugar and salt, that most of these purchases are being made after school, and that purchasing patterns are based on age and gender.

- 2) Among owners and employees of corner stores in Somerville, to describe perceptions of youths' purchasing patterns, and stores' stocking choices in regard to the youth in their stores. I interviewed three owners and two employees at five different stores and asked questions about their 1) perceptions regarding youths' purchasing patterns; 2) relationships with the youth who frequent their stores; and 3) perceptions of the youth being in their stores.

Assessing Studies of Different Disciplines

When assessing the background information on youths' purchases in corner stores, it is important to recognize the different types of information presented by the different disciplines and understand the advantages and limitations of each area. The realm of nutrition research has tended to focus on the types of items purchased, the body statistics of children, and the location of stores often based on the proximity of youth. The work of economists asks questions about the role of children in the market place, their purchasing power, and how they make purchasing decisions. Sociologists and anthropologists have tended to be more concerned with exploring the perspectives of the participants of the corner store experience and the role of the corner store in the community. Community health and public health perspectives have generally focused on the social determinants of health and their relationship with obesity. Only through the integration of a variety of disciplines' understanding of the food system can we more fully understand youths' role in it. Below, I discuss the disciplinary perspectives of nutrition science, community health, economics, and social sciences that use ethnographic methods. A more detailed breakdown of

the disciplinary differences of specific studies referenced in this thesis can be found in Appendix Table A.

Nutrition Perspective: Focusing on Food Content and Physical Outcomes

Data drawn from the study of nutrition tends to focus on nutritional content of foods, often in comparison with desired standards set by various governmental and other bodies. The IOM Dietary Guidelines suggest the following for healthy levels of daily calorie intake for youth (Health.gov, 2015):

Table 1: IOM’s Recommended Calorie Intake for Youth

		Recommended Calories		
Males	Age	Sedentary	Moderately Active	Active
	6 to 8	1,400	1,600	1,800-2,000
	9 to 10	1,600	1,800	2,000-2,200
	11 to 13	1,800-2,000	2,000-2,200	2,200-2,600
	14 to 15	2,000-2,200	2,400-2,600	2,800-3,000

		Recommended Calories		
Females	Age	Sedentary	Moderately Active	Active
	6 to 8	1,200-1,400	1,400-1,600	1,800-2,000
	9 to 10	1,400	1,600-1,800	1,800-2,000
	11 to 13	1,600	1,800-2,000	2,000-2,200
	14 to 15	1,800	2,000	2,400

Children with a BMI above the 95th percentile for their sex and age are considered to be obese, between the 85th and 95th percentile are overweight, between the 5th and 85th percentile are considered healthy, and under the 5th percentile are considered underweight (Health.gov, 2015). According to the CDC, children should be active for at least 60 minutes a day through a variety

of aerobic exercises, muscle strengthening, and bone strengthening to stay healthy (Health.gov, 2015).

From 2003-2006, 17% of the U.S population of 6-11 year olds were above the 95th percentile according to BMI growth charts provided by the CDC (Health.gov, 2015). For children ages 6-13 in the United States, fruit, vegetables, whole grains, meat/beans, milk, potassium, fiber, and calcium are all essential foods and nutrients being consumed at inadequate levels (Health.gov, 2015). These youths are simultaneously taking in sodium, total fat, energy in the form of calories, and sugar at excessive levels. The nation's youth are experiencing disparities in health due to many factors beyond their control. When compared with how many calories a day the average youth should consume, corner store snacks can add a significant number of additional calories to their diets and nutritionists see their role as a food source for youth as an important topic to be further explored by the field of nutrition.

Nutritional Content

An increased consumption of snacks, caloric beverages, and fast foods by children and young adults has repeatedly been shown to be associated with obesity and excess weight gain (Drewnowski & Specter, 2004). It is not just the additional calories from the snacks purchased, but the nutritional make-up of these calories that must be addressed. Most often, these snacks are energy dense, a factor which is a function of the snacks' water content (Drewnowski, 1998). Energy-dilute foods are heavily hydrated, while energy-dense foods are dry and may also contain fat, sugar, or starch (Drewnowski & Specter, 2004). Diets made up of energy-dense foods were found to be associated with greater intakes of energy and added sugars, more energy from fat, and significantly lower intake of fruits and vegetables. Obese children consumed a higher

percentage of energy dense foods than lean children (2.08 ± 0.03 vs. 1.93 ± 0.05 ; $P = 0.02$) (Drewnowski & Specter, 2004).

A study led by Monteiro found nearly 60% of an average American's daily calories come from "ultra-processed" food (Monteiro, 2013). These are foods that contain ingredients such as flavors, colors, sweeteners and hydrogenated oils, emulsifiers and other additives. A study on Spanish middle-aged adult university graduates found the consumption of ultra-processed foods to be associated with higher risk of overweight and obesity (Mendonca et al., 2016). It is documented that a diet filled with processed foods, frequently containing high contents of fat, sugar and sodium, often leads to poorer health outcomes compared to a diet high in complex carbohydrates and fiber (Block & Webb, 2004).

Consumption of Sugar

Today, about 75% of all foods and beverages contain added sugar in a large array of forms and the United States has, therefore, increased sugar intake in the diet (Bray & Popkin, 2014). In 1776, at the time of the American Revolution, Americans consumed about 4 lbs of sugar per person each year. By 1850, this had risen to 20 lbs, and by 1994, to 120 lbs (Bray & Popkin, 2014). The United States' growing consumption of sugar correlates with the increased intake of sugar-sweetened beverages. Currently, sugary soft drinks contribute to 8-9% of total energy intake for adults and children and to long-term weight gain (Malik, Shulze & Hu, 2006). One study found that as little as six months of consuming two 16-ounce servings of a sugar-sweetened cola beverage per day increases the risk of fatty liver and the metabolic syndrome. These patterns were not seen with the aspartame-sweetened beverage, milk, or water (Bray & Popkin, 2014). According to the CDC, the recommended maximum limit of added sugar is 10%

of daily calories across all age groups (Health.gov, 2015). However, the average intake of sugar for children ages 4-13 is about 15-17% of daily calories (Health.gov, 2015).

Consumption of Sodium

Another nutrient that the nutrition research has considered is sodium. Per the CDC, 90% of U.S. children ages 6-18 eat too much sodium daily (Vital Signs, 2014). About 43% of sodium eaten by children comes from 10 common food types: pizza; bread; cold cuts/cured meats; sandwiches like cheeseburgers; snacks (chips); cheese; chicken patties; chicken nuggets; pasta dishes; Mexican dishes; and soup. Emerging evidence has found sodium intake to be associated with obesity (Grimes et al., 2016).

Obesity

Recent studies from the field of nutrition science have focused intensely on the topic of obesity, especially in children. Obesity, most simply put, is generally caused by a person consuming more energy than they expend (NIH, 2012). When looking at the burden of obesity in the population, nutritionists and public health advocates agree that the direct link between energy consumption and the type of nutrients consumed and obesity cannot be ignored.

Studies from these fields show obesity as a serious public health concern, contributing to approximately 2.6 million deaths worldwide each year (World Health Organization, 2009). In the United States, approximately 21-24% of youth and adolescents are overweight, and another 16.9% are obese (Ogden, Carroll, Kit & Flegal, 2014). The high rates of obesity among youth make it essential to better understand the factors that drive youth's food choices at corner stores as these stores are often important food venues in urban neighborhoods for minority and low income youth. The estimated healthcare costs of obesity-related illness are \$190.2 billion annually (Marder & Chang, 2006). 21% of annual medical spending in the U.S. is spent on

childhood obesity and is responsible for \$14 billion in direct medical costs. These costs are expected to rise significantly as today's obese children are likely to stay obese as they age. If obesity rates were to remain at the 2010 levels, the projected medical cost would be \$549.5 billion over the next two decades (Marder & Chang, 2006). In the 10 cities with the highest rates of obesity, the direct costs connected with the disease are roughly \$50 million per 100,000 residents (Witters et al., 2011).

Studies of nutrition and obesity also focus on the ethical and food justice implications of obesity. The rates of obesity occur among population groups with the highest poverty rates and the fewest years of education (Drewnowski & Specter, 2004). Minority populations (except Asian Americans) have higher rates of obesity and overweight than do U.S whites. The rates of obesity and type 2 diabetes in the U.S follow a socioeconomic gradient, such that the burden of disease disproportionately falls on those with limited resources, racial-ethnic minorities, and the poor (Drewnowski & Specter, 2004). To understand the high rates of obesity, studies of nutritional content alone are not sufficient; the economic, social, and environmental factors that lead to food choice must also be understood.

Perspectives from Community Health: Social Determinants and Dynamics

A community health perspective asks how the correlation between the determinants of obesity and the determinants of food choice have contributed to the high rates of childhood obesity in the United States. Studies undertaken from this field examine the interplay of biological, geographical, psychological, social, financial, and political determinants that facilitate or impede the potential for people to adopt behaviors that lead to better food choices. For a healthy and privileged individual, it might be easy to assume obesity and poor food purchases are the fault of an individual (Tumilowicz et al., 2015). However, from a community health

perspective it is the combination of these determinants that lead a person to select a product at the store, not simply willpower. As noted by Shepard, like any complex human behavior, food choice will be influenced by a variety of both internal and external interrelated factors such as chemical, social dynamics, economic pressures, sensory attributions, and personal beliefs (Shepard, 1999). For example, by assuming the urban poor would eat more fresh produce if only it were more accessible to them, food reformers could be seen as projecting their own desires onto others who may be “outsiders” to the mainstream and who are producing their own autonomous system of values (Larchet, 2014). Similarly, the taste for “comfort food” can be seen as a product of class differences, with the stresses of economic and political insecurity often driving the decision to choose the short-term boost of calorie- and energy-dense foods (Mintz, 1979).

Food choices are based on a complicated meshing of factors including both innate chemical needs and social structures, not simply one’s willpower. To understand the food choices made by urban youth and the disparities in the purchases amongst populations, the *social determinants of health* that cause certain food choices and purchases to be made must be considered. Although food choices are caused by a variety of the social determinants of health, a person’s neighborhood and access to food, socioeconomic conditions, and regional (often by neighborhood) segregation (often caused by gentrification) are some of the primary contributors to this widespread problem.

Determinants of Food Choice

Food choice is also shown in the literature to be an important determinant of obesity among adolescents. **Biology** and sensory influence, for example, play a large part in food choice. Studies of the food preferences of 3-4-year-old children found their preferences to be driven by

both familiarity with and the energy density of foods. Children generally preferred the more energy-dense foods and gave higher ratings to chocolate cookies and potato chips than to vegetables and fruit (Wardle et al., 2002). Energy dense foods tend to be well-liked, or seen as a reward, which reinforces their initial selection and repeated consumption (Drewnowski & Specter, 2004). Humans are hard wired to crave fat and sugar (Drewnowski et al., 1985) and generally experience a positive taste response towards these foods. This fact, coupled with our food system's ability to provide easy access to these food groups, contributes to the high intake rates of this food group.

Youth make food choices based on the **access and availability** of options. It has been found that people tend to make food choices based on the food outlets that are available in their immediate neighborhood (Furey et al., 2001). Tumilowicz also notes this in stating how food choices are sometimes based on undisputed environmental barriers to behavior change, such as lack of availability/access, lack of technological means to transform food into meals, and physical conditions that prevent individuals from consuming foods and/or utilizing nutrients that they contain (Tumilowicz et al., 2015). Physical proximity to sources of food also plays a role. For example, Coupons for Healthier Options for Minors Purchasing Snacks (CHOMPS) data analysis has shown that urban youth purchase from corner stores near their schools (Cash & McAlister, 2017).

There is also a **psychological component** in making food choices. When looking at youths' food purchasing habits, the differences between the normative and positive choices described by the research should be considered (Tumilowicz et al., 2015). This relationship describes how just because the children are told that they should be purchasing healthier choices,

it doesn't mean that they *are* or *can*. Both internal and external factors are extremely powerful forces in determining a person's opinions and choices when it comes to food.

This psychological perspective can be further explained by the Theory of Reasoned Action, which seeks to explain behavior that is under control of an individual. Within this theory, the idea of intention arises. Intention is predicted by two components: the perceived social pressure to behave in a certain way (the subjective norm) and an individual's own attitude (whether the individual sees the behavior as good, beneficial, pleasant, etc.) (Shepard, 1999). The subjective norm is determined by the sum of products of normative beliefs, determined by the perceived pressures from specific individuals or groups (doctors, family, friends, teachers). These external pressures could be reasons why youth might make certain food choices.

Another important factor to consider is an adolescent's **social experiences and influences**. These experiences might make youth ambivalent about healthy eating, a possible reason to explain the lack of success in attempts to change dietary patterns and food choices. If for example, an adolescent eats well at home but their friends eat certain snacks when together, the individual might correlate peer socialization with these snacks. Media coverage might also show a group of youth consuming energy dense, low-nutrient products that are characterized as tasting good (Shepard, 1999). It might, therefore, be expected that individuals (and especially children) have mixed feelings about consuming and purchasing particular foods or about diet in general (Shepard, 1999). Parental influence also plays a factor in an adolescent's food choice and access. The Avon Longitudinal Study demonstrated that before 3 years of age, parental obesity is a stronger predictor of obesity for the child in adulthood than the child's weight status (Raj & Kumar, 2010). The study also found that the odds of a child aged 7 becoming obese if the father,

mother, or both was obese were 2.93, 4.66, and 11.75, showing the dominant influence of parental obesity (Raj & Kumar, 2010).

There are also **social barriers**, which influence how food choices are made by youth. This burden of disease and limited options for snack-food consumption is disproportionately put on minority and low-income youth, with non-white youth having a higher probability of consuming non-nutritious snack foods (Signorielli & Lears, 1992) and experiencing obesity (Rogers et al., 2015). There is no question that the rates of obesity and type two diabetes (in the United States and globally) follow a socioeconomic gradient. The burden of disease falls disproportionately on people with limited resources, racial-ethnic minorities, and the poor (Office of Disease Prevention and Health Promotion & U.S. Department of Health and Human Services, 2000).

Economics Perspective: Role of the Child Consumer

Studies from the discipline of economics usually focus on the role of the economic behaviors of youth. However, there are still very few research studies on children as consumers. One of these, by McNeal (1992), describes how marketers view youth as a “three-in-one” market. The three markets that youth represent include “a primary market,” where youth are spending their own money, an “influence” market, where youth are directing their parents’ spending (also known as pester power), and their role as potential adult consumers (McNeal, 1992.) Adolescents spend about \$140 billion a year, with about \$94 billion of this money earned on their own (Story et al., 2004). Adolescent girls spend on average \$53 a week, and boys spend \$59, of their own money. Channel One Network, a daily television newscast shown to 12,000 middle, junior, and senior high school students in the U.S, found about 15% of youths’ personal

money is spent on fast foods and snacks (Channel One Network, 1998), for an average of between eight and nine dollars a week. It is also estimated that youth directly influence about \$19.6 billion grocery purchases a year, with snacks, desserts and beverages making up a substantial proportion of these requests (Channel One Network, 1998).

Even with this incredible spending power, studies often view youth as “victims” of the food system, rather than independent consumers with purchasing power. This helps to explain the limited studies on children as autonomous consumers. Recent studies have also found children’s snack food choices are not always consistent with their intended snack food choice, making it harder to predict and understand what a child will buy (Branscum & Sharma, 2014). For example, this study found subjective norms and attitudes to have varying importance between genders; girls’ choices were predicted more by subjective norms than attitudes, and in contrast, boys’ intentions were most strongly predicted by attitudes. Emotional states of, self-confidence of, and environmental cues for children (i.e. a culture’s acceptance of snacking behavior) also make snack choice prediction difficult (Branscum & Sharma, 2014).

Family income level plays a role in understanding children’s autonomous food purchases as well. There is an inverse relationship between the energy density and energy cost of food, such that energy dense foods, usually filled with refined grains, added sugars, or fats, typically are presented as the lowest cost option to consumers (Drewnowski & Specter, 2004). It has been found that many persons attempting to limit food costs will first select less expensive but more energy-dense foods to maintain dietary energy (Drewnowski & Specter, 2004). This means that as money spent on food decreases, dietary energy density rises, and total energy intakes then also rise (Alaimo et al., 1998). This disproportionately puts this low-quality food in the hands of those with small food budgets (Drewnowski & Specter, 2004). A study produced in 2007 found that

the majority of children ages 10-12 received daily pocket money, even if their families were defined as being of low socioeconomic status (Wang, 2007), so it seems reasonable to assume that their purchasing decisions will fall into the pattern noted above.

Ethnographic Perspective: Role of Corner Stores in a Community

Ethnography, the set of immersive research methods used by social scientists like sociologists and anthropologists, examines human behavior from a network-oriented perspective that emphasizes social interactions and the production of community meanings. Ethnographic studies of corner stores add a further qualitative dimension to the data on food choice gathered from the other disciplines discussed above.

The Association for Convenience and Fuel Retailing defines the corner store as a retail business with primary emphasis placed on providing the public a convenient location to quickly purchase a wide array of consumable products (predominantly food or food and gasoline) and services (NACS, 2016). There are also necessary features of a business to classify it as a convenience store; the size must be less than 5,000 square feet and have off-street parking and/or convenient access for pedestrians, as well as extended hours with many open 24-hours a day, 7 days a week. The store must stock at least 500 stock keeping units (SKUs), and the products sold are a mix of grocery items, beverages, snacks, and tobacco (NACS, 2016).

Store Location

From an ethnographic approach, these stores can be seen as providing undervalued care work for the neighborhoods in which they are located. Their role selling miscellanies to their poor and often spatially isolated customers positions them in a role like that of immigrant child-care workers who provide an essential support for low-wage workers trying to navigate urban

economies (Pine, 2010). It is also important to understand the correlation between social disparities and the location of these stores. As noted by Powell and his team, low-income zip codes have, on average, 25% fewer supermarkets and 1.3 times as many convenience stores than middle-income zip code regions (Powell et. al., 2007). In a nationwide study, one third of U.S public secondary schools were found to have at least one fast food restaurant or convenience store within walking distance (Zenk & Powell, 2008). This study also found schools in the highest-income neighborhoods to have 32% fewer fast food restaurants and 50% fewer convenience stores than schools in the lowest-income neighborhoods (Zenk & Powell, 2008). Urban, majority-white neighborhood schools were found to have 44% fewer fast food restaurants and 26% fewer convenience stores within walking distance than majority-African-American neighborhoods' schools (Zenk & Powell, 2008). Like the previously mentioned studies, Story et al. also found the location of convenience stores and fast food restaurants near schools encourages their use (Story et al., 2004). In her book, *Weighing In: Obesity, Food Justice, and the Limits of Capitalism*, Julie Guthman argues that obesity is an ecological condition based on social, economic, political, and environmental issues (Guthman, 2012). Corner convenience stores, then, are not just a "choice" for low-income youth, but may be among the only nearby sources of food when they are making autonomous purchases.

Outside of controlled food environments such a home and school, these youths choose high calorie, energy-dense, cheap foods (Story, Nannee & Schwartz, 2009) for a variety of internal and external reasons. As noted in the literature from nutrition studies, community health, and economics, they might choose these food items due to marketing, taste, peer influence, financial pressure, or lack of access to healthy options at a reasonable price. However, an

ethnographic perspective adds the possibility of understanding the social interactions that may take place in corner stores, which may also influence youths' shopping decisions.

One useful concept that can be applied to this question is the "third place." A term first coined by Ray Oldenberg, a "third place" is one where community members informally socialize (Winter, 2007). These are places where people come as they are and they are defined by the differences and comparisons from a person's home, work, or school. They are spaces for community members to talk about their lives and interact with others in an informal context. Third spaces are often very plain looking and, as noted by Oldenberg, "recalling Emerson's observation, there are no temples built to friendship. Third places, that is, are not constructed as such. Rather, establishments built for other purposes are commandeered by those seeking a place where they can linger in good company" (Oldenberg, 1989, p. 36).

These corner stores will be investigated to better understand if they serve as a third place for the youth of Somerville. The youth come here before and after school, in transition from their schools and homes. For many youths, the corner store is a place where they can go without their parents' supervision. This study will also explore the idea of corner store owners/employees as public figures, and will investigate if their presence influences youth when their parents are not present. Further, it will ask whether store owners and employees may function in a kind of quasi-parental way, serving *in loco parentis* and creating third places that are specifically tailored to young consumers. There is a gap in the literature on the role these stores play in the social lives of these youth, specifically if they serve as a place where the youth can feel independent and authentic in conjunction with the high percentage of autonomous purchases taking place.

Role of Store Owners

To better understand the environment of corner stores and the items available for purchase at these locations, understanding those who make the decisions about the store is essential. Very few studies exist on the perceptions of corner store owners/employees about their youth customers. One study in Philadelphia investigated the perspectives about their community of managers/store owners of convenience stores in low-income neighborhoods (Mayer et al., 2016). Overall, the participants agreed the role of their stores was to provide for the local community. 13% of participants saw their store as a gathering place, a communication hub, and a social center for their community (Mayer et al., 2016). Eight of 23 owners/managers reported a role for their store in improving the health and overall well-being of the people in their communities, especially for children in the community. Another interesting discovery was that 12 of 23 participants stated that they addressed health behaviors with customers with whom they were familiar, and with children (Mayer et al., 2016).

Although one suggested solution in communities across the U.S has been to start “Healthy Corner Store” initiatives, the store owners reported on the difficulties of doing so (Mayer et al., 2016). Almost all store owners/managers talked of the challenges they faced with purchasing and carrying fruits and vegetables to make these products profitable. Another study conducted in Minneapolis sought to explore the value of a business relationship with a fresh produce distribution business, BrightSide Produce Distribution, from a corner store owner perspective (Freeburg, 2015). The study found that the realities in low-income environments make offering fresh produce rather difficult; realities based on cost and the low general customer demand for fresh produce in the area (Freeburg, 2015). The data showed owners expressing their sacrifice and benevolence toward the community at large and for the community’s health

(Freeburg, 2015). The study noted one owner saying “If some lady comes in with the kid, we try to give them free, so it doesn’t cost. We don’t charge. Even if the kid likes apples or something, we try and offer it for free to just let him have an opportunity to taste” (Freeburg, 2015). The studies by Mayer and Freeburg demonstrate the battle corner store owners/managers seem to experience between balancing their own prices and profit and their morals as community leaders and spokespeople for community health.

Chapter 2: Assessing Nutrition and Corner Stores in Somerville, Massachusetts

SOMERVILLE, MA

Context, Culture, and History: The City of Somerville

As noted by Ostrander (2013), Somerville has long been a place of settlement for immigrants to the Boston area, and its identity as an “immigrant city” has remained to this day (p. 21). Established in 1628 Somerville was granted independent town status in 1842. From 1842 to 1870, the city’s population grew from 1,000 to 15,000, coinciding with the rise of ethnic and class tensions in the 1850s as Boston’s Irish immigrants began to move to Somerville (p. 20). During this time, Irish immigrants made up one-fifth of the city’s population but this group represented the bottom of the social ladder (p. 21).

Ostrander (2013) notes how by 1900, the population had grown to 60,000 residents, the largest population growth in the city’s history (pg. 21). The second-generation Irish population began to gain social status, shifting the city’s politics from “Yankee Republican...to immigrant Democratic” (p. 21). By 1930, Somerville’s population had nearly 30,000 foreign-born residents with most immigrants from Canada, Ireland, Italy, and Portugal. Its population by this time was 103,908 residents and it became the most densely populated city in New England. To accommodate the growing population and allow for multi-generational families to live together, the characteristic triple-decker houses of Somerville were built (p. 22). With the growing population came a further increase of class and ethnic tension.

In the 1930s and through the 1950s, the population of Somerville began to decrease as the richer residents moved out of the city. The property values of Somerville stagnated as the industry that used to sustain the economy of the city and the region began to decline and jobs disappeared (Ostrander, 2013, p.25). Starting in the 1960s and 1970s, the term “Slumerville”

emerged as a representation for the city Somerville had become (Ostrander, 2013, p. 25).

Through the 1980s and 1990s, the city had a period of major transformation including economic redevelopment projects such as Assembly Square. It was also another immigrant influx period for the city, as discussed in more detail in the following section.

In 2011, Somerville remained the most densely populated city in New England, with 18,868.1 persons per square mile in a land area of 4.21 total square miles (Acker & Hadley, 2016). The city is one of the most ethnically diverse cities in the nation and includes an extremely artistic group of individuals; only New York has more artists per capita than the city of Somerville (Somerville Government, 2014). Today it is a well-educated community overall, with almost 90% of the population having a high school degree or higher (US Census, 2015). The median household income in 2014 was \$66,866, yet almost 16% of the population lives in poverty (US Census, 2015). This distinction represents the city's geographical divide of population based on class, which relates closely to race, ethnicity, and national origin.

Immigrant and Minority Populations in Somerville

The city has had long-standing immigrant and racial issues beyond this study's focus on food access. For the context of this paper and when looking today at the Somerville youth's obesity rates compared with national findings, it is, therefore, important to understand the history of minority and immigrant populations. For example, we must recognize how many immigrant/minority populations are lower-income, and how lower-income consumers tend to be disproportionately affected by lack of nutritious foods. A lack of nutritious foods leads to an increase in food-related health problems, such as obesity.

From 1970 to 2000, as noted by Ostrander (2013), Somerville's foreign-born population doubled as a percentage in comparison to its total population (p.23). Beginning in the 1980s, at least 10,000 immigrants from Brazil, El Salvador, and Haiti moved to the city. In just one year, from 1999 to 2000, Somerville's immigrant population increased by 33%, including more than 7,100 Brazilians and Portuguese, 2,188 Salvadorans, 1,765 Haitians, and 1,100 Chinese. From 2000-2005, the number of blacks increased from 6.5% to 8.4%. Even with this influx, the Irish and Italian populations history to the region still remained, with one in three of Somerville residents tracing their family members to either Ireland or Italy (Ostrander, 2013, p.23).

Even with Somerville's small size, a racial divide in the city can be seen. East Somerville has twice as many Hispanics than live in the rest of the city, as well as more people of color than any other neighborhood compared with the city as a whole (Ostrander, 2013, p.25). It should be noted that East Somerville is cut off from the rest of the city by a highway that was built during the "Slumerville" period in part to increase the city's revenue (Ostrander, 2013, p.22). Seeking affordable housing, many first-generation, low-income immigrants have moved to the eastern part of the city, while the young middle and upper-income professionals have moved to the western part of the city. It is also important to recognize that Tufts University is in West Somerville, which is also the least racially diverse part of Somerville. According to the New York Times, more than half of the Tufts student body comes from families in the top 5% of the nation's earners (Aisch, Buchanan, Quealy, & Cox, 2017). The increasing size of the wealthy student body has correlated with the increasing housing prices, which have increased 6.3% in the last year alone (Zillow, 2017).

According to the U.S Census, roughly 25% of residents of Somerville in 2014 were born outside of the U.S (US Census, 2015). The immigrant populations are from countries such as El

Salvador, Haiti, and Brazil, with over 50 languages spoken in the Somerville school district (Somerville Government, 2014). In 2010, 10.6% of the population identified as Hispanic or Latino, and 6.8% identified as Black or African American (US Census, 2015). The cities of Malden/Medford, Somerville/Everett and Lowell have more than twice the number of immigrant persons than one would expect if the geographic distribution of immigrants and natives were identical within these cities, giving them the highest concentration ratio of immigrant populations in Massachusetts (Clayton-Matthews & Watanabe, 2012).

In the 2014-2015 school year, 4,987 students were enrolled in the Somerville School District 2015 (MA Department of Elementary and Secondary Education, 2016). The school district consists of 42.3% Hispanic, 36% White, 10.7% African American/Black, and 8.5% Asian students (Massachusetts Department of Elementary and Secondary Education, 2016). Of these students, 17.4% were English language learners, compared with 8.5% in the state of Massachusetts; 35.5% of students were economically disadvantaged (compared with 26.3% statewide), and 50.3% of students' first language was not English (18.5% statewide) (Massachusetts Department of Elementary and Secondary Education, 2016). These statistics show the diversity in the Somerville School District, which is important to note due to the disproportional tendency for corner convenience stores to be in communities in low-income and minority populations (Powell et al., 2007).

Somerville has had a complicated political history with its minority populations, including the *Gang Task Force* created in 2002 after an incident of rape in Somerville's Foss Park (Ostrander, 2013, p. 94). This order directed local police to order dispersal whenever they saw a known member of a criminal street gang loitering with one or more other person. Police were also told to inform those persons they will be subject to arrest for failing to obey

(Ostrander, 2013). There was a tremendous amount of local pushback, including from the local American Civil Liberties Union (ACLU) chapter, which opposed the ordinance stating that it “tramples on civil rights and may promote racial profiling” (Ostrander, 2013, p. 95). White and Hispanic members of the community also pushed back against the ordinance, and three years after the proposal, the Mayer “reportedly still needed to take ‘steps to mend ties with immigrant communities’ because he had ‘angered many Latinos’ by promoting the controversial law” (Ostrander, 2013, p. 97).

These issues of minority status correspond with the youth of low-income, minority families living in Somerville, which in areas where nutritious foods are harder to come by, has made it difficult for the city to lose its characterization as “Slumerville” (Groman, 2015).

Efforts to Address Community Health Issues in Somerville

Somerville Public School BMI surveillance in 2010 found that out of 1,533 K-7th graders, 30.1% were obese and 17.9% were overweight (Shape Up Somerville, 2013). Minority youth disproportionately have higher BMI and in Somerville, Hispanic youth have the highest rate of obesity (Shape Up Somerville, 2013).

It is important to factor in Somerville’s history in the context of present day gentrification. Food deserts formed in the inner-cities pertain to changes in demographics in larger U.S. cities between 1970 and 1988 and during this period, economic segregation became more prominent with more affluent households emigrating from inner-cities to suburban areas (Bianchi et al., 1982). This coincides with Somerville’s history and its label of “Slumerville.” Like Brooklyn, Manhattan and many other cities, Boston’s increasing property values and rental rates have contributed to pushing the minority, low-income, often immigrant families toward one

part of the city of Somerville and the white population's members to the other (Groman, 2015). This has contributed to many of the social, environmental, political, and economic determinants causing this obesity disparity for the lower-income, minority populations in Somerville.

The state of Massachusetts has been actively trying to combat its obesity problems through a variety of initiatives, some of which directly affect Somerville. In 2009, the Massachusetts Department of Public Health established *Mass in Motion*, a statewide obesity campaign. The program has focused on a variety of projects including making school lunches healthier, creating healthy restaurant menus, creating safer biking and walking paths, and improving the nutritional content of food in food pantries (MassGov, 2013).

In 2015, the state government also received federal funding from a Food Insecurity Nutrition Incentive (FINI) program called the Massachusetts Healthy Incentives Program (HIP) to make fruits and vegetables more affordable for SNAP participants (Nocito, 2015). According to the Cambridge Health Alliance, 12.2% of Massachusetts families used SNAP in 2010 (Cambridge Health Alliance, 2011). While these federal and statewide programs are trying to make a difference in Massachusetts as a whole, it should be noted that Somerville has already begun trying to independently improve the health and well-being of its own community.

Nationally, many research and programs have been implemented to help students make healthier food choices in controlled settings, such as in the school breakfast and lunch programs. One initiative based in Somerville city government is Shape Up Somerville (SUS). Beginning in 2002 and based on a study conducted by the Tufts University Friedman School of Nutrition Science and Policy, Shape Up Somerville is centered around "build[ing] and sustain[ing] a healthier, more equitable community for all who live, work, play and age in Somerville" (Shape Up Somerville, 2013). The goal of SUS' original intervention was to influence multiple aspects

of an elementary school child's day (Economos et al., 2007). Efforts included changing the meal programs, adding a Walk-to-School Campaign, adding an after-school curriculum with cooking demonstrations and physical activity, and targeting the home environment through parent outreach and education. SUS conducted a school lunch intervention program that found youth's average BMI percentile declined about one percentile point after the intervention compared with comparison communities' students over the course of nine months (Shape Up Somerville, 2013). SUS' initial intervention also resulted in a decrease of two ounces of sugar-sweetened beverage consumption per day and increased participation in organized sports and physical activity (Economos et al., 2007). The program decreased children's screen time by nearly 15 minutes per day compared to children in the control communities. Along with an innovative Urban Agriculture initiative and the expansion of a Community Path for walking and biking, Shape Up Somerville reflects a strong commitment by city government to improving public health and fitness.

Chapter 3: Children's Purchasing Patterns in Corner Stores

A study on this topic in Somerville, conducted by the Tufts Friedman School of Nutrition from 2014 to 2016, forms the basis for this chapter. Coupons for Healthy Options for Minors Purchasing Snacks, or CHOMPS, sought to promote healthier food choice among adolescents. CHOMPS was designed to see if youth would buy healthier food items more often if they were given “kids-only” coupons to discount the price of healthier foods at local convenience stores near their schools. The study recognized that little is understood about influencing behavior to improve diets and that no prior research had directly addressed the determinants of children's food choice in actual convenience store settings.

Other programs around the world have focused on vending machine, school lunch programs, à la carte foods, and stores in schools (Zenk & Powell, 2008). Although there have been studies to manipulate youth's food choices in controlled settings, little research has been done to understand what types of choices youth make independently of school or parental settings, like corner stores. The literature suggests that efforts to change the food environment within schools may be ineffective if the surrounding neighborhood food environment is neglected (Story et al., 2002). An example in the CHOMPS Project narrative (Cash et al., 2016), for example, discusses how a child who eats a salad for lunch might decide to stop for a soda and bag of chips at a convenience store on the way home because she “was good” at lunch or because she is hungrier than if she had eaten a more energy-dense school meal. (Cash et al., 2016). It is important to investigate how one of the reasons for choosing unhealthy choices might stem from healthier choices not being as substantial, or their inability to satisfy students' hunger as well as unhealthy options. A study conducted by Currie et al. (2010) found that convenience of food

options may play a significant role in terms of food chosen. These “food options” are determined by things such as food price and proximity to healthy options.

There have been many programs to test adding produce into corner stores, but no previous research has directly addressed possible determinants of youth’s food choice in convenience stores. The CHOMPS study aimed to address these gaps in research to better understand how to have youth make healthier choices when left to their own devices. From October 2014 to November 2015 data was collected by Dr. Sean Cash, Principal Investigator, and graduate students from Tufts’ Friedman School of Nutrition. These data are not available publically and parts of the results of the study have been published. Permission to use this data was granted by Dr. Cash. The initial results of the study suggested that kids-only coupons could play a role in shifting children’s snacking behavior. However, little analysis has been done of the pre-intervention data, a gap that this thesis seeks to fill.

The study recorded purchases made by youth at four corner stores in the Somerville, Medford, Cambridge community. This thesis will only focus on observations conducted in the Somerville/Medford community. The youths’ purchases were observed during the intervention with a focus on choices between the targeted “healthier choices” and competing “unhealthy” items. Along with this information, the study collected pre-intervention data to determine what children were buying before the coupons were available. The project had four components: focus groups, an *in situ* observation phase, a coupon intervention phase, and an individual assessment phase. The pre-intervention observation phase observed children’s existing food purchase behaviors, which served as a baseline measure for comparison with the presence of the coupons. The coupon intervention phase studied how the purchase habits changed when the youth were given coupons to discount the price of certain healthy items. The individual assessment phase

included focus groups that gave children the opportunity to talk about whether they noticed and/or used the in-store coupons and the factors that influence their food purchases in general. The individual assessment phase also included a subsampling of children who received a short battery of tests to assess their language ability, and cognitive and social skills development (See Figure 1). Some of the study coordinators' previous work had indicated that there is a correlation between general intelligence measures of 8-12 year olds and their responsiveness to differences in snack food prices, which is why this phase was included in the study (Cash & McAlister, 2017). The pre-intervention data was gathered from these youths prior to the distribution of coupons and is what will be used to answer Research Aim 1 of this thesis. The data set includes information about the nutritional content of the snacks, the timing of when the purchases were made, the price of the purchases, and the gender and age of the consumers.

Analysis:

In conjunction with Aim 1, this portion of the thesis will be evaluating the patterns seen in youths' purchases in corner stores based on the pre-intervention CHOMPS data. The primary outcomes of interest for the secondary data analysis are the patterns in youths' purchases at corner stores before the coupon incentive was instated. The study observed 866 purchases made by youth at three corner stores in the Somerville/Medford community before the coupon intervention. These data were used to determine statistical patterns in the cost of items purchased, the nutritional content of the items purchased, the day of the week, and the time purchased to get a better understanding of youth's purchasing habits in corner stores. I assessed correlations between gender, age, day, time, price, and the nutritional content of the purchases made.

The analysis will focus on finding statistically significant differences and patterns based on the following questions.

Categories	Questions
Calories	<ul style="list-style-type: none"> a) What were the average total calories by gender? b) What were the average total calories consumed by age?
Sodium	<ul style="list-style-type: none"> a) What was the average total sodium in all products purchased by gender? b) What was the average total sodium in all products purchased by age?
Sugar	<ul style="list-style-type: none"> a) What was the average total sugar in all products purchased by gender? b) What was the average total sugar in all products purchased by age?
Day of Week	<ul style="list-style-type: none"> a) What days of the week were the most highly caloric purchases made? b) What day of the week were the items with the highest amount of sugar purchased? c) What day of the week were items with the most sodium purchased? d) Are there patterns with the type of snack purchased and the day of the week?
Time of Day	<ul style="list-style-type: none"> a) What time of day were the most highly caloric items purchased? b) What time of day were the items with the most sugar purchased? c) What time of day were the items with the most sodium purchased?
Costs/Purchases	<ul style="list-style-type: none"> a) What types of foods were most commonly purchased? b) What was the average total spent on items by age? c) What was the average total spent on items by gender? d) What is the correlation between the price of items and the calories of items?

Defining an “Observation”

In this thesis, an observation will be defined as the observed items purchased by a youth. An observation includes the participants’ gender, age category, the date, the time of day, and the nutrient breakdown of all items included during the observed event. The total nutrient variables (i.e. total sugar, total sodium, total calories, etc.) represent the cumulative amount of that nutrient found in all items purchased during one observation. The total cost variable represents the total amount spent by a youth during an observation.

Data Processing

The data was analyzed using STATA 14 and the statistical significance of relationships was determined using Chi-squared and Bonferroni tests. The areas of cost, calories, sugar, sodium, and particular products were compared with day of week, time of day, age, and gender to investigate statistically significant purchasing patterns of customers. These data were able to show us the average amount spent and nutrient content of the products purchased. Due to ethical constraints on interviewing children without parental permission, these data were unable to classify if observations were conducted of the same individuals on different days, which is a limitation of this study.

Sample Population:

This study is based on 866 observations of youth aged 6 to 15 purchasing products at three corner stores in Somerville/Medford. Participants with missing data on both age and gender were removed. Observations where the parent made the purchase were removed.

Table 2: Age and Gender of Population (n=866)

		Frequency	%
Age	<9	155	17.9
	10 to 12	497	57.39
	13+	214	24.71
Gender	Male	416	48.04
	Female	450	51.96

Results

Nutrients: Descriptive Results

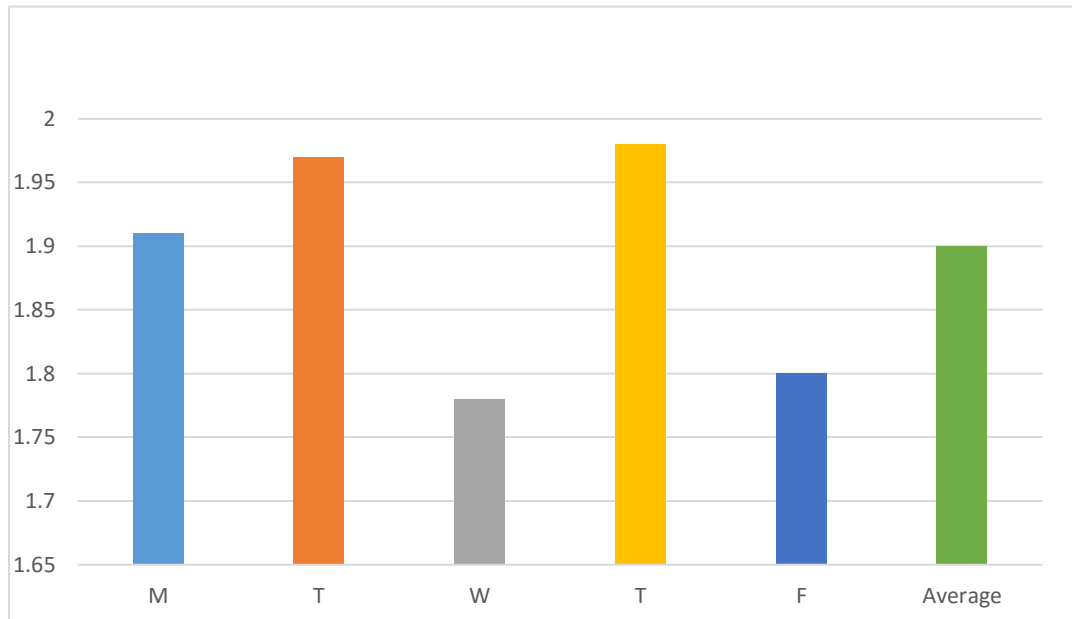
This research is important to analyze due to the limited number of studies currently in circulation on the topic. The data finds children to be buying highly caloric, energy-dense foods. Age was found to be the strongest and most statistically significant predictor of children's purchasing patterns, with older children spending more money and purchasing more energy dense foods than younger children. On average, children were purchasing items with a cumulative 483.94 calories. These after-school snack-breaks are adding almost a full meal's worth of calories into their diets. These observations also found children to be purchasing a cumulative average of 38.19 grams of sugar, which is almost twice the maximum recommend amount of sugar intake per day for youth (Health.gov, 2015). The average cumulative sodium in products purchased was 493.20 mg. Additionally, an average 19.88 grams of total fat were in these purchases and only 2.05 grams of fiber. It is important to note how this full meal's worth of energy-dense calories is being purchased for on average \$1.89. Additional nutrient averages can be found in Table 3.

In Graph 1, we see children spending the least amount of money on Wednesday and Fridays and the most money on Tuesdays and Thursdays. The data also shows that older children are spending more money at the store than younger children, with an average of \$2.38 spent by children over 13, \$1.87 spent by children 10-12, and \$1.35 spent by children under 9. Graph 2 demonstrates this increased spending correlating with an increase in age.

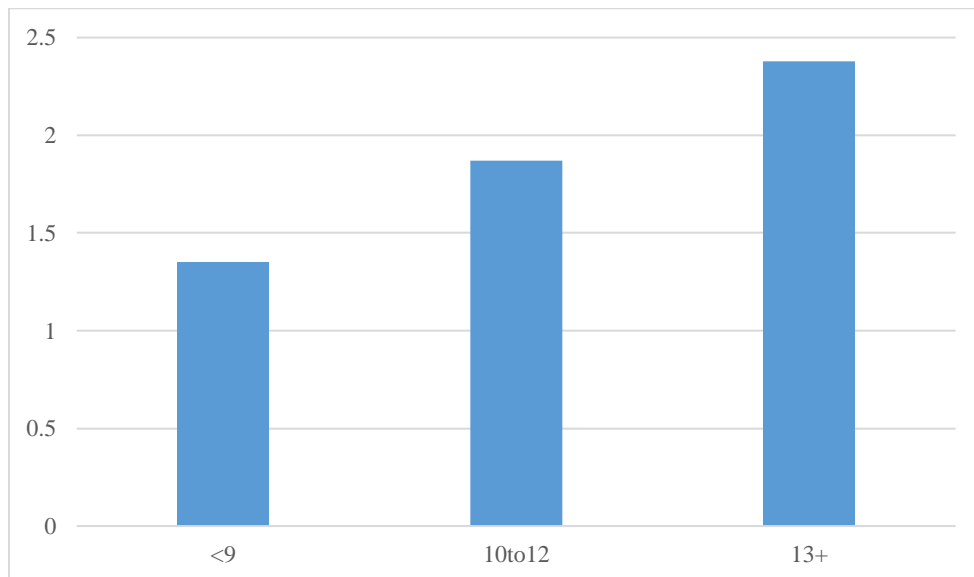
Table 3: Nutrient Averages

Nutrient	Average in Products Purchased
Calories (kcal)	483.94
Sugar (g)	38.19
Sodium (mg)	493.20
Total Fat (g)	19.88
Sat Fat (g)	5.49
Trans Fat (g)	0.03
Fiber (g)	2.05
Cholesterol (mg)	4.11
Protein (g)	5.97
Vitamin A (%)	3.39
Vitamin C (%)	18.15
Calcium (%)	7.77
Iron (%)	7.53

Graph 1: Day of the Week vs. Average Spent (4)



Graph 2: Age vs. Average Amount Spent (\$)



Nutrients: Statistically Significant Relationships

Cost

When assessing cost, the a pairwise comparison and Tukey tests showed there to be statistically significant relationships between age and amount spent. The over 13 age group spends \$1.03 more than the under 9 group ($p=.00$) and .50cents more than the 10-12 age group ($p=.00$), $f=26.30$, $p=.00$. There were no statistically significant relationships between gender and day of week or time of day and amount spent. Graph 2 expresses the differences in values spent by the varying age groups.

Calories

Using pairwise comparisons of means, we see there is a statistical difference age and total calories purchased. Children under 9 purchased, on average, a cumulative 148.55 calories fewer than those 10-12 ($p=.000$), and 185.35 calories fewer than those over 13 ($p=.00$). There was also no statistically significant relationship between total calories purchased and day, time, or gender. Table 4 shows the average number of calories in the cumulative products purchased by each age group.

Table 4: Average Calories Purchased by Age

Age	Average Calories Purchased
Under 9	354.89
10 to 12	503.45
Over 13	540.25

Sugar

Pairwise comparison of means tests demonstrated statistically significant relationships between age and total amount of sugar in items purchased. Those under 9 purchased items, on average, with an average of 14.45 grams less sugar than those 10-12 ($p=.000$), and an average of

22.75 grams of sugar less than those over 13 ($p=.000$). Day of week, gender, and time were not statistically significant in their relationships with sugar quantity purchased. Table 5 shows the differences in amount of sugar purchased by age group.

Table 5: Average Sugar Purchased by Age

Age	Average Sugar Purchased (g)
Under 9	24.34
10 to 12	38.79
Over 13	47.09

Total Fat

Age and total fat purchased was shown by a pairwise comparisons of means with equal variances test to be a statistically significant relationship. Children under 9 purchased, on average, items with 6.28 g less fat than those 10 to 12 ($p=.001$), and 6.13 g less fat than those over 13 ($p=.007$). Youth purchased items with an average of 7.10g more of fat on Fridays than on Wednesdays ($p=.021$). Gender and time were not statistically significant in their relationships with total fat quantity purchased. The results of Table 6 show the differences in the amount of fat purchased by the varying age groups.

Table 6: Average Fat Purchased by Age

Age	Average Total Fat Purchased (g)
Under 9	14.88
10 to 12	21.16
Over 13	21.02

Sodium

Statistically significant relationships were found between age and total sodium purchased using a pairwise comparison of means with equal variances. Children over 13 purchased, on

average, items with 131.05mg more than those under 9 ($p=.049$). When looking at day of week versus amount of sodium purchased, the only statistically significant relationship occurred between Wednesdays and Fridays, where youth were purchasing items with an average of 221.97mg more sodium on Fridays than on Wednesdays ($p=.005$) Table 4 shows youths' sodium purchasing patterns throughout the week. Table 7 shows items higher in sodium being purchased at the end of the week than at the beginning. One important point to note is the early release time of Wednesdays of schools in the area, which could explain the dramatic decrease in the amount of sodium purchased on this day.

Table 7: Average Sodium Purchased by Day of Week

Day of Week	Average Sodium (mg)
Monday	498.93
Tuesday	481.29
Wednesday	369.21
Thursday	525.78
Friday	591.18

Goods: Descriptive Results

When looking at products, we see youth most often buying chips; youth purchased chips in more than half of the observed purchases (54.50%). The other most significant purchase choices were drinks, purchased by 32.22% of youth, and candy, purchased by 26.91% of youth. These types of purchases can be compared to the only .58% of children who chose to buy a fruit or vegetable and the .81% who purchased nuts.

The data were broken down to determine average costs and nutrient contents of snack product categories. In Table A, we see the average price of a product being \$1.64, with variance

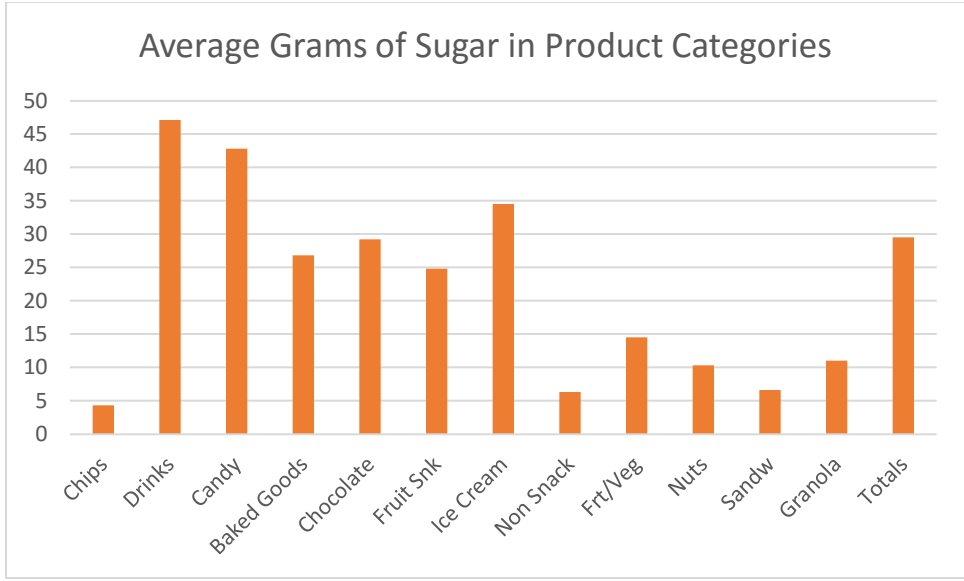
in the different product categories' prices. When looking at Table A, we can see the average number of calories in one product being 292.9, with a great degree of variation based on the product category types. We also see a high amount of sugar and sodium in these products on average, with an average of 22.97 grams of sugar and 361.19 grams of sodium across product types. In Graphs A and B, we can see how the different product categories vary in their sugar and sodium averages.

If a child purchased just a bag of chips and a candy, they could be consuming more than 620kcal, 51.47 grams of sugar, and 750mg of sodium in this snack combination. This means almost half of some childrens' recommended daily calorie intake is coming from these corner store purchases. These are food sources that cannot be ignored in the lives of children in Somerville.

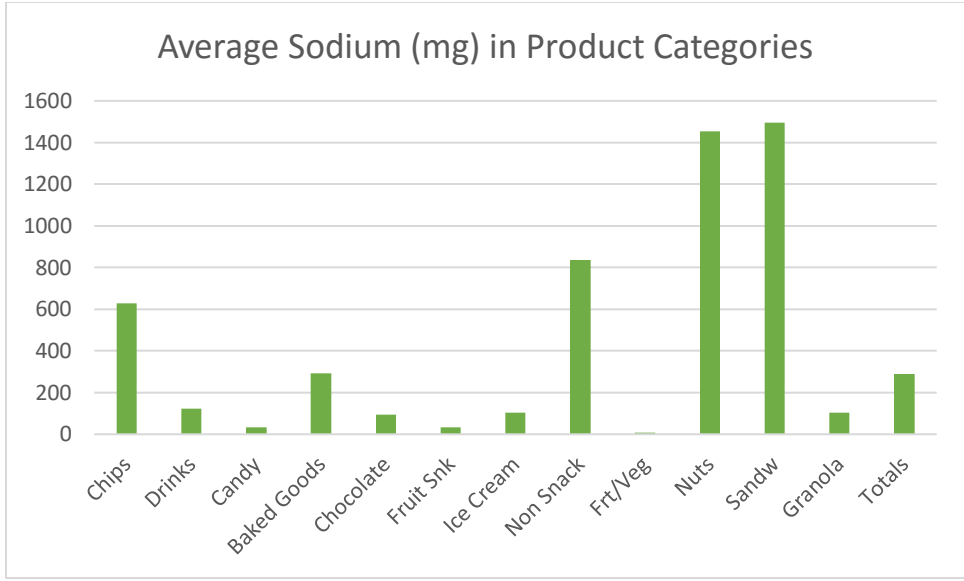
Table A: Average Prices

Product	Mean (\$)	Std. Dev	Min	Max	Missing	n
Chips	1.62	0.84	0.49	4.29	9	148
Drinks	1.65	0.76	0.49	4.99	1	205
Candy	1.17	0.62	0.05	2.99	14	170
Baked Goods	1.33	1	0.5	4.99	13	75
Chocolate	1.27	0.5	0.25	2.5	6	57
Fruit Snack	0.57	0.12	0.25	1	1	6
Ice Cream	2.56	1.319	0.99	5.3	2	36
Non Snack	4.07	2.78	0.35	8.213	1	12
Fruit/Vegetable	1.31	0.15	0.89	3	0	13
Nuts	1.25	0.17	0.59	3.49	3	21
Sandwich	5.58	0.43	2.5	8.99	1	20
Granola	1.65	0.28	0.5	3.99	21	33
Totals	1.64	0.04	0.05	8.99	72	797

Graph A:



Graph B:



Chips

In total, 54.44% of youth purchased chips. Using Chi-squared tests, no statistically significant relationship were found. Table B shows the percentage of youth by age group who

chose to purchase chips. Table C shows the percentage of children who purchased chips by day of the week.

Table B: Percentage Youth within an Age Category Purchasing Chips

Age	%
<9	50.97
10 to 12	56.14
13+	53.27

Table C: Percentage of Chips Purchased by Day

Day of Week	% of Chips Purchased
Monday	28.81
Tuesday	20.76
Wednesday	12.71
Thursday	21.19
Friday	16.53

Drinks

Age and drink purchase have a statistically significant relationship ($n=866$, $p=.00$) Table D shows the percentage break down of how many youth chose to buy a drink based on their age. We see older children purchasing a higher percentage of drinks than the younger children, with 42.06% of children over 13 having chosen to purchase a drink and only 18.71% of those under 9. There was no statistically significant relationship found between gender and drink purchase, however 52.69% of males chose to purchase a drink and 47.31% of female chose to purchase a drink.

Table D: Percentage of Age Category That Chose to Purchase a Drink

Age	%
<9	18.71
10 to 12	32.19
13+	42.06

Candy

A chi-squared test did not find the relationship between age and the choice to purchase candy to be statistically significant. Table E expresses the breakdown of youth who purchased candy by their age category. Chi-squared tests also found the day of the week to be a statistically significant determinant of the chose to purchase candy ($p=.008$). Children least frequently purchased candy on Fridays. Table E shows the percentage of children who purchased candy based on the day of the week.

Table E: Percentage of Age Category That Chose to Purchase Candy

Age	%
<9	27.10
10 to 12	26.56
13+	26.57

Table F: Percentage of Candy Purchased by Day of Week

Day of Week	% of Candy Purchased
Monday	24.46
Tuesday	21.89
Wednesday	17.17
Thursday	26.61
Friday	9.87

Grocery

A relationship was found between age and the choice to purchase a grocery item, with older youth purchasing more non-snack/grocery items than younger youth (n=866, p=.015).

Table G shows the percentages of children who chose to buy a non-snack/grocery item by age.

Chi-squared tests also showed a relationship between the time of day and the choice to purchase a non-snack item (n=2866, p=.014). Youth seem to purchase non-snack items most frequently in the middle of the week, and the least on Fridays. Table H shows the percentage of non-snack items purchased by day of week.

Table G: Percentage of Grocery Items Purchased by Age

Age	%
<9	0.00
10 to 12	20.00
13+	80.00

Table H: Percentage of Grocery Items Purchased by Time of Day

Time of Day	% of Grocery Purchased
Morning	0.00
Afternoon	100

Limitations:

Although the dataset included many purchases observed, one of the limitations is that there was no way to identify which of the purchases were made by unique individuals. Many of the stores see the same clients daily, and there was no way to record the repetition of customers in this data set. The age category was also based on observation, and therefore is a limitation.

Another limitation of the study was based on the schedule of the Somerville school system.

Wednesdays were also sometimes early release days for the schools, about 1-2 times a month, and the study's observers noted that their observation times did not necessarily match the peak times children were in the stores because of this schedule change.

Conclusions from Purchase Observations:

As hypothesized, youth are purchasing foods high in salt and sugar and are spending under \$5 per observation. These energy dense products purchased are most commonly chips and drinks, with very few children purchasing nuts, fruits, or vegetables. The hypothesis that age, gender, and time of day would affect purchasing patterns was also born out by the data. Age served as the most important factor in determining purchasing patterns and the data shows that after school is a key time for these stores in the lives of children. The high calorie content of the products individually and in the cumulative products purchased mean these stores are serving as important food sources in the lives of these children.

This dataset provided the study with concrete statistics on exactly what the children were buying and gave incredible insight into how important a food source these stores are to the youth of Somerville. However, the nature of these data made it hard to determine *why* they were buying these products and whether the role of the store in the community went beyond merely serving as a food source.

CHAPTER 4: An Ethnographic Perspective: “Bad” Food in a “Good” Place

Research Question 2:

In conjunction with Aim 2, this thesis’ second research question uses data from interviews with corner store owners and employees. The primary outcome is to gain a better understanding of the owners’ and employees’ relationship with the youth and understand their opinions as people actively involved in these places. It asked questions about the respondents’ observations of youth in their stores, patterns in youth purchasing, respondents’ opinions of Somerville, and what role they think their store plays in the lives of their customers. More specifically, it sought to address the following questions:

- 1) What do store owners report anecdotally about youths’ purchasing patterns and habits?
- 2) Do store owners/employees make stocking decisions based on the preferences and purchasing patterns of their youth customer base?
- 3) What kinds of interactions with youth do store owners report? Are there patterns to these interactions?
- 4) What are the owners’/employees’ perceptions of their interactions with youth?

The questions posed to participants were grouped into the categories of context, purchasing habits, and the role of the corner store.

Category	Questions
Context	a) How long have you worked at this store? b) How has the neighborhood changed? c) How has the city of Somerville changed?
Purchasing Habits	a) Do you see the same youth every day? b) Do they socialize here? Do they come in

	<p>groups?</p> <p>c) What do they usually buy?</p> <p>d) Have you noticed any patterns in their purchasing habits? (Day, Time, Items)</p> <p>e) Do they act differently with parents?</p> <p>f) Do you have issues with shop lifting?</p> <p>g) To what extent do you think about the youth when you are making your stocking choices?</p>
Role of the Corner Store	<p>a) How do you feel about the youth in your store?</p> <p>b) What role do you think your store plays in the lives of these youth?</p> <p>c) What do kids like about the store?</p>

Study Design

Interviews were conducted from January to March 2017. This study was approved by the Tufts Social, Behavioral, and Educational Research Community under the direction of the Institutional Review Board as study #1610048. The study worked with five corner stores in the Somerville and Medford communities, which were picked based on their proximity to elementary/middle schools (Figure 2), as well as bus stops. One of the stores overlapped with the previous CHOMPS study. However, this store's previous participation did not affect the recruitment strategy and no preference was given toward participants based on their involvement. Stores closest to schools were the priority in order to maximize the number of experiences that owners/employees were likely to have had with school-age consumers. When not enough employees and store owners in this first round of recruitment were willing to participate in the study, a second round was utilized to identify stores near bus stops that students were likely to use when going to and from school. Of the stores contacted, three declined to be interviewed; all were in the East Somerville region. One store, also in East Somerville, expressed

interest but the PI was unable to arrange an interview when it came time to follow up. was lost to follow up.

Employees and store owners were contacted by phone and/or in person at least a week before the interview took place to ask about their interest in participation and to set up a time that was convenient for them and their work schedule. I also worked to pick a time that was quiet in the store and that the participant requested, thus reducing the inconvenience of the interview. When owners were not present or if the owner/employee wanted more information about the study before committing to participation, an information sheet was provided. In those cases, I followed up later with a phone call or a return visit, and the information sheet served as a reminder or introduction about the project. On the day of the interview respondents were asked in person if it was convenient to talk then and were given the opportunity to reschedule if not convenient.

The interviews took about 15-20 minutes and took place in the corner stores so as not to inconvenience respondents during the work day. Immediately before each interview, I went over the consent form verbally and gave participants as much time as they needed to read the form. The participants were given as much time as they needed for questions, and then were asked to sign the form. They were made aware that they could withdraw at any point.

The interviews were recorded for later transcription. After the interviews were transcribed, the recordings were erased. There was no identifying information other than job title collected from the interviews. The stores themselves were carefully anonymized so that there are no identifying locations or descriptions. Any identifying information offered by interviewees in the recordings was redacted in the transcription and was not used in products resulting from the research. The anonymous nature of the study minimized the risk for community reputation being compromised. The study was sensitive to potential family dynamics within the store by being

anonymous and in a recognition that the focus was on the observations of youth in the store, not the functioning of the store.

Although only people who are fluent in English were recruited, I believe that my own ability to speak Spanish helped establish a stronger rapport with owners or employees whose first language was Spanish. However, I also recognized that my gender and race might have been potential factors in a store's decision not to participate in the interviews. I recognized that my identity as a Tufts student might have also played a role in a store's decision not to participate. My identity represents the socio-economic divides that are present in the city and my identity, as an outsider to certain communities within the city, could have been a factor in the choice to participate.

Sample Population:

Subjects

All the interview subjects were in high management positions of the store; three were owners and two were managers. Four of the subjects were men and one was a woman, all with an approximate age range of 40-60. Three of the subjects both worked and lived in Somerville or Medford and two commuted from Boston. Their years of working at the stores ranged from two to 30 years. One subject owned multiple corner stores in the area.

Stores:

All stores were in the communities of Somerville or Medford, Massachusetts. They all offered a wide variety of snacks and products for the home and three of them had a small produce section. Three of the stores had small sections of toys and winter apparel for children and one had a section for school supplies. Two of the stores had sitting areas and one of them

had a small restaurant within the store. None of the stores were affiliated with a parent company such as Tedeschi; they were all independent.

The interviews took place in the late morning or early afternoon. These seemed to be quiet times for the stores and the children were in school. During the interviews, the most common customers I noted were coming in to buy lottery tickets.

Findings:

This section of the chapter explores the findings of the interviews using quotations from the interviewees. Beyond those mentioned in this section, other exemplary quotations can be found in Appendix Table 2.

Somerville Changes

The store owners all strongly emphasized how the rise in property prices has dramatically changed the city. One employee also commented on this, saying, “I would say mostly that [Somerville] is just growing. Always growing. New buildings, more people. Getting more expensive, very expensive.” Four of them discussed how families were forced to move out and how college students were moving in. Due to the nature of college students’ typical four-year commitment to an area, some of the store owners referred to the constant movement and turnover of residents. None of the participants had negative comments about the city in general, and most commented on it being a nice and safe area. Referencing the socioeconomic shift that continues to take place, one respondent said, “There used to be a time, you know, first of the month, people would get their benefits or their food stamps and it would be busy, busy, busy, but that has changed a lot.”

Store Changes

The common theme within this section of the interviews was the store owners' attention to their clients being busier and more in need of convenience. One noted they are "selling a lot of quick food, coffee prepared things, people want to get in and out." An interviewee also mentioned how more children are coming in to buy full meals, such as breakfast sandwiches, and that these kids have more money to spend. The store owners also emphasized their receptiveness to the needs of their clients, three of them commenting on how they will stock a product if a client asks for it and they do not carry it.

Children's Purchasing Habits

When asked what the children were buying in the stores, all the interviewees included "candy" in their responses. A few of the owners referred to the items purchased by youth as "junk food," and others mentioned how they buy drinks and chips as well. An owner commented on the role of parenting and "junk food" saying, "Yeah they have to listen to their mother and father you know they say, 'you have to buy this one and this one.' When they have their own money, they get whatever they want. But when they are with their parents it is a little different. They say, 'I want candies and gum' and the parents say 'Oh no you can't have that you have to buy something else,' or 'No no you can't have that it's too much sugar.'"

The two stores that sell sandwiches and ready-to-eat meals noted they find the kids increasingly purchase their "actual meals" there, mirroring the eating patterns of busy adults in the neighborhood. A respondent noted the busy nature of their clients saying, "So maybe it's

more that they have the money to spend rather than the parenting where they have food to bring and have at school. It's just a different life style because people are so busy, it trickles down to the kids.”

The interviewees talked about how although they see a lot of children in their stores, youths' purchases do not make up a large percentage of their profits. Most of the children, as a respondent noted, buy “the cheap stuff.” They talked of how the children tend to buy products around the \$1 range. One respondent talked about how they notice the kids having more money to spend, perhaps correlating with their increased sales of ready-to-eat meal options, such as breakfast sandwiches and french fries.

A few of the respondents also discussed in detail the changes they have seen in children's drink purchasing habits. Most noted that the youth are no longer buying soda, but instead are drawn to energy drinks and sports drinks, such as Gatorade and Vitamin Water, as well as juices and teas. A store owner said, “Soda [sales have dropped] basically, I can say yes. The kids wise, yes. Because they like more iced tea style. Coke and Pepsi I can't really sell them anymore. They do like the vitamin water though, they really like the electrolyte drinks. One thing I can say is that kids around here are really active, wow, yeah so they really like the Gatorade style and other stuff. I go by my store. I don't know what other stores are seeing.” One respondent talked about of Pepsi's new product, *Life Water*, and the exponential growth in sales they have seen of this product since the Super Bowl featured an advertisement of it.

The participants also spoke to the seasonality of the kids' purchases and how their profits change as a reflection of this. Three of the respondents mentioned how during the summer, the youth purchase a large number of slushies from the stores. One noted, “The younger kids buy slushies and ice cream in the summer time, oh they love it. I mean I would also say you know

candy, soda, those type of things. All the sugary things.” Another respondent stated, “I think with the kids, you know, they don’t spend a lot but when they come in during the summer they buy all the ice cream and that is helpful.” The issue of seasonality is an important factor to consider as it challenges interventions solely targeted at looking at kids on their way home from school.

Children’s Behavior Patterns While Shopping

There was a divide in the store owners’ comments on how students socialize within the store. Some noted they come in groups and hang around, while others noted they come in individually and prefer to “get in and get out.” One of the stores that has a seating area mentioned young shoppers will sometimes come and hang out for a while, especially during vacation breaks.

Most of the owners noted that the children buying from their store were the “neighborhood kids,” and talked about how they tend to see the same kids every day. An employee said. “Yeah, we get a lot of the same kids, there is a bus stop just across the street so you know we get a lot of the kids as they are coming home from school and are hungry when they get off the bus. Yeah the same customers I would say.” When asked about the time of day they most often see the kids, the respondents noted either morning or afternoon. They especially talked about the kids coming in on their way home from school as the time they need a snack. Three of the owners mentioned how their store is a convenient place for children to come on their way between school and home.

Stocking Choices

All the respondents mentioned how they take the children into account when they make stocking choices in the store. An employee said, “There is a lot more vegetables, dairy products, more than normal. Sandwiches, all of the prepared food has sky rocketed.” A few noted how they will put things that might attract children or parents near the front of the store. Three of the stores also had sections with toys, school supplies, and winter gear for the children. This store owner said, “Do you see that section over there [points to area with binders and school supplies] and like you see in the back [points to area with kids’ gloves and hats]. Some stuff like that, we always think about the kids and what might attract them when they come in. You see we have this fluffy stuff over there and balloons and like that. Little hats, little gloves for the kids. Toys.” The store owners also emphasized the importance of making their store “convenient,” noting how they want help their customers who can’t always get to the grocery store.

Shoplifting

The interviewees were asked, if comfortable, to discuss issues of shoplifting in their stores. All the stores had surveillance camera systems, but no one thought the issue to be very serious. Four commented that they do experience it, especially when kids come in groups. Two of the stores established a two-strike system, where if a child is caught stealing twice they are not allowed back in the store. One respondent said he will often notice one child in a group that seems to be without money. This respondent commented saying, “One of the kids they don’t have money and they are hanging around while the other kids are buying so I say, ‘Come here, what do you need?’ And they say, ‘Oh I don’t have money.’ And I say, ‘Ok, what do you need? Take this today, but don’t come back tomorrow asking for more.’ And they do that.”

Discussions of the ethics of shoplifting and the value of a dollar were also brought up during these interviews. One respondent noted how there might be financial stresses of the families, perhaps putting the child in a position where he or she feels stealing is necessary. This store owner said, “Yes exactly, just the financial stresses with the parents you know they probably don’t have too much to give the kids or they don’t want to give the money to the kids and sometimes there are two or three kids that can buy things and the other one is looking around. Especially in those situations you’ll have someone buying and another sneaking around and they will yell.” Two other respondents also referred to the social pressures a child might experience if they are without money, again perhaps putting children in a difficult position where they feel stealing is necessary.

Role of Parents

All the respondents mentioned that children’s shopping behavior was different when their parents were around. Some mentioned how they noticed the children pestering their parents, but how most stayed firm and did not let the child purchase the product they wanted. One noted they saw fathers as more willing than mothers to cave in to the wishes of their child. Two mentioned the importance of parenting, and how parenting influences the respectfulness of the children coming into the store, with more active parenting leading to more respectful children. A store owner said, “What I think is that the parents have a big role. Some kids are very respectful and some are not. So, I think that the parents can help and tell them how to behave in the community where you go to respect others, learn to respect. I see the attitude of some kids and some are very very nice while some act like they are 21 but they are not.”

Role of Corner Store

Although most of the respondents discussed how their store's primary purpose was to be convenient, the respondents also talked about how their stores served as a community space for children to interact in. One employee said, "And especially when it is vacation because it is a safe place for them. Their parents in the neighborhood can let them come here." Another respondent discussed that because they know most of the children who come in, they will try and help the children that they see crying or alone in their store. This same respondent mentioned that they have a phone for the kids to use if their parents do not come to pick them up from the bus stop. Another store owner discussed the importance of their store serving as a place for the community to interact in. They mentioned how they have a sitting area for the elderly to play games in, and one mentioned how he has a community bulletin board for community members to post signs for events. This particular owner also described his desire to keep his store a neutral space, saying in reference to the bulletin board, "Whatever they want they can put. Only I'm not allowing them to put any political signs, that's all." Two of the respondents proudly discussed how much the children love their store, and how they are happy to come back to the store even after they have grown up. One store owner said, "Oh man I mean they love my store. By the name, they love it. All the kids want to come here, they love it. They are always happy to come in the store even when they grow up."

Store Owners/Employees as Public Figures

Although not directly asked, all the respondents discussed their role in the community. One respondent mentioned how she knows all the children so well that she can pair up each child with his or her parents. A different respondent talked about the respect he feels in his

community, noting, “All the neighborhood, after [one problem during his first month], I never had a problem at all. Not at all. But we are well respected. I always feel like this is my hometown, I never feel like I am from somewhere else.” One store owner talked about how lucky he is to get to see the same children grow up from first through sixth grade. He even mentioned how he sees the children when they come back from college and how they all remember him.

Some of the interviewees also discussed their moral decision to not sell certain products even if it means a reduction in profits. One respondent talked about the morality of his store and noted that although he could make more money, he chooses not to sell “bad things” at his store. Some of these bad things include single cigars, hookah, and adult magazines. He said, “But I’ll say one thing, if I sell bad things here, bad stuff, then it is very easy for them [the kids] to get it and that makes them bad. So, I always try to not have some stuff in my store, like I’m not selling any single cigars. And that’s not for, I mean I can sell a ton of those but I’m not interested in that. Then they want some kind of adult magazines, which I never sell.” Another respondent talked about the issue of cigarettes and tobacco, and his store’s strict policy on checking the IDs of children. Two who commented on selling candy said how their young customers were just kids and that the candy makes them happy. One store owner said, “I don’t want to bother them they are just having fun with their candy and their friends. I just say, ‘have a good day’ and ‘go back to school’ [laughs].”

Ethnographic Results:

These interviews suggested that these corner stores serve as both a food source and third place for the youth of Somerville. The store owners reported how youth are buying a lot of chips

and candy, the youths' shift away from soda and toward energy drinks, and how the youth come in mostly after school. They also reported on how much the city has changed over the last decades, noting how much more expensive it is to live here, the younger population, and the increased busyness of their customers.

The interviews also exposed the quasi-parental role that store owners and employees seem to play. In multiple interviews, store owners mentioned how they watched what the kids buy and how they interact in the store. Whether it be in the stocking choices they make to benefit the health and wellbeing of the youth, or through their conversations with the youth about stealing, these store owners and employees do look out for their younger clients in a way they might not for their adult clients. This specific type of relationship that store owners and employees do not necessarily have with their adult clients contributes to conclusions about the specific role these stores seem to play in the lives of *youth* in Somerville.

The store owners seemed to view their stores as community spaces for youth, and their identity as a "good" place seems to be recognized by the stores' customers. This idea is in tension with the common political, social, and often scholarly beliefs that tends to view them as "bad" for kids. The interviews show how these store owners do consider the health and wellbeing of the community when making stocking choices and will at times use their morals instead of profits to guide decisions. These store owners are not purely out to make money; they see their role in a more complex way and value the relationships they have with their customers. Future interventions could think of ways to be more responsive to the multiple functions these stores serve for the community.

Although children are the primary subjects of the study, I found the interviews with the corner store owners/employees to be extremely enlightening. They greatly challenged my

original opinions and perceptions of the role of corner stores and “junk food.” These stores serve as a very important part of youths’ daily calorie intake, but they also create points of stability and sociability in neighborhoods. This data helps enlighten us to the relationship between the corner store employees/owners and the children to get a sense of the role this kind of store plays in the lives of the youth.

CHAPTER 5: Implications of Combining Quantitative and Qualitative Data Sets

Implications for Future Research

While working with secondary data from the CHOMPS study and the ethnographic data from the interviews, I felt it important to see where the two kinds of data were in accordance with each other to have a more complete idea of food choice by youth in corner stores. These food choices by youth were not made in isolation, but as part of a social and commercial setting that involves multiple actors including store owners and employees. I believe this study, integrating both quantitative and qualitative data, adds important information to the larger process of understanding the food choice. The following points are some of the important implications for future research obtained by analyzing the two data sets in conjunction with one another.

- 1) *Corner Stores as a Food Source:* Both data sets were able to provide important insight into the role these stores play as a food source for the youth of Somerville. The interviews with store owners, combined with the quantitative data, shows that youth are buying energy-dense foods equivalent to almost a full meal's worth of calories and a full day's worth of sugar. These are food sources that cannot be ignored by research. The store owners and the purchase observation results show that kids are coming in most often after school, with the store owners adding in the comment of how often they see the same children. Due to the Human Subjects requirements for the CHOMPS study, the purchase observation data did not note repeated customers. Many interventions have been centered around trying to improve school lunches, but these data underscore the need to better understand food choice at convenience stores. By adding in healthy options to

school lunch without addressing purchasing behaviors outside of the controlled environment, these initiatives to change school lunch will not be successful in improving youths' nutrient intake.

- 2) *Corner Stores as a Third Place*: The ethnographic data and the nature of purchases (being made after school) as shown in the quantitative data suggest corner stores are third places for the youth. The interviews suggested that these store owners/employees to be *in loco parentis* by providing supervision both while the children are in the store and in their stocking choices. Store owners' sense of their stores as community spaces suggests that they are potential allies in future interventions, which should consider the commercial realities of making a living in these small stores. Future research should also take into account the idea of a juvenile third space, and how a venue can serve as different types of community spaces for different clients.
- 3) *Children Mirroring Adults*: While the CHOMPS study provides much-needed data on what children are purchasing, the interviews help to contextualize that data by showing that children's purchasing patterns are part of a larger pattern of customers in Somerville becoming more rushed and grabbing quick snacks or "quasi-meals" on the go. This means that children's purchases may be less "autonomous" than we think, in that they're part of a larger social pattern. The youth are acting like adults; they want convenience and low prices. Future studies could aim to contextualize children's purchases within a broader age spectrum, to think about possible other points of intervention.
- 4) *Study Construction*: In combination, the two kinds of data show us that there are both benefits and detriments to corner stores for students' health and well-being. We should

construct studies that let us compare and weigh those benefits and detriments rather than focusing just on one or the other.

Discussion

Corner Store as a Food Source and Third Place

My research left me with the conclusion that the corner stores of this community serve as both a food source and third place for the youth of Somerville. With an average of almost 500 calories purchased by youth when they make purchases in the corner store, this important source of their daily calorie intake cannot be ignored. A large portion of studies are focused around the issues of BMI and obesity as “problems” without understanding the environments contributing to these food experiences for children. Are these children making these energy-dense product purchases really units that need to be fixed? Are they victims of the food system?

Through the patterns in the responses from corner store owners and employees, we can see that the corner store serves as an important third place and store owners and employees sometimes play quasi-parental roles in the lives of these children. These are places the kids are coming multiple times a week and they serve as community spaces for them to interact in. Knowing the important role both calorically and socially that these stores seem to play for the youth, we are left to question what it means for youth to be purchasing “bad” food in a “good” place. The conflicting sides of the quantitative and qualitative data serve to complicate the idea of “junk food” and force us to think more seriously about whether the support system and supervision of these stores and the owners might actually help to counter the negative effects of the calories purchased. I think it also forces us to question how having indicators of health and

established social determinants of health influences studies and interventions, and whether we might broaden our sense of what is “healthy.”

Social Aspect of Health

This work also made me question the social aspect of nutrition, food, and health. Our nation’s obsession with health and fitness is seemingly tied with class, and our society tends to pass judgment on those who are overweight. We tend to view obesity as a “problem” in the context of food research, economic research, health research, and in our everyday lives. I was left wondering what it means for a white, upper-class person to be interested in “fixing” the childhood obesity issue that disproportionately falls on low-income, minority children?

Referring back to the ideas presented in Guthman’s *Weighing In*, we can think about the environment of the corner store. When thinking about the types of products sold in corner stores (cookies, drinks, chips, etc), we can compare these products to items sold in a high-end new market in Boston called the Boston Public Market. Opening in 2015, the market is intended to be a food hub for Massachusetts food products, which include many “bad” foods like donuts, candy, and ice cream as well as many healthy options. I find myself thinking about how the corner store sells the same products to lower socio-economic classes as Boston Public Market sells to upper class customers. Why is it okay for upper class people to make the choice to buy expensive cookies but it is not okay for the lower class to buy the same kind of product at a cheaper price point? What role does the venue of purchase play in the acceptance of certain products purchased? While there are not easy answers to these questions, future research on children’s purchasing habits at corner stores could bear these concerns in mind.

Sitting vs. Doing

In Pigg's article, "*On Sitting and Doing: Ethnography as Action in Global Health*," she emphasizes the importance of listening to understand and recognizing that "doing" something is not always the right course of action. This idea of "sitting" to really listen was addressed in my research attempts to understand the corner store owners rather than making assumptions and trying to implement change. Recognizing the importance of "sitting" greatly changed my perspectives on food choice in general. So many studies have focused on trying to implement initiatives and interventions without understanding the perspectives and opinions of those living in the current situation that researchers are trying to change. Going into this research, I believed in the importance of finding evidence to emphasize the importance of implementing "healthy corner store" interventions to help combat childhood obesity. The "doing" approach I entered this project with made me think about what it would mean for all children to come in and buy apples instead of candy bars.

But after listening to store owners talk about letting children take a candy bar if they didn't have money, I was forced to reassess my original beliefs. For example, what would it cost a store owner to let a child have an organic apple for free instead of a candy bar? Would the store owner be able to financially afford letting youth take something because they are hungry, because they don't have money, or because they are experiencing social pressure with their friends? Would this child continue to come to this community space after school if they were not able to buy the candy? Although it is easy to pass judgment and think that we must change what the youth are buying at these stores, it is also important to think about where these kids would be going and what they would be eating and doing if not for the convenience of these stores. The intersection of the quantitative and qualitative data complicates the idea of a "health"

intervention beyond the traditional intervention strategies with goals of reducing childhood obesity.

Idea of Space and Third Spaces

One of the most informative and unanticipated discoveries of this study was the ability to explore the role of store owners as public figures. Hearing the passion and joy in the voices and interview responses of these store employees when talking about the children who come to their stores forces us to consider what an important role these stores play in the lives of community members beyond the idea of convenience.

I believe this study forces us to question our understanding of space and third-space making. Referring to Ray Oldenburg's definition, these stores seem to serve as a neutral ground for youth to socialize outside of their home and school environment. These *juvenile* third spaces seemed to function in a different way for youth than adults, which has to do with a certain level of supervision and attentiveness from the store owners that adults don't need. The interviews incorporation of the element of supervision, both while children are in the store and based on the stocking choices made by owners, goes beyond Oldenburg's definition. How do we value supervision for youth beyond that provided by parents and teachers? How strong of a role much does the venue play in classifying a place as a third space and how much do the people in the space define it as one? The results of this study challenges us to more broadly define safety as we are left thinking about the importance for our children to be eating "safe" food and how much we value the aspect of safety a place can provide for youth?

Culture of Food Choice

The combined results suggest a disconnect between nutrition education, food culture, and food choice in the community. The ethnographic data does show evidence that store owners are aware of differences in “good” and “bad” food, and that parents are already working to teach their children what is healthy to eat. However, the high amount of sugar and sodium in the items purchased emphasizes the have youth connect the nutrient content of their food and their health in more consequential ways. This idea was complemented by the interviewees’ comments about the changes in drink sales. Although soda sales (Coke has 140 kcal, 39 g of sugar) have gone down, sales of products like Gatorade (one product with 80 kcal, and 21g of sugar) and Arizona (Mucho Mango flavor has 240kcal and 60g of sugar) have gone up. The nutrient similarities, despite the differences in product type, expose the disconnect between knowledge and practice. When I discussed my thesis topic with interested listeners, one of the most overwhelming responses I heard were people’s anecdotes about their own experiences buying candy and soda at corner stores when they were children. Combining the disconnect between knowledge and purchasing patterns and the personal anecdotes people seem to have with the corner stores, I was left to question what role a food venue plays in defining the culture of the food purchased there? Have these corner stores historically been places where children buy “bad” food? How can we change the culture of food choice and do we have the right to?

Role of Youth as Consumers

Another important element of this study was better understanding the role of the child as a consumer. With the few studies on this topic, I was left questioning why we don’t more seriously consider the role of children as consumers. The unique type of monitored independence these stores provide for young consumers opens the potential for research into better understanding children’s purchasing patterns and habits. We must understand youths’

autonomous purchasing patterns of food to better understand the issue of childhood obesity in this country. The store owners seem to play somewhat of a parental role even while these youths are making purchases independently. The store owners reported the occasional presence of youths' parents, and also reported to refusing stocking certain products they found to be "bad" or immoral. This study, therefore, addresses the gray area between autonomous and "guided" purchases. These stores seem to serve as a kind of intermediary between childhood and adulthood, where kids are learning to be consumers but aren't entirely outside of adult supervision and guidance.

Value of a Dollar

This study also left me further questioning the value of a dollar in our society both morally and politically. Politically, is it ethical that subsidies leave our candy bars cheaper than fruits, nuts, and vegetables? Is it ethical that these stores are disproportionately placed in low-income, minority communities, which also have higher rates of obesity? With the issues of race deeply imbedded in Somerville's history and present, I was left thinking about the social status associated with where, and on what product, a person spends a dollar. It is also interesting to think about \$1 in terms of the morality of shoplifting; what does it mean to let a child steal a dollar product? Is it right to let them steal if they are hungry? These questions move us toward a more political approach to "solutions," linked with equally important issues of income disparity, structural inequalities, and affordable housing.

RECOMMENDATIONS FOR FURTHER RESEARCH

Aims for Further Research

- 1) Conduct studies to better understand the role of parents influencing their children
- 2) Conduct research to better understanding why the youth are buying food at corner stores considering the influence of school lunch
- 3) Conduct research on determining the ratio of calories purchased in corner stores to total calories purchased
- 4) Further explore the role of the corner store owner as a public figure
- 5) Research on the race and socioeconomic status of the consistent customers at corner stores
- 6) Conduct economic research on changes in items purchased at corner stores (i.e drink sales)

Studies have now found patterns for the high amounts of sugary, salty, and energy-dense foods purchased by children at these corner stores. However, data is still missing on connecting influences such as social pressure and parental influence with youths' food purchasing choices. This study suggests further research incorporating the role of parents and questions about the morality of letting their children purchase "junk food" and the pressure of food price. Studies could then compare children's autonomous purchases and those with the presence of their parents.

Most of the store owners and employees talked about the changing types of drinks purchased. Further research is suggested to better assess the decline in soda purchased and the replacement drinks being sold such as sports drinks, energy drinks, juices, and iced tea.

More research also needs to be done on the relationship between the meals consumed by children in controlled environments (school and home) and how often they purchase items at corner stores. We need more data on determining if these calories are substituting for meals and

more information about the significance of calories purchased in these stores compared with other food sources.

This study was limited by its inability to track the repeated customers observed. Further research should be done to highlight the fact that many stores see the same customers every day and the racial/socioeconomic profile of these repeat customers. Research also needs to take the class privilege of food choice into consideration.

The thesis also only began to investigate the role a store owner/employee can have in influencing the health of his or her community. The role of the store and the store owner/employee's role is complex and research/initiatives must recognize this fact. Further research is suggested to better understand the relationship between a store employee and his or her customers to help contextualize possible health interventions through these spaces. More research is needed to weigh the benefits of buying food in these stores with the nutrient deficiencies in the items purchased ("bad" food in a "good" place).

Appendix

Table A: Examples of Disciplines and Studies Referenced in this Thesis

Study/Author	Publication Location; Discipline	Topic/Question
Borradaile; Snacking in Children	<i>Pediatrics Journal</i> ; Nutrition	Document the nature of children's purchases in corner stores proximal to their schools
Story; Individual and Environmental Influences on adolescent eating behaviors	<i>American Dietetic Association</i> ; Nutrition	Describes the four levels of influence that are factors that influence adolescent eating behavior
Economos; Shaping Up Somerville	<i>Journal of Preventive Medicine</i> ; Nutrition	Analysis of Shape Up Somerville in terms of its success in health/wellness enhancement through community-improvement initiatives
Cavanaugh; Nutrition environments in corner stores in Philadelphia	<i>Preventative Medicine</i> ; Nutrition/ School of Medicine	Examine the availability, quality, and price of key types of healthy and less-healthy foods found in corner stores in low-income urban neighborhoods and the associations between store characteristics and store food environments.
Caspi; Food and beverage purchases in corner stores, gas-marts, pharmacies and dollar stores	<i>Public Health Nutrition</i> ; Nutrition	Describe customer characteristics, shopping frequency and reasons for shopping at small/non-traditional food retailers; describe the purchases and nutritional quality
Story; Schools and Obesity Prevention	<i>University of Minnesota</i> ; Community Health	Discusses the role of schools in obesity prevention efforts through school food environment policy, physical activity, body mass index measurements, and school wellness policies
Sturm; Disparities in the food environment surrounding US middle and high schools	<i>Public Health</i> ; Public Health	Study analyzed the food environment surrounding all public middle and high schools in the US; location of store vs. school
Mayer; Perspectives of Urban Corner Store	<i>Preventing Chronic Disease Journal</i> ; Public	Explore the views of store owners and managers on the role of their

Owners on CH Problems and Solutions	Health	stores in the community and their belief about health problems/solutions in the community
Zenk; US Secondary Schools and food outlets	<i>Health & Place</i> ; Health Policy	Examined the availability of fast food restaurants and convenience stores within walking distance of US public secondary schools
Dennisuk et al; Food expenditures and food purchasing among low-income, urban, African-American youth	<i>American Journal of Preventative Medicine</i> ; Public Health/Economics	Associations between amount of money spent and number of food items purchased and age
Epstein, Dearing, et al. (2006, 2007): Food expenditures and food purchasing among low-income, urban, African-American youth.	<i>The American Journal of Clinical Nutrition</i> ; Nutrition and Economics	Correlation between parent and children's food choice
Glanz, Bader, & Iyer, (2012); Retail grocery store marketing strategies and obesity: an integrative review	<i>American Journal of Preventative Medicine</i> ; Community Health and Economics	Only 10% of foods marketed to children meet the IOM's standards; data was collected using evidence synthesis from 125 articles
Nicholls; Child-Parent purchase relationship: 'pester power'; human rights and retail ethics	<i>Journal of Retailing and Consumer Services</i> ; Economics	The role of the child in modern consumption in terms of rights and responsibilities, particularly focusing on the child-parent relationship
McNeal; Kids as Consumers	<i>Lexington Books</i> ; Business and Economics	McNeal explains how kids get their money, where they shop, what they buy, and what persuades them to select one product over another. He discusses children as a "three-in-one" market; a primary market (children spending their own money), an "influence" market (children directing their parents' spending), and a future market of potential adult

		consumers
Everett; Practicing Anthropology on a Community-Based Public Health Coalition: Lessons from HEAL	<i>Annals of Anthropological Practice</i> ; Anthropology	Assessing how HEAL was able to help children and families in Portland, OR have improved access to healthy food and recreation
Pine; Social Reproduction and Urban Competitiveness	<i>City & Society</i> ; Anthropology	Examine the way bodegas challenge relations of competitiveness inherent in neoliberal urban development.
Whitelaw: Learning from Small Change	<i>Anthropology of Work Review</i> ; Anthropology	Explore how impersonal familiarity is constructed and contested within the context of the convenience store environment
Tumilowicz; Using ethnography in implementation research to improve nutrition interventions in populations	<i>Maternal and Child Nutrition</i> ; Ethnography	Describes basic features of “implementation research in nutrition” and illustrates its applications in components of the implementation process
Larchet; Learning from the Corner Store	<i>Food, Culture & Society</i> ; Social Studies (Ethnography)	Using ethnographic methods to assess studies of consumption practices in inner-city convenience stores
Freeburg., Access to Fresh Produce: A Corner Store Owner Perspective	<i>Clinical Research Paper</i> ; School of Social Work	The value of a local organization’s distribution to eight corner stores in North Minneapolis neighborhoods from the perspective of store owners.

Table B: Quotations from the Interviews

Categories	Quotations
Somerville Changes	<p>“So the neighborhood used to be a lot of Italian families that lived in the two family houses.”</p> <p>“I mean this area has really changed, you don’t see as much as you used to. There used to be a time, you know, first of the month, people would get their benefits or their food stamps and it would be busy, busy, busy, but that has changed a lot.”</p>

	<p>“It has gotten more expensive, yeah just rent has gone up and I think this is hard for families.”</p> <p>“I would say the same, we get still the same, you know, younger, older, lots of college students”</p> <p>“I would say mostly that it is just growing. Always growing. New buildings, more people. Getting more expensive, very expensive.”</p> <p>“Ah the neighborhood has changed a little bit, it is very pricey and people are complaining about the prices, expensive, and people mostly move around, moving in and moving out because it is a lot of students”</p>
Store Changes	<p>“So now we are selling a lot of quick food, coffee, prepared things, people want to get in and out.”</p> <p>“Basically we have a very student based customer base, but it used to be when we first moved here that it was a lot of families.”</p>
Children’s Purchasing Habits	<p>“Yeah they come in and they still buy junk food, candy, cookies.”</p> <p>“they don’t push their soda any more... They are going for all the flavored waters, the energy drinks, they are off the soda. Gatorade”</p> <p>“We sell a lot of breakfast sandwiches in the morning, like bacon, egg and cheese, sausage egg and cheese, English muffins. They buy a lot of that.”</p> <p>“Not a lot, but you know, you see the little rack over there with the Little Debbie, they buy cheap stuff. Like 50cents, 75 cents, \$1, \$1.50.”</p> <p>“The younger kids buy slushies and ice cream in the summer time, oh they love it. I mean I would also say you know candy, soda, those</p>

	<p>type of things. All the sugary things.”</p> <p>“I think with the kids, you know, they don’t spend a lot but when they come in during the summer they buy all the ice cream and that is helpful.”</p> <p>“They come through individually, most of them are friendly and they don’t give us a hard time.”</p> <p>“Yeah we sell Gatorade mostly, especially in the summertime. We sell a lot Gatorade, a lot of the organic juices, vitamin water, coconut water. All the stuff that people like most of these days instead of the sugary drinks.”</p> <p>“You know candy, summertime they buy slushies, they buy drinks. But most time, summer is slush, and ice cream.”</p> <p>“Soda (sales have dropped), basically, I can say yes. The kids wise, yes. Because they like more iced tea style. Coke and Pepsi I can’t really sell them anymore. They do like the vitamin water though, they really like the electrolyte drinks. One thing I can say is that kids around here are really active, wow, yeah so they really like the Gatorade style and other stuff. I go by my store. I don’t know what other stores are seeing.</p>
Children’s Patterns When Shopping	<p>“Yeah yeah, especially because we have seating. Sometimes they will order some fries and hang out for a while.”</p> <p>“Probably more like 2’ o'clock in the afternoon. When they get out of school. They are more rushed in the morning I think.”</p> <p>“They come during the school time, you know before and after they come. Sometimes they even come when they are home, they need some snack or something.”</p> <p>“they are the neighborhood kids.”</p>

	<p>“Well probably they live in the neighborhood, close by. Or this store is on their way to school, you know, so it’s a stop here on the way.”</p> <p>“Yeah we get a lot of the same kids, there is a bus stop just across the street so you know we get a lot of the kids are they are coming home from school and are hungry when they get off the bus. Yeah the same customers I would say.”</p>
Stocking Choices	<p>“There is a lot more vegetables, dairy products, more than normal. Sandwiches, all of the prepared food has sky rocketed. For the college students and all the people that work. People come home and don’t want to cook.”</p> <p>“Well obviously if you see a new item that you think will attract the kids, we sometimes put things close to the front that we think kids might like or the parents might buy.”</p> <p>“Do you see that section over there (points to area with binders and school supplies) and like you see in the back (points to area with kids gloves and hats). Some stuff like that, we always think about the kids and what might attract them when they come in. You see we have this fluffy stuff over there and balloons and like that. Little hats, little gloves for the kids. Toys.”</p> <p>“That is what we are. Um, they don’t have to go very far, we carry a lot of stuff. So if it is something they need and they can’t reach to the stores, then they can come here. Especially like small things you know.”</p>
Shoplifting	<p>“We have surveillance cameras and that in itself is usually a deterrent. It has happened, usually it is something we just take care of in-store.... But it happens, it definitely happens”</p> <p>“Oh yeah of course and no doubt they steal. You know some kids we have had to ban them and say you can’t come to the store because we watch them with the cameras and</p>

	<p>say, “you cannot come to the store we have seen you.” If you steal again you can’t come, because one or two times we will give them a break but if we see them again they can’t come back. But mostly the kids are good.”</p> <p>“Yes exactly, just the financial stresses with the parents you know they probably don’t have too much to give the kids or they don’t want to give the money to the kids and sometimes there are two or three kids that can buy things and the other one is looking around. Especially in those situations you’ll have someone buying and another sneaking around and they will yell”</p> <p>“No never do we have a problem with that. You know we are a small store so I can kind of watch and make sure, but no we don’t really have a problem. The kids are good.”</p> <p>“One of the kids they don’t have money and they are hanging around while the other kids are buying so I say, “Come here, what do you need?” And they say, “Oh I don’t have money.” And I say, “Ok, what do you need? Take this today, but don’t come back tomorrow asking for more.” And they do that”</p>
Role of Parents	<p>“That’s about all I can say. It used to be, your parents would pack a lunch, you’d see the kids, they might have \$1 to spend.”</p> <p>“So maybe it’s more that they have the money to spend rather than the parenting where they have food to bring and have at school. It’s just a different life style because people are so busy, it trickles down to the kids”</p> <p>“Yeah they have to listen to their mother and father you know they say, “you have to buy this one and this one.” When they have their own money, they get whatever they want. But when they are with their parents it is a little different. They say, “I want candies and gum” and the parents say “Oh no you can’t have</p>

that you have to buy something else,” or “No no you can’t have that it’s too much sugar.””

“What I think is that the parents have a big role. Some kids are very respectful and some are not. So I think that the parents can help and tell them how to behave in the community where you go to respect others, learn to respect. I see the attitude of some kids and some are very very nice while some act like they are 21 but they are not.”

“Once in a great while. Yeah I think they kind of like to sneak in afterschool and get their snacks so their parents don’t see them. I mean, you know, they are kids, they love the treats and snacks and stuff.”

“Yeah I mean the parents and kids don’t yell to each other, they are very respectful to each other and the parents are helping kids and the kids are finally listening to each other.”

“Mmm, basically it is always a difference (when they are with their parents). When I was a kid, same thing. When I am with my mother and father, we always, you know, nice and calm. But when you’re alone, you know.”

Role of Corner Store	<p>“And especially when it is vacation because it is a safe place for them. Their parents in the neighborhood can let them come here.”</p> <p>“Well I think I have a lot of employees that I’ve had for a long time, so if they were to see like a child alone sitting, that’s almost like a head’s up.”</p> <p>“There are a lot of regular customers here so if you see a child alone, or a child is crying, we try to help them out.</p> <p>“We have a phone for just the kids to use.”</p> <p>““think this is a neighborhood store”</p> <p>“it is very convenient for them”</p> <p>“yeah those are all for the kids so you know if they come in they don’t have to walk very far to find what they might be looking for”</p> <p>“Yes you know, that’s (sitting area) just for the people, the elderly people. They have a group and they come and play for a couple of hours. I really think this place is good for the community, that’s why I have that bulletin board outside, did you see that? Yeah so I make that because many times people ask me if they can leave the poster or something, and I say look, I don’t mind to do something like that, but if I put all the signs, then it’s not good for anybody and I have no space. So I built that, and they like it. Whatever they want they can put. Only I’m not allowing them to put any political signs, that’s all.”</p> <p>“Oh man I mean they love my store. By the name, they love it. All the kids want to come here, they love it. They are always happy to come in the store even when they grow up.”</p>
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Store Owners as Public Figures	<p>“You get to know most of them, like you can figure out what kid goes with what parent after a while. You get to know them</p> <p>“You can’t say you to them, you know, we will say “Do you have anything in your pocket” “oh no oh no I don’t have anything.”</p> <p>“And uh, what we can do is, well my best thought is making sure we just watch what the kids buy. You know with the cigarettes and everything, we make sure no kids, no under 21, can buy tobacco products... minors. With young kids, we always check their ID. If you don’t have IDs then nothing”</p> <p>“I don’t want to bother them they are just having fun with their candy and their friends. I just say, “have a good day” and “go back to school” (laughs.)”</p> <p>“Especially the older ones you know I always know what they like to buy and I always ask them how they are.”</p> <p>“They are very important and we have to focus on the idea of “convenience” too, you know, mostly they don’t have cars and they don’t have time actually to go to the grocery stores and we are carrying most of the stuff they need and they ask if they don’t find anything and if they don’t find it here and we don’t carry, we will carry it next time for them. And they are so happy.”</p> <p>“I see from first graders, actually, yeah since they have kindergarten at the Brown school, I see them all the way to 6th grade.”</p> <p>“Absolutely, I see kids now when they come back from college, some of them have jobs now. Some I see and they are like smoking, it’s a mix, but I see a lot of good, they come out good persons. They work hard for whatever they do.”</p> <p>“They are always welcome in my store</p>
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because they always respect me. I live in the neighborhood so I walk, and when I walk around they are always calling my name”

“All the neighborhood, after that, I never had a problem at all. Not at all. But we are well respected. I always feel like this is my hometown, I never feel like I am from somewhere else.”

“I never like to complain or call the cops for these things because I don’t want to make an enemy, I like to be friends with them. So I always say to them, “Come here. If you are having trouble, no money, take it today.” I give them it for free and they, either they come back and pay me, I told them, “you don’t have to worry about paying me, but don’t try next time.””

“Since they group up, and I see them when they come back from college, some of them are doctors and nurses. I see them and they are happy and they always remember what I did for them, only candy, but they still remember”

“But I’ll say one thing, if I sell bad things here, bad stuff, then it is very easy for them (the kids) to get it and that makes them bad. So, I always try to not have some stuff in my store, like I’m not selling any single cigars. And that’s not for, I mean I can sell a ton of those but I’m not interested in that. Then they want some kind of adult magazines, which I never sell it. From day one, I mean I own the store, and from day one those Hudson News company comes in here and they always ask me before and I always ignore it. I mean I have my wife and my kids who come in here and I’m not interested in that stuff... They have a temptation and they say “Oh I want this.” If you get it right away, they do it. If they don’t, then they go somewhere and the idea goes away and they aren’t doing it.”

Figures

Figure 1:

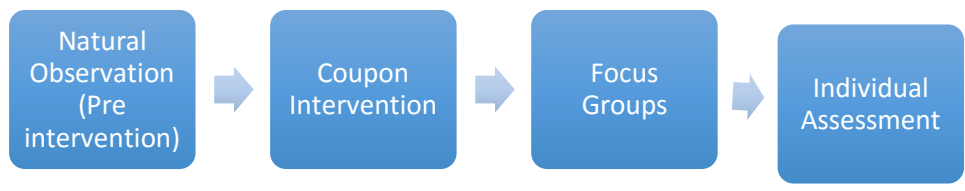
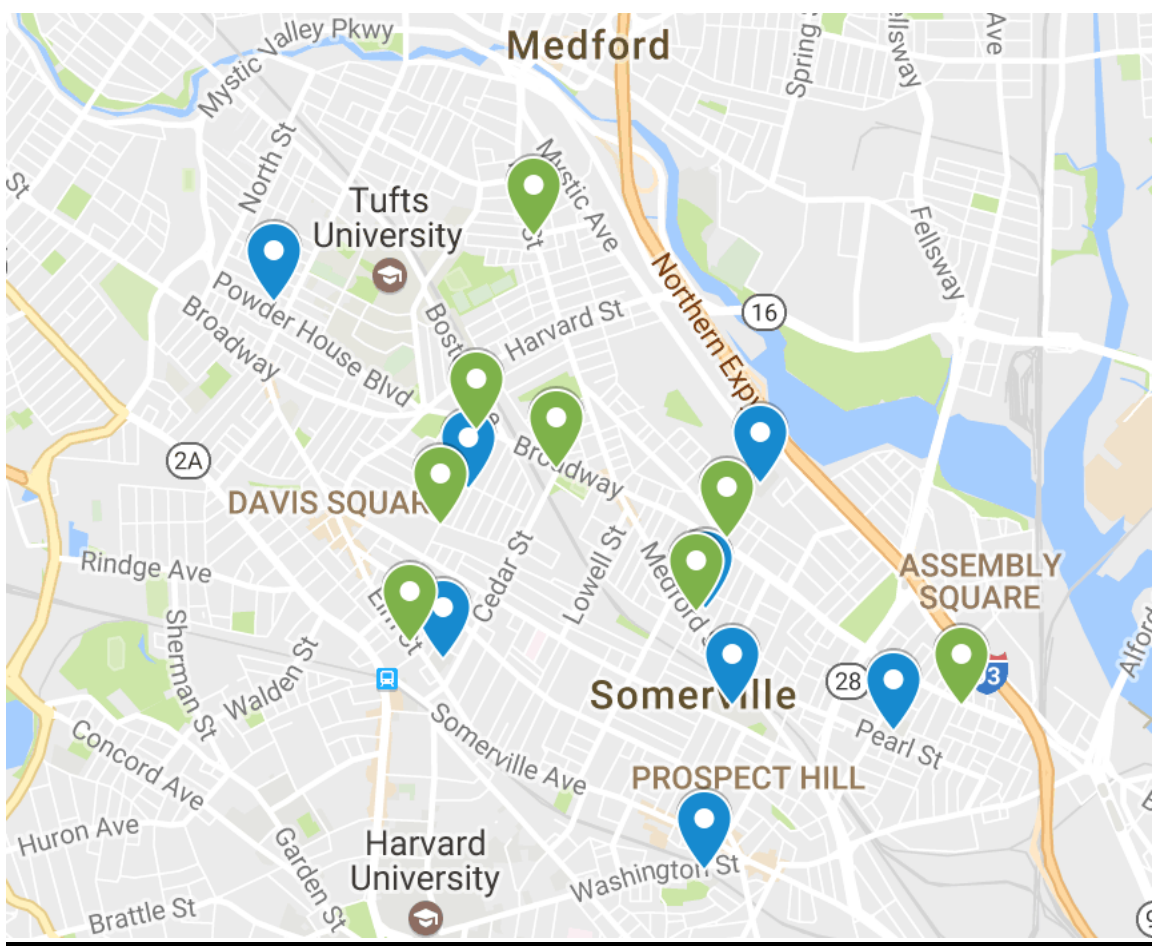


Figure 2: Green=Corner Stores; Blue=Schools



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IRB Certificates

OFFICE OF THE VICE PROVOST FOR RESEARCH

Social, Behavioral, and Educational
Institutional Review Board
FWA00002063

October 3, 2016 | Notice of Action

IRB Study # 1311030 Status: ACTIVE

ATTENTION: BEFORE CONDUCTING ANY RESEARCH, PLEASE READ THE ENTIRETY OF THIS NOTICE AS IT CONTAINS IMPORTANT INFORMATION ABOUT PROPER STUDY PROCEDURES.

Title: A Retail Coupon Intervention to Promote Healthier Snack Options Among Adolescents Convenience Stores: The CHOMPS Pilot Project

PI: Sean Cash

Study Coordinator: Megan Lehnerd

Co-Investigator(s): Anna McAlister, Christina Economos, Emily Piltch, Megan Lehnerd, Elizabeth Langevin, Bianca Routt, Allison Gallop, Iris Levine, Claire Anglim, Caroline Nathan, Rebecca Rottapel, Yue Huang, Micaela Young, Shelby Luce

The PI is responsible for all information contained in both this notice of action and on the following **Investigator Responsibilities Sheet**.**Only copies of approved stamped consent forms and other study materials may be utilized when conducting your study.**The *Request for Protocol Modification* has been reviewed by the IRB under the guidance set forth by the Office for Human Research Protections 45 CFR 46, and approved under Expedited Category 7

Reviewed 10/3/2016 Expires 12/15/2016

The approved revisions are detailed below:

1) Updates to study personnel.

- Approved for 7015 participants for the duration of the study.

Protocol Management:

- All translated study documents must be submitted for review, approval, and stamping prior to use.
- For all changes to the protocol, submit: *Request for Protocol Modification* form
- All Adverse Events and Unanticipated Problems must be reported to the Office of the IRB promptly (no later than 7 calendar days after first awareness of the problem) using the appropriate forms.
- Six weeks prior to the expiration of the protocol on 12/15/2016, investigators must submit either *Request for Continuing Review* or a *Request for Study Closure*
- All forms can be found at: <http://www.tufts.edu/central/research/IRB/Forms.htm>

IRB Administrative Representative Initials: _____

20 Professors Row Medford, MA 02155 TEL: 617.627.3417 FAX: 617.627.3673

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EMAIL: SBER@tufts.edu in : a

OFFICE OF THE VICE PROVOST FOR RESEARCH

Social, Behavioral, and Educational Research
 Institutional Review Board
 FWA00002063

Title: Corner Stores as Food Sources and Third Places for the Youth of Somerville

November 14, 2016 Notice of Action

RB Study # 1610048 Status: EXEMPT

PI: Shelby Luce
 Co-Investigator(s): Sean Cash
 Faculty Advisor: Cathy Stanton
 Review Date: 11/14/2016

The above referenced study has been granted the status of Exempt Category 2 as defined in 45 CFR 46.101 (b). For details please visit the Office for Human Research Protections (OHRP) website at: [http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html#46.101\(b\)](http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html#46.101(b))

- The Exempt Status does not relieve the investigator of any responsibilities relating to the research participants. Research should be conducted in accordance with the ethical principles, (i) Respect for Persons, (ii) Beneficence, and (iii) Justice, as outlined in the Belmont Report.
- Any changes to the protocol or study materials that might affect the Exempt Status must be referred to the Office of the IRB for guidance. Depending on the changes, you may be required to apply for either expedited or full review

IRB Administrative Representative Initials:

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Data Collection Instruments