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Understanding the Process of Prioritizing Fruit and Vegetable Purchases in Families With Low Incomes: “A Peach May Not Fill You Up as Much as Hamburger”

Natoshia M. Askelson, MPH, PhD¹, Cristian Meier, MPH, MSW¹, Barbara Baquero, PhD¹, Julia Friberg, MPH¹, Doris Montgomery, MS, RDN², Christine Hradek, MPH³

¹University of Iowa, Iowa City, IA, USA

²Iowa Department of Public Health, Des Moines, IA, USA

³Iowa State University, Ames, IA, USA

Abstract

Fruits and vegetables (F&V) are an important component of a healthy diet, but few children are meeting the recommended number of servings. Children from families with limited resources may be least likely to meet the recommendation. This study was designed to understand the strategies and priorities of families with low income related to purchasing F&V. We conducted qualitative, in-depth telephone interviews with low-income parents of elementary school-aged children as part of a random sample of parents participating in a telephone survey who agreed to be contacted for an in-depth interview. Interview transcripts were coded based on predetermined codes that were informed by the research questions. F&V were not considered staples by parents and cost was one of the main concerns. Parents equated F&V with *fresh* F&V. Interventions encouraging F&V purchasing by families with low income need to find new ways to address the issue of cost, including advocating for F&V in all forms (fresh, frozen, canned, and dried).

Keywords

fruit and vegetable consumption; low-income families; qualitative methods

Seventeen million low-income households (14%) in the United States are food insecure (U.S. Department of Agriculture, 2015). Due to insufficient resources, the members of those households face uncertainty in their ability to meet their basic food needs (U.S. Department of Agriculture, 2015). To cope with food insecurity and inadequate economic resources, householders employ a variety of methods, including utilization of federal food assistance programs (e.g., Supplemental Nutrition Assistance Program [SNAP], National School Lunch

Corresponding Author: Natoshia M. Askelson, University of Iowa, 145 N. Riverside Drive, 100 CPHB N412, Iowa City, IA 52242, USA., natoshia-askelson@uiowa.edu.

Authors' Note

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Declaration of Conflicting Interests

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Program, and Women, Infants, and Children program). However, despite the support provided by these programs, food assistance does not cover the total amount of food required by a family (Borjas, 2004; Mulik & Haynes-Maslow, 2017). To ensure the food needs of the household are met, householders must use cost-saving strategies to stretch their limited food budgets when making purchasing decisions.

Members of food-insecure households faced with difficult decisions about how to best spend limited food dollars employ various strategies to manage their resources. For example, families with low income who have access to a car can use it to maximize the number and types of food stores they have access to (Roy, Tubbs, & Burton, 2004). Another coping strategy is to stretch food dollars through the use of deliberate shopping and meal planning, such as making grocery lists, buying items on sale, and using coupons (Hersey et al., 2001; Miller & Branscum, 2012; Wiig & Smith, 2009; Wood, Schultz, Edlefsen, & Butkus, 2007). A study of women with low incomes found that meat was the first item women considered purchasing due to its cost and perceived value as the foundation for a complete meal (Wiig & Smith, 2009). While researchers have examined strategies that families with low incomes use to stretch limited resources, they have paid little attention to families' decisions about fruit and vegetable (F&V) purchasing and where they fit into the hierarchy of food-shopping priorities.

Purchasing and consumption of F&V is of particular concern in low-income households, as they consume less F&V compared with high-income households (Dong & Lin, 2009; Drewnowski & Rehm, 2015; Storey & Anderson, 2014). Increasing F&V consumption is a national priority that necessitates a better understanding of the factors householders consider in selecting and purchasing F&V (HealthyPeople.gov, 2016). Research has focused primarily on understanding perceptions and daily intake of F&V by persons with low incomes. Findings illustrate that F&V are viewed positively by women with low incomes (Treiman et al., 1996), and low-income families understand the importance of consuming F&V for nutritional value (Darko, Eggett, & Richards, 2013). Despite the perceived nutritional value of F&V, low-income households have described that fresh produce as expensive, which is a barrier (Darko et al., 2013; Evans et al., 2015; Wiig & Smith, 2009). A smaller body of research has revealed low-income householders purchase F&V only after other necessities (Webber, Sobal, & Dollahite, 2010), and they tend to rely on food pantries to provide canned versions of F&V (Wiig & Smith, 2009). While the available evidence provides a starting point to understand how low-income households view F&V purchasing, additional research is needed that asks participants specifically about their shopping priorities and where F&V fit into that hierarchy.

Gaining more information about the factors that influence low-income households' F&V purchasing would benefit nutrition education programs and inform the development of interventions aimed at making F&V purchasing a higher priority. However, without understanding how low-income householders make food-purchasing decisions, interventions designed to change food-purchasing behavior will have limited impact.

This study addressed gaps in research examining the F&V purchasing of families with low incomes by investigating a specific question: Given limited budgets, where do low-income SNAP recipients place F&V on the hierarchy of their family food needs?

Method

These qualitative findings are part of a larger evaluation of a SNAP-Ed program in a Midwestern state that used both qualitative and quantitative methods to collect data. The study was approved by our institutional review board. The sample of parents for these in-depth interviews was drawn from 311 respondents to a telephone survey evaluating the SNAP-Ed program. The initial sample was randomly drawn from parents of third graders who participated in the classroom-based program and were enrolled in Medicaid. At the conclusion of the telephone survey for the program evaluation, each respondent was asked if he or she would be willing to be contacted by telephone at a later date to complete a follow-up interview. Out of the 311 original respondents, 127 agreed to participate in the in-depth interviews.

Two interviewers were trained on the qualitative protocol, and the sample of 127 was randomly divided between them. Each interviewer was instructed to complete interviews with 15 respondents for a total of 30 in-depth qualitative interviews. Contact was attempted at least once with each of the 127 phone numbers; the protocol allowed for a maximum of 10 attempts to reach participants per telephone number. After 30 interviews were completed, the research team reviewed the interviews for the range of responses to ensure saturation. It was determined that saturation had been reached and additional interviews would not yield different findings.

Participants provided consent over the telephone, and all interviews were audio recorded. The main interview questions are presented in Table 1. The interview protocol included open-ended questions with probes about grocery shopping practices/food purchasing, priorities related to food purchases, and related behaviors of children asking for F&V. Participants were asked how they make decisions about F&V purchases, what foods they buy when their budget is tight, what food groups they prioritize, and what items give them the best value for their money.

The recorded interviews were transcribed. The codebook was developed based on the interview guide and research questions. The interviewers were trained to apply the codebook to the transcriptions by a qualitative researcher, and they coded the same three transcripts to develop intercoder reliability. The coded transcripts were compared and discrepancies were discussed. Following agreement about the coding of the first three transcripts, the other transcripts were coded. For additional demographic information and context, the initial telephone survey responses of these 30 parents were also included in this study.

Results

Respondent Characteristics

Participants who completed the phone interviews ($n = 30$) were from diverse sociodemographic and racial and ethnic backgrounds (see Tables 2 and 3). Table 3 shows the food assistance programs the respondents indicated that they participated in. All the respondents reported that someone in their household received free or reduced-price school meals, and 17 indicated that they received state food assistance, known nationally as SNAP. All but one participant indicated that they are usually the one to decide what the family will eat.

Themes

Based on the coding, three major themes emerged from these interviews: shopping strategies, prioritizing food purchases, and paying for F&V.

Shopping Strategies.—When asked about strategies for grocery shopping, many parents reported making lists, “shopping the sales,” and only going shopping for groceries a few times a month. Many started with sale items and developed their menus and shopping list based on those items. Others would make their shopping list based on foods that were cheap, in season, or for which they had a coupon. They then built meals around these items. As one parent explained, “Oh yeah, well we usually look through the paper and see what’s on sale. We try to plan meals around what’s cheap like for that week ... because we have a pretty small budget.”

Parents described shopping for groceries every 1 to 2 weeks, usually with a big trip at the beginning of the month to buy larger quantities of items that were on sale, such as meat or grains. They then supplemented this food with smaller trips a couple of times a month. One participant described a monthly shopping process that revolved around the pay schedule of a job:

I get paid twice a month—well, every other week. With one paycheck, I’ll get a lot of meat if it’s on sale, then the next time I get paid, I’ll buy the other stuff for the whole month. The pastas and stuff like that. I do a lot of shopping when stuff is on sale.

Others described similar shopping trips related to paychecks, as in “The main shopping is about once every two weeks when I get paid,” although some said they did the majority of their shopping for the month all at once.

Parents also described where they went to shop for groceries—typically grocery stores, but not necessarily places where buyers receive the most for their money. Some parents reported shopping at grocery stores that would be considered higher end or more expensive stores. Besides their usual retail store, parents identified additional locations that they would use to purchase or access F&V, including the local farmers market or farm stands along the road when the season permitted, for example,

Um, on the off seasons, at [store name]. But when there's farmers markets around, I try and hit up those at least once a week. Or the little shops—the little places where they throw up a tent on the side of the road type thing. Sweet corn, they usually have tomatoes, and other fruits and stuff.

These additional locations were infrequently reported by parents and mentioned only after being prompted by the interviewer. A few respondents also indicated they received food from the local food pantry after prompting by the interviewer.

Prioritizing Food Purchases.—When asked about how they prioritize their food budget when money is tight, all parents had a ready response, indicating this challenge was something they had spent time thinking about. One parent stated,

I face [these choices] all the time. And I try to buy what's on sale, and I guess, what we need and what makes things stretch. And like I said, we eat a lot of pastas. Whatever I can do to make things stretch. Make spaghetti and it'll buy you two meals out of that.

Parents also juggled multiple factors when considering how to allocate their money, as stated by one parent: “Um, we have made choices based on money. Usually, um—I'm trying to prioritize in my own head—I would say, most likely to be eaten, lack of preparation, cost, and health ...”

Purchasing items to prepare healthy meals was a consideration for some respondents, but they described a tension between the strategies to “stretch” food (e.g., using rice or pasta to ensure the meat dish serves more people) and at the same time make healthy meals, for example, “I try to think about meals that will stretch like when I do beans, soup or things that will last awhile but yet try to do healthy.” Another parent expressed the dilemma more specifically: “You know because when you've got 5 people and you're on a budget, it's kind of hard to buy something that's nutritious, you know, when you can go buy a box of Hamburger Helper and feed your whole family.”

Many parents identified specific types of foods needing to be purchased and considered some more important than others. For example, meat was a high-priority purchase and was often the center of a meal. Parents discussed buying meat in bulk and freezing it for later. Hamburger was mentioned as an item they could purchase on sale, break into smaller quantities, freeze, and stretch by mixing it with other food. As one parent indicated,

Um I would probably say something like ground meat ... we use it for everything ... use it for burgers. We use it for tacos. We use it for spaghetti. You know, and it's like \$1.69 a pound. So you can't find anything cheaper than that.

Dairy was also considered a high-priority item by some families, as one parent said, “... dairy's gonna be the first thing we're gonna spend it on, because of milk and cheese.”

Many parents also mentioned that items obtained from other sources, such as food pantries, were considered lower priority items. However, there were differing views on those items. One parent said, “I know I can go to the food bank and get tons of pasta and stuff once a month because food banks tend to just get pasta and oatmeal and more grains,” but others

said that pasta and grains were a priority purchase because they could be used to stretch food, or as one parent said, “They [pasta and grains] last longer, and generally are cheaper.”

When considering F&V specifically, parents indicated the quantity and frequency of F&V purchasing differed from other foods, for example,

Um, well we go for, you know, we try to stay around \$100 a week, and we try to make the most appropriate choices. Like when it comes to meat, we buy bigger, so we can freeze and stuff like that. And when we buy fruits and vegetables, you know, we have to buy those more often because they go bad quicker.

Some also indicated that fruit was considered an “extra thing.” As one parent stated, “If we don’t have the money—if we are less than our \$100, then a lot of the fresh fruit is cut out. Point blank because it is so expensive.” Parents also identified fruits as a lower-priority food item because of a perceived satiety factor (e.g., “I feel like they’re [protein] more of a necessity, and they fill you up more. Whereas like a peach may not fill you up as much as hamburger”).

Paying for F&V.—Parents talked about the perceived high cost of F&V, and that concern clearly influenced where they placed F&V in their hierarchy of food purchases. High cost was the biggest and most commonly mentioned barrier to F&V purchasing. Many parents explained how much money they had to spend on food per week or month and how many people they had to feed. They were very aware of their budget and the cost of items and how F&V fit within the budget. When parents did report shopping for F&V, it was almost always for fresh produce rather than canned or frozen. One parent indicated, “My fruit I usually get fresh. I don’t do much of the canned peaches or stuff like that because it’s got too much sugar and stuff in it so I like to do the fresh fruits and stuff.”

Some parents indicated that they would like to purchase the F&V their children requested but felt they could not afford them, and they expressed frustration about the expense of F&V compared to “junk food.” A few mentioned that parents give in to junk food requests because it is typically cheaper than F&V. As one said, “... for a lot of people who aren’t very wealthy, it’s a lot easier and it’s a lot cheaper to buy junk food ... [t]han to get the healthy food that they need.” Parents also noted that they considered the season when purchasing F&V, and that items were cheaper if they were bought in season. A few indicated that they would refuse to buy their children F&V if the requested item was out of season.

Discussion

This study was designed to examine where families with low incomes place F&V in the hierarchy of family food needs and how decisions are made about F&V purchases. Participants indicated that F&V are not a high priority when food budgets are tight. They identified meat, dairy, grains, and processed foods, such as Hamburger Helper™ as higher-priority items, because these items last longer than produce and help stretch family meals. F&V are regarded as “extra” items, to be purchased only if there is money left over in the budget. Even parents, who did emphasize the importance of vegetables to round out meals,

were not prioritizing vegetables. Cost was an identified barrier to F&V purchasing, which appeared to influence their positioning within the food hierarchy.

Respondents provided insight into their decision making around which foods they purchase. This thought process is complex: They reported juggling competing concerns about cost, what is most likely to be consumed, whether the item could be bought in bulk on-sale and saved, the amount of preparation required, whether the food was filling, and the health or nutritional value of the food. The food choice process in our findings is similar to that proposed by Furst, Connors, Bisogni, Sobal, and Falk (1996), who explain that food choice is influenced by ideals, personal factors, resources, social frameworks, and food contexts, which interact and compete with each other. The model has since been refined and incorporates the influence of personal value negotiations (Connors, Bisogni, Sobal, & Devine, 2009), and strategies and routines (Sobal & Bisogni, 2009), on food choice. Similar to their model (Sobal & Bisogni, 2009), certain influences were salient within our sample of low-income parents. Personal factors and resources were among the strongest influences on participants' food choices, and respondents reported tension between them. For instance, fresh F&V were perceived not only as healthy but also as very expensive and not as filling as meat or the pasta/grains used to stretch meals built around meat. Those types of competing concerns not only point to the complexity of the food choice process for families with low incomes but also suggest that interventions seeking to improve F&V purchasing should take this complex and often resource-driven decision-making process into account.

The participants in this study reported shopping strategies, such as making grocery lists and basing a list on items that are on sale. However, even after adopting these recommended strategies, families did not regularly purchase F&V. This suggests that F&V fell lower on the food purchasing spectrum compared with other foods and could be due to perceived budgetary constraints.

Cost is a salient theme described in respondent interviews, with families highlighting that decision making is centered first and foremost on cost and overall budget. Respondents reported perceptions that F&V were fresh items that are expensive and do not fall within their shopping budget, thus making it a lower priority item in the hierarchy of household food needs. In order to address the concern of cost, other forms of F&V for purchase should be considered. For example, studies have found that purchasing canned or frozen items are cheaper than fresh F&V (Dammann & Smith, 2009). Incorporating this information into nutrition education, social media campaigns, and marketing strategies may encourage families to expand their view of F&V to include frozen and canned options, which can be a more budget friendly option. Future research should examine what information would be helpful to families. While families expressed perceptions of F&V being outside of their food budgets, studies have highlighted that it is possible to use F&V as a fundamental component of diets even with limited budgets (Cassady, Jetter, & Culp, 2007; Stewart, Hyman, Frazão, Buzby, & Carlson, 2011). To help families address their concerns with cost, interventions can provide households with examples about how to incorporate less expensive F&V options. Interventions can also build the technique of stretching food with grains or starches by emphasizing whole grains.

Our study also highlights that among the strategies families have used to shop for food, the frequency at which families are able to shop affects their overall purchasing strategy. This makes it difficult for fresh F&V to be the center of a family's meals. In order to stretch food budgets and incorporate fresh F&V, it would require the implementation of different shopping strategies that accounts for the frequency of shopping. Most families in our study reported making major food purchases once a month or every other week, which is similar to frequencies reported in other studies of low-income populations (Wiig & Smith, 2009; Wilde & Ranney, 2000). That pattern does not work well when families focus on fresh F&V, which need to be consumed shortly after they are purchased. Those seeking to intervene and increase F&V purchasing and consumption by families with low incomes should consider how to introduce new shopping strategies might include buying frozen, dried, or canned F&V or steering families to fresh items with longer shelf lives, such as cabbage over lettuce.

Our study also highlights the need for additional programming emphasis on food preparation, which could improve F&V purchasing, consumption, and prioritizing by families with low incomes. Incorporating frozen and canned F&V options provide families with less costly and time saving during food preparation. Savings can also occur through the purchasing of bulk frozen and canned options, which have a longer shelf-life than fresh F&V and require fewer trips to the store.

In addition to household-level efforts, policies and programs have the ability to influence F&V purchasing, but these efforts need to take into account what is currently known about the perceptions and behaviors of families with low income. For example, Double Up Food Bucks (a program for SNAP recipients) encourages the purchase of fresh F&V by providing participants with increased access to fresh items. Targeted programs that provide incentives to families with low incomes to shop at farmers markets (Dimitri, Oberholtzer, Zive, & Sandolo, 2015) may reinforce the perception that the ideal F&V are fresh items, as these are the items that programs emphasize. While the goals of these programs are desirable, the program may not fit the current shopping strategies of families with low incomes (e.g., shopping once a month, buying sale items in bulk to store, going to one store). The seasonal nature of farmers' markets also poses challenges to families in areas with more limited growing seasons. Location of residence may also limit access; rural families without access to farmers' markets would incur additional costs of travel to them.

Limitations

We were unable to look at respondents' budgets or determine actual F&V consumption. Similar to other studies we did not separate F&V, but instead treated the two food groups as one. Future studies need to do more to examine differences in attitudes, perceptions, and behaviors related to fruits and vegetables individually.

This study qualitatively explored the strategies and priorities for purchasing F&V used by low-income householders. Clarifying the mechanisms by which householders make purchasing decisions adds to the body of knowledge underlying public health nutrition education efforts to promote consumption of F&V. Our results stress the complexity of

prioritizing food purchasing among families with low incomes and have implications for public health research, practice, and policy to improve F&V access and consumption.

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Table 1.

Main Interview Questions Related to Shopping.

Topic	Main questions
Child asking behavior for fruits and vegetables	How common is it for your child to ask you for any kind of food? Tell me about the last time your child asked for any kind of food.
Fruit and vegetable communication	Can you provide me with an example of a conversation you might have had with your child about fruits and vegetables? Have conversations with your child ever led you to purchase (serve) a fruit or vegetable that he/she wants? If yes, tell me about that. Have you ever said no to a request for fruits or vegetables? If yes, why? Have you ever said no to a request for fruits and vegetables because the item was too expensive? Tell me more about this. How common is it for your child to ask you for a fruit or vegetable?
Pester power	How do you feel about your child asking you for certain foods? Is this pestering? Is it bothersome? Annoying?
Grocery shopping	Tell me about the last time you went food shopping with your child. Tell me about how you decide what to buy. How often do you shop for food? Where do you buy most of your food? (grocery, convenience, superstore like Target or Walmart) How does your child fit into the food shopping process? Do you buy fruits and vegetables? If yes, what kinds? <i>Probe:</i> fresh, frozen, canned? Where do you usually buy fruits and vegetables? <i>Probe:</i> Does this vary by season? Do you ever go to the farmer's market to buy fruits and vegetables? How often?
Priorities	These days families have tight budgets and sometimes decisions have to be made about what to buy and what isn't a priority to buy now. When you face these difficult choices, how do you decide what food to buy? (<i>Probe:</i> Cost least, will fill us up most, will last longest, everyone likes and will eat, what gives us most nutrition for least amount of money.) If you think about food groups—dairy (milk, cheese, yogurt), grains (rice, noodles, breads), meats (beef, chicken, fish, beans), fruits (apples, oranges, pears), and vegetables (carrots, salad, broccoli)—how do you prioritize what you put in your cart if your budget is limited? For some families money to spend on food can be limited. If the amount of money you have in a month to spend on food is tight, what are you most likely to spend money on? What items at the grocery store give you and your family the best value for your money?

Table 2.Demographic Characteristics of Respondents and Their Third-Grade Children ($n = 30$).

Characteristics	Third-grade child
Male, n	19
Female, n	11
Number of people in household, $M(SD)$	4.63 (1.81)
Number of children in household, $M(SD)$	2.57 (1.48)
Race/ethnicity (select all that apply), n	
White	19
Black/African American	10
Asian	1
Native Hawaiian or Pacific Islander	0
American Indian or Alaska Native	0
Hispanic/Latino	6
Other	3
Respondent's age, $M(SD)$	37.73 (9.89)
Respondent's education level, n	
Eighth grade or less	1
Some high school, but did not graduate	2
High school graduate or GED	12
Some college or 2-year degree	10
4-year college degree	4
More than 4-year degree	1

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Table 3.Food Assistance Programs Used by Respondents ($n = 30$).

Program	Frequency
Free/reduced-price school meals	30
SNAP/EBT	17
Operation Backpack	10
WIC	8
Food pantry	8
Other food assistance	2

Note. SNAP = Supplemental Nutrition Assistance Program; EBT = electronic benefits transfer; WIC = Women, Infants, and Children program.

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