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## **Influences on Parents' Food Shopping for Children's Consumption in South Carolina**

Nazratun Nayeem Monalisa

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INFLUENCES ON PARENTS' FOOD SHOPPING FOR CHILDREN'S CONSUMPTION  
IN SOUTH CAROLINA

by

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## DEDICATION

For my parents -- Dr. M. Mustafa Kamal and Mrs. Ayesha Akter

&

For my children -- Samin Ishraq and Faiza Anjum

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## ABSTRACT

**Background:** The diets of children in the United States typically do not meet dietary guidelines. Energy-dense nutrient-poor (EDNP) foods dominate children's diets, contributing excessive energy, sugar, sodium, and fat intake. Home is the major source of children's energy intake. Parents oversee household food purchases including foods for children.

**Objectives:** This research aimed to 1) identify parents' food and beverage purchases for their household and for 6-11-year old children; 2) understand how parents made food purchase decisions by adjudicating among different values; 3) understand children's food choice construction, strategies to influence parents for desired items, and extent of children's influence.

**Methods:** Semi-structured qualitative interviews were conducted with 40 parents and their 6-11 years old children from South Carolina. Food shopping receipts for one week were collected. The interviews were audio-recorded, transcribed verbatim, and open-coded. Coding matrices compared decision-making processes by race/ethnicity, household food security, and child age; and parent-child perspectives on children's strategies to influence parents' food purchases.

**Results:** Satisfying children's desire was the driving value in parents' food purchasing decisions. Parents purchased desired breakfast items, snacks, fruits, fast food, and drinks specifically for children. Parents experienced conflicts among children's desire,

food acceptance, emotions, health needs, food's healthfulness, convenience, and cost. Value conflicts were exacerbated by stress. Parents wanted to purchase healthy foods if children desired. Children weighed three values, on average, to make food choices. Children in our sample reported 157 strategies that they used to influence parents' food purchases including repeated polite requests, reasoned requests, and referencing friends. Parents had concordance with 83 of those strategies; more concordance was observed between parents and sons than daughters. Eighty percent of the parents perceived children had more than 50% influence on food purchases. One-third of the children perceived that their parents bought their desired items a lot or often.

**Conclusions:** Children's desire for, acceptance of, and emotions toward foods and drinks were important in parents' decision making. Foods that parents purchased as per children's requests were mostly EDNP except fruits. Interventions may help parents develop alternative strategies to make healthy items appealing to children instead of yielding to unhealthy food requests, and bridge the gap between their knowledge and purchases. Parents' acknowledgement of children's substantial influence on them suggests that children can serve as change agents for improving parents' food purchases if children request healthy options.

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## LIST OF ABBREVIATIONS

EDNP ..... Energy-dense nutrient-poor

USDA..... United States Department of Agriculture

## CHAPTER 1

### INTRODUCTION

The diets of children in the United States conform poorly to the Dietary Guidelines of Americans.<sup>1</sup> U.S. children have high consumption of processed, pre-packaged, and ready-to-eat foods.<sup>2-4</sup> Although not all processed or ready-to-eat foods are unhealthy, the concern about children's diets is that highly processed energy-dense nutrient-poor (EDNP) foods dominate their diets which contribute to children's excessive intake of total daily energy, sugar, sodium, and fat.<sup>1,5,6</sup> Children have low fruit and vegetable consumption, which is problematic for their health because higher consumption of fruits and vegetables may prevent development of several chronic diseases including obesity.<sup>1,5-8</sup> Frequent consumption of EDNP foods and drinks is considered unhealthy due to the low or no nutrient quality of the food items and its corresponding contribution to the epidemic rise of childhood obesity in the U.S. (18.5% in 2015-2016).<sup>6,9,10</sup>

Children's high consumption of processed, pre-packaged, and ready-to-eat foods may be associated with a major shift in American eating patterns over the past few decades from home-cooked foods to prepared-away-from-home foods.<sup>11</sup> Foods that are prepared-away-from-home tend to be mostly processed, packaged, and ready-to-eat. With the increased availability of processed, packaged, and ready-to-eat foods over the past decades, the purchase and consumption of these foods increased significantly. The share of total food spending on foods prepared-away-from-home was 50.2 percent in 2010.<sup>11</sup>

Another statistic from the restaurant industry shows that the sales of foods prepared-away-from-home increased from 43 billion dollars to 590 billion dollars from 1970 to 2010 and the sales were projected to be 863 billion dollars in 2019.<sup>12</sup>

Food processing is any deliberate change in a food or beverage that occurs before it is made available in the market for consumers. Food processing often turns fresh foods into food products.<sup>12</sup> Food processing may be as simple as freezing or drying or as complex as formulating a frozen meal. The U.S. government's definition of "processed food" includes diverse foods ranging from frozen vegetables, dried fruit, and canned beans to whole-wheat bread, breakfast cereals, prepared meals, candy, and soda.<sup>13</sup> Although food processing is intended for food safety and consumer convenience, the healthfulness and nutrient quality of foods vary depending on the degree of processing.

Some foods like frozen vegetables are minimally processed without compromising the nutrient quality of the foods. On the other hand, foods like snack chips, fried chicken, instant noodles, or sugar-sweetened beverages are highly processed and contain high amounts of salt, added sugar, fat, and refined grains with low or no nutrients.<sup>13-15</sup> Highly processed foods are those foods that have industrially formulated mixtures of multiple ingredients and that require minimum preparation before eating.<sup>15</sup> Foods which are more likely to contain high levels of saturated fats, added sugar, and/or sodium and minimal levels of micronutrients are categorized as EDNP foods and these foods are mostly highly processed foods.<sup>16</sup> Some common and popular EDNP foods are fast food, savory snacks, candy, and sugar-sweetened beverages.

Children consume processed, pre-packaged, and ready-to-eat foods both as meals and snacks. Frequent snacking is recommended for children for its contribution to necessary nutrients in diet; however, snacking contributes to considerable amounts of energy in children's diets as the quality of popular snacks is poor.<sup>17,18</sup> Energy-dense sweet desserts, salty foods, and drinks with added sugar are more popular as snacks than nutrient-dense snacks like fruits and vegetables.<sup>6,10,17</sup> These EDNP snacks—high in sugar, fat and salt, and low in fiber—lower the overall quality of children's diets which contributes more to excessive weight gain in children than to provide vital micronutrients needed for their body.<sup>1,5,6,10,17</sup>

Foods consumed at home make up most of children's energy consumption.<sup>19</sup> Home is not only the main source of energy for children, but also the primary place for shaping children's dietary patterns, which are built upon early food experiences, availability of foods and drinks at home, and accessibility to food and drink items.<sup>20–22</sup> Although genetic factors have a strong influence on children's appetite traits, food exposure and availability at home, parents' food modeling, parental monitoring of the child's food intake, and control of family meal activities at the household level affect children's food selection and intake.<sup>20–24</sup> As children grow older, they step out from home to daycare or school and the range of their environmental influences expands from parents and siblings to teachers and peers, school meal programs, and school-based nutrition education programs. Although school-going children have access to foods in school through the free/reduced National School Lunch Program and School Breakfast Program, the majority of energy still comes from foods consumed at home; on average 35% of their daily energy comes from foods consumed in school.<sup>23</sup> Because home is the

major source of children's daily energy intake, the current study will look at the home food environment and parents' role in relation to household food purchase to understand children's high energy intake.

Availability of foods and drinks at home is controlled by parents as they, particularly mothers, are the primary decision makers in family food choices and household food purchases.<sup>21,24</sup> At the household level, the purchases of processed or packaged savory snacks, grain-based desserts, and soft drinks are high.<sup>13,25</sup> Availability of low-nutrient foods in the household impacts children's food intake and causes children to consume more energy-dense foods and less healthy foods. To understand children's food availability at home, it is important to investigate food purchases of parents. As most parents oversee household food purchases, parents' food selection at the point of purchase is important toward determining the foods that are available for children's consumption. Although there have been studies on parents' food selection for children, the focus of most of those studies was generally on pre-school children or adolescents.<sup>22,26</sup> Elementary school-aged children (6-11 years old) were overlooked, although this age-group is crucial for the development of children's food consumption habits.<sup>27</sup> There remains a gap in understanding how parents make decisions to purchase foods for their elementary school-aged children. It is important to understand parents' food choice for children of this age group because in the U.S. 18.4% elementary school-aged children were obese in 2015-2016; for certain regions in the South, such as South Carolina, the prevalence was around 21.4% in 2016.<sup>9,28</sup>



In understanding parents' food-purchase decisions for children, it is also important to learn the underlying reasons for buying specific foods and the values that drive parents' purchase decisions for their children. Value negotiations are a crucial element in food purchase decisions. According to Sobal and Bisogni (2009), "food choice values are the considerations that people bring to food choice (e.g., taste, cost, health, convenience, relationships) and the particular meanings and feelings that people attach to these considerations."<sup>31(pS42)</sup> Individuals negotiate between different values in making their own food choices. Taste, cost, health, availability, managing relationship, time, and convenience are some salient values identified in adults' food choice process.<sup>30-36</sup> Ethics, variety, safety, waste, and quality are some additional values identified in adults' food choice process model.<sup>30-33</sup> Individuals' food choices vary with their value negotiations in different contexts. Hence, it is not clear how individuals negotiate between values when they make food choices for someone else.<sup>37-40</sup> For children below five years old, parents valued health, nutrition, taste, price, political concerns and advertising.<sup>41</sup> For elementary school-aged children, parents valued all family members' likes and dislikes, cost, cultural identification and time constraints.<sup>42,43</sup> For adolescents, parents valued cost and budget.<sup>44</sup> For low-income families, parents primarily valued monetary concerns, and when they had money, they valued children's food requests.<sup>45</sup> Given that individuals have a wide range of values in their food choice decisions, as identified in previous research, there remains a gap whether the values parents hold for children's food purchase decisions are limited only to preference, cost, culture, and time constraints or whether parents weigh other values as well. There also remains a gap in understanding how parents negotiated these values and how they addressed the value conflicts. To understand parents' food

purchase decisions for their elementary school-aged children, it is important to investigate how parents adjudicate between different values to decide on which foods and drinks to buy for their elementary-school-aged children. This research aims to address these research gaps by investigating parents' food purchasing decisions for their elementary school-aged children and how parents adjudicate among different values including monetary concerns, children's preference and requests, and healthfulness of foods and drinks to make purchasing decisions for children.

Healthy foods including fruits, vegetables and healthier options of processed and ready-to-eat foods may not be affordable to people of all income groups; foods that are available at a cheap price are mostly EDNP in category.<sup>46</sup> For this reason, EDNP foods are viewed as more affordable than healthier foods to people of all income-groups.<sup>48-51</sup> Low-income people, who are at a higher risk of food insecurity than middle- and high-income families, try to stretch their limited resources to purchase foods for everyone in their households, so they tend to purchase EDNP foods for longer shelf lives and lower costs of the foods.<sup>48-50</sup> Food insecurity, however, also exists in middle-income households, and people living in the middle-income group also often purchase and consume EDNP foods due to convenience or budget.<sup>52-58</sup> National survey data for 2001-2010 showed that elementary school-aged children (6-11 years) experiencing food insecurity were at risk of obesity.<sup>59</sup> In understanding parents' food-purchase decisions for children, it is also important to find out how parents from low- and middle- income households, experiencing different food security levels, make value negotiations to purchase foods and drinks for their elementary school-aged children and how their food purchases differ by income and food security levels. Another significant reason for

inquiry is to identify whether parents select those foods for their children independently or whether they are influenced by the children.

Children may have an influencing role in parents' food purchases, particularly when those foods and drinks were bought for children.<sup>60-62</sup> Children made frequent requests for foods during shopping and their direct food requests included typically EDNP foods.<sup>20,63-65</sup> Since children tended to have a preference for EDNP foods and drinks and they requested those foods frequently from parents, it is important to investigate how children construct their food choice decisions.. Children's food choice is particularly important because childhood food choice affects their current food intake and shapes their food intake in later life. Like adults, elementary school-aged children valued taste, texture, health, nutrition, packaging, emotions, hunger, eating context, social acceptability, and versatility.<sup>36,66-69</sup> We do not know how the children of this age group negotiate between these values when they make food choices. We also do not know if children's food choice values are limited to these values or they also hold other values like time, convenience, managing relationship, ethics, variety, safety, waste and quality which have been identified in adult's food choice process. The difference in existing food choice values between the adults and the elementary school-aged children necessitates investigation with the children for a detailed and in-depth understanding of the values that children weigh in their food choice decisions and whether their values have the same range and diversity as adults. The current studies on children's food choices were solely focused on the values children hold, but did not discuss how children weigh between different values to make food choice decisions and what strategies children apply to acquire their desired foods as shown in the food choice process model, developed by

Furst et al. (1996).<sup>30,31,33</sup> The food choice process model illustrates that a single food choice event results from a diverse set of personal and environmental inputs. A person's life course generates a set of influences including ideals, personal factors, resources, social framework, and food context. Personal systems are shaped from these influences. People construct their food choices by negotiating among different values and applying strategies in different food-related choice situations.<sup>30,31,33</sup>

Parents are the gateway to children's access of foods and drinks at home as parents purchase those items for children.<sup>65</sup> Hence, parents' food purchasing decisions play an important role in children's diet quality and energy intake. Children may also apply strategies to influence parents' food purchases; particularly when those foods and drinks were bought for them.<sup>60-62</sup> Strategies children use to achieve their desired foods change with the progression of age.<sup>70-74</sup> Young children often used pestering when they accompanied their parents during food shopping.<sup>73-76</sup> Adolescents participated in family decision making, so they could express opinions on foods, make deals, or directly mention a food as their preference to persuade their parents.<sup>62,77-80</sup> Elementary school-aged children, who are between these two groups, used the strategies of pester power and negotiation.<sup>70,76,81</sup> These school-going children might develop an argument in favor of their desired food and drink items instead of pestering or nagging, but little research has been done to describe how they negotiate with their parents.<sup>70,82,83</sup>

In addition, the strategies children used to influence parents' food purchase decisions have been mostly identified from observation of parent-child interactions in store settings.<sup>64,74,84-86</sup> Children might not always accompany their parents during food shopping considering children are often in school or participating in afterschool

programs. To comprehend children's influences on parents' food shopping, it is important to understand all strategies that children use to get their desired items in different contexts including in-store and out-of-store locations, food types, and children's presence or absence during shopping. Besides the observation of parent-child interactions, the strategies children used to influence parents have been so far identified from parents' interviews.<sup>64,74,84-86</sup> There has been little to no research on the strategies children use to influence parents' food purchase decisions from children's perspectives. Since children's strategies to influence parents' food purchase decisions from both the parents' and children's perspectives are understudied, we also do not know how concordant or discordant are the perspectives between parents and children.

Children have an influence on their parents' decision making process, particularly when the items are specific to children like toys, clothes, holiday destinations, but there is disagreement between the parents and children on the level of influence children have in their food purchases.<sup>62,87-90</sup> Children could influence food purchases in restaurants or single shopping events when they were present during food purchases, but there is a gap on the extent of influence on parents' regular food shopping specific to children's consumption. Like the strategies, the extent of children's influences on parents' purchasing decisions have also been so far identified either from parents' interviews or from observation of parent-child interactions that did not focus on how children perceived their own influence on their parents' food shopping.<sup>64,74,84-86</sup>

The overall purpose of this research is to understand parents' food purchase behaviors and influences on their food purchases for their elementary school-aged children, with a specific focus on how the elementary school-aged children construct their food

choices and how the children try to acquire their desired foods by influencing their parents' foods purchase decisions. To investigate parents' food purchase behaviors and influences on parents' food purchasing decisions in relation to foods and drinks for elementary school-aged children, we addressed the research gaps with three specific aims. The aims are 1) to identify the foods and beverages that parents purchase for their household and determine if they buy the same foods for all or different foods for their 6-11 years old; 2) to understand how parents make decisions by adjudicating among different considerations including children's food preferences, children's influence, healthiness of the foods, and financial resources when purchasing foods for their children; and 3) to understand the extent of children's influence on the foods that parents purchase for their children, the values children weigh to decide on which foods and drinks they want their parents to buy for them (children), and the strategies children use to influence their parents to get their preferred foods.

We developed two separate manuscripts from this research. One manuscript was developed from specific aims 1 and 2, and another from specific aim 3.

### **Manuscript 1:**

*Specific Aim 1.* Identify the foods and beverages that parents purchase for their household and determine if they buy the same foods for all or different foods for their 6-11 years old children vs. other household members.

Answers to the following research questions guided achieving specific aim 1:

1a. Which foods and beverages did parents purchase for their household?

1b. Which foods and beverages did parents purchase specifically for their 6-11 years old children?

***Specific Aim 2.*** Understand how parents make decisions by adjudicating among different considerations including children's food preferences, children's influence, healthiness of the foods, and financial resources when purchasing foods for their children.

Research questions for specific aim 2 were:

2a. From the food lists obtained in Aim 1, for which foods and beverages did children's preferences and requests have a role in parents' purchase decisions?

2b. What were the food purchasing goals for parents when they purchased foods for their children aged 6-11 years?

2c. What considerations did parents make for purchasing foods for children?

2d. How did parents adjudicate among children's preference, children's influence, healthiness of the foods, and other considerations to make the purchase decision?

**Manuscript 2:**

***Specific Aim 3.*** Understand the values children weigh to decide which foods and drinks they want their parents to buy for children, the strategies children use to influence their parents to get their desired foods, and the extent of children's influence on the foods that parents purchase for their children.

Research questions related to specific aim 3 were:

3a. What did children value when making their food choices from children's perspectives?

3b. How did children negotiate among different values to decide on foods to request from children's perspectives?

3c. What strategies did children use to influence their parents' food purchase decisions specific to children's consumption from both the children and their parents' perspectives and how concordant were those strategies between the parents and children?

3d. How did children and their parents describe children's influence on parents' food purchase decisions to acquire the foods children wanted?

This research tracked parents' food purchases to assess home food availability for elementary school-aged children with insights into which foods and drinks parents purchase specific to children's consumption and how the parents make decisions about what foods to purchase for their children's consumption. This study also sheds light on how elementary school-aged children select their foods, what values they weigh in their decision-making processes, after they have decided on foods and drinks how these children interact with their parents on their desired foods, and how their interactions influence parents' food purchase decisions. Specifically, this study provides detailed understanding of what foods and drinks children request to their parents, whether children influence their parents to purchase energy-dense processed and packaged foods for them or their requests also include fruits and vegetables and how parents address children's requests for these different types of foods. The findings on children's strategies to influence parents and how



much parents are influenced by their children to buy the foods children prefer also helps develop strategies for future healthy eating programs.

Chapter 1 introduces the research topic, aims. Chapter 2 presents the background and significance for the research. Chapter 3 details the research design and methods. Chapter 4 includes the two manuscripts describing the research results. Chapter 5 discusses the conclusions and implications.

## CHAPTER 2

### BACKGROUND AND SIGNIFICANCE

This chapter provides background information on the research, followed by a description of the research significance. The background section starts with an overview of childhood obesity and children's eating patterns in the United States with a focus on the associated factors, food acquisition, and food insecurity in low-and middle-income households. A review of previous studies on food choices for children, values parents' weigh in food purchase decisions for children, and children's influence on parents' food purchases is presented with identifying research gaps. A brief introduction of relevant theoretical frameworks of the research related to consumer behaviors, decision-making processes, and individual's influences is, then, presented followed by the conceptual model of this research and contribution to addressing the identified research gaps.

#### **2.1. Childhood Obesity in the United States and in South Carolina**

The prevalence of childhood obesity among elementary school-aged children tripled in three decades in the U.S. (18.4% in 2015-2016).<sup>9,91</sup> Being overweight and obese are the results of an energy imbalance, where too little energy is expended for the amount of energy consumed.<sup>92</sup> Twenty-one percent of elementary school children were obese in South Carolina in 2016.<sup>28</sup> The burden of overweight and obesity differs by gender and also by race/ethnicity. Boys are more likely to be overweight or obese than the girls (44.3% vs. 34.2%). In the elementary schools of South Carolina, African American

children are more likely to be overweight or obese than the White American children (45.5% vs. 34.7% respectively).<sup>93</sup>

Obesity in children is not only itself a health problem. It is also associated with developing risk factors for different non-communicable diseases such as cardiovascular disease, Type 2 diabetes, cancers, joint problems, and social and psychological problems.<sup>94,95</sup> Among different modifiable risk factors of obesity, unhealthy diet is a leading cause, which is in part caused by the availability of ready-to-eat, processed, and pre-packaged foods that are energy-dense and nutrient poor (EDNP).<sup>92,95</sup>

## **2.2. Children's Eating Practices and Associated Factors**

Eating habits and physical activity are strongly associated with the children's body mass index.<sup>96,97</sup> Excess consumption of energy-dense foods is one of the major lifestyle factors contributing to the increasing risk of obesity in children.<sup>98–101</sup> Fruits and vegetables are healthy and rich sources of vitamins and minerals, dietary fiber, and a host of beneficial non-nutrient substances including antioxidants that help to ensure adequate intakes of essential nutrients and prevent the development of obesity.<sup>8,95,100</sup> For a healthy diet, the recommended servings of fruits and vegetables for a day are at least 5 servings.<sup>94,95</sup>

For elementary school-aged children, foods rich in sugar, fat, and salt, and poor in fiber were associated with overweight and obesity, whereas children, in the same age group, eating fruits at least 5 servings a day were less likely to be obese.<sup>100</sup> Despite dissemination of the benefits of eating fruits and vegetables through nutrition education programs, American children's consumption of fruits and vegetables is still low; only 7%

of children consume an average of the recommended servings of fruits and vegetables per day.<sup>1,94</sup> In contrast, with the increase in frequency of snacking in a day, children are consuming more processed foods containing high amounts of sugar, salt, and/or fat, and sugar-sweetened beverages.<sup>10,102–104</sup> The National Health and Nutrition Examination Survey data from 2005-2010 showed that U.S. children and adolescents did not meet the 2010 Dietary Guidelines for Americans; elementary school-aged children had a high amount of salt, refined grains, and calories derived from their foods containing no nutrients.<sup>1</sup>

Child snacking has increased in frequency, exceeding three times a day. Frequent snacking with nutrient-dense foods can benefit children's health as snacks can contribute to making up the shortfall of necessary nutrients in diet, but popular snack choices include sweet desserts, salty foods, and sugar-sweetened beverages, which provide the children with high amount of added sugar, salts, and fats instead of necessary nutrients.<sup>10,18,102,105</sup> Children tend to consume pre-packaged energy-dense sweet and savory snacks frequently instead of nutrient-dense snacks that contain fruits and vegetables.

As children grow up, their sugar-sweetened beverage (SSB) intake increases gradually with age. Tracking SSB consumption for children from the period of 2007 to 2010, Bleich & Wolfson (2015) showed that 62% of pre-school children, aged 2-5 years, consumed SSB daily.<sup>106</sup> This daily SSB consumption rate for children aged 6-11 years was 73% and for adolescents aged 12-19 years was 76%.<sup>106</sup> The energy intake from these beverages also rises gradually by age; children aged 2-5 years, 6-11 years, and 12-19 years consumed 127-139 kcal, 176-220 kcal and 290-298 kcal per day, respectively.<sup>106</sup>

These findings show that if children consume SSBs in their elementary school years or younger years, they continue consuming these beverages into their adolescent years. SSBs are inversely associated with children's diet quality, hence, the increasing trend of SSB consumption requires being addressed to prevent childhood obesity.<sup>107</sup>

The diet patterns of children residing in South Carolina (SC) do not differ from national trends i.e., SC children also do not meet the recommendations for fruits, vegetables, or whole grains.<sup>93</sup> The South Carolina Department of Health and Environment Control (SCDHEC) report showed that over half (56.8%) of all SC children, aged 2-17 years ate less than 3 servings of fruits daily, and over half (58.6%) ate less than three servings of vegetables daily in 2012. Boys had higher unhealthy food intake than the girls. Boys ate fewer fruits and vegetables than girls. An average of 40% of daily calories consumed by SC children and adolescents came from added sugar and solid fats.<sup>93</sup> Sweetened beverages appeared to be a popular drink choice among SC children, with two-thirds of the children reporting intake of at least one serving per day. Again, boys (70.4%) and African American children (80.5%) had the highest prevalence of reported daily sweetened beverage consumption.<sup>93</sup>

#### *Shifting from home-made foods to processed and ready-to-eat foods*

There has been a major shift in the eating patterns of Americans from home-prepared foods to processed, pre-packaged, and ready-to-eat foods since 1965.<sup>11,108</sup> With this shifting, the percentage of daily energy consumed from home food sources and time spent in food preparation decreased significantly for all socioeconomic groups over the past four decades and the household food expenditure on food-away-from-home was

estimated to have more than 50% share in total food spending in 2019.<sup>11,108</sup> Foods prepared or eaten outside the home tend to be mostly processed, pre-packaged, and ready-to-eat foods which contain high amounts of salt, added sugar, fat, and refined grains with low or no nutrients.<sup>109,110</sup>

With the availability of processed, pre-packaged, and ready-to-eat foods, the purchase and consumption of these foods increased significantly. These foods are consumed both as meals and snacks and a large portion of these foods are highly processed EDNP foods. There has been also a rapid shift towards increased snacking as people tend to eat portable pre-packaged snacks instead of eating meals or grabbing convenience foods after work to make up for missed meals.<sup>10,108,111</sup> Processed, pre-packaged, and ready-to-eat foods dominate children's diet as well both as meals and snacks.<sup>8,98,100</sup> Children's meal skipping has also been found associated with more fast food and convenience food consumption.<sup>112</sup>

### *Food acquisition*

A United States Department of Agriculture (USDA) Economic Research Services report for 2016 showed that 99% households acquired food during a 7-day reporting period, with an average of 11 separate food acquisition events per week.<sup>113</sup> According to the USDA Food Acquisition and Purchase Survey (FoodAPS) conducted in 2012, U.S. households acquired foods from 9 venues in a week. These venues included (i) large grocery stores and supermarkets; (ii) small and specialty food stores; (iii) all other food stores (convenience stores, dollar stores, and pharmacies); (iv) own production (gardening, hunting, and fishing); (v) food banks and Meals on Wheels; (vi) restaurants

and other eating places; (vii) schools, daycare, and day camps; (viii) family, friends, parties, and places of worship; and (ix) workplace.<sup>114</sup> Eighty-seven percent of households acquired foods from large grocery stores or supermarkets in a typical week; 85 percent also acquired foods from restaurants and other eating places.<sup>114</sup> This study will focus on foods purchases from all the relevant venues.

#### *Low- and middle-income households*

Family income has an association with diet quality and risk of overweight and obesity.<sup>115</sup> Middle-income households have an annual income between 67 percent and 200 percent of the median U.S. household income, after incomes have been adjusted for household size, and low-income households have incomes less than two-thirds of the median, after incomes have been adjusted for household size.<sup>116</sup> For a three-person household, the middle-income range was about \$45,195 to \$135,586 annually in 2018 and a lowest-income household with three people lived on about  $\leq$ \$31,000 to \$45,000, and the median income was \$51,015 in 2018.<sup>116,117</sup>

Alaimo et al (2001) categorized households as low-, middle- and high-income based on the federal poverty level (FPL), a gross income amount calculated by the federal government.<sup>118</sup> Households with an annual income of  $\leq$ 130% of FPL were categorized as low-income, households with an annual income above 130% to 350% of FPL were categorized as middle-income, and households with an annual income above 350% of FPL were categorized as high-income.<sup>55,118</sup> The National Center for Children in Poverty (NCCP) defines low-income families as families with incomes two times lower than the federal poverty threshold.<sup>119</sup>

*Food security and diet quality in low- and middle-income families*

In South Carolina, 51% of children live in low-income families with half of them below the 100% of the federal poverty line (FPL).<sup>119</sup> Children from low-income families are vulnerable to the risk of having a poor diet quality and pose a higher risk of obesity.<sup>115,120</sup>

People living in the low-income families purchase processed foods more often as those foods have a longer shelf-life and can be stored at home for a longer period than the perishable fresh fruits and vegetables.<sup>121</sup> Foods available at low-cost are mostly energy-dense processed foods.<sup>122</sup> Since these foods are available at a cheaper price than the fruits and vegetables and are frequently sold at a discounted price, these foods are affordable to the low-income people.<sup>48,122</sup> Thus, low-income households economize their food spending by compromising the quality of the products and purchasing low-quality foods in a large volume with discounted price. Block et al. (2004) showed that low-income children are 2.5 times more exposed to fast food restaurants than the affluent residents.<sup>123</sup> The acquisition of these low- or no-nutrient foods may contribute to the increasing burden of obesity among these children.

Consumption of EDNP foods has also been found to be high in middle-income families. People from middle-income group, living above 300% of the federal poverty level had a higher consumption of fast foods than the people in low-income group.<sup>124</sup> The majority of the middle-income parents' described that they and their children had good health, but fewer healthy meals or snacks were allowed for their teen-age children along with the balanced diet.<sup>111</sup>



Food insecurity and poverty are positively associated. Low-income households experience more food insecurity, which, as a stressor is linked specifically to eating behaviors and obesity.<sup>52</sup> Middle-income households have a higher annual income than the low-income households, yet a substantial percentage of food-insecure households in the U.S. are middle-income households that experience inadequate amount of food intake.<sup>55,56</sup> Studies conducted on U.S. and Canadian population found middle-income people experiencing food insufficiency.<sup>118,125</sup> Among the children from low -income families, living at or below 130% of federal poverty line (FPL), 85% experienced food insufficiency.<sup>118</sup> Among the children from middle-income families, living above 130% to 350% of FPL, 14.2% reported having food insufficiency; only children from high-income families reported no food insufficiency.<sup>118</sup> Food insecurity has a long-term impact on the children's development including low academic performances, social skills, and obesity.<sup>52,126</sup> Fourteen percent of U.S. children experienced household food insecurity.<sup>127</sup>

Family income and food price are two important determinants of food choice and diet quality.<sup>115,128</sup> People from low- and middle-income families have similar trend of consuming energy-dense processed foods despite the differences in family income.<sup>48,122</sup> This finding is also supported by a nationally representative household food purchase survey which showed that EDNP foods were in the top-five list of foods purchased in the U.S. households in 2011.<sup>114</sup> These findings prompted us to inquire about the food choices of individuals when considering purchasing healthy and unhealthy versions of processed foods, as food choice plays a key role in controlling a person's food-related behaviors.

### 2.3. Food Choice

“Food choice involves the selection and consumption of foods and beverages, with considerations of what, how, when, where and with whom people eat, as well as other aspects of their food and eating behaviors”.<sup>8(p1)</sup>

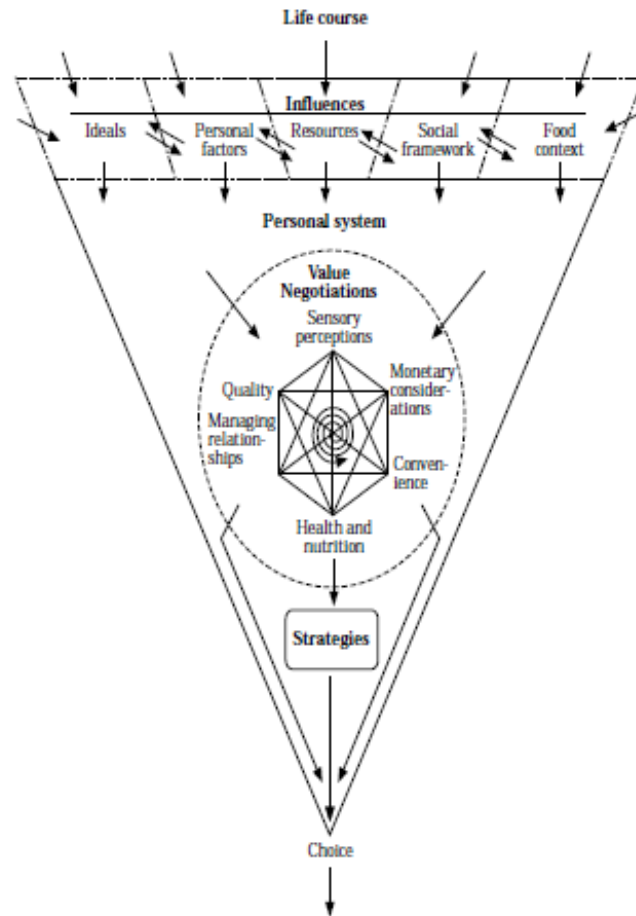
#### *Determinants of food choice*

A person’s food choice depends on the biological, economic, social and psychological determinants. Hunger, appetite, and taste are the biological determinants, economic determinants include income of the people, cost of the foods, and availability of the foods that make food accessible to a person. The physical determinants are the accessibility to the foods including the physical set up of the food stores; social determinants include culture, family, peers and psychological determinants include personality, enjoyment, mood, stress, attitude, moral concerns, beliefs.<sup>129–131</sup>

#### *Individual’s food choice process*

Furst et al. (1996) developed the food choice process model that “represents the types of factors and the process involved in a single choice event. Factors involved in food choice were grouped into three major components: (1) life course, (2) influences and (3) personal system.<sup>30</sup> The relationship of these components to one another generates the process or pathway (indicated by arrows) leading to the point of choice”<sup>30(p250)</sup> This model was upgraded further by Bisogni et al. (2002), Sobal et al. (2006), and Sobal and Bisogni (2009) giving more explanations of the rich and complex bases for food choice and its connection with food behavior.<sup>33,132,133</sup>

The food choice process model illustrates that a single food choice event results from the mixing and separating of the diverse set of personal and environmental inputs. According to the model, the life course includes the personal roles and the social, cultural and physical environments to which a person has been and is exposed. A person's life course generates a set of influences: ideals, personal factors, resources (both tangible and intangible), social framework and food context. These influences on food choice mutually shape one another and serve to reinforce, interact, and compete with one another. Although the central themes of each influence are not clearly distinguishable, each influence appears to affect the choice process to the degree that it is salient to a given food choice event. These influences inform and shape people's personal systems, showing the extent to which the social and physical settings affect how people construct and execute personal systems of food choice including conscious value negotiations and unconsciously operationalized strategies that may occur in a food-related choice situation. The value negotiation process within the personal system is dynamic and includes sensory perceptions, monetary considerations, health and nutrition beliefs and concerns, convenience, social relationships and quality of food choice decisions. Finally, the boundaries between components and processes are highly permeable, and much mutual shaping occurs between and within components.



**Figure. 2.1** Components of adult's food choice process model<sup>30</sup>

On adjudicating between different considerations during food choice, Connors et al. (2001) added taste, health, cost, time and social relationships as five main values and symbolism, ethics, variety, safety, waste and quality as some less prominent values within the personal food systems.<sup>32</sup> The salience of these values varies not only among the individuals but also across the eating situations that confront each individual. Individuals use three main processes in their personal food systems: (i) categorizing foods and eating situations; (ii) prioritizing conflicting values for specific eating situations; and (iii) balancing prioritizations across personally defined time frames.

Using a quantitative method, Steptoe et al., (1995) distinguished nine food choice motives for the adult individuals which included health, mood, convenience, sensory appeal, natural content, price, weight control, familiarity and ethical concern.<sup>38,40</sup> People consider more about instant affects, such as sensory appeal, low cost, and managing relationship than other values and hence, trade away food quality when they make their food choices.<sup>32,39</sup>

The food choice process model (Furst et al., 1996) outlines the general nature of the food choice process of an individual but the model was developed by collecting data from adults.<sup>30</sup> The food choice questionnaire, developed by Steptoe et al. (1995), was also implemented on adult individuals. Children may have different value negotiation process than the adults to make their (children's) food choice.<sup>40</sup>

### ***Children's food choice***

Children's food choice starts at home and parents play a vital role in structuring children's early experiences with foods to shape a child's eating behavior.<sup>134</sup> During the first five years of life, children learn what, when, and how much to eat based on the transmission of cultural and familial beliefs, attitudes, and practices surrounding foods; this period can serve as a foundation for future eating patterns.<sup>134,135</sup> With the progression of age and further developmental stages, the children move from homes to schools and start socializing with peers.

Neumark-Sztainer et al. (2002, 1999) identified factors affecting adolescents' food choices. These factors include hunger, food craving, appeal of foods, parental practices, schools, food outlets, food availability, culture of the family, mood, body

image, perceived norms.<sup>136,137</sup> There remains a gap in understanding how the elementary school-aged children, who are between the under-five and adolescent groups, make their food choices. After the first five years of life, children start elementary school and these school years are vital for their food choice development. During this period, they start to accept new environments, process new information, and start socializing.

The elementary school age is crucial as it is a combination of three developmental stages of children – perceptual (below 7 years old), analytical (8-10 years old), and reflective (starting from 11 years) stages.<sup>60,138</sup> During the elementary school years, with the widening of the children's area from home to outside environment, they begin to process information with a gradual increase.<sup>60</sup> Their abstract reasoning starts developing and children generally become more knowledgeable about marketing.<sup>60,138</sup> They take several attributes into account when evaluating brands and are able to think from the perspective of others, and their cognitive and social skills start developing when they are 11 years old.<sup>60,138</sup> When children start going to elementary school, their food environment widens from home to school with their access to school meals. Despite children's access to school meals, home remains a major source of their energy. Schools provide 35% of total energy for all children on average; this rate is higher for the low-income children (around 50%) who have access to reduced or free meals at school.<sup>19,139</sup> Even for the lunches brought from home to school or purchased outside of school cafeteria, about 90% of those foods contained desserts, chips, and sweetened beverages; these foods are lower in nutrient quality than school cafeteria meals.<sup>140,141</sup> Since foods provided at home or from home contribute to the majority of children's total daily energy, it is important to understand food choices and food availability in the context of the household setting.

## **2.5. Values parents weigh in food purchase decisions for children**

There are limited studies on how parents made food choices for their elementary school-aged children. Russel et al. (2015) showed that for children below five years old, health, nutrition and taste were key motivators in parents' food choices, and least important was price, political concerns and advertising.<sup>41</sup> Sealy (2010) showed that parents considered cultural identification and time constraints when they made food choices for themselves and their 6- to 12-year-old children.<sup>42</sup> Another study on Canadian middle-income families with children aged 5-12 showed that employed mothers valued all family members' likes and dislikes when planning and preparing food.<sup>43</sup> A study on the parents of adolescents (9<sup>th</sup> and 10<sup>th</sup> graders) in UK, showed that cost and budget influenced their food choices.<sup>44</sup> A study conducted in Indonesia showed that caregivers (mothers or grandmothers) from the low and moderate socio-economic status considered monetary issues the most when they made the food choice for children; when they had money, however, they also considered the requests of their children aged 7-12 years.<sup>45</sup> There is a gap in literature on what parents valued when they made food choices specifically for their elementary school-aged children. The studies conducted so far also focused on the food choices for all members of the household.

### *Home food environment*

Household food availability contributes to children's eating behavior, dietary intake, and body composition.<sup>143</sup> The U.S. households purchase energy-dense foods more frequently than fruits and vegetables.<sup>13,25</sup> Poti et al. (2015) showed that over three-fourths of energy in purchases by U.S. households came from moderately (15.9%) and highly

processed energy-dense (61.0%) foods and beverages in 2012.<sup>13</sup> When classified by convenience, ready-to-eat (68.1%) and ready-to-heat (15.2%) products supplied the majority of energy in purchases.<sup>13</sup> The adjusted proportion of household-level food purchases exceeding 10% kcal from saturated fat, 15% kcal from sugar, and 2400 mg sodium/2000 kcal simultaneously was significantly higher for highly processed (60.4%) and ready-to-eat (27.1%) food purchases than for purchases of less-processed foods (5.6%) or foods requiring cooking/preparation (4.9%). Purchases of ready-to-eat foods also vary across the U.S. household sociodemographic categories according to nutritional value and advertising targets.

Recent data on household food purchases show that sugar-sweetened beverages, salty snacks, and candies were ranked in the list of top five foods in the household purchases.<sup>11</sup> In addition to the availability of foods at home, family food practices and family meals also contribute to children's food choice and eating behaviors.

#### *Family food practices and family meals*

Family food practices are found to be central in developing children's food habits.<sup>22,144</sup> Parent modeling, parent's knowledge, time constraints, using food as reward, affordability, and concerns about children's health are some of the parental factors related to children's food consumption.<sup>145–147</sup> Children's food preferences and environmental factors including availability, advertising, societal, and cultural influences, may contribute to children's existing consumption habit in which children eat more highly processed or EDNP foods and less fruits and vegetables.<sup>146</sup> Parenting has a powerful impact on children's eating habit and children's likelihood of being normal weight,



overweight or obese. Parenting includes how parents interact with their children in terms of children's eating, such as acceptance, or controlling parenting behavior.<sup>145,148–150</sup>

Some researchers classified parents' feeding practices in two dimensions of demandingness and responsiveness as used for classifying parenting style. With an authoritative feeding practice (where parents are high demanding and high responsive), parents actively encourage their children to eat but achieve making them eat through supportive behaviors including rules explained in a sensitive way.<sup>145,151</sup> These parents negotiate with children to make healthy food choices and they are also responsive to the child's food choice.<sup>145,148,151,152</sup> With an authoritarian feeding practice (where the parents are high demanding and low responsive), parents want their children to eat certain foods and avoid other foods; they (parents) encourage children eating through parent-centric rules.<sup>145,148</sup> Hughes et al. (2008) showed that indulgent parents (low responsive and high demanding) set few food rules; however, they have high engagement with what their children want.<sup>153</sup> As a consequence, these parents permit their children freedom to eat when they wish and what they prefer. Uninvolved parents (low demanding and low responsive) have less involvement with their children's needs and these parents make less control on what their children should eat. Hence, the children of indulgent or uninvolved parents are more likely to become overweight than the children of authoritarian (high demanding and low responsive) or authoritative (high demanding and high responsive) parents.<sup>148,152</sup> The home food availability of an indulgent parent showed a larger portion of foods contributing to obesity than the home of an authoritative parent.<sup>154</sup>

The family meal setting has the potential to positively impact the dietary intake of children.<sup>155,156</sup> Family meal frequency is associated with improved dietary quality among

children<sup>144,155,157,158</sup> Eating family dinner was associated with healthier intake, such as children eating more fruits and vegetables, and eating less fried food and soda, less saturated and trans fat.<sup>144,155</sup> The frequency of shared family meals has also been significantly related to nutritional health in children.<sup>94</sup> Children who share family meals 3 or more times per week are more likely to be in a normal weight range, have healthier eating patterns with more fruits and vegetables consumption, and have lower chances of disordered eating than those who share less than 3 family meals together.<sup>157,158</sup>

Family meals do not always involve healthy foods. Some studies show that family meals can also involve soda and chips along with eating fast foods.<sup>159</sup> So, the dietary quality of the family meals can vary with the setting of the eating episode. A study on Latino adolescents showed that despite the higher frequency of family meals together in a week, almost half of the dinners were not considered healthy as those were either eaten at full-service restaurants, or purchased from fast-food shops, or picked up as takeout foods.<sup>158</sup> Consuming more soft drinks and chips was also associated with watching television during meals.<sup>160</sup> Some parents allow television viewing during family meals which reduce the interaction between the family members and increase consumption of sugar-sweetened beverages and savory snacks like soda and chips.<sup>158</sup> Yet, family meals have some benefits, including creating time for conversation between a child and his/her parents as well as siblings and other family members, emphasizing the feelings of togetherness, and sharing nutrition. Family meals can act as a venue for initiating interaction between the parents and the children. Fulkerson et al. (2008) suggested that the most enjoyable benefit for parents during family meals was the conversation. Two in

every three parents reported that they felt the togetherness through eating, relaxing, and laughing as a family unit during family meals.<sup>161</sup>

## **2.6. Children's Influence on Parent's Food Purchase Decision**

Parents oversee household food purchases. The frequent purchases of processed or packaged foods at household levels in the U.S. indicate the accessibility of highly processed EDNP foods and beverages at home. Foods, available at a cheap price, are mostly EDNP foods and are, therefore, affordable to people of all income-groups than the healthier foods.<sup>48,122</sup>. Parents' food selection at the purchase point is important as they make the foods available for children's consumption by purchasing the foods. When parents wish to select healthy food for their families, practical factors dominate their decisions.<sup>162</sup> Among different factors affecting parents' food purchase decision, one of the important factors is children's influence.<sup>163</sup>

Adolescent children have more influence on the parents than the younger children, but the elementary school-age children can also influence parents' decision making.<sup>164</sup> Studies on traveling during family vacations showed that children have an influence on the parents in selecting the restaurants as well.<sup>62,164,165</sup> Parents consider children's acceptance of the restaurant and their past behavior related to eating at a restaurant during traveling. Parents, however, perceived that children had a moderate impact on decision making when it was about restaurant selection whereas children thought they had quite a high level of impact on their parents for selecting the restaurants.<sup>88</sup> Parents admitted that they considered children's manifestations during making the decisions. Children do have a significant impact in various ways through a

broad array of techniques, directly and indirectly, consciously and unconsciously. The tourism studies showed that children vocalize their wishes, and parents were often attentive and co-operative.<sup>88,165,166</sup>

Children may have direct or indirect influence on their parents' food-purchase decision. Children's direct food requests typically include EDNP foods. The magnitude of children's influence on parents depends on the nature of parenting style and parent-child communication pattern. Parents also consider what their children like or dislike when making food purchasing decisions irrespective of being asked for the food or the presence of the child during food shopping events.

#### *Parent-child communication and parenting practices*

Parent-child communication depends on parenting practices. Parents play a central role in the affective environment of the home.<sup>167</sup> The structure (e.g., collaboration vs control), expectations (e.g., rules and clear boundaries), and warmth (e.g., affective responsiveness) a parent provides at home may contribute to the parent-child communication regarding foods. Parenting creates an emotional climate for parent-child interactions, and is a key determinant of children's overall attitudes, beliefs, and behaviors toward diet and food.<sup>167</sup> Based on two dimensions-- responsiveness and demandingness-- parents are authoritative (high demanding/ high responsive), authoritarian (high demanding/low responsive), indulgent (low responsive/ high demanding), and uninvolved parents (low demanding/low responsive).<sup>153</sup> Other classifications of parents' feeding practices include overt and covert control exhibited by parents. Parents may have a general predominant parenting style as classified by

Baumrind, but actual parenting practices, behaviors, or strategies may vary depending on context. Investigating the relationship between a parent's responsiveness and/or demandingness to the child and the child's influence on parents' food choice is important to understand which foods the parent purchases for the child and why.

Children of high responsive and high demanding parents (authoritative parenting) have been found to have a healthy dietary intake.<sup>167,168</sup> These parents use shared decision-making, reasoning, and offering praise for positive food behaviors which can improve children's overall dietary quality.<sup>167,168</sup> Most studies examining food parenting have been quantitative and focused on specific feeding practices, such as pressure to eat, covert/overt control, restriction, and availability/modeling, and/or specific dietary behaviors, such as consuming sugar-sweetened beverages, dietary fat, and fruits and vegetables.<sup>145,169</sup> There is a gap in understanding how the children describe their communication with parents regarding their preferred foods and how much communication they can do with their parents in this regard along with how they communicate regarding their preferred foods.

Household composition also plays a role in shaping parent-child communication pattern. In two-parent home or single-parent homes, familial relationships are simpler than the complex households due to fewer relationships and the child has greater involvement with parents.<sup>170</sup> In blended homes (where there are step-parents and step-children present), there are more complex relationships and a child's involvement may be less marked.<sup>170</sup> As most of the parents are employed either as full-time or part-time, parents' work schedule may cause work-family conflict and affect parent-child relationship.<sup>171,172</sup> Persistent poverty has an association with household chaos including

disrupted household routines, and parent's inflexibility in work hours.<sup>173</sup> Household composition and chaos affect the magnitude of parent-child communication and extent of children's influence on parents.<sup>173</sup>

Parents' guilty feeling is also a factor being influenced by children and allowing children whatever foods they want or treating children with their preferred food without thinking about the healthiness of the foods.<sup>174</sup> Specifying working, single and non-resident parents, McNeal and Yeh (2003) argued that the extent of children's influence on these parents may be higher than the other parents.<sup>174</sup> These parents may feel guilty for not spending enough time with the children and want to compensate by allowing their children eat whatever they (children) like irrespective of the quality of those foods.<sup>174</sup>. This argument needs more support from other studies. Children also apply different strategies to get their preferred foods and these vary with the progression of age.<sup>70,73,74,76,163,175</sup>

#### *Parent-child interaction at the supermarket and children's request for food*

Most of the studies conducted on the influence of children were conducted on children who are below 6 years old.<sup>20,84,175-177</sup> These studies mostly focused on the parent-child interaction at grocery stores. Using video recording on the interaction between parents and children during shopping, Calloway et al. (2016) showed that children aged 2-6 years, made frequent requests during the shopping time. During a mean shopping time of 31.2 ( $\pm 11.2$ ) minutes, children made 222 total food purchasing requests, an average of 5.7 ( $\pm 3.9$ ; range 1-18) requests per shopping trip, and 0.20 ( $\pm 0.15$ ) requests per minute of shopping time. Among the requested items, 2.1 ( $\pm 1.6$ ) items were "healthy"

on average and 3.6 ( $\pm 3.2$ ) items were either “neutral” or “unhealthy” for every shopping trip.<sup>176</sup> O’Dougherty et al. (2006) showed that half of children, 8 years old or younger, initiated a request for food products when they were accompanying parents in supermarkets or stores and most of the requests were for energy-dense foods including sweets or snacks including sweetened breakfast cereal, candy, Cheetos, ice cream, pop tarts, cookies, crackers, popcorn with butter, and doughnuts.<sup>178,179</sup> Again, parents also initiated requests and almost half of adults yielded to the child’s request.<sup>178,179</sup> Most of the parents who refused used effective refusal strategies.

Although many parents are aware of health issues and state that they regularly purchase healthy food products for their children, many of them admit to buying unhealthy food products for their children as treats.<sup>64,180</sup> The observational studies, conducted in grocery stores, indicated that children requested food items that vary widely within different food groups and different levels of healthiness. The predominately requested foods were for energy-dense nutrient-poor food including snacks or candy, followed by fruits or vegetables.<sup>86,176,179</sup> Campbell et al. (2007) suggested that the most requested food items (88%) were unhealthy foods.<sup>20</sup> Some parents from low-income African American families reported that despite their intention to purchase healthy foods for their families, their children influenced them towards unplanned, unhealthy food purchases.<sup>86</sup> Pointing out to the food environment, these parents raised concerns that the children’s influence was exacerbated by the supermarket environment, which promoted unhealthy options and provided limited opportunities for children to interact with healthier foods.<sup>86</sup> Although parents were influenced by the children’s demand, they showed greater concern with the quality of the requested foods and the frequency of

consumption. Parents identified packaging of the product and a desire for the food product or beverage among the main reasons for children's request for highly processed food.<sup>20,65</sup> Other reasons identified included were the placement of items at the checkout displays and recall of products from commercials.<sup>65,76,138,181</sup> While these studies showed the influence of those children who accompany their parents during food shopping, there remains a gap in understanding about the influence of those children who are not accompanying the parents during shopping. It is important to find out these children's influence and the strategies they use for influencing their parents for their (children's) preferred foods.

#### *Pester power*

Children can influence their parents on family purchasing decisions through their (the children's) pester power to varying degrees.<sup>76,82</sup> Nicholls and Cullen (2004) defined pester power as "a child's attempt to exert influence over parental purchases in a repetitive and sometimes confrontational way."<sup>83(p77)</sup> Children use different pestering strategies such as negotiation, bargaining, requesting, threatening, crying, and often shameful repetition to achieve what they want.<sup>73,82</sup> These pestering strategies change with the progression of age. Young children use emotional methods and children aged 7-8 years adopt advanced persuasion strategies such as negotiation or argument that he/she deserved certain product because he/she had been well behaved.<sup>73,74,82</sup> Mothers also reported about their children's other techniques including trolley loading, nagging, whining during accompanying the mothers in a grocery shopping. Wilson & Wood (2004) cited one mother as "they tend just to whine on until I give in" or demonstrating



the child's pestering as a child saying, "you just keep saying 'please mum,' 'please mum,' 'please mum,' and then she gets it."<sup>74(p334)</sup>

Due to children's pestering for unhealthy foods, parents tended to buy unhealthy items. This is how pester power could undermine parents' attempts to feed their children a healthy diet and affect the relationship between the parent and the child. Children influenced their parents' purchasing decision for buying those products by using pester power. In addition, advertising and packaging had a positive effect on both parents and children, and parents were also concerned about the brand.

#### *Food availability as a factor influencing children's request*

The sales of unhealthy foods at supermarkets were associated with increased prevalence of overweight and obesity<sup>182,183</sup> A study conducted in Philadelphia showed that the majority of available snack items were of low nutritional quality and those of lowest quality were pre-packaged in a corner store.<sup>184</sup> Reliance on prepackaged snacks may result in a displacement of snacks that include fresh fruits and vegetables or whole grains.<sup>108</sup> Meloncelli et al. (2015) assessed children's food products, 62.2% (n = 97) were classified as "less healthy" using the Food Standards Australia New Zealand nutrient profiling scoring criterion.<sup>185</sup> Using the alternative core food grouping method 66.7% (n = 104) of products surveyed were classified as less healthy.

Focusing on factors affecting children's purchase requests and their parents' subsequent purchases, Ebster et al. (2009) reported the number of children's purchase requests were associated with the freedom of a child's movements, the product's visibility, and the child's developmental stage.<sup>60</sup> The linguistic form of child's request,

the parent's household income, and the price of the good also determined the success of children's request turning into a purchase. The supermarkets with shelves near the cash registers displaying chocolates, sweet and savory snacks, attract the children and prompt them to initiate a request for that food. Children's eating behavior differs on the visibility or availability of the food items, which is true not only for the store displays but also for the home food environment.<sup>60</sup> Keeping the fruits and vegetable visible or cutting up the fruits for children increased their fruits and vegetable consumption.<sup>144</sup>

## **2.7. Theoretical Frameworks Related to Consumer Behavior, Decision-Making Processes and Individual's Influence**

The theory of reasoned action, decision theory, and model of goal-directed behavior give a useful framework for conceptualizing cognition related to consumer behavior and the food purchase decision-making process.<sup>186–189</sup> Social power theory and choice theory theorize individual's influence on others to achieve something.<sup>61,190</sup> The food choice process model outlines the general nature of the food choice process of an individual.<sup>30,33,132,133</sup>

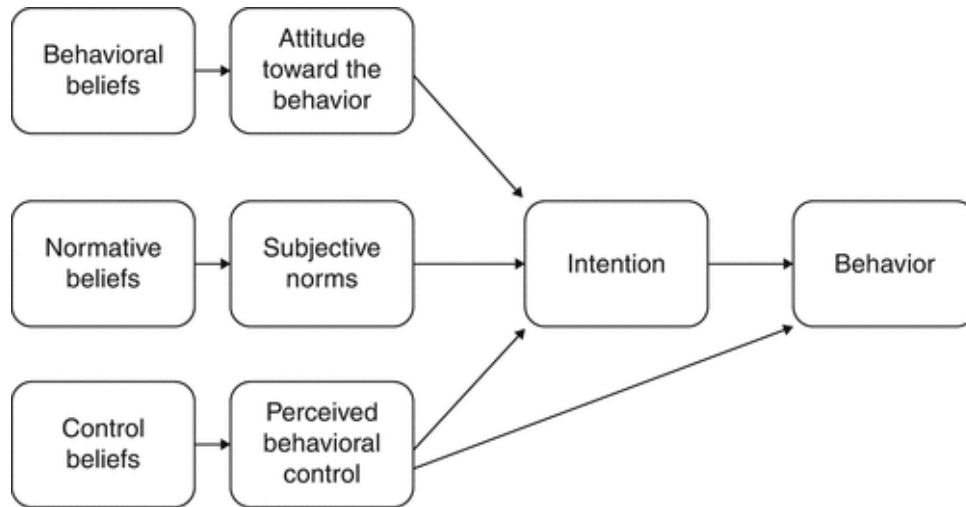
### ***2.7.1. Theory of reasoned action***

A person's purchase behavior and purchase decisions are strongly influenced by the personal, cultural, social, and psychological factors. The theory of reasoned action, developed by Fishbein and Ajzen (1975, 1980), has been used for explaining consumer behavior in different regions and across different cultural groups.<sup>191–193</sup> The theory of reasoned action suggests that “intention is the best single predictor of behavior.”<sup>186(p21)</sup> Consumers act on a behavior based on their intention to create or receive a particular

outcome and the pre-existing attitudes and subjective norms dominate their decision-making process. The theory of planned behavior, developed from the theory of reasoned action, added perceived behavioral control as a predictor of intention. Later, Fishbein and Ajzen (2011) combined these two theories, in which the perceived behavioral control was added with the reasoned action model as another predictor of the intention.<sup>186</sup>

Intentions are subject to change. Consumer's intention to make a purchase decision may also vary according to attitude, subjective norms and perceived behavioral control. Here, attitude refers to the personal value of behavior change, subjective norms reflect an individual's perception of social pressures to perform or not to perform the behavior, and perceived behavioral control refers to an individual's perception of the ease or difficulty of performing the behavior of interest. Attitude, subjective norms, and perceived behavioral control form a behavioral intention which then result in a behavior.

Some may make a purchase decision for a food as they have a strong positive attitude towards that food, whereas some may make the purchase decision because of perceived social pressure. Although specificity is critical in the decision-making process, the decision-making is not always deliberative; consumers make spontaneous decisions too. From the time the consumer decides to act to the time the action is completed, the consumer retains the ability to change his or her mind and decide on a different course of action. This is what decision theory can explain about individual's decision-making process.



**Figure 2.2:** Reasoned action approach<sup>186</sup>

### ***2.7.2. Decision theory***

Decision theory states that decisions are triggered by the decision maker's beliefs and desire.<sup>189</sup> According to Peterson (2009), decision theory is the theory of rational decision making. A rational decision maker considers expected utility of a product the during decision-making process. The expected utility is the utility of a particular outcome weighted by the probability of that outcome occurring. A rational decision maker tends to choose the alternative that has the maximum expected utility.<sup>189</sup>

Decision theory is a combination of normative decision theory and descriptive decision theory. A normative decision theory is about how decisions should be made, and a descriptive decision theory is about how decisions are actually made.<sup>187,189</sup> For example, although parents want to buy healthy foods, they make a purchase decision on practical considerations.<sup>162</sup> One of these practical considerations could be children's acceptance of the food. The long lags between initial intention and the completion of the action allow parents plenty of time to talk with themselves out of a purchase or question

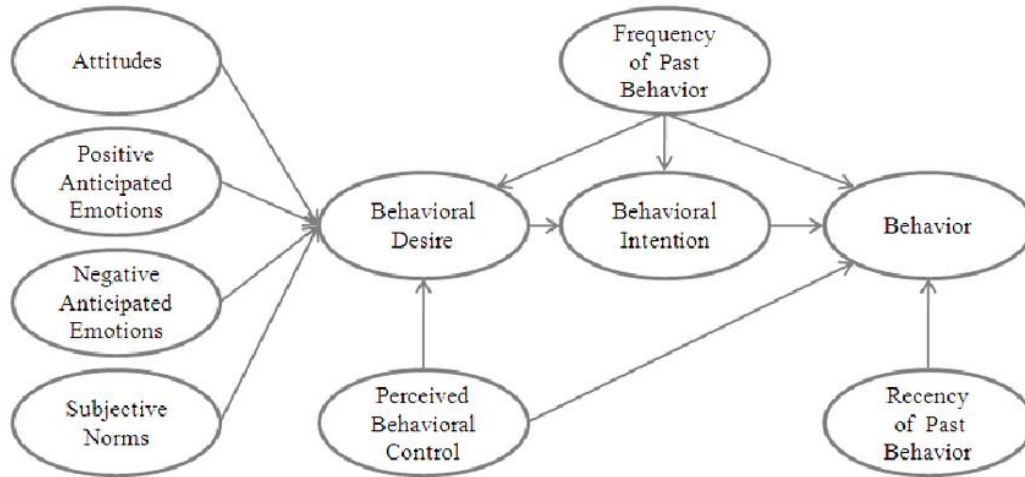
the outcome of the purchase. In addition to desire, attitude, beliefs and subjective norms, decisions are also influenced of past behavior and motivational and affective components of human behavior as explained in the model of goal-directed behavior (MGB).

### ***2.7.3. Model of goal-directed behavior***

The model of goal-directed behavior (MGB), introduced by Perugini and Bagozzi (2001), describes the decision-making mechanism, concerning various factors such as desire, past experiences, motivational and affective factors in addition to attitude, subjective norm, and perceived behavioral control.<sup>188</sup> The MGB was developed to apply to decision-making where behaviors are performed with the manifest purpose to reach a specific goal. According to the model, desire is regarded as the motivational state of mind that acts as the most proximal determinant of intentions, i.e., desire, not intention, is first influenced by attitude, subjective norms, and perceived behavioral control, then desire leads to behavioral intention.<sup>188,194</sup> Desires transform the motivational content to act embedded in attitudes towards the act, anticipated emotions, subjective norms and perceived behavioral control. Frequency of past behavior is further assumed to be a predictor of desires, intentions, and behavior, whereas how recently the past behavior was performed predicts behavior only. In MGB, the specification of anticipated emotions stipulates that the referents of anticipated emotions are personal goals, these emotions function as independent variables based upon a decision process that takes into account judged consequences of goal achievement and goal failure.

Perceived benefit is also a significant element in the decision-making process. Positive attitude towards a food and past experience can be significant in forming desire

and intention to purchase a food and thus may help parents' decision-making process for purchasing foods for children.



**Figure 2.3:** Model of goal-directed behavior<sup>188</sup>

#### **2.7.4. Social power theory**

The social power theory suggests that social power acts as a resource that people may deploy to exert influence on others. The concept of social power was initially introduced by Lewin in 1951 and later developed theoretically by French, Raven, and Cartwright in 1959.<sup>195</sup> There are five power bases in exercising influence on others.<sup>61</sup> These are expert power, legitimate power, referent power, reward power, and coercive power. Every person is thought to possess some combination of these five power bases. Flurry and Burns (2005) tested the social power theory on children on influencing family decisions not related to food but related to toys and games. Children used expert, referent, and reward bases of active social power by exhibiting knowledge about the product, selecting items that parents would approve, and rewarding parents with “good” behaviors to gain more control in parents’ decision-making process. Children also applied coercive

power which was sanctioning parents via negative actions. Children perceived that expert, referent, and reward bases of active social power were useful to influence parents positively. Coercive power might also be a useful influence technique from their perceptions, but they did not perceive themselves to have legitimate power. Parents perceived that their children could influence them passively by their legitimate right to participate in the decision-making process and knowledge and/or expertise in the product category.

The social power theory suggests that the five power bases may be utilized in two ways: actively and passively. Individuals usually use the power to achieve something from someone and apply their power directly or as a result of an intentional action; however, sometimes it may be passive, such as when the mere presence of power is influential.<sup>61,195</sup> Both active and passive social power contribute to a person's potential for directing an outcome according to his/her own preference. Thus, social power theory leads us to hypothesize that children exert influence via some combination of active and passive social power. Active social power is perceived and directly controlled by the child. To exert active influence, a child must make an assessment of his/her social power capabilities, choose an influence attempt consistent with his/her sources of social power, and exert action toward achieving his/her desired outcome.<sup>195</sup> A child's influence may also be passive, where there is no evidence of speech or overt action on the part of the child. In this sense, passive sources of power need only be possessed to have an effect. For a child, a power source is passive if the parent infers its presence and acts in lieu of any overt action on the part of the child. It is an influence attributed to the child by the parent or the parent's perception of a child's unstated preferences.<sup>61</sup> This theory of social

power can guide us to understand children's influence on food purchase decisions with families living in diverse household income and various family compositions.

#### ***2.7.5. Choice theory***

Choice theory explains that an individual can only influence his/her own decision or behavior, and that other people may only inform the actor of a behavioral preference.<sup>190</sup> According to this theory, behavior is always purposeful and represents a person's best attempt at meeting internal needs.<sup>190</sup> Glasser mentioned that "When you know choice theory, you will never again be controlled by forces outside yourself unless you choose to be."<sup>196(p12)</sup> Choice theory is based on the belief that all people's behaviors are motivated by the same five basic needs: (a) survival, (b) love and belonging, (c) power, (d) freedom, and (e) fun. The strength of these needs varies from individual to individual.

All human beings take in information from their environments through sensory and perceptual filters which he refers to as valuing filters. As information is taken in through the senses, it passes through our unique valuing filters, and we classify each perception as positive, negative, or neutral.<sup>196</sup> All behaviors are made up of four components: acting, thinking, feeling, and physiology. All four components are present and active all the time, and the current behavior is named by the most obvious component. Any changes in one of these components results in changes in the other three accordingly.



### ***2.7.6. Food choice process model***

The food choice process model, developed by Furst et al. (1996), represents the rich and complex bases of food practices, and provides a theoretical framework for research and practice in nutrition.<sup>29-31,33</sup> This model, developed with data collected from adults, outlines the general nature of the food choice process of an individual. The model “represents the types of factors and the process involved in a single choice event. Factors involved in food choice were grouped into three major components: (1) life course, (2) influences and (3) personal system.”<sup>30</sup> The relationship of these components to one another generates the process or pathway (indicated by arrows) leading to the point of choice.”<sup>30(p250)</sup> This model was upgraded further by Bisogni et al. (2002), Sobal et al. (2006), and Sobal and Bisogni (2009) giving more explanations of the rich and complex bases for food choice and its connection with food behavior.<sup>29,31,33</sup>

The food choice process model illustrates that ideals, personal factors, resources (both tangible and intangible), social framework and food context are the influences generated from a person’s life course and these influences inform and shape people’s personal systems.<sup>30,33,132,133</sup> Individuals make conscious value negotiation to execute his/her food choice. This value negotiation process within the personal system is a dynamic mental process that includes sensory perceptions, monetary considerations, health and nutrition beliefs and concerns, convenience, social relationships and quality of food choice decisions.<sup>30-33</sup> Connors et al. (2001) added symbolism, ethics, variety, safety, waste and quality as some less prominent values within the personal food systems.<sup>32</sup> These values are interconnected with one another and the priority of these values changes with each food choice episode depending on the food choice situation.

The above-discussed theories and models can provide a framework to guide the research on how to understand how individuals can make their food selection as well as food purchasing decisions. The theory of reasoned action, model of goal-directed behavior and decision theory provide a framework on food purchase decision.<sup>186,188,189</sup> Decision theory and model of goal-directed behavior inform us that decisions are triggered by decision maker's beliefs and desires and individuals may have a manifest purpose to reach a specific goal in their decision-making process.<sup>188,189</sup> We applied these theories to identify parents' food purchasing values when they made a purchase decision for their children's foods. Decision theory also illustrates how the decisions should be made and how the decisions are actually made.<sup>187</sup>

According to the theory of reasoned actions and model of goal-directed behavior, attitude, subjective norm, perceived behavioral control, past experiences, motivational and affective factors are mechanisms for a decision-making process which interact with one another.<sup>186,188</sup> These mechanisms influence a person's personal food system and shape a desire for a food in the personal food system. The food choice process model shows that individual's personal food system consists of cognitive processes where individuals adjudicate between different values and apply strategies to make a food selection.<sup>30,32,33</sup> All these values are inter-related, but their priority may vary with every decision-making episode.

Decision making for children's foods may not be much different than usual food selection by the adults, but these decisions depend on the parents. We need to think more on how the food selection is made for the children, how purchasing decisions are made

for children's foods and whether the parents are the sole actors in the decision-making process or whether children have roles too.

To get a detailed understanding on children's participation in parents' food purchasing decisions, it is also important to understand how a child make his/her food choices and what are the values that a child, between 6 -11 years, thinks about and negotiates to decide on a food and to acquire that food from his/her parents and how they influence their parents' food purchasing decisions to make them (parents) purchase foods according to children's choices. Social power theory theorizes that children may use active or passive powers to influence parents overtly or covertly.<sup>61</sup> Choice theory also considers power as a basic need including four more basic needs -- survival, love and belongings, freedom, and fun.<sup>196</sup> These basic needs, derived from choice theory, may have an interactive influence on parents' decision-making process.

Individuals apply different strategies to come to a decision on which foods to purchase. Intention, perceived control, actual control, and expected utility could be the strategies parents may apply to reach a decision. Hence, these theories provide a useful theoretical framework for understanding parents' food purchasing decisions for children and investigate for detailed in-depth information on parents' decision-making process, children's food choice process and influence on parents' food purchasing decisions for children aged 6-11 years.

## **2.8. Conceptual framework and significance**

### ***2.8.1. Summary of research gaps and specific aims***

American children consume high amounts of processed and ready-to-eat energy-dense foods and beverages containing low or no nutrients.<sup>1,25</sup> Household food availability

contributes to children's eating behavior, dietary intake, and body composition. U.S. households have high purchase of processed and packaged foods which were mostly EDNP in category and frequent consumption of these foods are associated with obesity.<sup>25</sup> Since children have poor adherence to the 2010 American Dietary Guidelines, and parents are the gatekeepers for provisioning foods for children, it is important to find out which foods and drinks parents purchase for their children vs. for their households.<sup>15</sup> The specific aim 1 of this study was to identify the foods and drinks that parents purchased for their households and determine if they bought the same foods for all or different foods for their 6-11 year old children vs. other household members. Our research questions were:

1a. Which foods and beverages parents purchased for their household?

1b. Which foods and beverages parents purchased specifically for their 6-11 years old children?

In addition to which foods parents purchased for their elementary school-aged children, it is also important to investigate the underlying reasons for parents' food purchase behaviors. Studies conducted on parents' food choices reported that parents valued cost, time constraint, health, nutrition, taste, all members' likes and dislikes, and cultural identity for selecting foods.<sup>71-74</sup> These studies focused on the values parents held for buying or preparing foods considering all members of the household, leaving a knowledge gap on what parents valued when they made food choices specifically for their elementary school-aged children. To bridge this gap, the specific aim 2 of this study was to understand how parents made decisions by adjudicating among different considerations including children's food preferences, children's influence, healthiness of

the foods, and financial resources when purchasing foods for their children. The research questions were:

2a. From the food lists obtained in Aim 1, for which foods and beverages, did children's preferences and requests have a role in parents' purchase decisions?

2b. What were the food purchasing goals for parents when they purchased foods for their children aged 6-11 years?

2c. What considerations did parents make for purchasing foods for children?

2d. How did the parents adjudicate among children's preference, children's influence, healthiness of the foods and other considerations to make the purchase decision?

Children tended to have a preference for EDNP foods.<sup>117,119</sup> Elementary school-aged children valued taste, texture, health, nutrition, packaging, emotions, hunger, eating context, social acceptability, and versatility.<sup>36,66-69</sup> We do not know how these children negotiate among these values when they make food choices. We also do not know if children also hold other values like time, convenience, managing relationship, ethics, variety, safety, waste, and quality which have been identified in adult's food choice process. The possible difference in existing food choice values between the adults and elementary school-aged children necessitates investigation with the children for a detailed and in-depth understanding of the values that they weighed in their food choice decisions. It is also important to find out whether their (children's) values had the same range and diversity as adults had. The current studies on children's food choices were solely focused on the values children hold but did not discuss how children negotiated among different

values to make food choice decisions and what strategies they used to influence their parents other than pestering and negotiation in store settings.<sup>118-124</sup> There remains a gap in understanding how children influenced parents in other settings when they did not accompany parents during food shopping. The studies on children's influence on parents were mostly conducted on younger children; hence, pestering was identified as the main strategy that children used to influence parents.<sup>113-115</sup> Children could influence family decisions, for example, regarding holiday destinations, restaurant selections, but we do not know how much they could influence regular food purchase decisions.<sup>101-103</sup> There also remains a gap on how the children and parents perceive their influence on parents' food purchases. To bridge the above-mentioned gaps, the specific aim 3 of this study was to understand the values children weigh to decide which foods and drinks they want their parents to buy for them, the strategies they use to influence their parents to get their preferred foods, and the extent of their influence on the foods that parents purchase for them (children).

Research questions related to specific aim 3 were:

3a. What did children value when they made their food choices from children's perspectives?

3b. How did children negotiate among different values to decide on foods to request from children's perspectives?

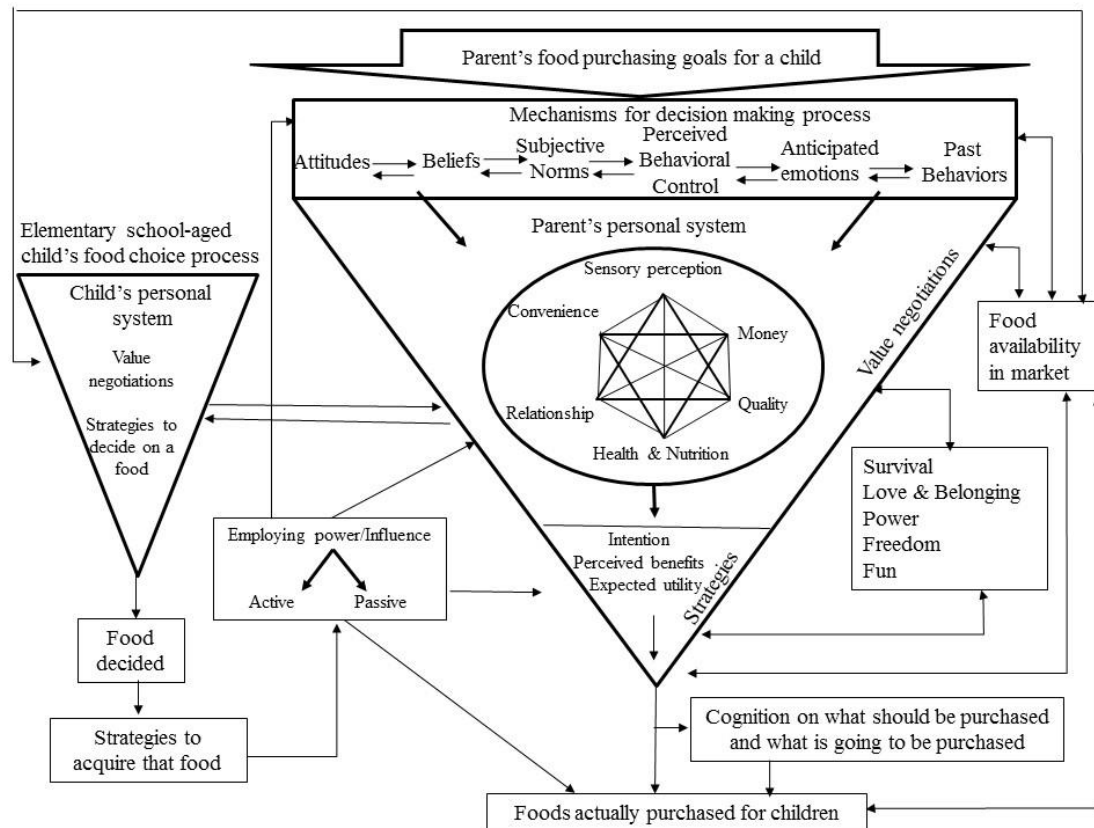
3c. What strategies did children use to influence their parents' food purchase decisions specific to children's consumption from both the children and their

parents' perspectives and how concordant were those strategies between the children and their parents?

3d. How did children and their parents describe children's influence on parents' food purchase decisions to acquire the foods children wanted?

### ***2.8.2 Conceptual Framework of the Study***

The conceptual framework of this study (Fig.2) was guided by the theory of reasoned action, model of goal-directed behavior, decision theory, social power theory, choice theory, and food choice process model.<sup>30,32,33,61,186-189,196</sup> The theories were applied to identify parents' food purchasing values when they made purchase decisions for their children's foods, what they intended to buy for their children, and what they actually bought. The theory of reasoned action, decision theory, and the model of goal-directed behavior guided us to identify the mechanisms that influenced parents' personal systems to shape desires for foods for their children. The food choice process model helped understand parents' cognitive process to adjudicate between different values including sensory perceptions, monetary considerations, health and nutrition beliefs and concerns, convenience, social relationships and quality of food choice decisions to make a food selection.



**Figure 2.4.** Conceptual framework

Parents' food purchasing decisions for children's consumption may require involvement of both the parent and child, because parents make the food available for the children and children consume those food; children may have active participation in food selection and decision-making process. A conceptualization of the role of children in the parents' food purchase decisions might lead to different explanations than the adult individual's food choice process model and add more insights on a joint food choice process. Most of the studies dealing with food choice examined the perspectives of the adults, not the children. Parents and children may have different value negotiations and different priorities to make food choice. To get a detailed understanding on children's participation in parents' food purchasing decisions, we investigated how children make



their food choices to identifying the values children, between 6-11 years, weigh to decide on foods and the strategies to acquire those foods from parents.

One significant element in food choice process model is strategies to acquire foods. Children may apply different strategies to influence parents' food purchasing decisions to make them (parents) purchase foods according to children's choices. The social power theory highlights some ways that individuals influence others to attain a desired outcome whereas choice theory states that decision making is an independent process rather than being influenced by an external entity unless the individual is willing to be influenced. Choice theory also considers power as a basic need including four other basic needs: survival, love and belonging, freedom, and fun.<sup>196</sup> These basic needs, derived from choice theory, may have an interactive influence on parents' decision-making process as well. We investigated how the other basic needs, besides power, fit with a parents' decision-making processes when they purchased foods for their children.

Open-ended, in-depth interviews were used to examine parents' decision-making process for purchasing foods for their children, the extent of children's influence on the parents' food selection from the perspectives of both the parents and the children. The in-depth interviews were also conducted to collect information from the children on how they (children) make a food choice and the strategies they (children) use for influencing their parents' food purchase decisions to develop a children's food choice process model. The interview guides for interviewing the parents and their children were designed, using the above discussed theories, with open-ended questions to understand parents' goal, decision making mechanisms including attitude, beliefs, and strategies including intention, actual control, for purchasing foods for their children. The theories also guided

us to develop the interview guide to collect information related to children's food choice and children's influence on parents' purchasing decisions for children's foods.

## **2.9. Significance of the Study**

Children's food consumption is a concern with the epidemic rise of childhood obesity in the United States.<sup>9</sup> Frequent consumption of highly processed energy-dense nutrient-poor (EDNP) foods is a lead contributor for childhood obesity whereas healthy foods including fruits and vegetables prevents obesity development. American children consume high amounts of processed and ready-to-eat energy-dense foods and beverages that contain low or no nutrients.<sup>1,25</sup> Children tend to have a preference for energy-dense foods like fast foods, sugar-sweetened beverages, sweet desserts and candies and these foods are purchased frequently at the household level.<sup>11,20,63,82,176,197</sup> Given that U.S. households have high purchase of processed and packaged foods which are mostly EDNP in category and frequent consumption of these foods are associated with obesity, it is important to understand if parents purchase those foods for everyone in their households or they buy different foods specifically for their children. This study was designed to identify the foods and drinks that were available for children at home by tracking which foods parents purchased for all members of the households and which foods they purchased specifically for their elementary school-aged (6-11 years old) children.

Children from low-income households are at higher risks of poor diet and obesity than the children of middle- and high-income households.<sup>40</sup> EDNP foods are typically inexpensive and, thus, affordable for people from all-income groups, particularly the low-income group.<sup>48,122</sup> There are more than 24 million children aged between 6 and 11 years

in the U.S. and 44% of them live in low-income families.<sup>119</sup> Children from low-income families are also at risk of experiencing food insecurity. Food insecurity can also exist in middle-income households.<sup>35</sup> Household food insecurity, along with financial hardship, may affect parents' and children's food selection.<sup>52,53,55</sup> People's purchase behaviors were influenced mostly by the cost of foods followed by health, preference, and time constraints.<sup>52,53,55</sup> Given that parents are the gatekeeper for provisioning children's foods, this study investigated the underlying reasons for parents' food purchase behaviors in relation to which foods they purchased for their children, why they purchased those foods, how the cost of items affected their decisions, and whether the parents at different food security levels differed in making food selections for their children.

To understand parents' food purchase behaviors, it is important to examine how parents made food purchase decisions for their children. For children below five years old, parents valued health, nutrition, taste, price, political concerns and advertising.<sup>41</sup> For elementary school-aged children, parents valued all family members' likes and dislikes (including the child's), cost, cultural identification and time constraints.<sup>42,43,45</sup> For adolescents, parents valued cost and budget.<sup>44</sup> For low-income families, parents primarily valued monetary concerns, and when they had money, they valued children's food requests.<sup>45</sup> Given that individuals have a wide range of values in their food choice decisions, as identified in previous research, there remains a gap whether the values parents hold for children's food purchase decisions are limited only for preference, cost, culture, and time constraints or whether parents weigh other values as well. From parents' in-depth interviews, this study articulated what parents valued when they made food choices specifically for their elementary school-aged children and focused on how

they came to purchase decisions for the foods and drinks by adjudicating among different values.

Food habits developed during childhood are crucial as those habits persist in adulthood.<sup>27,198</sup> Elementary school-aged-children have high consumption of added sugar, salt, and refined grains and less consumption of fruits and vegetables.<sup>199</sup> To address children's existing dietary patterns dominated by EDNP foods, it is important to understand how they construct their food choices. People negotiate among different values in constructing their food choices and apply strategies to acquire their desired foods.<sup>30,32,33</sup> Current studies identified a set of values including taste, texture, health, nutrition, packaging, emotions, and hunger that elementary school-aged children held, but these studies did not show how these children negotiate between these values when they made food choices. We also do not know if children's food choice values are limited to these values or if they also hold other values which have been identified in adult's food choice process. This research was designed to identify in detail the values that children weighed in their food choice decisions and whether their values had the same range and diversity as adults had. This study also provided detailed information on how they cognitively negotiated among different values to decide on which foods and drinks they desired to consume. The information on how 6-11 years old children made their food choices was collected using qualitative in-depth interviews with the children.

There is a gap in existing literature on how the elementary school-aged children try to influence their parents to get their desired foods and drinks in addition to using pester power and negotiation in store settings.<sup>70,76,81</sup> There also remains a gap on how much these children interact with their parents to influence them (parents) to get their

(children's) desired items outside the store settings. Through qualitative methods, this study provided detailed information on the strategies children use to influence parents and the extent of children's influence on parents. Children's logic and reasoning abilities could be qualitatively different from those of adults;<sup>60</sup> this study collected information from both parents and children to find out how they perceived the strategies children used to influence parents and the extent of children's influence on parents' food purchases. This study also highlighted the concordance between parents and children on the strategies children use to influence parents. The findings of this study informed us of the perspectives of both the parents and the children, which would add to the literature a greater understanding of how parents thought about their children's dietary intake, how children articulated their food choices by negotiating among different values, and how both of the parents and children's perspectives on strategies to influence parents translated into actions.

The information collected in this study is important to public health professionals, parent activists, community organizers and others who seek to mobilize concern around children's nutrition and find effective ways to shape healthy eating initiatives. The information collected from the low- and middle-income parents highlight what they experience in reality when making food purchasing decisions; we hear from them what they intended to buy for their children, what they bought, and what values drove them to purchase those foods and drinks. The findings of this research guide us to develop appropriate strategies for the low- and middle-income parents and children to help them make healthy food choices using their own experiences. The study findings also could be used to inform the development of strategies for parents to positively interact with their

children, address children's influence on parents' food purchases, and encourage children to consume healthful food options. Findings on children's food choice values and negotiation among different values guide us to develop appropriate child-specific intervention programs to help improve children's food choices, promotion campaigns and materials for children to improve child nutrition. Improving children's food intake will in turn, help achieve the recommendations for the Dietary Guidelines for Americans in coming years and prevention of childhood obesity.

## CHAPTER 3

### RESEARCH DESIGN AND METHODS

#### 3.1. Study Design

This study used qualitative methods. Data were collected from the participants by conducting in-depth interviews using open-ended questions. Open-ended questions were used to enable researchers to understand and capture the points of view of the participants in their own terms without predetermining those points of view through prior selection of questionnaire categories.<sup>200</sup> Loftlane (1971) suggested capturing participants 'in their own terms' to understand their thoughts and experiences.<sup>200</sup> Direct quotations were used as the basic source of raw data in this qualitative study, which revealed the participants' thoughts about what was happening, their experiences, and their basic perceptions, the ways they had organized their world, and the depth of their emotions.”<sup>200(p21)</sup>

The qualitative design of this study gave us the opportunity to learn directly from the parents interviewed about their food purchase behaviors and their experiences on buying foods for their children. As John Loftlane suggested, “.... the qualitative methodologist must aim at capturing what actually takes place and what people actually say...”<sup>200(p28)</sup> Since the qualitative design allows researchers to understand a problem from human experiences, we learned from the parents how they decided on buying foods and drinks for their children in their (parents') “own terms.”<sup>30,200</sup> This research also revealed from children in their (children's) “own terms” how children made their food

choice and what they did to influence their parents to acquire their desired foods and drinks.

### 3.2. Setting Description

This study was conducted in Columbia and its surrounding areas in South Carolina. Columbia is the capital of South Carolina and the largest municipality by population in the state, with a population of 133,451 per the 2018 U.S. Census.<sup>201</sup> Nearly half of the total population in Columbia (48.8%) were non-Hispanic White, 40.4% were African American, 5.4% were Hispanic, and 2.7% were Asian in 2018.<sup>201</sup> Eleven percent of the total population in Columbia are between 6 and 17 years old.<sup>201</sup> Twenty-three percent of people in Columbia lives in poverty, an income below the 100% of federal poverty level.<sup>201</sup> Columbia is located predominantly in Richland County, with the remainder in bordering Lexington County (Table 1).<sup>201</sup>

**Table 3.1:** Total population, race/ethnicity, median household income, and poverty rate in Richland and Lexington counties in 2018

	Richland	Lexington
Total population (n)	414,576	295,032
Population by race/ethnicity		
Non-Hispanic white (%)	42.1	74.5
African American (%)	48.2	15.5
Hispanic (%)	5.2	6.3
Asian (%)	2.9	2.2
Median household income (\$)	\$53,922	\$59,593
Poverty rate (%)	16.7	12.5



The study was conducted in the home settings of the participants. The information was collected from parents' food purchases for household and children's consumption of foods and drinks at home or provided from home.

### **3.3. Sample**

The target population for this study was elementary school-aged children (6-11 years old) and their parents living in low- and middle-income households from Columbia and its surrounding areas in South Carolina (SC). In the entire state of SC, there are 556,306 families with 1,063,067 children under 18 years of age; 48% of children, aged 6 or older, living in low-income families. including poor families.<sup>202</sup> The median household income was \$54,336 in SC in 2016 and \$45,663 in 2018.<sup>117</sup> To get a diverse sample, information was collected from both low-income and middle-income households living in the study area.

Purposive criterion sampling was used for this study to recruit 40 SC residents living in Columbia and its surrounding areas with at least one child in elementary school. A diverse sample of non-Hispanic White, non-Hispanic Black, Hispanic, and migrated parents along with their children was targeted for recruitment in the study.

#### *Justification on the sample size determination*

This study was a qualitative research study in which the meaningfulness, validity, and insights generated from data have more to do with the information richness of the cases selected and the analytical qualities of the researcher than with the sample size. Patton suggested that the "sample size depends on what we want to know, the purpose of the study, what is at stake, what will be useful, what will have credibility, and what can

be done with available time and resources.”<sup>200</sup> If the cases are information-rich, in-depth information from a small number of people can be valuable. Still we can get some guidelines from the previous studies using qualitative methods for data collection based on qualitative inquiry.

In this qualitative study, the open-ended non-leading questions were used from semi-structured interview guides for data collection and grounded theory method was used for data analysis. For a grounded theory methodology Creswell (Mason 2010) and Marshall et al. (2013) suggest a sample size of 20-30; while Morse (2000) suggests 30-60 participants if semi-structured interviews are used or 20-30 participants with two to three unstructured interviews per person.<sup>203(p4),204,205(p20)</sup> Since this study used qualitative interviews as the only method for data collection, a review of 560 PhD studies conducted by Mason (2010) showed that the mean sample size was 31.<sup>204</sup> Keeping in consideration the experiences of the previous studies for sample size determination, we decided to collect information from 40 parent-child dyads.

### **3.4. Recruitment**

Participants were recruited using advertisements. Flyers, developed with study information, were circulated in community organizations, such as public libraries, churches, food banks, and after-school programs to inform local residents of the study (Figure 3.1). Only parents of 6-11 years of children and their parents were eligible for this study. The flyer contained the contact number and email address of the interviewing researcher so that interested and eligible parents could contact the researcher. Once contacted by the parents, further eligibility was checked to recruit the participants who

qualified for the study. If any parent had two or more children aged 6-11 years, the eldest one within this age-limit was recruited for the study. The researcher then made telephone contacts with the parents to schedule interviews.

**Participants Wanted  
(Both Parents and Children)**

**Hello Parents!**

- ✓ Do you have a child between 6 and 11 years old?
- ✓ Are you a primary food shopper for your child?
- ✓ Are you English-speaking?
- ✓ Do you want to share with us how you make decisions when buying foods for your child?

**WE ARE LOOKING FOR YOU!**

- We want to interview **YOU** to hear about your food purchase experiences for your child.
- We also want to interview **YOUR CHILD** to hear from him/her about his/her food choice.

**Total duration: ~2 hrs  
Total Compensation: \$30**

**If interested or require more information, please contact:**

Nazratun Monalisa  
Phone: 803-719-6932  
Email: monalisa@email.sc.edu

**All information will remain confidential**

**UNIVERSITY OF  
SOUTH CAROLINA**

**Figure 3.1:** Flyer for recruitment of participants

#### *Inclusion criteria*

The inclusion criteria for recruiting the participants were:

1. The participating parent was a parent of at least one child aged 6-11 years old and the participating child should be 6-11 years old and enrolled in an elementary school in Columbia, SC.

2. The parent and child were living in the same household.
3. Both the parent and the child were living in Columbia and its surrounding areas in South Carolina.
4. The parent was a primary food shopper in the household and caregiver of the child.
5. The parent was from a low- or middle-income household, i.e. parents' annual household income was below \$109,000 (200% of household median income of people living in South Carolina which was \$54,336 in 2016 (U.S. Census Bureau)
6. The parent and child could understand and speak English fluently.
7. The parent had purchased foods for the household in which the child lived within past seven days.
8. The parent was willing to share the food purchasing receipts with the interviewer.

#### *Exclusion criteria*

The exclusion criteria were:

1. A mother was pregnant
2. A parent was very sick
3. A child had a mental disability, any developmental disorder or any other chronic health conditions for which he/she was under a special treatment diet.
4. A child had any severe food allergy for which he/she has strictly restricted eating.

Fifty-five parents—53 mothers and 2 fathers—contacted the investigator to participate in the study. From 53 mothers, four mothers were disqualified for their annual household income being over \$109,000, two mothers were excluded for pregnancy, two mothers declined the day before the interview day as their children were not with them,

five did not show up as they could not get out of work. Two fathers contacted the investigator but then declined because one father had a family crisis and the other father could not manage time for the interviews even after his interview was scheduled for three times. Finally, 40 mother-child dyads were interviewed.

### **3.5. Data Collection**

For this qualitative research, data were collected from 40 parent-child dyads. The parents were the primary food shoppers for the household, and the children were between 6 and 11 years old. Data were collected on parents' food purchases and foods selection for only one child in each household. If a parent had two or more children between 6 and 11 years old, data were collected only about the eldest child. If the eldest child, aged between 6 and 11 years did not live with that parent, then data were collected on the other child who met the age criterion and lived with the parent in the same house. Face-to-face in-depth interviews were conducted with the parents and children. Each parent-child dyad was interviewed in one visit but separately. After the parents' face-to-face in-depth interview ended, the face-to-face interview was conducted with the children. Children were not present during parents' interviews and the parents were not present during their children's interviews. A detailed description of data collection from the parents and children is given below:

#### ***3.5.1. Manuscript 1: Primary values driving parents' food purchase decisions for children***

For manuscript 1, data were collected only from the parents. Data were collected on parents' food purchases for their households and for the elementary school-aged children who participated in the study. The foods and drinks that parents purchased

during the seven days prior to the interview dates were included for this study. The purchases included all foods and drinks that were purchased from grocery stores, supermarkets, pharmacies, convenience stores, fast-food restaurants, dine-in restaurants including meal purchases for the children from full-service restaurants, food delivery, and meals picked up as takeout. Food shopping receipts were collected from the parents to make a list of foods and drinks purchased by face-to-face in-depth interviews with the parents.

#### *Food shopping receipts*

Food shopping receipts were collected from the parents and a list was made on all the foods and drinks purchased for the households and for the study participant children during the week prior to the interview date. The reason for collecting receipts on multiple events in multiple days was that if a parent bought only one food or drink item for the child in his/her recent shopping from a convenience store and did a large-volume food shopping two or three days ago, data could be missed on that large-volume food shopping if we considered only the recent one-day food shopping. Similarly, if a parent did grocery shopping the day before the interview and also had a fast food take-out two days ago, data could be missed on that fast food purchase if we considered only the recent one-day food shopping. Hence, instead of asking for only the recent shopping in a day, we asked questions on all foods and drinks purchased from different stores and restaurants in the week just prior to the interview. These gave us an overview of which foods and drinks the parent from each household bought for the entire household and specifically for the corresponding child (participating in the study).

### *In-depth interview with parents*

For the in-depth interview, the parents were asked open-ended questions using a semi-structured interview guide. The interview guide was developed (Appendix A) and pre-tested to assess its acceptability and was improved by scrutinizing four interviews with an iterative process to prepare the final interview guide for achieving better quality of information.

The first manuscript included specific aims 1 and 2 of the research. The specific aim 1 was to identify the foods and drinks that parents purchased for their households and determine if they bought the same foods for all or different foods for their 6-11 years old children vs. other household members manuscript. The specific aim 2 was to understand how parents made decisions by adjudicating between different considerations including children's food preferences, children's influence, healthiness of the foods, and financial resources when purchasing foods for their children.

To achieve specific aim 1 of the study, the interviewer asked the parents questions related to their food shopping events, foods purchased, and shopping behaviors. The interviewer asked each parent non-leading open-ended questions for describing their food shopping events from different venues during the week prior to the interview. The follow-up questions were generated from the responses of the parents. These included a detailed description of a parent's recent food shopping events from different food stores, including supermarkets, grocery stores, fast-food restaurants, dine-in restaurants, take out delivery, convenient stores or any small stores they have done in a week. Parents were also probed to find out if they missed any of the foods that they purchased and did not mention. Similar questions were asked about the drink purchases for each parent

including which drinks the parent purchased for the entire household and which were specifically for the child in the last 7 days shopping events. The interviewer also asked questions about the parent's frequency of food shopping.

From the list of purchased foods, the interviewer asked each parent to report all foods and drinks that were purchased for everyone in the household. Then they were asked to report all the foods and drinks that were purchased specifically for the participating child and which foods and drinks the child consumed from the list. The interviewer recorded all the foods and drinks in writing. Then, starting with the first item of the list, the interviewer asked the participant whether the child liked the food and whether the child requested the food. Then the interviewer probed what the child expressed about their desired foods and drinks, and who decided about the foods.

Then the parents were asked questions on what values they adjudicated during their decision-making process for purchasing foods and drinks for their children. These questions were to achieve the specific aim #2 of the study which was to understand parents' decision-making process when they made food purchases for their elementary school-aged children. Values were conceptualized as the considerations that people weigh in the food-related decision-making process based on the work of Sobal & Bisogni (2009).<sup>31</sup> To identify the values, parents were asked about a) what considerations they made when they bought foods and drinks for their elementary school-aged children; b) what was most important to parents when they made food purchasing decisions for these children; and c) what was their goal when purchasing foods and drinks for the children of this age-group. The probes were followed by the monetary involvement, children's preferences, healthfulness of the food items and how the parents adjudicated among



different values. Next, the parents' interviews continued with the questions on the influences of their children on their food purchase decisions which has been reported in manuscript 2.

### ***3.5.2. Manuscript 2: Children's food choice values and strategies used to influence parents' food purchase decisions***

The manuscript 2 was developed from the specific aim 3 of the study. Specific aim 3 was to understand the values children weighed in their food choice decisions, strategies children used to influence their parents to buy their (children's) desired foods and drinks, and the extent of children's influence on their parents' food purchasing decisions. To achieve this specific aim, face-to-face in-depth interviews were conducted both with the parents and their children.

#### *In-depth interview with the parents (continued on the same visit)*

To achieve specific aim 3, the parents were asked non-leading open-ended questions for describing children's influence on parents' food shopping decisions to acquire children's desired items and the strategies children used to influence the parents' recent food shopping decisions from different food shopping during that one-week period for which store receipts were collected. To identify children's influence on parents' food purchasing decisions, parents were asked about how much influence the parents felt from their corresponding children. To identify what strategies children used to influence parents' food purchasing decisions, parents were asked a) what their children did to inform them (parents) about children's desired foods and drinks, and b) how the children tried to get the foods and drinks desired when the parents did not yield to the children's

requests. The questions were followed up with further probes generated from the responses of the participants to explain more of their lived experiences.

### *In-depth interview with children*

After the interview with the parent ended, a face-to-face in-depth interview was conducted with the child from each parent-child dyad. For children's in-depth interview, a separate semi-structured interview guide was developed (Appendix F). To develop an age-appropriate interview guide for children aged 6-11 years old and make the questions comprehensible at different reading levels, cognitive interviews were conducted with five children aged between 5 years 11 months to 10 years old and the interview guides were pre-tested.

The children were asked non-leading open-ended questions for describing their values in making their food choices, how they negotiated among different values, and how they (children) influenced their parents' food purchasing decisions to acquire their (children's) desired foods and drinks. To identify what the children valued for making their food choices, the children were asked: a) which foods they liked to eat; b) which drinks they liked to consume; c) why they liked those items; and d) what they liked about those foods and drinks. To identify children's value negotiation, children were asked how they picked the items when they decided on foods and drinks. To identify the children's influence on their parents' food purchasing decisions from the children's perspectives, they (children) were asked – a) which foods and drinks they requested during the week's shopping events; b) which ones their parents bought for them, and c) how frequently their parents bought those requested items for them (children). The children were also asked

the same questions that their parents were asked to identify what strategies children used to influence parents' food purchasing decisions. The questions were: a) what the children did to inform their parents about their desired foods and drinks that the children wanted to consume, and b) how the children tried to get their desired foods and drinks when their parents did not yield to the children's requests.

### ***3.5.3. Sociodemographic and food security information***

After both the interviews ended, the sociodemographic and food security information was collected from parents. The sociodemographic questions included the age of the child and parent, education of the parent, current school-grade being attended by the child, gender of the parent and the child, race/ethnicity, number of children in household, number of people in the household, and income of the parents/household. Food security information was collected using the six-item USDA Household Food Security Survey Module 2012 [given in Appendix G] (USDA, 2012). By using these items, the households were categorized as high or moderate food security, low food security, and very low food security. Using these items helped to explain how the low- and middle-income parents, at different levels of food security, make food purchase decision for children and how their children's influence affected their decision-making process.

The interviews with the parents and children were conducted at a place convenient for the participants and the interviewer. The interviewer contacted the parents over telephone 8 days prior to their interviews to set an interview date, time, and place according to the convenience of both the parent and child. The interviews were conducted either in a library or at the participants' home. The libraries were Richland County Public

Library, Lexington County Public Library, and Thomas Cooper Library of the University of South Carolina. After the interview date was set, the interviewer requested the parents to keep receipts for all food shopping he/she would make in that week. Each parent was contacted again one day prior to the interview to remind them about the interview and confirm the interview time and place. The in-depth interview with each parent lasted for one hour and the interview with each child lasted for 30 minutes.

#### ***3.5.4. Field notes and memos***

The interviewer took field notes during the interviews of both the parents and the children. The field notes were used as a tool for understanding the settings of the interviews and the expressions of the participants being interviewed that the interviewer observed during the interview. The field notes were taken in the setting of the interview, and the interviewer recorded the description of the interview setting, a description of the participants, their (both the parent's and the child's) facial expressions in response to the questions, listing of the foods, short notes on what the participant said or direct quotation wherever possible, the description of what the interviewer observed, and the interviewer's comments.

The interviewer (who is also a research investigator for this project) also wrote memos to herself on what she was learning upon completion of each interview. Merriam and Tisdell, (2016) cited Bogdan and Bilken (2011) "these memos, written during data collection period, can provide a time to reflect on issues raised in the setting and how they related to larger theoretical, methodological and substantive issue".<sup>207(p198)</sup>

The interviews were audio-recorded with prior permission from each participant. The interviews were transcribed verbatim and the quality of the transcription were

checked by the research investigators. Data collection for this proposed study took place from April to August 2018. Each parent-child dyad received \$30 cash incentive after completion of both the parent's and child's interviews.

This research was approved by the Institutional Review Board (IRB) of the University of South Carolina. Written consent forms (given in Appendix H) were used for parents' approval to participate in the study and verbal assent forms (given in Appendix I) were used for children's approval to participate in the study. Participants had freedom to leave the study at any stage of the observation or interview.

Since data were collected from parents and children separately, safety measures were taken for the children to ensure that they did not stay unsupervised, particularly when the interviews took place in a library. During the interviews of the parents in a library, children were arranged to play or read in the children's center of the library and they needed to be supervised by someone at least 16 years old. A high school student and a university student alternately volunteered to monitor the children in the library's children's center during the parents' interviews. For three children, their fathers came to monitor the children during the mothers' interviews.

### **3.6. Data Management**

NVivo software was used for data organization and management. NVivo software is developed by QSR International, to support organization, management, and analysis unstructured, or qualitative data (QSR; <http://www.qsrinternational.com>). Confidentiality was maintained for storing data. All the paper-format, audio-recorded and transcribed data were kept locked and the participants' identities were kept confidential. Identification numbers were assigned to the participants to ensure the confidentiality of

the participants. The ID numbers were used for the analysis. Only the investigators had access to the data.

### **3.7. Data Analysis**

NVivo software was also used for data analysis.

Data were analyzed using grounded theory method that provided a set of coding procedures to help provide some standardization and rigor to the analytical process.<sup>200,206</sup> The constant comparative method was used. The constant comparative method, first proposed by Glaser and Strauss (1967), involves comparing one segment of data with another to determine similarities and differences.<sup>200,207</sup> This helped identify the patterns in the data and these patterns were arranged in relationship to each other.<sup>207</sup> The categories emerged from the data.

The interviews were transcribed verbatim; initial categories were generated from the transcribed interviews using open coding process. First five transcribed interviews were used for generating initial coding. Codes were generated from each of these five transcripts independently. The researcher read each transcript repeatedly to get a holistic view, made short notes to sum up what was said in the text and generated coding from that transcript. After finishing with the first transcript, the researcher read the second transcript to generate coding from that one and continued this open coding process with the third, fourth, and fifth transcripts respectively.

After the transcripts were coded, the codes were reviewed by the investigators for robustness and appropriateness of the codes. Guided by the specific aims of the study, the investigators discussed the codes generated from the five transcripts and came to consensus on the initial categories. A codebook was developed using the initial

categories. Additional codes, categories, and concepts were added constantly in this codebook from the remaining transcripts. The codebook was revised in an iterative process from the transcripts to achieve the final codes.

### ***3.7.1. Data analysis for Manuscript 1***

Grounded theory method was used for analyzing data on parents' decision making for purchasing foods and drinks for children, presented in manuscript 1. Open, axial, and selective coding systems were used. Open coding was used to code the interviews, with the themes for decision making and values being guided by theories. After the initial round of coding, the codes were organized in sub-themes using axial coding. Following discussions with the research collaborators, the major overarching themes on parents' decision-making process were identified from the emergent themes and pre-existing themes guided by the food choice process model, theory of reasoned action, goal-directed behavior, decision theory, and choice theory. Then the subthemes were merged to generate the final values through the selective coding system. Field notes and memos were also taken for interview contexts. Coding matrices were used to compare parents' responses on their decision-making process by race/ethnicity, child age, household food security, income, and parents' education levels.

Food shopping receipts were used to make an assessment of food availability for children in the households for a seven-day period. Five lists of foods and drinks were developed from the food shopping receipts and interviews of the parents. The lists were: 1) foods and drinks purchased for everyone in the household, 2) foods and drinks purchased only for the children participating in the study; 3) foods and drinks purchased

because of children's preferences; 4) foods and drinks purchased because of children's requests, and 5) foods and drinks children consumed from the purchased items.

### ***3.7.2. Data analysis for Manuscript 2***

Grounded theory method was also used for data analysis on children's food choice and influence on parents to acquire foods according to children's own food choices, presented in manuscript 2. Open coding was used to code the interviews, with the themes for food choice values, influences, and strategies being guided by theories. A codebook was developed by the above-mentioned process and revised in an iterative process using constant comparative method. For this round of data analysis, the codes related to food choice values, strategies to acquire foods, and influences were organized in sub-themes using axial coding. Having discussion with the research collaborators, the major overarching themes were identified from the emergent themes and pre-existing themes guided by food choice process model, social power theory, theory of reasoned action, and choice theory. Sub-themes were merged to generate the final codes through selective coding system. Field notes and memos were also taken for interview contexts. Coding matrices were used to compare parents' and children's responses on the extent of children's influences on parents' decision-making process and the strategies children used to influence parents' decisions. Coding matrix was also used to compare responses by race/ethnicity, child's age and gender.

To analyze household food security information from the USDA 6-item food security questionnaire, scores 0-1 were categorized as high or moderate food security, scores 2-4 were categorized as low food security, and scores 5-6 were categorized as very low food security.



Two undergraduate students were involved with the project to transcribe the first 12 interviews. After each interview was transcribed, the research investigator checked the quality of transcription and discussed the interviews with them. The investigator discussed the initial coding with the research collaborators to refine coding and develop the above-mentioned codebook. Preliminary analysis was shared with research collaborators and peers in an internal research group to check the analysis.

#### *Data triangulation*

Data were collected from three sources – parents and their children from low- and middle- income households, and food shopping receipts. Using different sources helped to compare data and ensured credibility of the information collected.

### **3.8. Limitations of the study**

This qualitative study provided detailed understanding of the parents' food purchase behaviors, children's food choice values, and strategies to acquire their desired foods, and children's influence on parents' food purchase behaviors. This study also allowed parents to discuss their children's influences on their food purchase decisions in the context of their general parenting around children's food consumption.

Social desirability bias for reporting about purchasing unhealthy foods for children could be a challenge. To overcome this challenge, the interviewer established rapport with the parents by contacting them several times before the interview and created a comfort zone to talk to the interviewer about which foods and drinks they selected for the children regardless of the healthfulness of the items. The parents were also asked the questions with different probes, such as "Sometimes for taking gas, when we stop in the gas station, we may buy some candies, drinks, etc. for the child. Can you

please tell me if something like this happens to you too?” Did you buy anything from the convenience store for your child recently (such as in past seven days)? If so, what was that?” Food shopping receipts, collected from the parents for seven days shopping events prior the interview dates, also helped to minimize the issue with socially desirable responses from the parents.

Another limitation of this study was that only English-speaking participants were eligible to participate. Given that 48.8% of the total population in the study area were non-Hispanic White and 40.4% were African American in 2018,<sup>201</sup> there was a possibility that this study might not capture the experiences of some of the remaining 11% of the population who were non-English speaking (U.S. Census Bureau 2019).

## CHAPTER 4

### RESULTS

This chapter presents the results of the research in two manuscripts. The manuscript 1 addresses specific aims 1 and 2, i.e., to identify parents' food and beverage purchases for their household vs. 6-11-year old children and understand how parents made food purchase decisions by adjudicating among different values. The manuscript 2 addresses specific aim 3, i.e., to understand children's food choice construction, strategies to influence parents to get children's desired items and children's perceived influence on parents' food purchases. The manuscripts are prepared for submission in peer-reviewed journals. The journals have not yet been decided.

#### 4.1 . Manuscript 1

### **SATISFYING CHILDREN’S DESIRE: A PRIMARY VALUE DRIVING PARENTS’ FOOD PURCHASING DECISIONS FOR ELEMENTARY SCHOOL- AGED CHILDREN IN SOUTH CAROLINA<sup>1</sup>**

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<sup>1</sup>Monalisa NN, Frongillo, EA, Blake, CE, Steck, SE, DiPietro RB. To be submitted. Journal not yet decided

## ABSTRACT

**Objectives:** This study aimed to understand how parents made food purchasing decisions for their elementary school-aged children and how they adjudicated among different values to make a purchasing decision.

**Methods:** Semi-structured qualitative interviews were conducted with 40 parents from low-and middle-income families in South Carolina who were primary food shoppers for their elementary school-aged children and the households. The interviews were audio-recorded, transcribed verbatim, and open-coded. Coding matrices were used to compare parents' responses on their decision-making process by child age and household food security and income.

**Results:** Parents adjudicated among nine values when they purchased foods and drinks for their elementary school-aged children. Satisfying children's desire for a food or drink was the primary value parents identified as driving their food purchasing decisions. Parents also valued nutritional quality of the foods, children's acceptance of the foods, convenience of preparation, cost, health needs of the children, culture and tradition. Parents wanted their children to eat healthy but reported that they might need to compromise with the healthfulness of the foods because of their children's desire for less healthy foods. Parents wanted to accommodate those foods in their shopping list regardless of the cost if their children desired those foods. Strategies that parents applied to make a balance between children's desire, healthfulness of the foods, and price of the foods included purchasing store brand items, seasonal fruits, and items on sale and promotion, as well as setting rules for the children.

**Conclusions:** Making food purchasing decision for children is complex as children's desire and acceptance of a food are important in parents' decisions. Despite that parents valued nutritional quality of foods and health needs, they tended to buy less healthy foods to satisfy their children's desire.

## Introduction

Unhealthy dietary patterns of children in the United States (U.S.) necessitates a greater understanding of parents' food choices for their children. U.S. children have high consumption of processed, pre-packaged, and ready-to-eat foods and low consumption of fruits and vegetables.<sup>1-3</sup> Although not all processed or ready-to-eat foods are unhealthy, highly processed energy-dense nutrient-poor (EDNP) foods dominate children's diets and contribute to excessive intake of total daily energy, sugar, sodium, and fat.<sup>4-6</sup> Children have low fruit and vegetable consumption, which is problematic for their health because higher intake of fruits and vegetables is associated with lower risk of several chronic diseases including obesity.<sup>4-8</sup> Frequent consumption of EDNP foods and drinks is considered unhealthy due to the low or no nutrient quality of the foods and that they contribute to the epidemic rise of childhood obesity in the U.S. (18.5% in 2015-2016).<sup>6,9,10</sup>

Children consume processed, pre-packaged, and ready-to-eat foods both as meals and snacks. Frequent healthy snacking is recommended for children for its contribution to necessary nutrients in diet; however, often snacking contributes to a considerable amount of energy in children's diets as the quality of popular snacks is poor.<sup>11,12</sup> Energy-dense sweet desserts, salty foods, and drinks with added sugar are more popular as snacks than nutrient-dense snacks like fruits and vegetables.<sup>6,10,11</sup> These snacks--high in sugar, fat and salt, and low in fiber--lower the overall quality of a child's diet which contribute more to excessive weight gain in children than to provide vital micronutrients needed for the body.<sup>4-6,10,11</sup>

Foods consumed at home make up most of children's energy consumption.<sup>13</sup> Home is not only the main source of energy for children, but also the primary place for shaping children's dietary patterns which are built upon early food experiences, availability of foods and drinks at home, and accessibility to food and drink items.<sup>14–16</sup> Availability of foods and drinks at home is controlled by parents as they, particularly mothers, are the primary decision makers in family food choices and household food purchases.<sup>15,17</sup> At the household level, processed or packaged savory snacks, grain-based desserts, and soft drinks were among the top five commodities purchased.<sup>18,19</sup> The household purchases of processed or packaged foods indicate that these foods and drinks are available and consumed at home. Availability of low-nutrient foods in the household impacts children's food intake and causes children to consume more energy-dense foods and less healthy foods such as fruits and vegetables.

To investigate the food purchases of parents, it is important to understand their decision-making process. Value negotiations are a crucial element in food purchase decisions.<sup>20,21</sup> Food choice values are the “considerations that people bring to food choice (e.g., taste, cost, health, convenience, relationships) and the particular meanings and feelings that people attach to these considerations.”<sup>22(pS42)</sup> Individuals negotiate among different values in making their own food choices but it is not clear how they negotiate values when they make food choices for someone else.<sup>21,23–25</sup>

Parents play an important role in children's dietary intake by purchasing foods and drinks for their children.<sup>26</sup> As most parents are in charge of household food purchases, parents' food selection at the point of purchase is important toward



determining the foods that are available for children's consumption. Although there have been studies on parents' food selection for children, the focus of most of those studies was generally on pre-school children or adolescents.<sup>16,27,28</sup> For children below five years old, parents valued health, nutrition, taste, price, political concerns and advertising.<sup>29</sup> For adolescents, parents valued cost and budget.<sup>30</sup> For elementary school-aged children (6-11 years old), parents valued all family members' likes and dislikes (including the child's), cost, cultural identification and time constraints.<sup>31,32</sup> Low-income parents primarily valued monetary concerns, and when they had money, they valued children's food requests.<sup>33</sup> Given that individuals have a wide range of values in their food choice decisions, as identified in previous research, there remains a gap whether the values parents hold for children's food purchase decisions are limited only for preference, cost, culture, and time constraints or parents weigh other values as well. There also remains a gap in understanding how parents negotiated these values and how they addressed the value conflicts. To understand parents' food purchase decisions for their elementary-school-aged children, it is important to investigate how parents adjudicate between different values to decide on which foods and drinks to buy for their elementary-school-aged children.

The period between 6 and 11 years of age is crucial for the development of children's food consumption habits.<sup>34,35</sup> Children in this age group step into a wider social context with enrolment in schools and become exposed to those elements which have influential impacts on their knowledge and food desires.<sup>6,7</sup> During the elementary school years, children begin to process information with a gradual increase from a preoperational stage (when they have a limited ability to integrate knowledge) to a

concrete operational stage when they become better at logical and systematic thinking, develop their language skills, start using multiple pieces of information and learn about classifications.<sup>36,37</sup> These school-going children generally become more knowledgeable about marketing and more exposed to foods than before.<sup>8,9</sup> They might also develop an argument in favor of their desired food and drink items.<sup>10-12</sup> Children of this age group also bear a high burden of obesity as in the U.S. 18.4% elementary school-aged children (6-11 years old) are obese; for certain regions in the South, such as South Carolina, the prevalence was around 23% in 2012.<sup>9,38</sup> Since excessive consumption of EDNP foods and drinks is associated with obesity and these items are frequently purchased in U.S. households, it is important to understand how parents make food choices when they buy foods and drinks for their elementary school-aged children.

In understanding parents' food-purchase decisions for children, it is also important to learn the underlying reasons that make parents purchase energy-dense packaged and processed vs. nutrient-dense foods and drinks, as well as the values that drive parents' purchase decisions for their children. Moreover, it is important to understand how parents adjudicate between different values to decide on which foods to buy for their children belonging to this age group. This paper aims to address these questions through examining parents' food purchasing decisions for their elementary school-aged children and how parents adjudicate among different values to make a purchasing decision for these children.

## Methods

This study was conducted with parents of 6-11 years old children from low- and middle-income families in Columbia, South Carolina and its surrounding areas. Households that had an annual income below \$109,000 (that is below 200% of household median income in South Carolina for the year 2016) were included in this study. Forty parents participated in interviews about their purchasing of foods and drinks for their households as well as for their 6-11 years old children. All participating parents were the primary food shoppers for their households. Purposive criterion sampling was used, and participants were recruited through advertisements. Flyers, developed with study information and contact details, were circulated in public libraries, churches, food banks, and after-school programs to inform residents of the study area about the study. Eligibility was confirmed when parents contacted the investigator to express interest in participation.

Only English-speaking participants were eligible to participate. In the study area, 89.2% of the residents are Non-Hispanic White and African Americans (48.8% vs. 40.4%) with English as their primary language; 5.4% are Hispanic and 2.7% are Asian and speak a language other than English.<sup>39</sup> English-speaking Hispanic and other immigrant parents living in the study area were interviewed.

Data were collected on the food purchases made by the primary food shoppers and parents' adjudication on different values while making a food purchasing decision. The food purchases included any food and drink purchased from any store including grocery stores, supermarkets, pharmacies convenience stores, and fast-food restaurants,

as well as food, drink, or meal purchases for the child from full-service dine-in restaurants, food delivery, and/or takeout. Food shopping receipts were collected from each parent to capture all foods and drinks purchased for the household, including the participating child in the prior week, and parents were asked follow-up questions for further details from information taken from the food receipts to ascertain which foods were purchased for the whole household, the child, or just adults.

A face-to-face in-depth interview lasting one hour was conducted with each participating parent. The parents were asked non-leading open-ended questions about their recent food shopping events from different food stores during the previous week. We used a semi-structured interview guide with open-ended questions for the in-depth interviews to understand parents' values and decision-making process. We also asked parents about their strategies, intention, and control for purchasing foods for their children. We used the theory of reasoned action, model of goal-directed behavior, decision theory, social power theory, choice theory, and food choice process model to guide us as we developed the interview outline for the parents to collect information related to their food purchase decision-making process.<sup>20,21,40-45</sup>

To identify values, parents were asked about a) what considerations they made when they bought foods and drinks for their elementary school-aged children; b) what was most important to parents when they made food purchasing decisions for these children; and c) what was their goal to purchase foods and drinks for the children of this age-group. Values were conceptualized based on the work of Furst et al (1996) and Sobal & Bisogni (2009).<sup>20,22</sup>

The interviews were audio-recorded, and field notes were taken. After the interviews ended, parents completed a brief questionnaire on sociodemographic and food security information. Parents received a \$30 cash incentive for participating in the study. Data were collected from April to August in 2018.

## **Data Analysis**

A grounded theory method was used for data analysis. Open, axial, and selective coding systems were used. Open coding was used to code the interviews, with the themes for decision making and values being guided by theories. Interviews were transcribed verbatim and open-coded. Five interviews were coded first, and initial categories were developed. A preliminary codebook was developed from the codes derived from those five interviews, and additional codes, categories, and concepts were added in the codebook after each interview was analyzed. The codebook was revised in an iterative process using constant comparative method. After the initial round of coding, the codes were organized in sub-themes using axial coding. Having discussion with the research collaborators, the major overarching themes were identified, and subthemes were merged to generate the final codes through selective coding system. Field notes and memos were also taken for interview contexts. Coding matrices were used to compare parents' responses on their decision-making process by household food security, income, parents' education, and children's age. NVivo software (version 12) was used for data organization, management, and analysis.

To analyze household food security information from the USDA 6-item food security questionnaire, scores 0-1 were categorized as high or moderate food security,

scores 2-4 were categorized as low food security, and scores 5-6 were categorized as very low food security.

Two undergraduate students were involved with the project to transcribe first 12 interviews. After each interview was transcribed, the research investigator checked the quality of transcription and discussed with them about the interviews. The investigator discussed the initial coding with the research collaborators to refine coding and develop above-mentioned codebook. Preliminary analysis was shared with research collaborators and peers in internal research group to check the analysis was being done on a right track.

## **Results**

### ***Sample characteristics***

All the primary food shopping parents who participated in this study were mothers of the children. The mean age of mothers was 36 years. Of 40 mothers interviewed, 25 reported on their food and drink purchasing decisions for their elementary school-aged daughters and 15 on their sons. Children's mean age was 8.2 years. Over half of the mothers (55%) were non-Hispanic African American, 30% were non-Hispanic White, and 8% were Hispanic. Around half of the mothers reported having some college education or associate degree and one-fourth had an undergraduate degree. Twenty-four households had an annual income below \$35,000 and 23 households had low or very low food security. Fourteen households received a benefit from a food assistant program like Supplemental Nutrition Assistance Program (SNAP) and Special Supplemental Nutrition Program for Women, Infants, and Children (WIC).

**Table 4.1.** Socio-demographic characteristics of the participants

Responding parents	All Mothers (n=40)
Mean age of participating mothers (y)	36 (SD=9.1)
Mean age of participating children (y)	8.2 (SD=1.7)
	n (%)
Child's gender	
Male	15 (38%)
Children living with both parents	23 (58%)
Race	
African American	22 (55%)
White	12 (30%)
Asian	3 (7%)
Hispanic	3 (8%)
Mother's education	
Some college or associate program or technical school	19 (47%)
Undergraduate degree	10 (25%)
Annual HH income <\$35,000	24 (60%)
Receives food assistant benefit	14 (35%)
Food security category	
High or moderate food security	17 (43%)
Low food security	19 (48%)
Very low food security	4 (10%)

***Foods and drinks mothers purchased for children***

From the food purchasing receipts and mothers' interviews, mothers purchased an average of 37 food and drink items (1,476 in total) for their households in a week from supermarkets, grocery stores, and convenience stores. We categorized the food items as fruits, vegetables, meat, staples, cereal, cheese or dairy, chips and cookies, other snack items, ready-to-eat or frozen meals and other grocery items. Out of 1,476 items, parents

bought 142 in fruits category, 201 items in vegetables category, 109 in chips, cookies and crackers category, 124 in other types of snacks category, 118 items in cooked frozen items category, and 214 items in drink category. The drink items included fruit juice, fruit drinks, water, soda, sport drinks, yogurt, milk, smoothie, chocolate drinks, tea, and coffee. Mothers also purchased around 176 food items from fast food and other restaurants in the corresponding week.

Most items were purchased for everyone in the family. From the items purchased almost half of the items were those that the children liked. When prompted from the list of purchased foods and drinks about which items were purchased specifically for whom in the family, mothers mentioned around 400 food and drink items (26% of the total purchase) that were purchased only for the children participating in this study. The breakfast and snack items were particularly for the children. Cereal, pop tarts, waffles, and pancakes were the breakfast items that mothers bought for their children. Similarly, mothers bought different types of cookies, chips, bars, gummies, Lunchables, chocolates, and ramen noodles for their children's snacking. The fruits mothers bought in one week's food shopping were mostly for their children; the fruits included apples, strawberries, pineapples, oranges, plums, pears, and cherries. Chicken nuggets (happy meals) and pizza were the most common fast foods mothers purchased for their children's meals. Fruit juice, fruit drinks, yogurt, sweet tea, soda, and water were among the drink items mothers purchased for their children.

Mothers mostly purchased foods and drinks from eight grocery stores and supermarket chains located in different part of the study area. Mothers, irrespective of their household income levels, mentioned a specific store as they perceived that the



produce and food items available in that store were fresher and healthier than other stores and supermarkets. Some mothers also added that fruits, vegetables, and other healthy items were available in that store at a comparatively cheaper price than other grocery stores and supermarkets. One mother mentioned that she used to go to the farmer's market when she lived in New York, but none of the participating mothers (including her) mentioned that they went to the farmer's market in and adjacent to the study area during their one-week data collection period.

*“I used to live in New York, and they used to have a big farmer's market at something they call Union Square, in a train area, and you could always go there and it would be local produce, and it would be less expensive, and it was really fresh. Versus sometimes what you get in the grocery store will be kind of picked over.”*

Fast food store selection differed by household income levels. Mothers who were above the average income range (\$35,000 and above) purchased fast foods including chicken nuggets for their children from a certain store that they perceived to be healthier than any other fast food store. Mothers whose household annual income was below \$35,000 mentioned the name of a different fast food chain from where they purchased chicken nuggets for their children.

### ***Values mothers adjudicated for making children's food and drink purchasing decisions***

We identified nine values that the mothers adjudicated when they purchased foods and drinks for their elementary school-aged children.

### *A. Satisfying children's desire*

Satisfying children's desire was the most mentioned value driving mothers' food purchasing decisions. Children's desire refers to the foods and drinks for which children requested their mothers, or they (children) wanted to consume those foods and drinks, or they (children) expressed a preference for the foods and drinks. Almost all mothers were concerned about what their children liked. Most mothers said that when they made decisions for their children's food, the first thing they thought about was what their children liked, what they (children) wanted, and what they (children) asked for to eat and drink. Children's desire played a major role in mothers' food purchasing decisions irrespective of the children's presence or absence during shopping.

Mothers perceived that their children were vocal in expressing which foods and drinks they (children) liked and disliked. Children made direct requests at the store, at home, and in cars. Since food purchase was a frequent and multifaceted activity, mothers, from their previous experiences and conversation with children, also knew which foods and drinks their children liked or which items their children wanted based on prior requests, hence they bought those foods and drinks even if their children did not make a request for any item in that particular week. Some mothers also took into consideration what the child asked during a previous food shopping trip. Thus, the mother's knowledge of what their children like or want influenced them to decide which foods and drinks to buy for their elementary school-aged children.

*"I buy what he likes um, I usually buy a case of water because our water here tastes bad so I buy a case of water. He drinks the water sometimes. But he drinks a lot of sweet tea and a lot of soda. And milk. Well, he doesn't drink as much milk*

*as she (other child) does but... um.. and the juices, the little kid juices. We buy those, he likes those.” (Mother of 10-year old boy)*

Mothers also conveyed that the foods and drinks that they bought for their children during the one-week food shopping period prior to the interview days were largely the foods and drinks for which their children had a desire. The foods that mothers bought to satisfy their children’s desire included breakfast items, savory snacks, sweet desserts, and fruits from grocery stores and happy meals from the fast food restaurants. The drinks that mothers bought to satisfy their children’s desire were primarily sugar-sweetened drinks including fruit juice, fruit drinks, sweet tea, and soda; children also had a desire for yogurt and water (Appendices B-D).

### ***B. Healthfulness of foods and drinks***

Mothers valued nutrient quality and healthfulness of the foods and drinks when they made a food purchase decision for their children. Mothers mentioned that they wanted their children to eat healthy, to eat a variety of foods including fruits and vegetables, and to eat a balanced diet for healthy growth. They mentioned the food’s and drink’s healthfulness as a major consideration when they selected foods and drinks for their children. A majority of the mothers said that they (mothers) wanted to give their children healthy foods. Mentioning price of the healthy foods as an obstacle to buy those foods sometimes, some mothers said that they still wanted to give their children healthier versions of the foods.

*“Um, we don’t, we buy, I don’t like to buy chips, so I buy the veggie chips. I’m very brand loyal. And I only shop at two places usually, Kroger and Sam’s, or*

*Wal-Mart. So, Kroger has an area where stuff is (more) healthier... that's why I shop there more often. But like the chips, I buy veggie chips for the kids because my daughter, she really doesn't enjoy eating vegetables all together, so I had to try to finagle and be creative with that. My kids love fruits, and we're, we don't usually think outside of the box when it comes to being creative with diverse foods." (Mother of a 6-year old girl)*

When mothers were asked what they meant by healthy foods, they mentioned vegetables, fruits, yogurts as healthy foods, and water as a healthy drink. Some mothers said that foods that do not contain lots of sugar, dye, or chemicals were healthy foods. Mothers who valued healthfulness of the items also mentioned that they selected non-processed and organic foods as they thought that processed foods were not good for the children and had less nutrients.

*"We try to eat as much non-processed food as possible. We'll always try to do, in the morning we try to do eggs and bacon, grits, or the gluten free stuff, and then lunches and dinners we try to do like nitrate free hams, the turkey hams that you just saw on the list. We try to do gluten free bread with that as well, and then tuna for her. Then for dinner we do like rice and a protein, so that's where you'll see the chicken, the broccoli, the squash. That all goes together like over rice or something. That's how we decide." (Mother of a 10-year old girl)*

### **C. Cost**

Price of the foods was crucial in mothers' decision-making process, but it was not the most important element when the decisions were about the foods for their children.

How much mothers valued price of a food and drink depended on various conditions. Mothers considered children's desire for a food and drink and compromised with the price if the child liked an item. Mothers were more willing to buy healthy foods if their children desired healthy items. They mentioned that healthy foods were sometimes beyond their budget, yet they wanted their children to eat healthy foods. Some mothers perceived that the price of fruits was beyond their budget when they considered the full household, yet they bought fruits when their children requested.

Mothers used several strategies to make a balance between the price and healthfulness of the foods. Mothers mentioned that they looked for the items on sales or promotion to get the healthy items at a cheaper price. For the fruits, some mothers bought seasonal fruits, since fruits that were in season had a lower price than the fruits that were off-season. Mothers also bought store-brand of an item to get the item at a cheaper rate than the renowned brand.

*“Off the price of it. That's how I bought it, and the different sales that they have in the store. Which I picked the ones that's necessarily basically cheaper than, so I try to buy the store brand instead of the name-brand things because they're cheaper. If they have like a sale, like pick five items for \$20 or something like that, I would just grab some chicken, and then pork chops, and five different meats, and get it all for \$20.” (Mother of 6-year old girl)*

Fourteen mothers participated in a food assistance program such as SNAP or WIC. Participation in the food assistance program had an impact on their food purchase decisions for children.

*“Well, because I'm on food stamps, and I don't really have a lot of income coming in, I have to definitely take into consideration the price. Because I have to feed a whole family. So, if it costs too much and it's, like, 'cause when I do my shopping, I do family shopping first. Everything that the family needs, like the big meats and the rice and vegetables and stuff. And then like I'll get stuff for each one of my kids that I know that they like ... Like, when she gets like Kid Cuisines, I only get her one or two. Like, the first day of food stamps when I get it, I usually let her pick up something that she really likes and I let her eat it that day. And then she won't have it anymore. Like the Lunchables and Kid Cuisine, I only buy that one time. I don't really buy a whole bunch of those.” (Mother of an 8-year old girl)*

Some mothers perceived that the price of healthy items, like fruits and non-processed items, were beyond their affordability. Hence, they thought about how they could make their children consume more portions of a healthy item. A mother said:

*“My goal is definitely to try to get her to eat more fruits, but um, I also think that when she has the fruit juice, I kind of think it's the same, I don't know if it is, but I do feel like well that's the same thing so, go ahead and get the juice. But I would still like her to um eat the fruit. Because the fruit is definitely (more) cheaper than the juice because the juice is high, it's like \$4 for a container and we could have got like maybe 10 apples for \$4 instead of just one little thing of apple juice. (Mother of a 9-year old girl)*

#### ***D. Convenience in preparation***

Mothers bought convenience foods for their children for different reasons. They mentioned that they wanted to have something easy-to-prepare for their children or something ready-to-eat so that children could easily get the item to eat or drink. Mothers usually bought convenience items for breakfast and snacks as well as lunch when children brought lunch from home (list in Appendix B).

*“She likes to bring her own lunch and Lunchables are ... doesn't have to be heated up or anything like that. It's a pick me up. It's something that makes them happy. I think happiness, that makes a difference for me because if I know that she'll have that much, a better day, you have to think about it when they go to school. You don't have to wait in the lunch line. You just go sit down at your table, eat. That's like five, ten more free minutes that you have to yourself during the day. That's a big factor for me.” (Mother of a 9-year old girl)*

Food purchase decisions were also dependent on the mothers' work schedule for a week. Sometimes mothers were too busy to manage time to cook foods. Mothers' busy schedule and lack of time for cooking also influenced their decisions to buy convenience foods including frozen microwave-ready dinner, fast food take out, or eat out frequently. Some mothers mentioned that when they were not in a mood to cook a meal, they opted for buying convenience foods for their children. Some mothers tried to make a balance between healthy and convenient foods.

#### ***E. Acceptability of the food or drink***

Mothers also valued acceptability of a food and drink by their children. Besides child's desire of a food, some mothers considered whether the child would accept a food or not when they made food purchasing decisions for their elementary school-aged children. The children of this age-group can give their opinion for foods and drinks; hence, mothers thought about whether the child would eat the foods or not. Mothers mentioned that they did not want their children to stay hungry, or the foods to go to waste. So, they bought those foods which they knew that their children would eat. A few of the mothers said that they (mothers) tried to buy new foods for their children once, but if children did not like the foods, mothers did not try to buy those foods again. Some mothers gave their children new items only when the child asked for that item.

*“Well I go with what I know he’s going to eat, what his favorites are, and what my child’s going to eat. Because I don’t want to get something that he’s not gonna eat where he’s sitting at home and he doesn’t have nothing to eat because he won’t eat it. He doesn’t like it. So, I make sure I get what he likes to eat.” (Mother of an 8-year old boy)*

#### ***F. Health needs of the children***

Mothers paid attention to a child's health needs when they considered which foods to buy for their children. Mothers wanted their children to grow up healthy, so they thought about how to keep their children away from adverse health conditions, such as cavities, obesity, and diabetes. Most of the mothers were concerned about dental cavities; only two mothers mentioned that they are concerned about obesity and one mother mentioned high blood pressure and diabetes because of the family history. Mothers



showed concerned about the amount of sugar in the foods and drinks. A few of the mothers were concerned about the amount of sodium and fat in the foods and some about calories per serving.

*“I buy them certain juices, like I drink just cranberry juice and water. I try not to give them too much of sweet juices, so I get them the organic juices, or the water Caprisun... the ingredients and it depends on how much sugar in it...cause too much sugar in the juices, I've learned that even if you don't give your kids candy, juices can mess up their teeth. So, I try not to give them stuff with much sugar. I try to give them stuff with less sugar in it.” (Mother of a 6-year old boy)*

#### **G. Caring about children’s emotion in front of friends**

A few mothers reported that children requested foods and drinks that they viewed their friends eating at the school or playground. Sometimes the foods or drinks (the ones that children requested upon seeing their friends eating and/or hearing about from their friends) were not as healthy as what mothers wanted to feed their children. When children asked for those foods and drinks with a reference to their friends, it created a social pressure on the mothers. The mothers did not want their children to feel emotionally low or isolated in front of their friends. Hence, they bought the foods their children asked for even if that food was not healthy.

*“Um, just I’m meeting her needs, I mean whether being nutritional, emotional, or you know anything, I would say, um. ...I mean I don’t want, um - I would say there’s a bit of a social emotional component to it in that I don’t want her to feel so isolated from her friends, like you know- I don’t have anything in my lunchbox*

*that looks like what my friends have, um so um so sometimes that does influence my decisions.” (Mother of an 11-year old girl)*

#### **H. Culture and tradition**

Mothers valued their cultural identity and traditional dietary behavior when they made food purchase decisions for their children. Culture refers to the way of life, particularly the general customs and beliefs of a particular social group at a particular time, and tradition refers to the inherited, customary pattern of behaviors transmitted from one generation to the other.<sup>42,43</sup>

*“I consider that we eat a lot out...we try to go to restaurants that are similar to our culture, so for example um Mexican restaurants or Salsarita’s, that they have some similar options is what we like.” (Mother of an 8-year old girl)*

A few of the mothers mentioned about their Asian and European origin. These mothers from different cultures went to specific stores to find the foods of their culture. One mother said, *I'm also part German and they're a German company. So every once in a while, I can find something that I remember from my childhood. That's pretty it.” (Mother of a 7-year old boy)*

Another mother mentioned that she wanted to be careful about making food selections for her son from her experience in her childhood. She ate a lot of starch, so she might not want him to be used to with certain cultural food.

*“He hasn't got used to rice yet, I don't think, because I don't have that much rice. I grew up around it all the time, my mother used to tell me. She's like because we grew up with grits and rice and all that in the country, she's like, "We stay away*

*from so much starch." That's a lot of starch, and breads and stuff. I grew up with all of that, and I'm seeing now that he doesn't care too much for it at all. (Mother of a 6-year old boy)*

A few mothers valued the tradition of particular dietary patterns in their childhood when they made food purchasing decisions for their children. Some mothers wanted to replicate those traditions and a few of them took a lesson from the unhealthy foods they consumed and wanted to avoid buying those foods for their children.

*"I guess I would honestly probably go a lot from how I was raised. I think that trickles down into what we do. I guess I was allowed to drink Sprite. So I'll get him Sprite. I think it's one of the soft drinks that doesn't have caffeine in it, and if we have it, he gets one a day. He'll get one at dinner time and he usually doesn't finish the can. (Mother of a 7-year old boy)*

### ***I.      Autonomy support***

Mothers also valued children's decision-making autonomy support when it was about buying foods for the children. Here, autonomy support referred to children's active participation in the food purchase and selection processes and decision-making power. Beyond children's active intention to be involved in the process, some mothers wanted their children to participate actively in the decision-making process. Hence, mothers let their children make the list of the foods and drinks and mothers bought those foods and drinks for the children. Valuing children's decision-making power was not universal as we found only mothers of older children, particularly those who are 10 years old or above, mentioned that they valued children's decision-making power. Moreover, this power also helped parents make their decisions.

*“I think she does ...She makes healthier choices than I do. Because I would always pick French fries and she usually picks rice or a vegetable.” (Mother of a 10-year old girl)*

### ***Value adjudication by income and education***

Twenty-three mothers (60%) reported that their household annual income was below \$35,000 which comprised the lowest three income ranges in the study. Eight mothers reported their household income was at the highest three income ranges (\$75,000 and above) and nine mothers were in the middle with household income between \$35,000 to \$74,999. Mothers from households with an annual income of \$75,000 or higher mostly adjudicated among satisfying children’s desire, healthfulness of items, convenience, and children’s emotions. Mothers who were from the households between \$35,000 and below \$75000 mostly adjudicated among satisfying children’s desire, healthfulness of items, convenience, children’s health needs, emotions, food acceptance, and food culture and tradition. On the other hand, mothers who were below the average income range (below \$35,000) mostly adjudicated among the satisfying children’s desire, food acceptance, price of the items, healthfulness, convenience, children’s health needs, autonomy power, and culture and tradition.

Mothers with a bachelor’s degree or higher educational attainment mostly adjudicated among satisfying children’s desire, healthfulness of items, convenience, children’s health needs. Some of these mothers were strict on the healthfulness of items, but some mothers also purchased frozen processed and ready-to-eat foods due to the convenience of those items. Some mothers who had an associate degree also mentioned

that they made a balance between children's desire and healthfulness of items by purchasing organic items of the foods that their children desired, for example, organic fruit snacks and organic granola bars. Mothers who had a high school diploma or did not complete high school education mentioned that they mostly valued their children's desire or acceptance of foods, price of the items, and healthfulness of items. Mothers from all education levels wanted to make a balance between healthy and unhealthy items,

### ***Value conflicts***

Values mothers held for purchasing foods for their children often conflicted with one another. Among the nine values, mothers described frequent conflicts among satisfying their children's desire, the healthfulness of an item, the price of an item, convenience, children's food acceptance, health needs, and emotions when they made food purchase decisions for their elementary school-aged children. From there responses, the conflict between satisfying children's desire and healthfulness of foods items was identified as a prominent one. Mothers wanted their children to stay in good health; however, they (mothers) extensively valued satisfying their children's desire for an item irrespective of the healthfulness of the said items. Hence, they tried to adjudicate between the child's desire and the healthfulness of the items. Some mothers, however, remained strict regarding the healthfulness of the item over the children's desire for it.

*“Well, healthiness for me is foremost the important thing. Her preference, I care about her preference, but not so much until like it's going to, it's not going to benefit. You know if it's not going to benefit her, I am not worrying about her preference too much if it's not gonna benefit her. Sometimes I'll worry about, you*

*know, let her get her preference for as like the fruits and vegetables. Like chips, that stuff, we don't have to have that.” (Mother of 11-year old girl)*

Some mothers gave priority to the child’s desire and emotions to make the child happy, yet they tried to provide a healthier version of the item that the child desired to resolve the conflict. Mothers expected their children to enjoy the food, but they also thought that the foods should be good foods. For example, a mother mentioned that she purchased gluten-free Pop-Tarts for her daughter as she perceived those pop-tarts were healthier than the regular pop-tarts sold in the stores. Some mothers thought about the child’s desire, food acceptance, the food’s healthfulness, and health concerns and tried to make a balance by providing the child with a less healthy item along with a healthy item.

*“Well, I think about what she'll eat. What she likes, but it also healthy. Not everything is completely healthy, but I try to balance. So those frozen sandwich things, they kind of have a lot of sodium, but she also eats a lot of fruit so I felt like, well if I bought a lot of fruit, if she was eating that but she was eating a banana with it, maybe it's not so bad. (Mother of 10-year old girl)*

Affordability also factored in mothers’ food purchasing decisions for their children. Mothers applied different strategies so that they could afford healthy foods for their children. Some mothers mentioned that they preferred to buy foods and drinks from a particular store where they believed they could get better quality items and fresh produce at a cheaper price in comparison to other stores. One mother bought fruits and vegetables from an ongoing research project being implemented in their community known as “Food Share”.

*“I get the ‘food share’ box because I push fresh produce, I believe in it. So, we eat apples and oranges, bananas, whatever fruit comes in there. I just try to make sure they're eating a little bit healthier.” (Mother of an 11-year old boy)*

When mothers adjudicated among different values, they wanted to buy foods and drinks that would not exceed their food shopping budget. Hence mothers experienced conflicts among satisfying their children’s desire, convenience, and cost of the food or drink items. Mothers listened to what their child wanted to eat, but at the same time, they considered whether the items fit within their budget. They mentioned that the item should be reasonably priced.

*“Well, it has to be reasonably priced. I’m not going to spend a fortune on just catering to, you know, the picky eater of the family who only wants this \$20 snack. No, not going to happen. So yeah, it has to be reasonably priced or I’m not even going to get it.” (Mother of a 6-year old girl)*

Oftentimes, mothers applied different strategies to resolve conflicts among satisfying their children’s desire, make a healthier choice, and remain within their budget. For instance, they sometimes opted for the store brand of the item that their children had desired, as the store brand is available at a cheaper price.

*“That there's always a healthier choice and there's always an economical choice. So, you might want, and it just depends, so might want Honey Nut Cheerios but the store has Honey Nut Toasted O's, to me that's an option. We going to get you what the Honey Nut Cheerios, we'll get the store brand because it's cheaper.” (Mother of an 11-year old boy)*

Another conflict that mothers frequently experienced was between the convenience of the item, healthfulness, satisfying children's desire and also children's food acceptance. This conflict is triggered by mothers' work schedule or children's eating contexts. Mothers wanted to get something handy or easy-to-prepare for their children but in those cases, they needed to compromise the nutritional quality of the foods. For example, mothers bought Lunchables for their children yet admitted that the item was not a healthy one, but they bought the item for their children because they (children) liked the item and it was convenient for eating after or during school.

*“she does like Lunchables and those are handy for an afterschool snack, so convenience factors in there, she does like them and it's something that she likes and she's willing to eat.” (Mother of a 9-year old girl)*

Parental stress stimulated value conflicts in different contexts. A mother, separated from the child's father, who was strict on child eating healthy foods and tried various ways to make the child eat vegetables also bought the child's preferred cookies and stuff whenever the child visited his father's house. She also said, *“I'll make sure whatever his dad plans on cooking, I get.”* Mothers experiencing conflicts between their work schedules and maternal roles tended to purchase convenience foods as per their children's choices. For example, a mother mentioned that she compromised the healthfulness of foods over everyone's preferences, acceptance of foods, and convenience when she had busy schedules.

*“And from the list it seems like we eat a lot of junk food, sounds pitiful. But yeah, it's just what everyone likes and is willing to eat combined with whatever works*



*for what's going on in the week. If it's a busy week, we might eat a bunch of worse food. If it's a better week and I have time to fix healthier meals, then it looks a lot better. It's been busy lately.” (Mother of a 9-year old girl)*

Household food security also contributed in maternal stress and value adjudication. Mothers who experienced household food insecurity made their food purchase decisions adjudicating among satisfying children's food desire, food acceptance, and autonomy support and cost followed healthfulness of items. They wanted their children to enjoy the foods, to feel full, and not to waste the foods. Hence, they fulfilled their children's desire, thought about their (children's) food acceptance, and let the children actively participate in the decision-making process. A single mother experiencing very low food security felt stressed for not providing healthy foods for the child.

*“I expect him to eat what I couldn't buy. But I guess I, I also want to get stuff that's good for him to but, like I said my main goal is just to make sure they're not hungry. Because some days we've not been able to eat as healthy as we'd like to. But I main goal is to make sure they're not hungry.... They teach nutrition in school. But, like I said, nutrition around here sometimes is not the option. It's either be full or eat healthy.” (Mother of a 10-year old boy)*

In a two-parent household, food insecure mothers still tried to provide healthy foods to their children by using their SNAP benefits or being strategic in food management such as eating the leftovers so that they could provide their children healthy food.

*“The kids would get the healthy food and then me and dad we're not or we would eat whatever, especially dad, would eat whatever their leftovers were. We'd make them plates like we normally would and then they would eat their plates and whatever they didn't eat dad would kind of eat or there were just times where dad was like, well, there's nothing really here, I want to eat, so I'm not gonna eat things like that or we'd just eat smaller portions”. (Mother of a 6-year old girl)*

## **Discussion**

Food purchasing decisions are frequent, multifaceted, dynamic, and ultimately complex. The complexity increases with the involvement of a child in the process. Children's involvement influenced mothers to value their children's desire for and acceptance of foods or drinks along with children's emotions. As a result, although mothers also valued nutritional quality of foods and health needs of the children, mothers sometimes compromised the nutrient quality of the items to satisfy their children's desire. Mothers reported that they refrained from buying some items in one shopping event considering the low nutritional value of the items or price of the items, but bought those items another day recalling their children asking for those items irrespective of the presence of the child during the shopping events. Mothers' knowledge of what their children like or want influenced them to decide which foods and drinks to buy for their elementary school-aged children. Mothers tended to prioritize children's happiness and acceptance of foods over the long-term effect on health when they bought foods and drinks for the children.

Mothers' descriptions of their value negotiations had some consistency with what has been previously observed for adult individual's food choice research. In adults' food choice research, taste, health, cost, convenience, social relationships, ethics, variety, mood, safety, familiarity, weight control, waste, and quality have been identified as the different values that an adult individual negotiates when making food choices for himself/herself.<sup>21,23,25</sup> Studying parents' food selection for children, Russell et al. (2015) showed that health, nutrition, and taste were key motivators for parents.<sup>29</sup> None of the above-mentioned studies discussed satisfying desire as a leading value in the food choice process. The present study, however, showed that mothers considered nine values when they made food purchasing decisions for their children, and the most compelling value was satisfying children's desire for a food and drink. A major distinction between making food choice by an individual for him/herself and by a mother for her child is that the child has a role in the mother's decision-making process. The key findings of this study is that mothers extensively valued satisfying their children's desire, children's food acceptance, and emotions when they purchased foods and drinks for their children as mothers wanted their children to be happy, not to stay hungry, and also not to feel emotionally isolated in front of their friends.

Mothers described that their food purchase decisions for the children were mostly determined by their children's desires. Previous studies showed that parents purchased high energy or savory foods and drinks for children, mostly children >7 years old, when the children accompanied their parents during food shopping.<sup>48-50</sup> Our study, however, showed that mothers purchased less healthy convenience foods irrespective of their children's presence during the food shopping events. According to the mothers, it was

their children's desires that drove them to buy savory snacks, sweet desserts, sugar-sweetened drinks, chicken nuggets, and pizza for children. This finding is consistent with findings of previous studies showing children tend to have a desire for unhealthy foods and drinks.<sup>50-54</sup>

Healthfulness of the items was the second most-mentioned value that the mothers weighed in food-purchasing decision-making process. As a consequence, mothers experienced value conflicts mostly between satisfying children's desire and the quality of foods. Mothers mentioned that their goal was that their children would eat healthy, but they ended up buying unhealthy foods to meet their children's desire. In other words, when children want to have an unhealthy food, mothers are in a dilemma deciding between child's satisfaction and the food's healthfulness. To resolve conflicts, mothers used different strategies such as purchasing veggie chips for the children, making a balance between healthy and unhealthy items, and buying organic or gluten-free version of the items.

Mothers also experienced conflicts between children's desire, healthfulness of an item, and the price of an item, but mothers used strategies, such as sales, promotion, and store brands, to buy the items their children desire at a cheaper price. Sometimes mothers were reluctant to go beyond their food shopping budget to buy healthy food and drink items for their children because they perceived the price of those healthy items was high for them. Yet these mothers generally tried to buy those items when children desired them. For example, mothers purchased seasonal fruits as they perceived that those fruits were available at a lower price during the season.

Mothers mostly bought energy-dense snacks and sugary drinks to satisfy their children's desire, but mothers also bought unhealthy items for meals. Mothers valued convenience due to their busy schedule and mood, as well as due to the ability for their children to cook foods quickly and easily in the microwave oven or have ready-to-eat foods. This influenced them to buy frozen dinners and ready-to-eat packaged items, including fast foods. Hence, it is not always a direct desire from the children; mothers decide on buying unhealthy but convenient foods for meals for the children. Nepper and Chai (2016) also reported that parents had trouble providing healthy foods during main meals because they were busy and lacked time for cooking.<sup>54</sup> Mothers experience a value conflict between convenience and the healthfulness of the foods or drinks because items that are convenient are commonly ultra-processed and unhealthy.

Mothers also valued their culture in their food purchase decisions. Our study participants were the residents of South Carolina which is a southern state in the United States. The food lists of the purchased foods and drinks represents common foods and drinks in the southern culture with some foods from the Asian and Hispanic culture (Appendix A-B). Describing Southern foods, Ferris (2015) mentioned fried chicken, biscuits, and sweet tea as the icons of Southern food and those are “super-sized,” enriched, sweetened, and filled with butter.<sup>55</sup> Other Southern foods include rice, grits, country ham, hushpuppies, beignets, Southern styles of succotash, brisket, meatloaf, pimento cheese, boiled or baked sweet potatoes, pit barbecue, fried catfish, fried green tomatoes, macaroni and cheese, bread pudding, breaded okra, butter beans, and pinto beans.<sup>55</sup> The greens in the southern culture are the collard, mustard, and turnip greens. Some other common southern foods are butter beans, homemade preserves and pickles,

oysters, shrimp, cured hams, peanuts, and cornbread.<sup>55,56</sup> Participating mothers from other food cultures also purchased some of their cultural foods. For example, a Hispanic mother mentioned purchasing enchilada sauce and an Asian mother mentioned purchasing Asian pears. Sealy et al. (2010) showed that the parents' ethnicity and culture had a strong influence on the foods they select.<sup>31</sup>

Mothers adjudicated among these above-mentioned values to make their food purchase decisions. How mothers adjudicated among different values differed by contexts and competing demands. Mothers who could not give enough time to their children for various reasons might feel guilty and try to compensate with the foods and thus valued satisfying children desire. Lively et al. (2019) observed that mother who used foods to control their children's behavior and used foods as a reward were more likely to buy nutrient-poor foods for children.<sup>57</sup> Although the mothers in our study did not mention rewarding children to control their (children's) behavior using foods, but the stress they experienced due to having busy schedules, child's stay split in two parents' houses, and household food insecurity was discussed. These findings were consistent with Devine et al. (2006) and Fulkerson et al. (2019) that mothers' stress and struggles to integrate conflicting demands had negative impacts on their food choices and availability of healthy foods at home.<sup>58,59</sup>

Mothers' value negotiation, specific to children's food purchasing decisions, was also influenced by mothers' attention to immediate effects. For example, children's positive reaction after having their (children's) desired items or availability of foods with minimal or no preparation often took precedence over the healthfulness of items when mothers made decisions. The consumption of energy-dense nutrient-poor foods and

drinks does not have immediate effects on health; the chronic diseases associated with the consumption of these foods and drinks develop over time.<sup>7,53-55</sup> Despite that mothers wanted their children to grow up, to be healthy, and eat healthily, they bought unhealthy foods to satisfy their children's desires. This was also observed when most mothers mentioned they were concerned about their children's excessive sugar consumption via the foods and drinks, and they cited the increased risk of dental cavities as the reason for this concern. Despite that added sugar is associated with the development of several chronic diseases, only two mothers mentioned obesity and one mother mentioned high blood pressure and diabetes as the concerns they had for children's health. Generally, they did not consider the long-term effects of poor nutrition on developing chronic health conditions, as has also been observed by Sualakamala & Huffman (2010).<sup>24</sup>

Mothers' fast food store selection varied by household income levels. Although the fast food items they purchased were similar including chicken nuggets, sandwiches, burgers, and fries, mothers whose household income was above the average income range (\$35,000 and above) purchased them from different fast food stores than the mothers in the lower income group. These mothers (higher income than the average income range) perceived a particular fast food store as a healthier one than the other stores. This difference did not exist for grocery shopping. Mothers from all income levels mostly valued children's desire, healthfulness of items, convenience of the foods. In addition, mothers from higher income groups (\$75,000 and above) valued children's emotions. Mothers from average income group also valued children's health needs and emotions in their food purchase decisions for children. As a result, mothers value adjudication differed by different contexts, some of the higher-income mothers purchased EDNP

foods to satisfy children's desire or thinking about children's emotions, some purchased healthier version of the foods and drinks while satisfying their children's desire, and some purchased EDNP convenience foods due to their busy schedules. Although price of the item was not a barrier for the higher income mothers, they tended to prioritize EDNP foods over health items due to different reasons. Besides children's desire, convenience of the items was a big reason for the higher income mothers to purchase EDNP foods. Our findings could not explicitly show whether higher income could directly influence mothers to purchase healthier items by prioritizing healthfulness of items over children's desire or convenience. On the other hand, mothers from lower income households mostly valued children's desire, food acceptance, price of the items, healthfulness, convenience, and children's health needs. Some of the low-income mothers tried to meet their children's desire for frozen dinners and savory snacks with the SNAP dollars. Mancino et al. (2018) reported that SNAP dollars could reduce poverty and parents purchased fewer fruits, vegetables, and more EDNP foods than the higher income and non-SNAP lower income households.<sup>60</sup> Vilaro et al (2016) showed that higher income people valued health and convenience in their food choices and lower income people valued taste, convenience, family history, price, health, and routine.<sup>61</sup>

Mothers from all education levels wanted to make a balance between healthy and unhealthy items. Satisfying children's desire was the driving value in most of the mothers' food purchase decisions, some of the mothers specifically mentioned that they were strict on the healthfulness of items and prioritized healthfulness over their children's desire. But these mothers could not be differentiated by their educational levels as some of them had a bachelor's degree or higher education and some of them had an associate



degree. Mothers who had a high school diploma or less education mentioned that they valued their children's desire or food acceptance over healthfulness of items. These findings may indicate that mothers' education could modify their value adjudication, but not all mothers with a bachelor's degree or higher educational attainment prioritized healthfulness of items over the other values. Antonogeorgos et al. (2013) showed that parental educational status was positively associated with children's healthy diets.<sup>62</sup>

Mothers food purchases could differ by locations depending on the accessibility to foods and drinks. For example, one mother mentioned the difference between a large farmer's market and the grocery store as she found the farmer's market in New York had better access to local fresh produce with a cheaper price than the grocery stores in the study area and she perceived there was less option to select items in the grocery stores. Although all mothers purchased foods and drinks from urban grocery stores and supermarkets and no one visited a farmer's market in the study area, many of them mentioned shopping from a particular store because of the accessibility to healthy foods and fresh produce at a lower price. Mothers prefer to shop from those locations where they would find a greater access to fresh produce with a lower price and such access could result in greater purchase of healthy items. Woodruff et al. (2018) showed that urban farmer's markets could increase accessibility to fresh vegetables.<sup>63</sup> An & Maurer (2016) showed that food shopping from grocery stores and supermarkets could increase purchases of EDNP foods and drinks.<sup>64</sup>

Mothers' food purchase behaviors can be explained in light of the Theory of Reasoned Action and Theory of Planned Behavior that Fishbein and Ajzen (2011) combined as reasoned action.<sup>40</sup> The values were related to mothers' attitude towards

children's satisfaction, fulfilment, healthy growth, and positive reaction. The subjective norms were mothers' attention to what their children expected about the foods and drinks mothers purchased for them, the social pressure that their children do not feel emotionally isolated from their friends and food culture. Cost was a perceived barrier to several low-income mothers who perceived the price of healthy items were higher. Mothers also found out ways to overcome this barrier by purchasing fruits and vegetables on sales. High income mothers in the study also purchased EDNP foods although price was not a barrier to them in purchasing healthy foods. Some of the mothers in the higher income range in the study perceived their busy schedules as a barrier to cook foods and they opted for EDNP convenience foods. These attitudes, subjective norms, and perceived behavioral control formed mothers' intention to buy the foods and drinks and resulted in purchases of breakfast items, snacks, fruits, fast food items, and drinks specifically for the children according to children's desire. Mothers also found out strategies to buy the healthier versions of the items. Hardin-Fanning & Ricks (2017) discussed the predictors to influence cooking skills and showed cost as a perceived barrier in healthy eating.<sup>65</sup> Ham, Jeger, & Frajman (2015) showed that subjective norms were influential in forming intention to purchase green foods.<sup>66</sup>

This qualitative study provided in-depth understanding of the parents' food purchase behaviors. We thought that social desirability bias for reporting about purchasing unhealthy foods for children could be a challenge, hence we took precautions to overcome this challenge. We built rapport with the parents so that they were comfortable sharing their experiences. We collected food shopping receipts and then did the in-depth interviews. The store receipts helped us minimize socially desirable

responses from the parents. This study captured the values mothers weighed because all the parents contacted to participate in the study were mothers. Out of 40 children, 23 lived with both parents and 17 lived with mothers only. For the children living with both parents, mothers were the primary food shoppers. Consequently, how a primary food shopper father makes food purchasing decisions for his elementary school-aged children is missing in this research. The findings may not be generalizable to other populations.

## **Conclusion**

Children's desire for, acceptance of, and emotions toward foods and drinks were important in parents' food purchasing decisions. Parents bought several categories of foods and drinks specifically for their children's consumption based on their children's desire; the categories included breakfast items, snacks, fruits, fast food items, and drinks. While parents valued nutritional quality of foods and drinks and the health needs of their children, children's desire was nonetheless the main driver of parents' purchasing decisions, resulting in value conflicts in parents' decision making. To mitigate value conflicts, parents used strategies like making a balance between healthy and unhealthy items and purchasing less-expensive, store-brand items. Regarding children's desire for sweet items, most parents were concerned about the quantity of sugar in foods and drinks due to dental cavities but not about the risk of chronic diseases.

Identifying the predominant values in parents' food purchasing decisions specific to children's consumption, this study provides explanations for parents' purchasing unhealthy foods and drinks for children. Although parents value nutritional quality of foods and drinks, they tend to compromise with the quality to make their children happy

and make them (children) consume the items. Parents' purchases of less healthy foods and drinks for children, despite parents' awareness of the need of healthy foods for children, indicates a gap between parents' knowledge and behavior related to children's food purchases. Parents making strategies to buy healthy items on children's requests, however, suggests that parents will buy healthy items irrespective of the price and convenience of the item if children have desire for healthy items. Another explanation for parents buying unhealthy foods could be parents do not think about risk of chronic diseases in children's later life. Parental stress also contributes in parents' priority for satisfying children's desire over other values.

Multiple complementary interventions are needed for parents to help address children's desires for less healthy items and bridge the gap between parents' knowledge and food purchase behavior. Information provision should be increased for parents related to the long-term detrimental effects of unhealthy food consumption to help parents prioritize their children's long-term health over immediate happiness. For example, warning labels related to chronic disease risks could be added to the packaging of foods and drinks if the added sugar amount (per serving) exceeds the limit of daily recommendation of added sugar consumption (<10% of calories/day) given in the 2015-2020 Dietary Guidelines for Americans (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015). Parents also need support to enhance their emotional skills to help address stress refraining them from making healthful choices for children.

A theoretical implication of this study is that the findings give extension to the food choice process model of adult individuals on how the choices are made when

children are involved in the process by explaining parents' adjudication among different values and strategies to resolve value conflicts.<sup>21-23</sup> Considering parents' food purchases for children a joint activity between parents and children, both the parents and children should be involved together in future research and promotion programs designed for children's healthy eating.

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#### 4.2. Manuscript 2

### **FOOD-CHOICE VALUES OF ELEMENTARY SCHOOL CHILDREN AND STRATEGIES USED TO INFLUENCE MOTHERS' FOOD PURCHASING DECISIONS<sup>2</sup>**

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<sup>2</sup> Monalisa NN, Frongillo, EA, Blake, CE, Steck, SE, DiPietro RB. To be submitted.  
Journal not yet decided

## ABSTRACT

**Objectives:** This study aimed to understand values held by elementary school children in constructing food choices, the strategies they used to influence their mothers' food purchasing decisions and the extent of their influence on mothers' food purchase decisions.

**Methods:** Semi-structured qualitative interviews were conducted with 40 elementary school children (aged 6-11 years) and their mothers living in South Carolina. Food choice information was collected only from children and strategies to influence mothers' food purchases were collected from both children and mothers. The interviews were audio-recorded, transcribed verbatim, and open-coded. Coding matrices were used to compare children's and mothers' responses on the children's strategies to influence mothers' food purchasing decisions.

**Results:** Children most valued taste, texture, and flavor of the food items, followed by perceived benefits, happiness, craving, following family and friends, the items' healthfulness, preparation, and presentation when they made food choice decisions. Children reported 157 strategies that they used to influence mothers' purchasing decisions. Mothers had concordance with 83 strategies that children mentioned. In mother-child dyads, more concordance was observed between mothers and sons than between mothers and daughters. The most common and successful strategies from both the children's and mothers' perspectives were reasoned requests, repeated polite requests, and referencing friends. Other strategies included offers to contribute money or service, teaming up with siblings, writing a shopping list, and grabbing desired

items. Mothers perceived that children had a lot of influence on their food purchasing decisions.

**Conclusions:** Children were aware of the strategies that would get positive reactions from their mothers. Mothers' acknowledgement of children's influence on their food purchase decisions suggests that children can serve as change agents for improving mothers' food purchases if children prefer healthy foods. Interventions are needed for mothers to help address children's strategies to influence mothers to purchase unhealthy foods and make healthy foods more appealing to children instead of yielding to children's requests for unhealthy items.

## Introduction

The diets of children in the United States (U.S.) conform poorly to the Dietary Guidelines of Americans.<sup>1</sup> Children's high consumption of processed, pre-packaged, and ready-to-eat foods and low consumption of fruits and vegetables are alarming because 18.5% of U.S. children of all age groups were obese in 2015-2016.<sup>2</sup> In particular, the obesity rate in the elementary school-aged children (6-11 years old) was 18.4% in 2015-2016. Obesity in children is a public health concern because obesity is associated with several chronic diseases including heart disease, stroke, type 2 diabetes, hypertension, and certain cancers and development of social and psychological problems.<sup>3,4</sup> Unhealthy diet is a modifiable risk factor of obesity. Elementary school-aged children tend to have a preference for unhealthy foods, and energy-dense nutrient-poor (EDNP) foods dominate their diets.<sup>1,2,5</sup> To reduce children's consumption of unhealthy foods as well as the burden of obesity in children, it is important to investigate how elementary school-aged children construct food choice decisions and how they acquire their desired foods and drinks from their parents.<sup>6,7</sup> Food choice in children is important because childhood food choice affects children's current food intake and shapes their food intake in later life.

People negotiate between different values in constructing food choices and apply strategies to acquire their desired foods.<sup>8-10</sup> Sobal and Bisogni (2009) defined food choice values as "the considerations that people bring to food choice (e.g., taste, cost, health, convenience, relationships) and the particular meanings and feelings that people attach to these considerations."<sup>11(pS42)</sup> Value negotiations are a crucial element in food choice decisions.<sup>9,10</sup> Taste, cost, health, availability, mood, familiarity, and survival are some salient values identified in adults' and adolescents' food choice process.<sup>8-14</sup> Time,

convenience, managing relationship, ethics, variety, safety, waste, and quality are some additional values identified in adults' food choice processes.<sup>8-11</sup> Elementary school-aged children value taste, texture, health, nutrition, packaging, emotions, hunger, eating context, social acceptability, and versatility with a gradual transition in development of these values between the ages 5 and 11.<sup>14-18</sup> Little research has been conducted to describe how children negotiate between these values when they make food choices. It also is unclear if children's food choice values are limited to these values or they also hold other values like time, convenience, managing relationship, ethics, variety, safety, waste, and quality which have been identified in adult's food choice process. The possible difference in existing food choice values between the adults and elementary school-aged children necessitates investigation with the children for a detailed and in-depth understanding of the values that children weigh in their food choice decisions and whether their values have the same range and diversity as adults. The current studies on children's food choice were solely focused on the values children hold but did not discuss how children weigh between different values to make food choice decisions. and what strategies children apply to acquire their desired foods.<sup>12-18</sup>

Parents are the gateway to children's access of foods and drinks at home as parents purchase those items for children.<sup>19</sup> Hence, parents' food purchasing decisions play an important role in children's diet quality and energy intake. Parents considered what children liked or disliked when buying foods and drinks for children.<sup>20</sup> Children may apply strategies to influence parents' food purchases; particularly when those foods and drinks were bought for them.<sup>21-23</sup> Examining children's strategies to influence parents' food-purchase decisions, observational studies conducted in grocery stores



showed that children made frequent requests for foods during shopping and their direct food requests included typically for EDNP foods.<sup>19,24-27</sup>

Strategies children use to achieve their desired foods change with the progression of age.<sup>28-32</sup> Young children often used pestering for getting their preferred foods and drinks when they accompanied their parents during food shopping.<sup>31-34</sup> Adolescents had some independence in family decision making. They could express opinions on foods, make deals, or directly mention a food as their preference to persuade their parents.<sup>23,35-38</sup> Although elementary school-aged children use pester power and negotiation, little is known on how they negotiate with their parents.<sup>28,34,39</sup> Children in this age group are improving their skills for analyzing information. These school-going children might develop an argument in favor of their desired food and drink items instead of pestering or nagging.<sup>29,40,41</sup> It is not clear how they try to negotiate with their parents to influence their (parents') food purchases.

In addition, the strategies children used to influence parents' food purchase decisions have been mostly identified from observation of parent-child interactions in stores.<sup>20,26,32,42,43</sup> There remains a gap on how much these children interact with their parents to influence them (parents) to get their (children's) desired items outside the grocery store settings. These children might not always accompany their parents during food shopping considering children are often in school or participating in afterschool programs, an average of 17% of grocery store shoppers were found being accompanied by children during shopping.<sup>19</sup> Home is a major source of energy intake for children, strategies captured only in grocery stores do not reflect what children do at home to get their desired foods and drinks. To get a complete picture on how children influence

parents' food shopping, strategies they used to get their desired items in different contexts, including location, food types, and children's presence or absence during shopping should be examined. Besides the observation of parent-child interactions, the strategies children used to influence parents have been so far identified from parents' interviews.<sup>20,26,32,42,43</sup> We do not know what strategies children use to influence parents' food purchase decisions from children's perspectives. Since children's strategies to influence parents' food purchase decisions from both the parents' and children's perspectives are understudied, we also do not know how concordant or discordant are the perspectives between parents and children.

Children have a big influence on parents' decision making, particularly on the items specific to children like toys, clothes, holiday destinations, but there is disagreement between parents and children on how much influence children have in their everyday food buying.<sup>23,44-47</sup> For food purchases, children's influence was identified on restaurant selection or on single shopping event but there is a gap on the extent of influence on parents' regular food shopping specific to children's consumption. Like the strategies, the extent of children's influences on parents' purchasing decisions have also been so far identified either from parents' interviews or from observation of parent-child interactions that did not focus on how children perceived their own influence on their parents' food shopping.<sup>20,26,32,42,43</sup> This purpose of this paper is to address the above-mentioned research gaps by achieving four aims. The aims are to understand 1) what children value when making their food choices from children's perspectives; 2) how children negotiate between different values to decide on foods to request from children's perspectives; 3) what strategies children use to influence parents' food purchase decisions

specific to children's consumption from both the children and their parents' perspectives and how concordant those strategies are from their perspectives; and 4) the extent of children's influence on parents' food shopping both from the children's and parents' perspectives.

## **Methods**

This study was conducted with children aged 6-11 years old and their parents from low- and middle-income families in Columbia, South Carolina and its surrounding areas. Forty 6-11 years old children and their 40 primary food shopping parents participated in the study. Purposive criterion sampling was used, and participants were recruited through advertisements. Flyers, developed with study information and contact details, were circulated in public libraries, churches, food banks, and after-school programs to inform residents of the study area about the study. Upon contact by a parent, eligibility was checked to recruit parent-child dyads who qualified for the study.

Data were collected from 40 parent-child dyads. Face-to-face in-depth interviews were conducted with a parent and one eligible child within the age group of 6-11 years from each household on the same visit. For each parent-child dyad, the interviews with the parent and the child were conducted separately one after another; the child was not present during the parent's interview and the parent was not present during the child's interview. Two different semi-structured interview guides were developed for the parents and children to use during their interviews. To develop an age-appropriate interview guide for children aged 6-11 years old and make the questions comprehensible at

different reading levels, cognitive interviews were conducted with five children aged between 5 years 11 months to 10 years old and the interview guides were pre-tested.

The face-to-face in-depth interview lasting for one-hour was conducted with the participating parent first. The parents were asked non-leading open-ended questions for describing children's influence on parents' food shopping decisions to acquire children's desired items and what strategies children used to influence the parents' recent food shopping decisions from different food shopping during the one-week period prior to the interview day. The food shopping was counted for any food and drink purchased from any store including grocery stores, supermarkets, pharmacies convenience stores, and fast-food restaurants, as well as food, drink, or meal purchases for the child from full-service dine-in restaurants, food delivery, and/or takeout. To identify children's influence on parents' food purchasing decisions, parents were asked about how much influence the parents felt from their corresponding children. To identify what strategies children used to influence parents' food purchasing decisions, parents were asked a) what their children did to inform them (parents) about children's desired foods and drinks that the children wanted to consume, and b) how the children tried to get the foods and drinks desired when the parents did not yield to the children's requests.

After the face-to-face in-depth interview with the parent ended, a 30-minute face-to-face in-depth interview was conducted with the child who was recruited for this study. The children were asked non-leading open-ended questions for describing what the children valued for making their food choices and how they (children) influenced their parents' food purchasing decisions to acquire their (children's) desired foods and drinks. To identify what the children valued for making their food choices, the children were

asked: a) which foods they liked to eat; b) which drinks they liked to consume; c) why they liked those items; and d) what they liked about those foods and drinks. To identify children's value negotiation, children were asked how they picked the items when they decided on foods and drinks. To identify the children's influence on their parents' food purchasing decisions from the children's perspectives, they (children) were asked how frequently their parents bought the foods and drinks that they (children) requested. The children were also asked the same questions that their parents were asked to identify what strategies children used to influence parents' food purchasing decisions. The questions were: a) what the children did to inform their parents about their desired foods and drinks that the children wanted to consume, and b) how the children tried to get their desired foods and drinks when their parents did not yield to the children's requests.

The interviews of the parent-child dyads were audio-recorded, and field notes were taken. After both interviews ended, parents completed a brief questionnaire on sociodemographic and food security information. Each parent-child dyad received a \$30 cash incentive for participating in the study. Data were collected from April to August in 2018. The study was approved by the Institutional Review Board of University of South Carolina.

### **Data Analysis**

A grounded theory method was used for data analysis. Open, axial, and selective coding systems were used. Open coding was used to code the interviews, with the themes for food choice values, influence, and strategies being guided by theories. Interviews were transcribed verbatim and open-coded. Five interviews for the children and five

interviews for the parents were coded first and initial categories were developed. A preliminary codebook was developed from the codes derived from those five parent-child interview sets, and additional codes, categories, and concepts were added in the codebook after each interview was analyzed. The codebook was revised in an iterative process using constant comparative method. After the initial round of coding, the codes were organized in sub-themes using axial coding. Having discussion with the research collaborators, the major overarching themes were identified from the emergent themes and pre-existing themes guided by food choice process model, social power theory, theory of reasoned action, and choice theory.<sup>8,22,48,49</sup> Sub-themes were merged to generate the final codes through selective coding system. Field notes and memos were also taken for interview contexts. Coding matrices were used to compare parents' and children's responses on the extent of children's influences on parents' decision-making process and the strategies children used to influence parents' decisions. NVivo software (version 12) was used for data organization, management, and analysis.

## **Results**

### ***Description of sample***

All the primary food shopping parents who participated in this study were mothers of the children. The mean age of mothers was 36 years (SD = 9.1). Around half of the mothers reported having some college education or associate degree and one-fourth had an undergraduate degree. All the mothers lived with the participating children in the same household. Over half of the participating mother-child dyads (55%) were non-Hispanic African American, 30% were non-Hispanic White, and 8% were Hispanic.

Of the 40 children who participated in the study, 25 were girls and 15 were boys. Children's mean age was 8.2 years (SD = 1.7). Three children studied in kindergarten, 12 in first grade, nine children in second grade, five in third grade, five in fourth grade, and six in fifth grade. Of the 40 children, three participants were the only child of their mothers. Of the remaining 37 children in the study, 20 children were the first child of the mother, 12 were the second child, two were the third child, and three were the fourth child. Three children had no siblings, 23 children had one sibling, eight children had two siblings, three children had three siblings, and two children had five siblings. Almost three in five children lived with both parents in the households.

The average household size was 4.03 (SD=1.23). Three in five households had an annual income below \$35,000. Forty-eight percent of households had low food security and 10% had very low food security. Fourteen households received a benefit from a food assistant program like the Supplemental Nutrition Assistance Program and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC).

### ***Children's food choice values***

The most common value for children's food and drink choices was taste (Table 4.2). All the participating children mentioned that they selected their desired item because of the taste. Nine children specifically mentioned that they liked the items because the items were sweet. The other two sensory values were texture and flavor. Children liked the chewy and crunchy textures of the foods and fizzy texture of a drink.

Children also conveyed that they valued the healthfulness and perceived benefits of the items when they made food choices. The benefits they perceived were that the foods

and drinks would make them healthy, give them energy, and hydrate and refresh them. The psychological values for making children's food choice included happiness to have the items, feeling craving for the items, and mood to have an item. The social values children mentioned were peer influence, sibling influence, and parents modelling. Some children mentioned that they liked the items because their friends consumed those items. Some children mentioned that they liked the items because their siblings or parents liked those items. Children also valued managing relationship as they considered what the other members, particularly their siblings like to eat, when they make their food choices. Children also mentioned that they made their food and drink selections to meet their biological needs like hunger and thirst. Cost is another value that children held in their food choice decisions for which they saved their allowances or asked money from their relatives; one child also earned by himself. Children considered convenience of foods and drinks because they could access those items easily, carry them for school lunch, snacks or picnic, consume them quickly, and handle cooking easily.

Regarding the foods, children thought about the preparation and presentation of the items; for example, children considered ingredients, seasoning, spices, additives, and sides, color and packaging of the items when they selected their foods and drinks. Convenience, versatility, and variety of the foods and drinks were other values that children conveyed for making their food choices. In addition, children valued their impression about items, habit, intention to experience new items, and availability when they made their food choice decisions.

On average children weighed three values including taste when they made food choice decisions. Younger children mostly valued taste, flavor, texture, food quality, and



habit. Keeping taste on the top, children aged 7-11 years old valued healthfulness, perceived benefits, foods presentation, biological needs, impression about foods, peer influence/approval, and convenience. In addition, children who were 10 years old or above also considered cost, versatility, and managing relationships.

**Table 4.2:** Children’s quotations on values that they conveyed for making food choices

Values	Quotations from children
Taste	<i>“It’s sweet, tasty, and it has sugar in it. Most of the time, I run outside .....cause they give you energy and they’re tasty.” (A 6-year old girl about snicker doodles)</i>
Texture	<i>“Because I like when you drink and when it like fizz in your mouth and the flavor is good. (A 9-year old girl about soda)</i>
Flavor	<i>“Chips like Dorito’s or Lay’s like the classic kind those are my two favorites. And Oreos, and that’s, pop-tarts... because I like the flavor that they are.” (A 10-year old boy)</i>
Healthfulness	<i>“I like to eat broccoli and salad....Wait. And one more thing. And green beans...Because that's the healthiest thing that you can eat.. Because they're good for you. They make you stronger.” (A 6-year old girl)</i>
Perceived benefits	<i>“I agree to [drink] milkshakes, with strawberry in them or oranges, it makes me feel good and full of energy. And so I just keep on doing it.” (A 7-year old boy)</i>
Happiness	<i>“They make me feel really good. When I'm eating a snack and I don't need to get a full meal, I could eat some of those things at the time and it just makes me happy.” (A 9-year old girl)</i>
Craving	<i>“Because I tasted chips a lot of times and I can’t just stop eating them. So, I’ll just ask for chips probably every single time she (mother) goes to the store.” (An 8-year old girl)</i>

Peer influence/ approval	<i>"I see my friends eat these kinds of chips and I want it so. Like people bring their lunch boxes and their lunch boxes have different kinds of chips every single day. And then sometimes I'll like the same kind, kinds they have or the other people who have, who have lunch boxes they'll have the same kinds." (An 8-year old girl about chips)</i>
Managing relationship	<i>"I try to make everybody happy because I don't want to be like selfish, so I usually ask my sister and my mama what they want and they usually agree with me." (An 11-year old boy)</i>
Hunger/biological need	<i>"Well I wanted Lunchables® because some of my friends at school they have lunches too, so sometimes I wanted to get lunch, but most of the time I just wanted it, so I wouldn't be so hungry when I got to my grandma's house." (A 9-year old girl)</i>
Cost	<i>"I guess it's just more convenient that way. And it costs less too." (A 10-year old girl)</i>
Food presentation	<i>"Because usually, they usually have, come with some kind of dessert... like Oreos or something similar to them...yeah. And uh they taste good." (A 7-year boy about Lunchables)</i>
Ingredients	<i>"I like green juice. It's actually a healthy drink because it has vegetables, fruit all blended up." (A 7-year old boy)</i>
Seasoning	<i>"Cheez-It .. because, because Cheez-Its have salt in them and they taste like cheese and I like cheese." (A 7-year old girl)</i>
Packaging	<i>Because, because they like come in little bags and they come with a straw so you wont have to squeeze a straw inside and, and they don't spill easy. (A 7-year old girl)</i>
Convenience	<i>"Sometimes my mama has to go to work.....so I have to, sometimes I cook for me and her [elder sister] and uh I usually, I usually find easy foods that we can just cook that night and it won't make so many dishes. That's usually what I get." (A 10-year old boy)</i>

Versatility	<i>"Yeah. um and I could put like other food on it and I could eat it together... maybe um ham, cheese." (An 8-year old boy on crackers)</i>
Variety	<i>"I like the fruit snacks because they're like different kind of flavors." (A 7-year old girl)</i>
Impression about items	<i>"Because pizza kind of like represents like party and makes people feel welcomed." (An 11-year old boy)</i>
Habit	<i>"I like chicken because my mom gives us chicken all the time, every night." (A 6-year old girl)</i>
Experiencing new items	<i>"I have actually never had the chicken nugget Lunchable and the chips Lunchable, so I just got those" (An 8-year old girl)</i>
Availability	<i>"I like fries because like ... at like some of the restaurants they have fries. At my grandma house, sometimes she have fries." (A 9-year old boy)</i>

### ***How children negotiated among different values for making food choice decisions***

Children negotiated among different values when they selected foods and drinks for them and traded one value with the other. When children were asked how they picked their desired items, it was not explicit from the responses of 6- and 7-year old children how they negotiated among different values and what they traded off; rather they mentioned what values they held when they picked their desired items. For example, a six-year old girl valued taste and texture when she selected fruit snacks; and a seven-year old boy valued taste, texture, and availability when he selected Sprite.

Children aged 8-11 years old negotiated among taste, healthfulness, perceived benefits, foods presentation, biological needs, impression about foods, peer influence,

parent modelling, convenience, and managing relationship. Negotiating among the healthfulness of items, taste of items, parent modeling, regular practice, and managing relationship with the mother, an 8-year old boy said, *“My mom usually don’t let me buy sweet stuff, so sometimes I’ll look like where the calories are, um, and then um I’ll just look like if it’s too sweet, I’ll just put it back and try to find like unsweet um, food. And for vegetables and fruit, I just know that um they’re like healthy and I can just tell by looking at it, and um I ask my mom and then she says, she mostly says yes.”*

A 9-year old girl said that when she picked the foods she thought about not to consume too much energy in a day, *“And like the Lunchables that I pick- before I open them I always look and I’m like “Okay this has this much calories and what I’m eating other than a Lunchable has this many calories, so I’ll have this much calories by the end of the day.” So, I always count out my calories so I can sort of keep track of it, so I don’t eat Nutella, or chocolate or things like that and just have too many calories.”*

An 11-year old girl negotiated among flavor, familiarity, cost, and managing relationships, *“Like based on flavor and if my siblings like it too and yeah, just go down an aisle and like look at stuff... [I] be like “O, I remember having that, like that.” Like that “Do my siblings like it?” “Yeah.” “Seems like a good choice.” “Not too expensive.”*

Children’s value negotiation also varied with the contexts. They made different selections thinking about where they would consume the foods and who would be with them at that time. For example, for their school lunch they wanted to select something easy to carry and their friends used to eat. Negotiating among peer influence, convenience, hunger, and food quality, a 9-year old girl said, *““Most of the time, at my school, two girls or three they bring these Lunchables things. I see them having that and*

*I'm like "Maybe I want that too so that I don't have to ask them I if I can have some..."*  
*Well, I wanted Lunchables because some of my friends at school they have lunches too,*  
*so sometimes I wanted to get lunch, but most of the time I just wanted it (Lunchables), so*  
*I wouldn't be so hungry when I got to my grandma's house...and it is easy to carry."*

A few children who usually wanted to consume healthy, also thought about having something unhealthy for parties, or social events. A 10-year old girl said that. *"I usually think about what it will taste like and if the servings [is] enough for my family. And if it seems really unhealthy, I probably won't get it unless it's for a party or something."*

### ***Strategies children used to influence mothers' food purchasing decisions***

After children had a desire for a food or drink item, they went through a process that involved informing their mothers about the desires and achieving the items of their (children's) choice. Children initiated a direct face-to-face request to inform their mothers about the desired items; the requests were initiated either in a store or at home. Out of 40 children, 34 children made a direct request for a food or drink in the store during the one-week period for which we collected data on mothers' food and drink purchases. Both mothers and children mentioned that even if children were not present in all of the shopping events for the week reported, they were present in at least one shopping event. For most mothers, their food purchasing events for the week included a big grocery shopping followed by small trips for the items running out and stop by at the convenience stores. In addition, 30 mothers purchased foods from a fast-food or dine-in restaurant in that week. Hence, all of the children in the study reported that they were present with their mothers in at least one of those food purchasing events.

Children (19/40) also made direct requests to their mother for specific items when both of them were present at home. Eleven children mentioned that when mothers were out of home and they (children) were not accompanying mothers, they (children) requested their mothers to buy their desired foods and drinks by phone calls, texts, or facetime calls. One child initiated the request inside the car. A few of the children (3/40) wrote a list of desired items instead of making a verbal direct request. Mothers also mentioned that their children were expressive and informed them (mothers) about children's desired items by initiating direct requests.

When mothers did not yield to the first request children made for a desired item, children tried to achieve those items by influencing their mothers using different strategies (Table 4.3). Children mentioned 157 strategies that they used to influence their mothers when mothers purchased foods and drinks for the children. On the other hand, mothers mentioned 105 strategies that they (mothers) perceived their children used to influence them (mothers) to purchase children's desired items. Out of 157 strategies that were identified from children's responses, mothers were aware of 83 strategies.

**Table 4.3:** Strategies children used to influence mothers' food purchasing decisions identified from children's and mothers' responses

Strategies	# of Children	# of Mothers
Repeated polite requests	30	8
Reasoned requests	22	9
Giving hints	10	7
Waiting for mothers to ask what the children wanted	11	4
Offerings	10	2

Referencing friends	6	10
Writing a list/sticky notes or adding in grocery list	5	2
Taking mother to food aisle	5	5
Helping in household chores	5	1
Being tricky	5	2
Teaming up with sibling	4	1
Temper Tantrums	2	3
Grabbing desired items	2	8
Mentioning the child was hungry	2	2
Asking Father	2	1
Sneaking	1	2
Asking without being specific to an item	1	2
Conveying the request to mother through Father	1	1
Asking at registration checkpoint	1	2
Begging	1	4
Buttering mother	2	3
Requesting mother to go to the store	1	1
Texting or phone calls to remind Mother	2	2
Behaving good	3	1
Using grandmother to pursue mother	1	
Eating full meal to get gummies and cakes afterwards	1	
Having discussion	2	
Asking for something else	3	
Asking for something healthy	1	
Asking for an alternate item that is healthy	1	
Suggesting Mother to go to a cheaper store	2	

Spending time together	2	
Showing benefit of having the item	1	
Keeping in stock	1	
Helping Mom in finding what child wanted	1	
Asking for small packs	1	
Asking in a little voice	1	
Mentioning that siblings ate his share	1	
Doing what Mother needs to do	1	
Reminding Mom how good the child was in study	1	
Doing good in tests	1	
Talking about the benefit of a food	1	
Trying to negotiate		1
Asking for everything		1
Asking Godfather		1
Phone calls to remind Mother		2
Tasking own cart and filling out		1
Giving opinion		1
Being impulsive		1
Mentioning something running out or getting low		2
Mentioning TV commercials/YouTube on foods		2
Making dinner choice		3
Showing expertise in healthy food selection		3
Asking food as an allowance		1
Being in dispute		1
Bringing desired items to mother		1
Checking on where mother was going		1



Picking first and then asking		1
Finding alternate option of desired item		1
Using persuasion skill		1
Total	157	105

The strategies did not differ by the race, gender, and age of the children except throwing temper tantrum that was reported only by a few 6 years old children and their mothers. Some salient strategies, which were frequently mentioned by both children and their mothers and could influence mothers' decisions, are described below:

#### ***Repeated polite requests***

Asking repeatedly and politely was the most frequently mentioned strategy that the children used to influence their mothers' food purchasing decisions when mothers were buying foods and drinks for these children. Children mentioned that they asked for the item again nicely, and 5 children reported they kept asking for the item. After the children found their mothers rejecting their first direct requests for a food or drink, some children asked again nicely by saying "please, please." Some of the children requested the item another time on the same day and some of them asked the item another day. Children perceived that they could acquire their desired items by asking repeatedly and nicely.

A child said: *"I ask for it nicely. I ask, "Please, ma'am."...And I say, "Can I get a Capri Sun please, ma'am?" She says, "Yes." (6-year old girl)*

Two mothers mentioned that children asked again nicely, and 6 mothers reported their children kept asking. A mother described her daughter saying: *"Mommy, can I*

*please have ... Mommy can we please, please, please get cookies this time?" I've said no so many times, so I finally did give to her this week... We got some cookies. But she always asks nicely for ... She said, "Mommy, can we please have the cookies this time?" I said, "Yes we'll get them but you can't have any today. Maybe after dinner or any right now. Maybe after dinner." (Mother of 6-year old girl)*

### ***Reasoned requests***

Reasoned request was the second most frequently mentioned strategy that children used to influence their mothers' food purchasing decisions. Twenty-two children mentioned that they gave a reason to their mothers when they were asking for the desired items. The reasons included how much a child liked that item and how beneficial the item could be for the mothers; for example, buying the items could give mothers relief from cooking. Children thought that giving reasons was an effective strategy to influence their mothers to yield to the children's request.

*"I told her that they have some sweet things and there's some healthy things inside of them, so they can make ... so I can have something sweet for dinner, like as dessert, and I can have something that is a real dinner for dinner." (8-year old girl)*

Nine mothers mentioned that their children gave reasons for why they (children) asked for an item to influence the mothers to buy those items. From the mothers' reporting the reason was how much the child liked the item. Asking with giving reasons was also the second most frequently mentioned strategies identified from the mothers' responses.

### ***Giving hints***

Children gave hints of an item that they wanted to eat or drink. Mothers mentioned that their children gave hints by talking about television commercials and YouTube videos on food or drink items. Another way of giving hints was talking about a food and telling mothers how much the children liked the item.

*“Yes so I’ll do that sometimes when I really wanna get something, but I don’t wanna tell her because she’s not really in the mood at the time, so I’ll just give her a hint and then sometimes she gets it for me and then sometimes she doesn’t. So I’ll be like, okay if she’s not feeling well at the time, so let’s see I’ll be like, “Mom I wish we could get something like a strawberry or like ice cream,” or something like that and she’ll be like, “Maybe we’ll get it next time.” Or she’ll get it for me. That’s how I give her a hint.” (9-year old girl)*

### ***Service and monetary offerings***

Children tried to influence their mothers to get their (children’s) desired items by offering different services to mothers. The services included helping mothers at home, paying for the item, and being careful about portion size of the item. Offers for helping mothers at home included sibling care and doing household chores.

*“... I think last week, we went shopping and I was like “Mom can you please buy me...” I can’t even remember what it was, and I’ll be like “I’ll be- I’ll take care of my sister for a week!” (11-year old girl)*

Children were aware about their mothers' concerns that they would eat too much of an item. So, they ensured their mothers that they would not eat all the item at a time, and they would save the item for the rest of the week. They also offered to share the item with their siblings.

Some children offered that they would pay for the item. These children mentioned that they selected the item in the store and asked their mothers if they could buy the items for them, and they paid for the item with their own money. Regarding the source of the money, children said that they paid for the items from their allowances. One child said that he earned money by carrying his neighbors' trash. His mother was aware of this strategy as she also mentioned that her son generated his own earning to pay for his desired food item. According to the mother, the child carried their neighbors' trash and got \$1 from each household for doing this job. He used that money to buy ice-cream.

*"... In our neighborhood we got [a] ice cream truck, and he tends to try to go to the ice cream truck every day. So sometimes he [get], no sometime. He [go] ask my brother for a dollar. He'll still go to the ice cream truck. Or he [go] out and ... Him and some of his little friends, they'll go out in the neighborhood and ask some of the elderly people can they take out their garbage. And they earn a dollar. So, he finds ways to get what he want. He [do] this almost every day. He [do] this almost every day." (Mother of a 6-year old boy)*

### ***Waiting for mothers ask before food shopping***

Children mentioned that their mothers asked them (children) which foods and drinks they (children) wanted before mothers went for food shopping. As a result, they

waited for their mothers to ask them. When their mothers asked, they told the mothers what they wanted.

Three mothers from the same mother-child dyads mentioned that they asked their children what they wanted to have before going to the grocery shopping.

*"I initiate it, because usually when things are going to be finished in the house, I like to know what it is they like me to purchase. So, I'll say "Oh, it looks you guys really like the waffles." "Would you like me to buy them next week?" So, I initiate it." (Mother of a 10-year old girl)*

### ***Referencing friends***

Referencing friends eating the food or drinking the item was another useful strategy from the children's perspectives to influence their mothers' food purchasing decisions. Children mentioned to mothers that they found their friends eating those items in the schools or playgrounds when they asked for the foods and drinks.

*"So, like I went up to her and was like "Hey, like my friend had ramen noodles, can we buy them sometime?" and she's like "Sure, when do you want to eat them?" I'm like "I could eat them like before soccer, like after school." She said, "Okay I'll get them next time I go to the grocery store." (11-year old girl)*

Referencing friends and mentioning that the friend consumed a specific food or drink was also the most mentioned strategy that mothers reported their children used. Mothers mentioned that their children told them that their (children's) friends brought the items in school or their friends liked the foods, so they also wanted to buy the foods.

Giving a friend's reference was also a common strategy when we matched the responses of children and their mothers according to dyads.

*"He has requested Gatorade quite a lot because he has been playing baseball, like he's playing baseball now, so all the kids have some sort of sports drink. So he requests one of those usually on game days. Like 'Can I have a Gatorade? All my friends are doing it, I want one too.' That's definitely a thing that's happened. It's funny to watch." (Mother of a 7-year old boy)*

### ***Grabbing and sneaking***

A common strategy from mothers' perspective was that children grabbed the item when mothers refused to buy the items the children requested. On the other hand, only two children mentioned grabbing the item said that they grabbed the item without their mothers' knowledge. Another child who reported that she took the desired item without her mother's knowledge mentioned that act as sneaking. She said that when her mother rejected her request for a desired item during shopping in a grocery store, she sneaked the item and kept the item in the cart without her mother's knowledge. The reason for sneaking was that the child knew that when the mother would find the item at the cash register, she would not send it back to the aisle.

*"I be sneaking on it. I will hide behind her and then, when she walks away, I'm just going to get it in the store ..and keep in buggy and ...then she buys that." (6-year old girl)*

Some mothers perceived that children sneaked their desired items at home as mothers did not allow the children to eat those items a lot. According to these mothers,

their children sneaked candies, cookies, snacks, and pickles that mothers already purchased and stored in the pantry at home.

Some other successful strategies were teaming up with siblings, writing a list, being tricky, and “buttering up” mothers. Children mostly used strategies that were polite except two children who were the youngest ones in the study threw temper tantrums. Both children and mothers mentioned the children throwing temper tantrums to get their desired items, but the nature of activities mothers and children mentioned about children throwing temper tantrums were different. The places where those activities occurred were also different. A mother mentioned that her daughter whined in the store until she (mother) gave her the item, however her child mentioned that she shook the cart and ran around the cart “*like a chicken with its head off*”. Another child mentioned that she threw temper tantrums at home. She kicked on doors and banged her head on the door when her mother denied giving her the desired item she requested.

***Additional strategies children used identified only from children’s responses***

There were other strategies that the children mentioned that they used to influence their mothers, but the mothers did not mention (Table 4.3). These strategies were pursuing mothers through the grandmothers, taking mothers to a cheaper store, asking for desired food as an allowance, giving option to eat with a healthy item, asking for alternate healthy items, or giving reminders by phone calls or texting.

***Additional strategies children used identified only from mothers’ responses***

Mothers also mentioned other strategies that the children used to influence their mothers, but children did not mention (Table 4.3). These strategies were asking at the

checkout point in a store, stating that the child was hungry, and informing that something got low in the household pantry, and trying to negotiate.

*"She tries to negotiate. She will try to negotiate, and she'll say, "Can I please? Why not?" "No." I'll still be firm and say, "No. We're going to try something else. I have to go. I'm ready to go and I'm tired and I've been working all day." That's what usually happens. My exact words, and, "I'm ready to go so let's choose something healthy and go." I think we have like bonding time. Fun time shopping all together choosing things, but we can still make good decisions and be happy."*  
(Mother of a 9-year old girl)

#### ***Concordance between mothers' and children's perspectives on children's strategies***

Mothers were aware of more than half of the strategies (83 out of 157) children mentioned (Table 4.3). Although there was concordance in the aggregate between mothers' and children's perspectives on strategies children used to influence mothers, the strategies were not mentioned by the same mother-child dyads. When the strategies from both the children's and mothers' responses were matched dyad-wise, it was found that 18 mothers were aware of some of the strategies their children used (as the strategies mentioned by the mother and the child of the dyad matched, Table 4.4). For 22 mother-child dyads the strategies did not match at all dyad-wise, which indicated that mothers were not aware of the strategies that their children were using. Out of 18 children, 10 were boys and 8 were girls. This distribution indicated that mothers were more aware of the strategies that their sons used than the strategies their daughters used given that 15 boys and 25 girls participated in the study. Sixty-seven percent mothers had concordance



with their sons' description of strategies (10/15) and 32% mothers (8/25) had concordance with their daughters' description of strategies.

**Table 4.4:** Strategies concordant with the children and their mothers in dyads

Strategies	Mother-child dyad composition
Polite requests	10 years old boy and his mother
Referencing friends	8 years old girl and her mother
Waiting for mother to ask before going to grocery shopping	
Referencing friends	8 years old boy and his mother
Referencing friends	11 years old girl and her mother
Reasoned requests	
Let mother ask before going to grocery shopping	11 years old boy and his mother
Reasoned requests	11 years old boy and his mother
Keep asking	
Asking again	6 years old girl and her mother
Reasoned requests	9 years old girl and her mother
Discussion	
Waiting for mother to ask before going for grocery shopping	10 years old boy and his mother
Phone call	11 years old boy and his mother
Teaming up with siblings	
Adding in list	9 years old boy and his mother
Waiting for mother to ask before going for grocery shopping	7 years old boy and his mother
Asking in store/checkout point	
Spending child's own money	8 years old boy and his mother
Household chore	11 years old girl and her mother
Taking Mom to the food aisle	7 years old girl and her mother

Throwing temper tantrum	7 years old girl and her mother
Taking Mom to the food aisle	6 years old girl and her mother
Reasoned requests	7 years old boy and his mother
Taking mother to the food aisle	

***Children's influence on mothers' food purchasing decisions for children's foods and drinks***

Children's influence on mothers' food purchases was captured by how often mothers purchased specific foods and drinks that children requested. Children were asked to name specific items that they requested their mothers to buy and the mothers bought those items. Then they were asked how often their mothers purchased those requested foods. In response, 25 children mentioned the items were bought several times in a month with 13 of them saying their mothers bought those items a lot or often. From the remaining 15 children, eight children mentioned that their mothers bought those items sometimes; one child mentioned once in two weeks; two children mentioned once in a month; and 4 children mentioned once or rarely (Table 4.5). For the foods and drinks that the mothers did not purchase in that week, we asked the children if their mothers bought those items any other times and children responded that their mothers purchased those items other times except three children who said, their mothers did not buy those items.

**Table 4.5:** Extent of children’s influence on mothers’ food purchases from children’s perspectives

Extent of influence measured by the frequency of mothers usually buys the children’s desired items	# of children	Name of foods and drinks children requested, and mothers purchased
A lot of time	8	Bananas, Chips, Lunchables, Cheetos, McDonalds Happy Meal, Ice-cream, Mountain Dew
Often	5	Popsicle, candies, Pizza, Ramen Noodles
Once a week	7	Chips, Pickles, Lunchables, Chicken Mini, M&M, Yogurt, ice-cream
‘Not often’ referring to few days in a month	5	Lunchables, Green juice, Fruit Snacks, Skittle, Marshmallow
Sometimes	8	Oranges, Granola bars, Chocolate chip cookies, Blueberry Ginger Ale, Pepsi, Chocolate drinks
Once in two weeks	1	Lunchables
Once in a month	2	Pizza, Mac N cheese
Very little/rarely/one time	4	English muffin, Fanta, Dirt Cake, KFC Fried Chicken

Mothers perceived that their children could influence them (mothers) a lot. Most of the mothers (32/40) thought that their children had a lot of influence on their food and drink purchase decisions. Nine of the mothers mentioned that their children had a 100% influence on the mothers’ food purchases for children. Seventeen mothers perceived their children’s influence was more than 50% but less than 100% and six mothers mentioned the extent of influence was 50%. The remaining 8 mothers mentioned that there was not a big influence or there was little influence which referred to their children having less

than 50% influence on their food purchasing decisions when they purchased foods and drinks for their children. Some of these mothers who did not perceive a big influence mentioned that they perceived their children could influence 30-33% of their food and drink purchasing decision for the children (Table 4.6).

**Table 4.6:** Extent of children’s influence on mothers’ food purchases from mothers’ perspectives

Extent of children’s influence from mothers’ perspectives	# of mothers
100%	9
>50% -<100%/ A lot of influence	17
50%	6
<50%/ 30-33%/Not a big influence/little	8

## Discussion

Children mostly valued sensory attributes that included taste, texture, and flavor for making their food choices. Besides taste, texture, and flavor, children made value negotiation between perceived benefits, food presentation, biological needs, impression, peer approval, convenience, cost, versatility, healthfulness of foods, and managing relationships. Their value negotiation differed by contexts. Children applied different polite strategies to influence their mothers, with a concordance between mothers and children on half of those strategies. Mothers perceived that children had big influence on mothers’ food purchase decisions when foods and drinks were bought for children. Twenty-three percent of the mothers perceived their children had 100% influence on their food purchase decisions specific to children, and 43% of mothers perceived the influence

was between 51% to 99%. Thirty-three percent children perceived that their mothers purchased their (children's) requested foods and drinks a lot of the time or often.

Taste, texture, and flavor are primary values in people's food choice decisions and exist from childhood to adulthood. The values that the elementary school-aged children in our study held beyond these three were not much different than the values adults held and were spread across psychological, social, biological, nutritional, financial, emotional, and environmental categories. Children participating in our study reported taste, texture, flavor, health, convenience, cost, perceived benefits, parent modelling, managing relationship, experiencing new items, preparation of items, food composition, versatility, and variety. Children constructed their food choice decisions holding similar values as adults. Taste, health, nutrition, convenience, cost, and managing relationship are the salient values in adults' food choice decisions.<sup>8-11</sup> Adolescents valued taste, hunger, habit/familiarity, curiosity, appearance, texture, flavor, health, and availability-- for making their food choice decisions.<sup>12,13</sup> Children's food-choice values were mostly identified by experimental studies, hence the values were limited to taste, nutrition knowledge, healthfulness, texture, and packaging until Waddingham et al. (2018) identified four more values that included social acceptability, eating context, pleasure, and versatility.<sup>18,50-52</sup>

Children between 6-11 years old valued cost although they had little purchase power with their small allowances and earning, or even no purchase power. Children thought about the price of the items and they were aware of where they could get their desired items at a cheap price. They also offered money to their mothers to pay for their (children's) desired items or suggested mothers to take them (children) to those cheaper

stores to buy their desired sweet items, particularly candies and fruit punches. Although children of all ages valued cost, only older children thought about cost when they did cognitive negotiation among different values. Cost was identified as a salient food choice value for adults but not for the children or adolescents in previous studies.<sup>8,11,18,53,54</sup>

Children, on average, weighed three values including the taste of foods and drinks to decide which items they desired. Besides taste, older children also weighed among cost, managing relationships, convenience, versatility, healthfulness of foods. Children traded off healthfulness of item with convenience, peer influence, and biological needs in many instances but not always. Some children mentioned that they traded off taste or convenience with healthfulness of items. Some children were conscious about excessive energy intake. Although they thought about energy intake, but the choice of foods did not always reflect nutrient-dense foods; they needed more information on the nutrient quality of the foods. These findings are different than the findings on adolescents where Contento et al., (2006) argued that adolescents tended to trade off healthfulness with taste.<sup>13</sup>

Elementary school-aged children did not have financial autonomy to purchase their desired items; they achieved their desired items through their parents. Children's requests on parents' food shopping was not dependent on a particular location. Children initiated their requests almost equally in store and out-of-store locations. The out-of-store locations included their home, a family member's home, or in the car. These findings showed that children could initiate a request anywhere to influence their mothers actively or passively. Mothers could consider buying something even if children were not with them, thinking about what the child requested at home or in the car. These findings added

to the existing knowledge that children did not need to be physical present in store to influence parents, they could initiate a request from any location other than stores and influence their mothers actively or passively as Furry & Burns described using social power theory.<sup>20,30,41,53</sup>

Children tried to influence their mothers using numerous generous strategies. Elementary school-aged children go through the analytic developmental stage and can process information, for which they might be thoughtful about using generous strategies to acquire their desired items from mothers. The most mentioned strategy identified from both the children and their mothers' responses was repeated polite requests followed by reasoned requests, referencing friends, giving hints, offering services, and teaming up with siblings. Children understood that if they asked repeatedly, annoying their mother, the mothers would not purchase the items. Hence, when children asked for the items after being rejected first time, they (children) asked nicely or politely. Out of 80 children and mothers only two children and three mothers mentioned that children whined or annoyed mothers. Referencing friends was an effective strategy that children used to influence mothers. Mothers also mentioned that when their children requested particular items citing their friends consumed those foods, mothers considered to buy them (foods) because they did not want their children felt emotionally left-out in schools or afterschool programs. In contrast to our findings that children mostly used generous strategies, previous studies reported strategies like pestering, nagging, keeping items in shopping carts, carrying them to the cash register, and pointing to the items; one generous strategy reported was polite requests.<sup>26,43,55-57</sup>

Mothers were aware of more than half of the strategies children used. Mothers were more aware of the strategies that their sons used than the strategies their daughters used. This study did not have the scope to identify the underlying reasons for such gender differences. Given that obesity prevalence was higher in the boys than the girls (19.2% vs. 16.5%) in the U.S. and boys had poorer self-regulation and higher unhealthy food intake than the girls, the gender difference in the mother-child concordance needs further investigation.<sup>58,59</sup>

Nearly one-fourth of the mothers (23%) perceived that their children had 100% influence on their food shopping when the foods and drinks were purchased for children. More than half of the mothers (58%) perceived that children's influence on their (mothers') food shopping was between 50% to 99%. When children were asked what they thought about how often their mothers purchased the foods and drinks they (children) requested, one-third of them (33%) perceived that their mothers purchased their particular requested items a lot of the time or often. Half of the children (50%) perceived that their mothers purchased their requested foods once in a week, a few days in a month, or sometimes. This information on how often mothers purchased the requested foods and drinks was not sufficient alone to capture what children perceived about how much they could influence their parents' food purchases. If children reported that their mothers purchased their specific requested items a lot of the time or often, that might not be translated as children's exclusive influence on mothers' food purchases; mothers might have other reasons in addition to the children's requests to purchase those particular foods and drinks children wanted.



We were not able to quantify how much influence children had on their mothers from children's perspectives based solely on the children's responses to how often mothers purchased their requested foods. However, their responses provided information on how frequently mothers purchased children's requested items. From mothers' frequent purchases of the food items, it can be interpreted that even if mothers were not exclusively influenced by the children's requests, they were passively influenced by the children to purchase those items. There is still debate on how to measure the extent of children's perceived influence on parents and a lack of validated instrument to measure the extent of influence on parents' everyday food purchases. Due to the children's age range between 6 to 11 years, the question what children perceived about how much they could influence their mothers might be too difficult for the elementary school-aged children to process. Some researchers measured the extent of children's influence in terms of how many requests children initiated in stores and how many items parents purchased from those requests.<sup>18,20,34,55</sup> Lively et al. (2019) and Calloway et al. (2016) reported around 70% of the parents purchased at least one item that children's requested during shopping.<sup>55,60</sup> Caruana & Vassallo (2003) used a four-item scale to measure children's perceived influence on parents' purchases, though the items were not specific to foods. The items included "I tell my mother which toy to buy," "My mother will usually buy me the toy that I want," "I tell my mother what things to buy for the family," and "My mother usually buys the things that I want."<sup>61</sup>

Most of the items requested by children, that they perceived their mothers purchased sometimes to a lot of the time, were EDNP in category except two nutrient-dense fruits (Table 4.5). This is concerning because 80% of the mothers mentioned that

children had a lot of influence on their food purchase decisions specific to children's consumption. These findings are aligned with previous research that showed most of children's requests were for energy-dense foods including sweetened breakfast cereal, candy, chips, ice cream, pop tarts, cookies, crackers, buttered popcorn, and doughnuts.<sup>27,55,62</sup>

This study provided in-depth information from parent-child dyads on children's influence on parents' food purchases and the strategies children used to influence their parents' decisions. Both the mothers and children were asked the same questions to identify the strategies children used to influence mothers' food purchases. By qualitative interviewing, this study identified how children negotiated among different values to make their food choice decisions. We also quantified what mothers perceived about how much their children could influence their (mothers') food purchases. We could learn from the children what they perceived about how often their mothers purchased their (children's) requested food, and which items mothers purchased frequently.

One limitation is that we could not quantify directly what children perceived about how much they (children) could influence their mothers, but we have quantified mothers' perception about how much children could influence them (mothers). Another limitation is that this study only captured children's strategies and extent of influence on mothers' food purchases. All parents who contacted the investigators to participate in the study were mothers of the children except two of them were fathers. Later on, the fathers declined to participate due to their family crisis and lack of time. Out of 40 children who participated in the study, 23 lived with two parents and 17 lived with single mothers only. For the children living with two parents, mothers were the primary food shoppers. As a

result, information on how children influence a primary food shopper father's food purchasing decisions and fathers' concordance with children on strategies to influence fathers is missing in this research.

### **Conclusion**

Children held a wide range of values for making their food choice decisions. Besides sensory values, children negotiated among perceived benefits, food presentation, biological needs, impression, peer influence, convenience, cost, versatility, healthiness of foods, and managing relationships to make their food choices. To acquire their desired foods and drinks from mothers, children were aware about the strategies that would get positive reaction from their mothers. The most used strategy was repeated polite requests followed by reasoned requests, offering services, and referencing friends. Mothers were aware of numerous strategies children used; more concordance was observed between mothers and sons than between mothers and daughters. Mothers acknowledged that children had a lot of influence on their food purchasing decisions.

To improve mothers' food purchases, multiple complementary interventions are needed for both mothers and children. We identified that mothers perceived that their children had a lot of influence on their food purchases and that most of the items mothers purchased that were actively or passively influenced by children requests were EDNP foods and drinks. Thus, the findings of this study suggest that interventions are needed for mothers to help address children's strategies to influence mothers to purchase less healthy items. Mothers also need support to develop alternative strategies to make healthy items appealing to children.

Children's value negotiation also indicates that healthfulness of items traded with taste, peer influence, and convenience in some instances in children's food choice decisions. These findings suggest that children need interventions to help them learn to prioritize the healthfulness of items over other values and also help to learn appreciate the taste of healthy foods like raw and simply cooked vegetables. Information on food choice values should be incorporated in elementary school children's curriculum so that children can get guidance to make informed choices and enhance their value negotiation skills to make competent choices.

Mothers' acknowledgement of children's influence on their food purchase decisions suggests that children can serve as change agents for improving mothers' food purchases if children prefer healthy foods and drinks. Gender differences in concordance between mothers' and children's perspectives on strategies, as have been identified in mother-child dyads in this study, need further investigation. We also did not characterize mothers with different parenting style. In future studies, mothers with different parenting style should be examined to see what types of strategies children use in different types of parents and how much concordance was there between the mothers and children.

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## CHAPTER 5

### CONCLUSIONS AND IMPLICATIONS

The purpose of this research was to provide insights into influences on parents' food purchasing decisions specific to children's consumption. The study fills a gap found in the literature, namely, what drives parents to buy energy-dense nutrient-poor foods which are mostly considered unhealthy for their children even though they are aware about the needs for healthy foods. This research articulated how parents made food purchase decisions for their elementary school-aged children, how children constructed their food choice decisions and what they did to influence parents' food purchases. Through qualitative methods, this work examined how parents adjudicated among different values, including the healthfulness of items, price of items, and children's desire for foods and drinks, when they made food purchase decisions specific to their elementary school-aged children; what values children weighed in constructing food choices; what strategies children used to influence their parents' food purchases; and what was the extent of children's influence on parents. In this chapter, we summarize the major findings of the research, discuss the strengths and limitations of the study, followed by implications of the research findings and future research direction.

## 5.1 Summary of Major Findings

This research tracked which foods and drinks parents purchased for their households over a 7-day period with a focus on which items were specifically bought for their elementary school-aged children. Food shopping receipts were collected from the parents and recorded in a list. From that list, the foods which were purchased for everyone in the family, and which were purchased for specifically for the elementary school-aged children were identified. In total, parents purchased 1,476 items for the households (everyone in the household including the children) from grocery stores, supermarkets, and convenience stores and 176 items from fast food stores and restaurants. The items were categorized as vegetables, fruits, chips, cookies and crackers, other types of snacks, cooked frozen foods, cereal, cheese, staple, box items/other groceries/seasoning, raw meat/fish items, drinks, and fast foods and restaurant products (Table 5.1). On average, parents purchased 37 items (excluding fast foods and restaurant meals) in the data collection period of one week for their households (list of all foods and drinks purchased is given in Appendix A). From the list of all foods and drinks for households, the ones that children reported as they liked or requested comprised 46% (n=692) of the items (list in Appendix C). From the purchased foods and drinks for the households, 26% of the foods and drinks (n=388) were purchased specifically for the children who participated in this study (list in Appendix B). The lists showed that foods children liked or requested and foods that parents purchased for children were quite similar. Parents mostly bought breakfast items, snacks, fruits, fast food items, drinks, fast food and restaurant meals separately for their children based on children's desire.

**Table 5.1.** Total number of foods and drinks purchased by 40 parents for households over a 7-day period

Categories of foods and drinks	Number of purchases
Vegetables	201
Fruits	142
Chips, cookies and crackers	109
Other types of snacks	124
Cooked frozen foods	118
Cereal	45
Cheese	48
Staple	89
Box items/other groceries/seasoning	140
Staples & raw meat/fish items/cereal	186
Drinks	214
Sub-total	1476
Fast foods and restaurant foods	176
Total	1652

The first manuscript highlighted what parents valued when they made food purchasing decisions for their children and how they adjudicated among different values to come to a decision on which foods and drinks to buy for them (children). Parents valued satisfying their children's desires and that is why they bought several items specifically for their children. Besides children's desires, children's acceptance of foods

and drinks and emotions were important in parents' decision-making process. Parents also valued nutritional quality of foods and health needs of the children but tended to compromise the healthfulness of the items as their food purchase decisions were driven by satisfying their children's desires. Parents also purchased the foods and drinks as per children's desires as they feared that if their children would not accept the foods, they would stay hungry. Children's references to friends having particular foods also influenced parents to purchase less healthy foods and drinks as they considered their children might feel emotionally left out in schools or afterschool programs. Parents were aware of what their children liked. Their knowledge of what their children liked or wanted influenced them to decide which foods and drinks to buy for their elementary school-aged children.

Parents wanted their children to grow up healthy and they were aware that children need healthy foods to grow healthy. Hence, they valued the healthfulness of the items but not as much as satisfying children's desire. Parents described that their food purchase decisions for the children were mostly determined by their children's desires. Consequently, parents experienced value conflicts mostly between satisfying children's desire and the healthfulness of items. When children wanted less healthy foods, parents were in a dilemma deciding between children's satisfaction and the foods' healthfulness. Beside children's desire and foods' healthfulness, parents also adjudicated among convenience, children's acceptance of foods, cost, children's health need, emotions, autonomy support, and tradition. Parents tended to purchase frozen dinners and ready-to-eat packaged items and fast foods to cater to their busy schedules and ease of access to foods. Parents tried to reduce the value conflicts by making different strategies to

purchase healthier version of foods for children; for example, they bought healthy items on promotions, set rules that children had to eat healthy items first and then could eat their desired unhealthy ones, or made a balance between healthy and unhealthy items.

For children's food purchases, price was not the prime element as parents were willing to pay for the healthy items that some of them perceived as beyond their budget, and tried to buy those items, if their children wanted them. The list of foods and drinks purchased for children showed that the items were almost similar for the households varying in income and food security levels. Parents used strategies, such as sales and store brands, to buy those items at a cheaper price. Parents also valued children's autonomy support as a consumer, so they let the children choose their own foods and drinks. Parents also valued tradition when they purchased foods for their children.

Parents' value negotiation, specific to children's food purchasing decisions, differed by context. Parental stress caused by poor coordination between work schedules and family roles, children's split stay in two-parents' houses, and household food insecurity stimulated conflicts among different values. Parents' value negotiations were also influenced by parents' attention to immediate effects over the long-term effects on health. Children's positive reaction after having their desired items is an immediate effect, but the consumption of energy-dense nutrient-poor foods and drinks does not have immediate effects on health; the chronic diseases associated with the consumption of these foods and drinks develop over time. Although parents expressed concern over the amount of sugar in the foods and drinks, the main reason for their concern was dental cavities, not chronic diseases associated with excessive sugar consumption. This qualitative study provided in-depth understanding of the parents' food purchase

behaviors. Parents sometimes refrained from buying particular items children requested considering the low nutritional quality or price of the items, but later they purchased the items in another shopping event or when they had enough money to buy the items; hence, parents tended to compromise the healthfulness of items over satisfying children's desire. They bought those items another day recalling their children asking for them irrespective of the presence of children during shopping events.

The second manuscript highlighted children's food choice construction, as well as what strategies children used to acquire their desired foods from their parents and how much influence children had on parents' food purchases. This study revealed what values children held in their food choice decisions, how they negotiated among different values to decide which foods and drinks they wanted to consume, and what strategies they used to influence their parents to achieve their desired items. Value negotiations and strategies to acquire foods are integral parts of the personal systems segment in the individual's food choice process model. Children most valued taste, texture, and flavor of items. Other values children held in their food choice decisions were healthfulness, convenience, perceived benefits, peer influence, sibling influence, parent modelling, happiness, cost, habit, experiencing new items, managing relationship, preparation of items, food composition, food's versatility, and variety.

On average children weighed three values, including taste, when they made food choice decisions. Younger children mostly valued taste, flavor, texture, food quality, and habit. Keeping taste as the primary value, children aged 8-11 years old made value negotiation between perceived benefits, food presentation, biological needs, impression, peer approval, convenience, cost, versatility, healthfulness of foods, and managing

relationships. Depending on contexts, children traded off healthfulness for convenience, peer influence, and biological needs. Some children were found to trade off taste or convenience with healthfulness of items.

Children requested desired items from their primary food shopping parents frequently. Children's requests for foods and drinks and strategies to acquire those foods and drinks did not vary much by the location. They requested the desired items from their parents almost equally in stores and at home.

Children used numerous strategies to acquire their desired items from their parents. They were thoughtful about using strategies that would get positive reaction from their parents instead of annoying them (parents). Both the parents and children mentioned that when parents rejected children's first requests for specific foods and drinks, children asked for those items repeatedly but politely. Other strategies that children used include reasoned requests, referencing friends, giving hints, offering services, teaming up with siblings. Children were aware that if they asked repeatedly, annoying their mother, the mothers would not purchase the items. Out of 80 children and mothers only two children and three mothers mentioned that children whined or annoyed mothers; two children and eight mothers mentioned children simply grabbed or picked their desired items. Reasoned requests and referencing friends were two successful strategies to influence parents' purchasing decisions.

Parents were aware of half of the strategies children used. The concordance between parents and children's perspectives on strategies children used to influence parents did not differ by a child's age or race but differed by a child's gender. Parents



were more aware of the strategies that their sons used than the strategies their daughters used.

Regarding how much influence children had on parents' food purchase decisions, 80% of the parents perceived that children had 50% or more influence on their food purchases. Twenty-three percent of the parents perceived the influence was 100%; forty-three percent of the parents perceived that the influence was between 51% to 99% when the foods and drinks were for children. When children were asked what they thought about how often their parents purchased the foods and drinks they (children) requested, 33% of them perceived that their parents purchased their particular requested items a lot of the time or often. Fifty percent of the children perceived that their parents purchased their requested foods once in a week, a few days in a month, or sometimes. This information, however, was not sufficient to understand what children perceived about how much they could influence their parents' food purchases. If children reported that their parents purchased specific items a lot of the time or often because of their requests, that cannot be translated as children's exclusive influence on parents. Parents might have other reasons in addition to the children's requests to purchase those particular foods and drinks children wanted. Children's responses to the question of how often mothers purchased the foods children requested cannot be interpreted directly to answer how much children had active influence on parents from children's perspectives. Nevertheless, parents' frequent purchases of the food items showed that even if parents were not actively influenced by the children's requests, children had passive influence on parents' purchases. Children's influence on parents was also observed from parents' responses on value adjudication as their food purchase decisions were driven by children's desires

referring to what children liked, requested, and wanted to consume. We might not capture from children's own perspectives how much they could influence their parents, but the parents informed that they (parents) perceived that their children had a lot of influence on them (parents).

This study also showed that the underlying reasons for unhealthy food purchases, specific to children's consumption, are not rooted solely in the price of items as perceived in general. Instead, the purchases occur due to the importance parents give to satisfying children's desire; parents' priority to children's happiness and food acceptance over the long-term effects of unhealthy foods on children's health; and children's food choice decisions shaped by the taste, texture, and flavor of the items. Convenience of the items also factored in parents' decision-making process.

## **5.2 Strengths and Limitations**

This qualitative study provided in-depth understanding of the primary food shopping parents' food purchase behaviors and children's influence on those parents' food purchases from both the parents' and children's perspectives. The qualitative interviews provided details on how parents made food purchasing decisions for their elementary school-aged children, described which foods and drinks parents purchased for those children, and gave explanations of why parents purchased those foods and drinks by investigating parents' value adjudication when they made food purchase decisions. The study also provided in-depth information from parent-child dyads on the strategies children used to influence their parents' decisions. This is the first study, to our knowledge, that identified concordance between parent and elementary school-aged

children on children's strategies to influence parents' food purchasing decisions. By interviewing both children and parents using the same questions we could compare their perspectives. Another strength is that food purchase receipts were collected from the parents before doing the in-depth interviews; the store receipts helped in minimizing socially desirable responses from the parents. The responses we received from children and parents on the strategies children used to influence parents were on the real purchased foods and drinks for a period of seven days. We also identified what parents perceived about children's influence on their food purchases and quantified children's influence on parents' food purchases. In addition, we identified what children perceived about how often their parents purchased their requested particular foods and drinks, though what children perceived about how much they could influence their parents' food purchase decisions could not be clearly identified from the question on how often parents bought the foods children.

One of the limitations is that this study only identified mothers' food purchase behaviors. The parents who contacted the investigator to participate in the study were all mothers except two fathers. The fathers who contacted the investigator to participate in the study declined to participate later on for family crisis and lack of time. Out of 40 children, 23 lived with both parents and 17 lived with a single mother only. For the children living with two parents, mothers were the primary food shoppers. Consequently, how a primary food shopper father makes food purchasing decisions for his elementary school-aged children is missing in this research. This study also could not capture what strategies children use to influence their fathers' food purchasing decisions, whether those strategies were different from the strategies children used to influence mothers, and

the extent of children's influence on fathers' food purchases for children. Although we could not get that information from fathers, some of the children mentioned that when they could not achieve their desired items from mothers, they requested those items from their fathers. The findings may not be generalizable to other populations.

Only English-speaking participants could participate in the study. Since, 89% of the population in the study area were non-Hispanic White or African American, this study might not capture the experiences of some of the remaining 11% of the population who were non-English speaking. Although Hispanic and Asian mothers who could speak in English participated in the study, the findings may not be generalizable to non-English speaking people as well.

### **5.3 Implications and Future Research Directions**

This study revealed how parents adjudicated among different values when children are involved in their food choice process and how they resolved value conflicts to make food purchase decisions for elementary school-aged children.<sup>30</sup> Hence, the findings of this study add to the existing evidence regarding the food choice process model of adult individuals (Furst et al., 1996).<sup>30</sup> Another contribution is how elementary school-aged children construct food choices showing in detail what values children held in their food choice decisions, how they negotiated among different values to decide on foods and drinks, and what were the strategies they used to achieve their desired items. This information represents the personal systems segment of individual's food choice process model.<sup>30-32</sup>

This research provides important information for researchers, practitioners, and policy makers interested in solutions to parents' unhealthy foods and drinks purchases for children by giving explanations for why parents' purchase those items. Children's desire for, acceptance of, and emotions toward foods and drinks were important in parents' decision making. Despite that parents valued nutritional quality of foods and were aware of the need of healthy foods for children, parents' purchases of less healthy foods and drinks indicates a gap between parents' knowledge and behavior related to children's food purchases. In addition, children were aware of the strategies that could influence their parents' food purchasing decisions. Another explanation for parents buying less healthy foods could be that parents did not think about risk of chronic diseases in children's later life.

This study also identified fundamental reasons for children requesting more EDNP foods and drinks than the nutrient-dense ones. Children's focus on taste, texture, and flavor of items over the healthfulness of items might lead children to find those EDNP processed foods and drinks more appealing than healthy items like fruits and vegetables. Children's value negotiation also indicates that healthfulness of items was traded with taste, peer influence, and convenience in some instances in children's food choice decisions. These findings suggest that children need interventions to help them learn to prioritize the healthfulness of items over other values and help to learn appreciate the taste of healthy foods like raw and simply cooked vegetables. These findings also suggest that food choice values should be incorporated in elementary school children's curriculum so that children can get guidance to make informed choices and enhance their value negotiation skills to make competent choices.

The findings on the strategies children used to influence their parents can help in developing age-appropriate interventions for elementary school-aged children to educate these children about healthy foods, help them think about how to make healthy food choices, and to encourage them to select healthy foods instead of the unhealthy ones by showing the long-term detrimental consequences of densely energetic processed and packaged foods on their health. The strategies children use to influence their parents for purchasing foods for them (children) could also be used to develop positive counteractive strategies for parents related to purchasing healthy foods.

Multiple complementary interventions are needed for parents to help address children's desires for less healthy items, develop alternative strategies to make healthy items appealing to children instead of yielding to children's unhealthy food purchase requests, and bridge the gap between parents' knowledge and food purchase behaviors. Information provision should also be increased for parents related to the long-term detrimental effects of unhealthy food consumption to help parents prioritize their children's long-term health over immediate happiness.

Parents' strategies to buy healthy items on children's requests, however, suggests that parents will buy healthy items irrespective of the price and convenience of those items if children have desire for healthy items. Parents' acknowledgement about children having a lot of influence on them (when the foods and drinks are purchased for their children), suggests that children can serve as change agents for improving parents' food purchases if children make healthy food requests.

This study identified that parents have more concordance with their sons' strategies than those of their daughters. Given that, boys were at higher risks of obesity and boys ate less fruits and vegetables than the girls (SCDHEC, 2014), further research is needed to investigate this gender difference in a larger population and to understand the underlying reasons for such differences.

This study also identified that both parents and children valued the convenience of the food items which led them to purchase less healthy and ultra-processed items like *Ramen Noodles* and *Lunchables*. These findings suggest that availability of healthy convenience foods, without compromising the nutrient quality of the items, may attract parents and children to select healthy foods. Policies are needed to increase consumers' access to healthy convenience foods. Future research is needed to investigate if increased options of healthy convenience foods can improve parents' food purchases for children. Future research is also needed to understand fathers' food purchase behaviors specific to their elementary school-aged children's consumption and what strategies children use to influence fathers to purchase their (children's) desired items.

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## APPENDIX A

### DRINKS AND FOODS PURCHASED FOR EVERYONE IN HOUSEHOLDS

#### Drinks

1% chocolate milk  
100% apple juice  
100% grapefruit juice  
Apple juice  
Berry punch juice  
Capri sun  
Cashew milk  
Chobani drinkable yogurts  
Coca Cola  
Coconut milk yogurt  
Coffee  
Coke Zero  
Cranberry cocktail  
Cranberry grape juice  
Cranberry juice  
Cranberry juice  
Diet Coke  
Dr. Pepper  
Fanta  
Fruit juice  
Fruit punch  
Gatorade  
Ginger ale soda  
Gogurt  
Grape juice  
Grapefruit juice  
Green apple kombucha  
Green teas  
Hawaiian Punch  
Hot chocolate  
Iced tea  
Kombucha  
Kool-Aid

Lemonade  
Milk  
Milk smoothies  
Mixed berry kombucha  
Mountain Dew  
Orange juice  
Organic unsweetened almond milk  
Popsicles  
Propels  
Seltzer water  
Skim milk  
Smoothie  
Soy milk  
Sparkling water  
Sprite  
Sweet tea  
Tea  
Unsweetened lemonade  
Unsweetened vanilla almond milk  
Vanilla milkshake  
Water  
Water  
Watermelon juice  
Whole milk  
Whole milk buttercream

#### Fruits

Apple  
Banana  
Blackberry  
Blueberries  
Canned peaches  
Cantaloupe  
Cherries  
Clementine  
Diced peach  
Frozen bananas  
Frozen berries  
Frozen fruit  
Frozen novelties  
Grapes  
Kiwis  
Mandarins  
Mangos  
Nectarines  
Olives

Oranges  
Organic blueberries  
Papaya  
Peach  
Pears  
Pineapple  
Plums  
Raspberries  
Strawberries  
Watermelon

Vegetables

Asparagus  
Baby carrots  
Beans  
Bell pepper  
Bell peppers  
Black beans  
Black fiesta beans  
Black olives  
Broccoli  
Cabbage  
Canned baby carrot  
Canned beans  
Canned corn  
Canned vegetables  
Carrots  
Cauliflower  
Collard greens  
Corn  
Cucumber  
Edamame  
Frozen mixed vegetable  
Grape tomatoes  
Grape tomatoes  
Green beans  
Green onions  
Green pepper  
Greens  
Iceberg lettuce  
Jalapenos  
Kale  
Lettuce  
Lettuce salad in a bag  
Lima beans  
Mushrooms

Mustard greens  
Onion  
Mix of spinach and arugula  
Salad mix  
Peas  
Roma tomatoes  
Romaine lettuce  
Snappy bell pepper  
Spinach  
Squash  
Steamable cauliflower vegetable mix  
String beans  
Sweet corn  
Sweet peas  
Sweet potatoes  
Tomatoes  
Zucchini

Snacks/desserts

Banana nut muffin  
Belvita  
Biscuits  
Blueberry Kind bars  
Brownies  
Butter pecan ice cream sandwiches  
Captain Crunch  
Cheese curls  
Cheez Doodles  
Cheez-its  
Chips  
Chocolate bar  
Chocolate bunny cinnamon  
Chocolate chip cookie  
Chocolate cookie dough bar  
Chocolate doughnuts  
Chocolate muffins  
Chocolate raisins  
Cinnamon apple sauce  
Coconut flavored cookie  
Cookies  
Corn pops  
Crackers  
Doughnuts  
Doritos  
English muffins  
Freezer bars

French vanilla yogurt  
Fruit gushers (gummies)  
Fruit pebbles  
Fruit snack  
Fig Bar  
Ginger snaps  
Goldfish crackers  
Graham crackers  
Honey wheat rice cracker  
Jello snacks  
Klondike bars ice cream  
Lara Bar  
Lay's chips  
M&M ice cream cookies  
M&M yogurt  
Maria cookies  
Marshmallow  
Mint cookies  
Nachos  
Nature Valley bars  
Nutella  
Organic fruit snacks  
Organic yogurt  
Pancake  
Peanut butter  
Peanut butter granola bars  
Pillsbury biscuits  
Pop Tarts  
Popcorn  
Popcorn chicken  
Potato chips  
Potato wedges  
Pretzel stick  
Protein bar  
Reece's Pieces  
Rice Crispy Treats.  
Rice snack  
Ruffles potato chips  
Semi-sweet morsels  
Snickers ice cream cookies  
Star crunch  
Strawberry breakfast bar  
Strawberry Nutri-Grain bar  
Strawberry pie  
Sweet potato chips  
Tater tots

Toaster strudels  
Tortilla chips  
Triscuits  
Vanilla wafers  
Vanilla yogurt  
Vegetable chips  
Warhead candy  
Wheat Thins

Bread/Cereal/ Buns/Staples

Apple sauce  
Block cheese  
Bread  
Bread  
Bread  
Breakfast bar  
Breakfast sausage  
Butter  
cheese  
Cheese  
Chocolate Rice Krispy cereal  
Ciabatta bun  
Cinnamon raisin bread  
Cinnamon roll  
Cinnamon swirl  
Cinnamon Toast Crunch  
Coco Puff cereal  
Corn grits  
Cream cheese  
Crescent rolls  
Croissants  
Egg rolls  
Eggos Waffles  
Flour tortillas  
French toast  
Froot Loops cereal  
Frosted Flakes  
Frosted Mini Wheats  
Fruit Rings cereal  
Garlic French fries  
Gluten free pasta  
Granola  
Grits  
Guacamole  
Hamburger buns  
Hawaiian rolls

Honey Bunches of Oats  
Honey Buns  
Hotdog buns  
Ice cream  
Kellogg's Rice Krispy cereal  
Mac and cheese shell  
Maple sugar Quaker oatmeal  
Maple syrup  
Mashed potatoes  
Mixed nuts  
Mozzarella  
Mozzarella cheese  
Multigrain bread  
Noodles  
Oatmeal Organic hot dogs  
Pasta  
Pistachios  
Potatoes  
Potpies  
Puffs cereal  
Quaker grits (everyone)  
Queso (everyone)  
Raisin bran cereal  
Ramen noodles  
Salsa  
Sandwich bread  
Shortbread  
Shredded Mini-Wheats  
Sugar-free, whole grain wheat bread  
Texas toast  
Yellow rice

Cooked/frozen/ready-to eat

Banana bread  
Chicken and apple sausage  
Chicken noodle soup  
Chicken raviolis  
Cooked chicken breast  
Frozen French-fried potatoes  
Frozen sandwiches  
Frozen waffles  
Pasta noodles  
Pickles  
Porridge  
Provolone cheese  
Quinoa

Rice  
Sliced cheese  
Slim Jims  
Spaghetti  
Spaghetti noodles  
Taco shells  
Tortillas  
Waffles  
Wheat bread  
White rice  
Whole grains bread with seeds  
Yeast rolls

Meat/Beef/Cooked foods

Baby back ribs  
Bacon  
Beef  
Beef patties  
Beef ribs  
Beef roast  
Canned salmon  
Canned tuna  
Chicken nuggets  
Chicken sausage  
Chicken tenders  
Chicken thigh  
Chicken wings  
Chicken wings and drumsticks  
Deli meat  
Deli rolls  
Deli sandwiches  
Deli sliced cheese  
Fish  
Fish stick  
Hamburger helper  
Hamburger meat  
Hot dog  
Hot Pockets  
Kosher hotdog  
Lasagna  
Lasagna noodles  
Lunch meat  
Pizza  
Pizza rolls  
Ravioli  
Rotisserie chicken



Sausage patties  
Smoked deli turkey  
Smoked ham  
Smoked sausage  
Smoked turkey  
turkey and cheese  
TV bars

Raw meat/fish

Barbeque sauce  
Boneless chicken breast  
Boneless chicken thigh  
Buffalo wings sauce  
Cauliflower and Buffalo sauce  
Chicken  
Chicken breast  
Chicken drumsticks  
chicken wings  
Chuck roast  
Dill pickles (everyone)  
Drumstick  
Eggs  
Fettuccini pasta  
Flour  
Ground beef  
Ground turkey  
Ham  
Hungry Man dinner  
Lean beef  
Lemon  
Lunch meat turkey  
Meatballs  
New York strip steak  
Ox tails  
Pink salmon  
Pork  
Pork chops  
Pork loin  
Pork loin back ribs  
Ribeye steaks  
Sausage  
Shrimp  
Sirloin steak  
Steak  
The Gorton fish sandwich filets  
Tilapia

Tuna  
Turkey  
Turkey breast  
Turkey necks  
Turkey wings

Spread/ dressing/seasoning/Dip/others

Alfredo sauce  
Brownie cookie dough  
Brownie mix  
Chili seasoning mix  
Cilantro  
Coffee creamer (everyone)  
Diced red onions  
Enchilada sauce  
French dressing  
Fresh thyme (seasoning)  
Garlic  
Garlic Alfredo sauce  
Garlic and herb sauce  
Garlic bread sauce (everyone)  
Grape jam (everyone)  
Greek salad dressing  
Guacamole  
Heinz ketchup  
Hickory honey marinade  
Honey  
Hot sauce  
Hummus  
Italian dressing  
Jelly  
Ketchup  
Mayonnaise (everyone)  
Meat pasta sauce  
Mentos  
Mix for corn bread  
Olive oil (everyone)  
Orange marmalade  
Pancake syrup  
Pasta sauce  
Pesto sauce  
Ranch dressing  
Salad dressing  
Seasoning  
Sour cream  
Soy free margarine

Spaghetti sauce  
Sugar  
Taco seasoning  
Vegetable oil  
Whipped cream- heavy cream  
Yogurt Gluten-free sugar cookie mix

Fast foods/restaurant foods

Baked beans  
Baked turkey wings  
Barbecue chicken  
Chicken basket  
Chicken kabob  
Chicken nuggets  
Chicken salad  
Chicken stir fry  
Chicken tenders  
Chick-Fil-A sandwich  
Chipotle square  
Cici's Pizza  
Corn on the cob  
French fries  
Fried chicken  
Fried rice  
Fries  
Grilled chicken  
Hamburger  
Happy China buffet  
Happy Meals  
Chicken tenders  
Hash browns  
Jimmy Dean's breakfast bowls (Frozen-egg, sausage, and cheese)  
Mac and cheese  
Mac meal  
Mac Chicken  
Cheeseburger happy meal  
Nuggets  
Philly cheesesteak sandwich  
Pork and beans  
Rice with chicken  
Salad  
Sausage biscuits  
Sausage egg  
cheese sandwiches  
Spaghetti and meatball  
Sweet and sour chicken

Sweet onion vegetable stick  
Teriyaki chicken kabob  
Turkey sausage  
Vegetable stir fry

## APPENDIX B

### DRINKS AND FOODS PURCHASED FOR THE ELEMENTARY-SCHOOL-AGED

### CHILDREN PARTICIPATING IN THE STUDY

#### Drinks

2% Milk  
Apple juice  
Berry punch juice  
Bournvita  
Capri sun  
Chocolate drink  
Coffee  
Fruit drink  
Fruit punch  
Gatorade  
Grapefruit juice  
Green smoothie drinks  
Hawaiian punch  
Hi-c boxed drink  
Iced tea  
Icee  
Kool-Aid  
Lemonade  
Low fat kefir  
Milk  
Milk smoothies  
Mountain dew  
Orange juice  
Powerade  
Sherbet  
Smoothie drink  
Sparkling ice  
Sparkling water  
Sprite  
Sweet tea  
Vanilla shake

Water  
Whole milk

Fruits

Apple  
Bananas  
Cantaloupe  
Cherries  
Coconut  
Diced peach  
Dried berry  
Dried cranberries  
Grapes  
Honey dew  
Mandarin  
Oranges  
Pears  
Pineapple  
Plums  
Strawberry  
Tangerines

Vegetables

Asparagus  
Avocado  
Beans  
Broccoli  
Carrots  
Celery  
Corn  
Grape tomato  
Green beans  
Mixed vegetables  
Spinach  
Sweet peas  
Tomato  
Zucchini bites

Snacks/chips/crackers/desserts

Animal crackers  
Apple pie  
Applesauce  
Biscuit  
Box of chips  
Bran muffins

Bread  
Breakfast bowls  
Brown nuts  
Brownies  
Candy  
Carrot cake cookies  
Cheerios  
Cheese crackers  
Cheese curls  
Cheez doodles  
Cheez-its  
Chewy granola bars  
Chips  
Chips ahoy cookies  
Chocolate chips  
Chocolate chips cookies  
Chocolate yogurt  
Cinnamon toast  
Cookies  
Crackers  
Cream cheese  
Debbie cakes  
Doughnuts  
Doritos  
Freezer bar  
Fritos  
Fruit roll-up  
Fruit snacks  
Goldfish crackers  
Graham crackers  
Granola bar  
Greek yogurts  
Gummies  
Ice cream  
Ice cream sandwiches  
Kit-Kat  
Little Debbie snacks  
Lunchables  
M&M  
Marshmallow  
Mini gold cupcakes  
Minis  
Muffin  
Nabisco cookies  
Nachos  
Nature valley bars

Oatmeal pie  
Organic fruit snacks  
Peanut butter  
Peanut butter crackers  
Pillsbury biscuits  
Pop tarts  
Potato chips  
Potato puff  
Pretzels  
Protein bar  
Sandwich cookies  
Shredded mini-wheats  
Sliced cheese  
Soft cookies  
Spicy sweet chili Dorito  
Strawberry pop-tarts  
String cheese  
Toast  
Toaster pastries  
Toaster tarts  
Vanilla wafers  
Veggie chips  
Yogurt

Bread/cereal/cheese

Bagels  
Breakfast cereal  
Egg  
Egg protein  
Eggs  
Fritos  
Froot loops  
Gluten free bread  
Hamburger buns  
Hamburger- whoppers  
Hamburger-buns  
Honey nut cereal  
Honey nut oats cereal  
Hot dog buns  
Mac and cheese shell  
Mashed potatoes  
Mozzarella cheese  
Multigrain bread  
Noodles  
Oatmeal  
Pancakes



Parmesan cheese  
Raisin bran  
Ramen noodles  
Ramen noodles  
Rice

Cooked/frozen/ready-to-eat

Beef jerky  
Chicken pot pies  
Corn dogs  
Deli meat- ham  
fish sandwich filets  
Fish stick  
Fish sticks  
Frozen french fries  
Frozen pizza  
Frozen sandwich  
Frozen sandwiches  
Hot dogs  
Hot pocket  
Hungry man dinner  
Lean pocket  
Meatloaf  
Micro ravioli beef  
Pink salmon  
Pita pocket  
Popcorn shrimp  
Sandwich meat  
Sesame chicken  
Shrimp  
Smoked sausage  
Smoked turkey  
Tuna  
Turkey burgers

Others

Grits  
Hershey chocolate syrup  
Margarine  
Olives  
Salad mix

Fast foods/Restaurant foods

Chicken wings  
Hotdogs  
Mashed potatoes

Meatloaf  
Tacos  
Baked chunky wings  
Barbeque chicken  
Burger  
Spicy chicken sandwich meal  
Kids meal: chicken and french fries  
Breakfast: chicken minis  
Chick-fil-a chicken.  
Cheeseburger  
Chicken fried rice  
Chicken nuggets  
Chicken stir fry  
Chicken tenders  
Chicken wings  
Chinese food  
French fries  
Fried chicken  
Fried rice  
Happy Meals  
Hash brown  
Macaroni and cheese  
Mashed potatoes and gravy  
Cheeseburger fries  
Chicken nuggets

## APPENDIX C

### DRINKS AND FOODS ELEMENTARY-SCHOOL-AGED CHILDREN

#### PARTICIPATING IN THE STUDY LIKED

##### Drinks

Almond milk  
Almond milk yogurt  
Apple juice  
Apple pear juice  
Berry Punch juice  
Bubbly water  
Capri Sun  
Chocolate cashew milk  
Chocolate milk  
Coca-Cola  
Coconut milk yogurt  
Coffee  
Cranberry juice  
Diet Coke  
Fanta  
Fanta orange  
Fruit juice  
Fruit punch  
Gatorade  
Ginger ale  
Grape sodas  
Grapefruit juice  
Green juice  
Green tea  
Iced tea  
Kefir  
Kool-Aid  
Kool-Aid jammers  
Lemonade  
Milk  
Milk shake  
Mountain Dew

Orange juice  
Orange sodas  
Pepsi  
Powerade  
Sprite  
Strawberry juice  
Strawberry punch  
Sweet tea  
Tea  
Water  
Water  
Watermelon juice  
Whole milk

#### Fruits

Apples  
Bananas  
Black olives  
Blackberries  
Blueberries  
Cherries  
Frozen berries  
Grapes  
Kiwi  
Mango  
Orange  
Peaches  
Pears  
Pineapple  
Plums  
Pomegranates  
Raspberry  
Strawberries  
Watermelon

#### Vegetables

Avocado  
Baby carrots  
Bell peppers  
Broccoli  
Cabbage  
Carrots  
Celery  
Green peas  
Kale  
Lettuce

Sweet corn  
Sweet potato  
Tomato  
Zucchini

Snacks/chips/crackers

Biscuits  
Blueberry muffins  
Blueberry pop tarts  
Breakfast bars  
Brownies  
Butter pecan  
Cake  
Candies  
Cheese puffs  
Cheese toast  
Cheetos  
Cheeze-it  
Chewy bars  
Chips  
Chocolate chips cookies  
Chocolate covered blueberries  
Chocolate peanut butter Lara bar  
Chocolates  
Chopped roast  
Cinnamon swirl  
Cinnamon toast  
Cinnamon toast crunch  
Coco Loco bars  
Coconut flavored cookies  
Cookies  
Cookies and cream  
Corn chips  
Corn pops  
Crackers  
Cream cheese  
Debbie cakes  
Doughnuts  
Doritos  
Egg protein  
Eggs  
Epic bar  
Applesauce  
French toast  
Frozen yogurt  
Fruit snacks

Goldfish crackers  
Graham crackers  
Granola bar  
Gummies  
Gummy fruit snacks  
Ice cream  
Ice cream cones  
Ice cream sandwich  
Lay's Chips  
Lentil snap chips  
Lunchables  
M&M  
Mint chocolate chip Lara bar  
Muffin  
Nutella spread  
Oreos  
Organic yogurt  
Peanut butter crackers  
Peanut butter vegan cookie  
Peanuts  
Philadelphia cream cheese.  
Popcorn  
Popcorn chicken  
Popcorn shrimp  
Poppers  
Popsicles  
Pop-Tarts  
Potato chips  
Pretzels  
Pringles  
Reese's Puff  
Rice Crispy Treats  
Rice Krispies snack  
Rice pudding  
Snickers doodle  
Sour Patch Kids  
Strudels  
Vanilla blueberry Kind bars  
Vanilla wafers  
Vanilla yogurt  
Yogurt

Bread/Cereal/Breakfast items/Noodles/Pasta/Staples

Apple bits cereal  
Bagels  
Black rice

Boiled eggs  
Bread  
Brown rice  
Cereal Frosted flakes  
Cheddar cheese  
Cheerios  
Cheese  
Cinnamon raisin bread  
Corn grits  
Frosted mini wheat  
Grits  
Hamburger buns  
Honey buns  
Hot dog buns  
Mac and cheese  
Maggi instant noodles  
Mini wheats  
Mozzarella cheese  
Noodles  
Oatmeal  
Pancake  
Potato  
Ramen noodles  
Rice  
Rice crispy cereal  
Spaghetti  
String cheese  
Tortellini  
Tortillas  
Waffles  
Wheat bread  
Yellow rice

Cooked/frozen/ready-to eat foods

Bacon  
Breakfast sausage  
Cheese pizza  
Chicken noodle soup  
Deli meat ham  
Hamburger patties  
Hot Pockets  
Lasagna  
Lean Pockets - breakfast Hot Pockets.  
Pepperoni and cheese pizza  
Pita pockets  
Pizza

Pot pies  
Potato fries  
Potato wedges  
Sausage  
Sausage biscuit  
Slim Jims  
Smoked sausage  
TV dinners  
Frozen Chicken nuggets

Raw meat/ beef

Beef  
Chicken  
Crawfish  
Turkey  
Ham  
Pig ribs  
Pork  
Pork chop  
Ribs  
Salmon  
Shrimp  
Steak  
Tilapia  
Tuna  
Turkey

Spread/dressing/seasoning/other items

Butter  
Dill pickles  
Grape jam/ jelly  
Guacamole  
Honey  
Ketchup  
Maple syrup  
Onions  
Peanut butter  
Ranch dressing  
Sauce  
Soymilk  
Taco seasoning

Fast foods/restaurants foods

Chicken wings  
Hotdogs  
Mashed potatoes



Meatloaf  
Tacos  
Baked chunky wings  
Barbeque chicken  
Burger  
Spicy chicken sandwich meal  
Kids meal: chicken and French fries  
Breakfast: chicken minis  
Chick-fil-a chicken.  
Cheeseburger  
Chicken fried rice  
Chicken nuggets  
Chicken stir fry  
Chicken tenders  
Chicken wings  
Chinese food  
French fries  
Fried chicken  
Fried rice  
Happy Meals  
Hash brown  
Macaroni and cheese  
Mashed potatoes and gravy  
Cheeseburger fries  
Chicken nuggets

## APPENDIX D

### DRINKS AND FOODS ELEMENTARY-SCHOOL-AGED CHILDREN

#### PARTICIPATING IN THE STUDY REQUESTED

##### Drinks

Apple juice  
Capri sun  
Coconut milk yogurt  
Cranberry juice  
Fanta  
Fruit punch  
Fruit water  
Gatorade  
Grapefruit juice  
Kefir  
Kombucha  
Kool-Aid  
Lemonade  
Milk  
Mountain Dew  
Orange juice  
Pepsi  
Popsicles  
Sparkling water  
Sprite  
Sweet tea  
Vanilla milkshake  
Water  
Chocolate milk

##### Fruits

Apple  
Banana  
Blackberry  
Cherry  
Grape  
Kiwi  
Mandarin

Orange  
Pears  
Pineapple  
Plums  
Raspberry  
Strawberry  
Watermelon

Vegetables

Avocado  
Baby carrot  
Broccoli  
Carrot  
Corn  
Zucchini

Snacks/chip/desserts

Apple bars  
Apple pie  
Blueberry muffins  
Breakfast bar  
Brownie  
Candies  
Caramel wrapper bars  
Cheetos  
Cheez-its  
Chewy bars  
Chips  
Chocolate bars  
Chocolate chips cookies  
Chocolate covered almonds  
Chocolate peanut butter Lara Bar  
Cocoa loco bars  
Coconut flavored cookies  
Cookies  
Corn chips  
Corn pops  
Crackers  
Cream cheese  
Debbie cakes  
Doughnuts  
Doritos  
Egg protein snack pack  
English muffins  
Fruit snacks  
Gogurt yogurt

Goldfish crackers  
Graham crackers  
Granola bar  
Gummies  
Hershey Bar  
Hot Takis chip  
  
Ice cream sandwich  
Kit-Kat  
Kool-Aid jammers  
Lara Bars  
Lay's Chips  
Little Debbie's  
Lunchables  
M&M chocolate  
M&M yogurt  
Mike and nights  
Mint chocolate chip Lara Bar  
Muffin  
Nature bars  
Nutella  
Oreos  
Pop tarts  
Popcorn  
Popcorn chicken  
Potato chips  
Reese's  
Reeses peanut butter cups  
Twix  
Vanilla blueberry Kind bars  
Vanilla cone  
Vanilla Wafer  
Vanilla yogurt  
Whole milk buttercream  
Yogurt

Bread/cereal/cheese/staple

Apple bits cereal  
Bagel  
Cheerios  
Cheerios  
Cinnamon raisin bread  
Cornbread  
Eggos Waffle  
Frosted flakes  
Frosted Mini Wheats  
Oatmeal

Pecans  
Ramen noodles  
Rice crispy cereal  
Tacos  
Waffles  
Noodles  
Ramen noodles

Cooked/Frozen/ready– to-eat items

Bacon  
Beef jerky  
Cheese pizza  
Hot dogs  
Hot pocket  
Hotdog  
Hungry Man dinners  
Lasagna  
Mac N Cheese  
Pizza  
Pizza rolls  
Hot pockets  
Potato wedges  
Sausage biscuits  
Chicken raviolis  
Vegetable pizza

Raw meat/fish

Chicken  
Crawfish  
Shrimp

Fast foods/restaurants foods

French Fries  
Fries  
Burger  
Cheeseburger  
Chicken Sandwich  
Chicken Basket  
Chicken Nuggets  
Chicken sandwich  
Chicken stir fry  
Happy Meals  
Spicy chicken sandwich meal  
Kids meal: chicken and French fries  
Breakfast: chicken minis  
Chick-fil-a chicken.

Chicken fried rice  
Chicken nuggets  
Chicken stir fry  
Chicken tenders  
Chicken wings  
Chinese food  
French fries  
Fried chicken  
Happy Meals  
Hash brown  
Macaroni and cheese  
Cheeseburger fries  
Chicken nuggets

## APPENDIX E

### INTERVIEW GUIDE FOR PARENTS

#### **Pre-interview contact**

1. How often do you usually go shopping for food and drinks? What is your food shopping routine?
  - Do you do your big shopping weekly, bi-weekly, monthly or some other plan?
  - How often do you make small trips to grocery store to get things you are out of?
2. What are all the other places that you buy foods or drinks for your child? (e.g., convenience store, restaurants, pharmacies, dollar stores, concessions, take-out)
3. Could you please save all of your receipts for foods and drinks purchased for 1 week for your family or for things your {focal child} consumed? [Food and drink receipts will be collected from the parent for the purchases done during seven days prior to the interview day. The parent will response to question #1 with reference to the receipts and the list that I will create of the foods purchased in one week.]

#### **In-person interview**

Have the receipts and list of foods purchased over the time period available

1. I have made a list of all the foods and drinks you purchased over the last week.  
What is missing from this list of foods and drinks you purchased over the last week, including restaurants, take-out, concessions, pharmacies?
  - a. Of the foods and drinks on this list which foods did you buy for everyone in your family?
  - b. When you bought these foods and drinks, how did you decide which foods and drinks to buy?
  - c. Which of the foods and drinks on this list were purchased specifically for (...the child's pseudonym) to eat or drink? When you buy foods and drinks for (...the child's pseudonym), how do you decide to buy these foods and drinks for the child?
    - i. Of the foods you purchased for your child, which ones did he/she eat or drink? Which ones did he/she not eat or drink?  
Why not?
2. What is the main thing that influences you on which foods or drinks to buy for (...the child's pseudonym)? What are the other things that also influence you on which foods or drinks to buy for your child?
3. Did your child try to get you to buy foods or drinks this week? Tell me about what he/she wanted. How did he/she try to get you to buy this food or drink? What did he/she say or do to try to get you to buy this food or drink?
4. Was (... the child's pseudonym) with you when you bought this food or drink? Tell me more about how he/she tried to get you to buy foods or drinks while he/she was with you during buying the food or drink?



5. Tell me about how (... the child's pseudonym) tries to get you to buy him/her foods or drinks when he/she is not with you during buying foods?
6. Can you please describe in detail a time when you felt you were influenced by (... the child's pseudonym) when selecting foods and drinks for your child or purchasing food for your child?
  - a. From the list (reference to Q#1) did you purchase any of these foods and drinks because your child requested?
  - b. From the list did you purchase any of these foods or drinks because you knew these foods and drinks are your child's preferred ones?
7. a. You said that (...the child's pseudonym) likes (.... a specific food taken from the list of food that the child likes). Can you please tell me how (...the child's pseudonym) informed you about his/her preference for this food or drink (... the specific food taken from the preferred child's food list)?

[Note: In response to 6a and 6b, if the parent says there is no food and drink in the list that the child asked for or the child prefers, then I will skip question #7a and ask the parent, "Please tell me about the foods and drinks (...the child's pseudonym) likes." Then from the parent's response, I will generate a list of the child's preferred foods and drinks]

- b. How do you know he/she likes it? Can you describe how (...the child's pseudonym), usually, informs you about his/her likings for a specific food? Does this happen at home? At the grocery store? Other places?
8. How much does your child's food and drink preferences influence you to buy the foods and drinks for him/her?

9. How do you and (... the child's pseudonym) talk about selecting foods and drinks? How do you and (... the child's pseudonym) communicate about food selection for him/her and where? <sup>[1]</sup><sub>[SEP]</sub>
10. What are your expectations for (... the child's pseudonym)'s food choices? What do you think about setting rules for children? Do you set any food rules for (... the child's pseudonym)? If yes, what is that?
- a) What do you think is the most important thing for you as a parent when you select food for (...the child's pseudonym)? <sup>[1]</sup><sub>[SEP]</sub>
- b) What is your goal for purchasing foods for (...the child's pseudonym)?
11. You have shared with me that how you decide on which foods and drinks you would buy for your child (Reference to Q#1c). You said that when you decided about buying foods, you thought about ..... How did you decide between the child's preference or request for a food and the healthiness of the food?
12. What else can you tell me about how your child influences the foods and drinks you purchase?

Thank you for your time. Your information is valuable to us.

## APPENDIX F

### INTERVIEW GUIDE FOR CHILDREN

Thank you for giving me your time. I want to know about which foods children of your age like to eat. You are the one who can help me in learning this. I want to learn from you which foods and drinks you like to eat and drink. I also want to know from you which foods and drinks you want your parents to buy for you. I will ask you few questions on your favorite foods and your foods your parent's buy. Your answers to my questions will bring benefits to children's health.

1. Your mom (or dad, depending on the participating parent) told me that she/he bought these foods and drinks for you this week. Can you please tell me from this list of foods and drinks, which ones you ate and drank?
  - a. [point to food and drinks not consumed] Tell me why you did not eat or drink these items?
2. Please tell me what you like to eat and drink.
  - a. Why do you like [or what do you like about] those foods and drinks?
  - b. Do you think your mom (or dad, depending on the participating parent) knows which foods and drinks you like?
    - i. How does she/he know which foods and drinks you like?
    - ii. How do you tell her/him about the foods and drinks you like?  
When do you tell her/him about the foods and drinks you like?
    - iii. How do you ask your mom (or dad, depending on the participating

parent) for foods and drinks that you want?

3. So, I was talking to your mom (or dad, depending on the participating parent) and she/he told me that she/he buys most of the food you eat. Think about when your mom (or dad, depending on the participating parent) buys food for you and tell me -

- a. When you are with them do you get to pick out any foods or drinks?

Which one's? Tell me how do you pick things?

- b. When your mom (or dad, depending on the participating parent) buys food without you, do you ever tell her/him what you want her/him to buy before she/he goes to buy it? What kinds of things do you ask her/him to buy?

How do you ask your mom (or dad) about a specific food? [Probe: Do you ever call your mom (or dad) while she/he is out to ask her/him to buy something]. What does your mom (or dad) says when you ask her/him for a specific food to buy?

4. Tell me about a time that you got your mom (or dad, depending on the participating parent) to buy you a specific food or drink that you wanted. What was that food or drink? What happened? (Probes: When? What were you doing? What was your parent doing? Where were you?).

- a. Why did you want this food or drink? Had you ever had it before?

- i. If yes, where? How often? Who usually buys it for you or gives it to you?

- ii. If no, where did you learn about this item?

(Probes: friends, school, TV, internet, other sources?)

- b. What did you say to your mom (or dad, depending on the participating parent) to get her/him to buy this food or drink for you?
  - c. What else did you do to get your mom (or dad, depending on the participating parent) to buy this for you?
  - d. What other things do you say or do to get your mom (or dad, depending on the participating parent) to buy foods and drinks that you want?
  - e. What does your mom (or dad, depending on the participating parent) tell you about eating this food or drink? (Here, this food refers to the name of the food or drink, the child said in response to question#4's what that food or drink was)
  - f. How often does your mom (or dad, depending on the participating parent) buy this food for you? (Here, this food refers to the name of the food or drink, the child said in response to question#4's what that food or drink was)
5. Tell me about a time that you couldn't get your mom (or dad, depending on the participating parent) to buy you a specific food or drink that you wanted. What was that food or drink? What happened? (Probes: When? What were you doing? What was your parent doing? Where were you?).
- a. Why did you want this food or drink? Had you ever had it before?
    - i. If yes, where? How often? Who usually buys it for you or gives it to you?
    - ii. If no, where did you learn about this item?
- [Probes: friends, school, TV, internet, other sources?]

- b. What did you say to your mom (or dad, depending on the participating parent) to try to get her/him to buy this for you?
  - c. What else did you do to try to get your mom (or dad, depending on the participating parent) to buy that food or drink for you?
  - d. When you realized that your mom (or dad, depending on the participating parent) would not buy you that food or drink that you wanted, what did you do?
    - i. Did someone else get it for you? If yes, who?
    - ii. Did you get it from another place? If yes, where?
  - e. What does your mom (or dad, depending on the participating parent) tell you about eating this food? (here, this food refers to the name of the food or drink, the child said in response to question#5's what that food or drink was)
  - f. How often does your mom (or dad, depending on the participating parent) buy this food for you? (Here, this food refers to the name of the food or drink, the child said in response to question#5's what that food or drink was)
6. What else can you tell me about how you get your mom (or dad, depending on the participating parent) to buy foods and drinks that you want?

Thank you for your time and for the information you provided to me.

## APPENDIX G

### SOCIO-DEMOGRAPHIC AND HOUSEHOLD FOOD SECURITY QUESTIONNAIRE

**Socio-demographic questionnaire on parent and child** (information to be collected from parent)

Thank you for your participation in this study. Please find below few questions on you and your child. There are few response options for each question. Please check (✓) the box next to the response you find appropriate for you. We will keep all your responses confidential.

1. Parent:      ☐ Male                              ☐ Female
2. How old are you? \_\_\_\_\_
3. What is your ethnicity?      ☐ Hispanic                              ☐ Non-Hispanic
4. What is your race? (Please check all that apply)
  - ☐ African American or Black
  - ☐ White or Caucasian
  - ☐ American Indian or Alaska Native
  - ☐ Asian
  - ☐ Native Hawaiian or Other Pacific Islander
  - ☐ Other (please specify) \_\_\_\_\_
5. What is the highest level of education that you have completed?
  - ☐ Grades 8 or less (elementary/middle)
  - ☐ Grades 9 to 11 (some high school)
  - ☐ Grade 12 or GED (high school graduate)
  - ☐ Some college/associate program/technical school
  - ☐ Undergraduate degree (four-year degree)
  - ☐ Graduate Degree

6. What is your zip code? \_\_\_\_\_
7. How many children do you have? \_\_\_\_\_
8. How many children are between 6 and 11 years old? \_\_\_\_\_
9. How old is your child who is participating in this study today? \_\_\_\_ years \_\_\_\_ months
10. What is the order of the child with their siblings
11. From the following options which household composition matches with your child who is participating in this study today?
- ☐ Child living with both parents
  - ☐ Child living with one parent
  - ☐ Child living with a step-parent
  - ☐ Child living with step-sibling(s)
12. How many people of your family live in this household? \_\_\_\_\_
13. What is your total annual household income. Please check a box from the following options
- |   |   |
|---|---|
| <input type="checkbox"/> \$14,999 or less     | <input type="checkbox"/> \$15,000 - \$ 24,999 |
| <input type="checkbox"/> \$25,000 - \$34,999  | <input type="checkbox"/> \$35,000 - \$44,999  |
| <input type="checkbox"/> \$45,000 to \$54,999 | <input type="checkbox"/> \$55,000 to \$64,999 |
| <input type="checkbox"/> \$65,000 to \$74,999 | <input type="checkbox"/> \$75,000 to \$84,999 |
| <input type="checkbox"/> \$85,000 to \$94,999 | <input type="checkbox"/> \$95,000 or more     |
14. Does your child receive free or reduced lunch at school?
- ☐ Yes
  - ☐ No
15. Do you receive any benefit for purchasing foods from any program?
- ☐ Yes, please specify \_\_\_\_\_
  - ☐ No
16. Besides you, does anyone else do food purchase for your family?
- ☐ Yes, please specify who \_\_\_\_\_
  - ☐ No



## U.S. Household food security survey

These next questions are about the food eaten in your household in last 12 months, since..

FILL INSTRUCTIONS: Select the appropriate fill from parenthetical choices depending on the number of persons and number of adults in the household.

I'm going to read you several statements that people have made about their food situation. For these statements, please tell me whether the statement was often true, sometimes true, or never true for (you/your household) in the last 12 months—that is, since last (name of current month).

17. The first statement is, “The food that (I) bought just didn’t last, and (I) didn’t have money to get more.” Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- ☐ Often true
- ☐ Sometimes true
- ☐ Never true
- ☐ Don’t know or Refused

18. “(I/we) couldn’t afford to eat balanced meals.” Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- ☐ Often true
- ☐ Sometimes true
- ☐ Never true
- ☐ Don’t know or Refused

AD17. In the last 12 months, since last (name of current month), did (you/you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food?

- ☐ Yes
- ☐ No (Skip AD1a)
- ☐ Don’t know (Skip AD1a)

AD17a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

☐ Almost every month

☐ Some months but not every month

☐ Only 1 or 2 months

☐ Don't know

2. AD2. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?

☐ Yes

☐ No

☐ Don't know

3. AD3. In the last 12 months, were you every hungry but didn't eat because there wasn't enough money for food?

☐ Yes

☐ No

☐ Don't know

APPENDIX H  
INFORMED CONSENT FORM FOR PARENTS  
UNIVERSITY OF SOUTH CAROLINA  
CONSENT TO BE A RESEARCH SUBJECT

**Study Title: Influences on Parents' Food Shopping for Children's Consumption in South Carolina**

**PURPOSE AND BACKGROUND:**

You are being asked to volunteer for a research study conducted by Nazratun Monalisa. I am a doctoral candidate in the Department of Health Promotion, Education, and Behavior, at the University of South Carolina. The University of South Carolina, Department of Health Promotion, Education, and Behavior is sponsoring this research study. The purpose of this study is to find out the food purchase behavior of the parents of a child between 6 and 11 years old for the child's consumption. You are being asked to participate in this study because you are a parent of a child between 6 and 11 years old living in Columbia, South Carolina. This study is being done at Columbia, SC and will involve approximately 40 volunteers. This form explains what you will be asked to do, if you decide to participate in this study. Please read it carefully and feel free to ask questions before you make a decision about participating.

**PROCEDURES:**

If you agree to be in this study, the following will happen:

1. You will be asked to complete an interview about your food shopping for your household and for your child if you decide to participate in this study.
2. The researchers will audio record the interview in order to ensure the details that you provide are accurately captured.
3. The researchers will obtain your food shopping receipts to gather information about which foods you bought in one week.

**DURATION:**

Participation in the study will take only one visit. Each study visit will last about 120 minutes. Around 90 minutes for your interview and 30 minutes for the child's interview.

**RISKS/DISCOMFORTS:**

Every measure will be taken to protect your identity. We will record your interview. Yet, there is the risk of a breach of confidentiality, despite the steps that will be taken to protect your identity. Specific safeguards to protect confidentiality are described in a separate section of this document.

**BENEFITS:**

Taking part in this study is not likely to benefit you personally. However, this research may help researchers understand children's eating in light of parents' food purchase decisions.

**COSTS:**

There will be no costs to you for participating in this study other than transportation depending on the venue of the interviews

**PAYMENT TO PARTICIPANTS:**

In return for your and your child's time and efforts, you will receive \$30 cash incentive for participation in this research study. If you or your child do not complete the study, you will receive no amount for the study.

**CONFIDENTIALITY OF RECORDS:**

Unless required by law, information that is obtained in connection with this research study will remain confidential. Any information disclosed would be with your express written permission. Study information will be securely stored in locked files and on password-protected computers. Results of this research study may be published or presented at seminars; however, the report(s) or presentation(s) will not include your name or other identifying information about you.

**VOLUNTARY PARTICIPATION:**

Participation in this research study is voluntary. You are free not to participate, or to stop participating at any time, for any reason without negative consequences. In the event that you do withdraw from this study, the information you have already provided will be kept in a confidential manner. If you wish to withdraw from the study, please call or email the principal investigator listed on this form.

I have been given a chance to ask questions about this research study. These questions have been answered to my satisfaction. If I have any more questions about my participation in this study, or a study related injury, I am to contact Nazratun Monalisa at 803-719-6932 or email: monalisa@email.sc.edu.

Questions about your rights as a research subject are to be directed to, Lisa Johnson, Assistant Director, Office of Research Compliance, University of South Carolina, 1600 Hampton Street, Suite 414D, Columbia, SC 29208, phone: (803) 777-7095 or email: [LisaJ@mailbox.sc.edu](mailto:LisaJ@mailbox.sc.edu).

I agree to participate in this study. I have been given a copy of this form for my own records.

If you wish to participate, you should sign below.

\_\_\_\_\_  
Signature of Subject / Participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Qualified Person Obtaining Consent

\_\_\_\_\_  
Date

## APPENDIX I

### ASSENT FORM FOR CHILDREN

#### UNIVERSITY OF SOUTH CAROLINA

#### ASSENT TO BE A RESEARCH SUBJECT

**Study Title: Influences on Parent's Food Shopping for Children's Consumption in South Carolina**

I am a researcher from the University of South Carolina. I am working on a study about the foods children like you eat and I would like your help. I am interested in learning more about which foods you like to eat and which foods you want your parents buy for you. Your parent/guardian has already said it is okay for you to be in the study, but it is up to you if you want to be in the study.

If you want to be in the study, I will ask you questions about the foods you like, the foods your parents shop for you and if you talk with your parents about the foods you like to eat.

This will take about 30 minutes.

Any information you share with me will be private. No one except me will know your answer. I will record what you say and only I will hear your tapes.

You do not have to answer the questions and you may stop any time you wish. Please ask me any questions that you have about what we are doing,

Date