PARENTAL FOOD CHOICE FOR THEIR PRESCHOOL AGED CHILD: A MEANS-END INVESTIGATION

by

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ABSTRACT

Preschoolers in the US are not meeting dietary guidelines, which is concerning since experience with foods during early childhood may influence food preferences in later life. To better understand why preschoolers are not meeting dietary guidelines it is necessary to understand the factors that influence why parents offer their children specific foods. The purpose of this study was to use the means-end framework and the laddering interview technique to better understand *why* parents of preschoolers decide to offer their children certain foods and *why* certain feeding strategies are helpful. A total of 33 parents of preschoolers (3–5-year-olds) completed one-on-one phone interviews regarding the foods they typically offer their child. Laddering data were elicited for three food groupings: foods parents typically offer, foods parents typically avoid, and foods parents prefer to offer. The resulting data were analyzed and summarized in a series of hierarchical value maps (HVMs). Parent and child-centric themes emerged as factors that influenced the foods parents offered their preschooler. The results of this study provide insight into the meanings and beliefs that impact the food decisions and feeding strategies used by parents of preschoolers.

CHAPTER 1. INTRODUCTION

Parents of preschoolers (ages 2-5) make the primary purchasing decisions for the foods consumed by their children (Russel et al 2018). Currently, preschoolers in the United States are not meeting dietary guidelines (Welker et al, 2017), which is concerning since experience with foods during early childhood may influence food preferences in later childhood and beyond (Johnson & Hayes, 2017; Saavedra et al, 2017; Skinner et al, 2002). While parental feeding styles and practices are widely examined and accepted as influential predictors of dietary patterns in childhood (Carnell et al, 2011), the factors behind *why* parents offer their children certain foods has not been fully explored. Instead, prior research on food choice has primarily focused on *what* foods parents offer their children using methods such as dietary recall (Fox et al, 2010; Welker et al, 2017; Chong et al, 2017; Herbert et al, 2020) and food diaries (Carnell et al, 2011). In order to better understand why preschoolers are not meeting the dietary guidelines it is necessary to understand the factors that influence why parents offer their children specific foods.

Preschoolers spend most of their time at home. The family system has a large impact on establishing and promoting behaviors, such as children's eating behaviors and dietary patterns, which will persist throughout the child's life (Scaglioni et al, 2018). Parents and caregivers act as the primary gatekeepers for children's food offerings (Sirasa et al, 2020). The food preferences of children are impacted by the preferences of not only their parents, but also by siblings in the same household (Pliner, 1983; Pliner & Pelchat 1986). The overarching goal of this study is to examine the factors involved in parental decisions about which foods they offer their preschoolers. This goal will be addressed by two primary aims: 1) to use means-end theory and laddering interviews to uncover attributes that influence parental food choice, as well as the consequences and values that determine what these factors mean to parents, and 2) to identify common parental feeding strategies used with preschoolers.

Statement of the Problem

Prior research has explored the foods parents provide their preschool aged children through quantitative methods such as dietary recall (Fox et al, 2010; Welker et al, 2017; Chong et al, 2017; Herbert et al, 2020) and food diaries (Carnell, Cooke, Cheng, Robbins & Wardle, 2011) as well as qualitative methods such as focus groups with parents of preschoolers (Goodell et al, 2016; Holley, Farrow & Haycraft, 2016), and individual interviews with parents of school-age children (Nepper & Chai, 2016). This research will use an alternative and valuable in-depth qualitative approach, based on means-end theory and the laddering interview technique, to explore parental food choice.

Theoretical Framework

Means-end theory (Gutman 1982) provides a theoretical framework to better understand the factors that motivate human decision-making. Means-end theory was developed in the field of marketing and consumer behavior and focuses on three aspects of product meaning: attributes, consequences, and values. This theory proposes that a product (or service or behavior) and its associated attributes represent the "means" that produce desired consequences or benefits (or minimizes undesired costs/risks), which in turn help fulfill desired values or "ends" (Klenosky 2002). By uncovering these means-end chains, or attribute-consequence-value linkages (via a interview technique known as laddering), the means-end perspective provides an alternative and valuable framework for developing a better understanding of the factors underlying decision-making and choice behavior.

Purpose and Objectives

The purpose of this study is to utilize means-end theory and laddering interviews to develop a better understanding of why parents provide certain foods to their preschool age children. In addition, this study will explore the linkages between the attributes that influence parental food choice, as well as the consequences and values that determine what these factors mean to parents.

Significance of the Study

Investigating the factors that influence the foods parents offer their children should assist healthcare professionals and providers to better understand the nuances in early childhood nutrition. This study will also contribute to research literature that has used means-end theory and the laddering interview approach to increase understanding of the outcomes and benefits associated with certain foods parents offer their children.

Limitations

A limitation of this study is social desirability of parents during the laddering interviews. Rather than responding honestly to questions, respondents may provide the answers they believe the researcher wants to hear, which would affect the validity of the data.

A second limitation is using convenience sampling as opposed to other sampling methods. By using convenience sampling, this sample may not be representative of a larger population of parents of preschoolers.

Delimitations

A shortcoming of this study is that by interviewing parents, this study only examines food choice for their children in the home setting. This reduces the generalizability of this study by not exploring foods provided to children in a preschool or childcare setting.

A second shortcoming is the researcher's choice of utilizing only means-end methodology over other available options, which represents another delimitation of this research. Although all methodologies have strengths and weaknesses, the means-end approach was selected for this study for its ability to explore underlying motivations in the participants' own words rather than using a predetermined scale or existing measure.

Definitions and Terms

Means-end theory Means-end theory is a framework for understanding how consumers think about the products and services they buy, consume, and experience. According to the theory, products/services, and the attributes they possess represent the "means" by which consumers

obtain desired consequences/benefits (as well as avoid undesired costs/risks) and fulfill important values or "ends" (Klenosky, 2002).

Attributes Attributes are the characteristics or features of a specific product, service, or behavior.

Consequences Positive consequences or benefits refer to the desirable benefits or outcomes associated with a product, service, or behavior. Negative consequences refer to the undesired outcomes, costs, or risks associated with a product, service, or behavior.

Values Values refer to enduring end-states of being or existence.

Means-End Chains A means-end chain is a model that links the attributes of a product, service, or behavior to the consequences and values important to the consumer.

Laddering Laddering is a one-on-one interviewing technique that utilizes a series of probing "why" questions in order to understand the relationship between product attributes, consequences, and values.

Hierarchical Value Map A hierarchical value map is a graphic representation of attribute, consequence, and value linkages that are used to summarize means-end study results.

CHAPTER 2. LITERATURE REVIEW

The primary purpose of this literature review was to 1) identify prior research on the significance of parental food choices for their children, and 2) explore the methods used in prior research on parental food choice, and parental influence on their child's eating behaviors and consumption. The secondary purpose was to provide a background on means-end theory and the laddering methodology. This literature review will be organized as follows: The first section will provide a background and review of nutrition in early childhood. The next section will review prior studies that focused on qualitative research on parental food choice for their children. The following sections summarize means-end theory; provide an overview of the laddering interview technique and the steps for analysis of laddering data; as well as summarize prior applications of the means-end approach. The final section will summarize the study objectives for this thesis.

Nutrition in Infancy and Early Childhood

Early experience with foods during infancy and toddlerhood may influence food preference in later childhood (Johnson & Hayes, 2017; Saavedra et al, 2017; Skinner et al, 2002). According to the National Health and Nutrition Examinations Survey (NHANES [2013-2014]), 16.2% of preschoolers in the United States between the ages of 2-5 met the criteria for obesity or overweight (Body Mass Index ≥ 95% and 85% respectively) (Fox, et al, 2010; Fryer et al, 2016; Welker, et al, 2017). The increasing prevalence of obesity in children in the US has been associated with a development of diseases and conditions in childhood formerly seen only in adults, including type 2 diabetes, mellitus, hypertension, obstructive sleep apnea, and dyslipidemia (Kumar & Kelly, 2017). The emergence of these conditions in early childhood presents an important public health issue (Kumar & Kelly, 2017). In the US Feeding Infants and Toddlers Study (FITS), over 20% of toddlers did not consume any fruits or vegetables in a 24-hour period and vegetable consumption was particularly poor (Roess et al, 2018).

Prior Qualitative Research on Parental Food Choice

Young children spend most of their time at home. Parents and caregivers act as the primary gatekeepers for children's food (Sirasa, Mitchell, Silva & Harris, 2020). Parental influences appear

to play a key role in children's food choice (St John Alderson & Ogden, 1999). The family system and home setting also have a large impact on establishing and promoting behaviors that will persist through the child's life (Scaglioni, De Cosmi, Ciappolino, Parazzini, Brambilla & Agostini, 2018). Children's food preferences strongly influence the foods they eat. Food preference is the complex combination of genetically predetermined dispositions and environmental factors (Scaglioni, Salvioni & Galimberti, 2008). Because parents are the primary decision-makers for the foods their children eat, they may play a vital role in grooming healthy eating habits for healthy food preferences in later life.

Qualitative research on parent food choice decisions includes studies utilizing focus groups to explore the food preschoolers are given (Sirasa, Mitchell, Silva & Harris, 2020; Hayter, Draper, Ohly, Rees, Pettinger, McGlone & Watt, 2017) and barriers to offering healthy foods to school-age children (Nepper & Chair, 2016). One-on-One interviews were also used to access parental experiences offering their preschooler fruits and vegetables (Holley, Farrow & Haycraft, 2016). Additional studies explored maternal influence on the foods their children consume (Hayter et al 2017; St John Alderson & Ogden 1999), as well as the extent to which parents divide the responsibilities of feeding their children and focusing on how this impacts offering different foods (Loth, De Brito, Neumark-Sztainer, Fisher & Berge, 2018). Finally, prior studies have examined the food environments that parents provide their children, primarily during their early experiences with food (Scaglioni, Salvioni & Galimberti, 2008).

Overview of Means-End Theory

Means-end theory was developed by marketing and consumer behavior researchers to better understand the relationship between consumers and the products/services they purchase and consume (Gutman, 1982). Means-end theory focuses on the relationships between three key types of meanings that vary in terms of their level of abstraction: attributes, consequences, and values (Gutman, 1982). Attributes refer to the relatively concrete characteristics or features of a product, service, or behavior. Consequences, which are more abstract than attributes, can refer to positive outcomes or benefits, as well as negative outcomes or risks associated with a product or behavior. Values are the most abstract of these three components and refers to centrally held and enduring beliefs (Vinson, Scott, and Lamont 1977).

The current study will examine the attributes, consequences, and values behind parental decisions about the foods they offer their preschool aged child. Examples of attributes in the context of this study might include "non-perishable," "organic produce," or "convenient package." Examples of consequences arising from child health behaviors might include "having fewer preservatives" or "cost-efficient" as well as the risks "low nutritional value" or "difficult to travel with." Examples of relevant values of parental opinions in the context of this study might include "health/well-being" and "sense of accomplishment" as a parent.

In means-end theory these three concepts are not viewed as being independent of each other but rather are viewed as being fundamentally interrelated (Goldenberg et al, 2000). The underlying assumption is that individuals choose products or services possessing attributes that provide desired consequences (or benefits), which in turn reinforce important personal values (Klenosky & Saunders, 2008). In other words, attributes thus represent the "means" by which individuals obtain desirable consequences and reinforce important values or "ends" (Klenosky, 2002). Taken together, the three elements form a conceptual model of interrelated concepts referred to as a "means-end chain."

Attributes→Consequences→Personal Values

As an example, a means-end chain that might be relevant in a parental food choice context involve links from the attribute "organically grown," to the consequence "avoid chemicals," and finally to the value "stay healthy."

Laddering and Analysis of Laddering Data

The term laddering refers to the technique used to identify means-end chains. In laddering, the investigator begins by asking the subject to identify the attributes they associate with the product/service involved. Next respondents are asked why each attribute is important. The response given typically refers to a consequence that helps explain why that attribute was important. This basic "why" question is repeated again until the respondent mentions a value or cannot go on (Reynolds & Gutman 1982). Each "why" question is intended to move the participant up the ladder from concrete attributes to consequences, and finally to abstract values, uncovering a range of meanings between each component. The approach is termed "laddering" because after asking why a particular attribute is important, subsequent questions "ladder off" the response given

(i.e., are based on the response to the previous why question). The approach thus forces the respondent up the ladder of abstraction, moving from concrete concepts at the attribute level to more abstract consequences, and ultimately to highly abstract personal values (Klenosky & Saunders, 2008). Table 1 provides an example of a laddering interview from a pilot interview where the parent listed "cheese omelet" as a food they had given their daughter in the past day.

Table 1. Example of Laddering Interview

Q: Why did you offer your daughter a cheese omelet as opposed to something else?
A: The protein. We want her to stay full longer, or else she will go into the snack cabinet.
Q: Why is it important to you that she doesn't go into the snack cabinet?
A: Because then she will snack and won't be hungry for meals, and it's one of the few times we are all together.
Q: Why is it important to you that you are all together for meals?
A: We did this with our parents growing up and really value carrying that on to our kids now.
Q: Why do you value carrying this on?
A: Because we want her to have strong family values!

Laddering data can be collected in a variety of ways, including through one-on-one personal interviews, phone interviews, or paper-based self-administered questionnaires (Goldenberg et al. 2000). However laddering data has been collected, analysis begins by conducting a content analysis of the elements making up respondents' ladders—[i.e., the attributes, consequences, and values identified through the laddering procedure]. A matrix, referred to as an implication matrix is then constructed to summarize the number of times that concepts lead to each other during the laddering interviews. An implication matrix can then be used as the basis for creating a hierarchical value map (HVM), which summarizes the concepts and associations identified through the laddering process (Reynolds & Gutman, 1998).

Prior Applications of Means-End Theory and Laddering

Means-end theory and the laddering technique have been used to explore a number of different leisure-recreation choice domains, including understanding the factors influencing ski destination choice (Klenosky, Gengler, & Mulvey, 1993), analyzing the meanings associated with

completing a ropes course (Goldenberg et al., 2000), understanding tourists' destination choices (Klenosky, 2002), and determining the reasons people visit zoos and other nature attractions (Klenosky & Saunders, 2008). Other laddering studies that are more relevant to the current investigation are summarized below, including those that explored the use of natural health products (Tsui et al 2012), food choice among adults (Roininen & Tuorila, 2010; Roininen, Arvola & Lahteenmaki, 2006; Urala & Lahteenmaki, 2003), child food preference for vegetables (Sondergaard & Edelenbos, 2007), decisions to breastfeed (Gengler, Mulvey & Ogelthorpe, 1999), and toddler food and beverage choice (Rigo, Wilcox, Spence & Worsley, 2018).

The study by Tsui and colleagues examined how consumers choose products to manage their osteoarthritis (Tsui, Boon, Boecker, Kachan & Krahn, 2012). This study looked at motivations behind the choice of specific natural health products. This study identified linkages in the decision-making process that included attributes (such as "natural products"), consequences (such as "effective" or "ineffective"), and values (such as "happiness" or "health").

Roininen & Tuorila (2010) explored how consumers perceive foods as healthy or pleasurable, and the links between these perceptions. The motives behind choosing foods that are perceived as healthy compared to foods that are perceived as pleasurable are often viewed as conflicting with one another. Participants were asked to categorize a list of foods into these categories (healthy or pleasurable). These categorizations became the concrete attributes from which ladders were created. Questions regarding why they categorized specific foods, and what aspects of this food was representative of that category formed the ladders that explained why they found food pleasurable or healthy. The example below in Figure 1 is a HVM from the study (with attributes at the bottom of the figure, consequences in the middle, and higher-level consequences and values at the top).

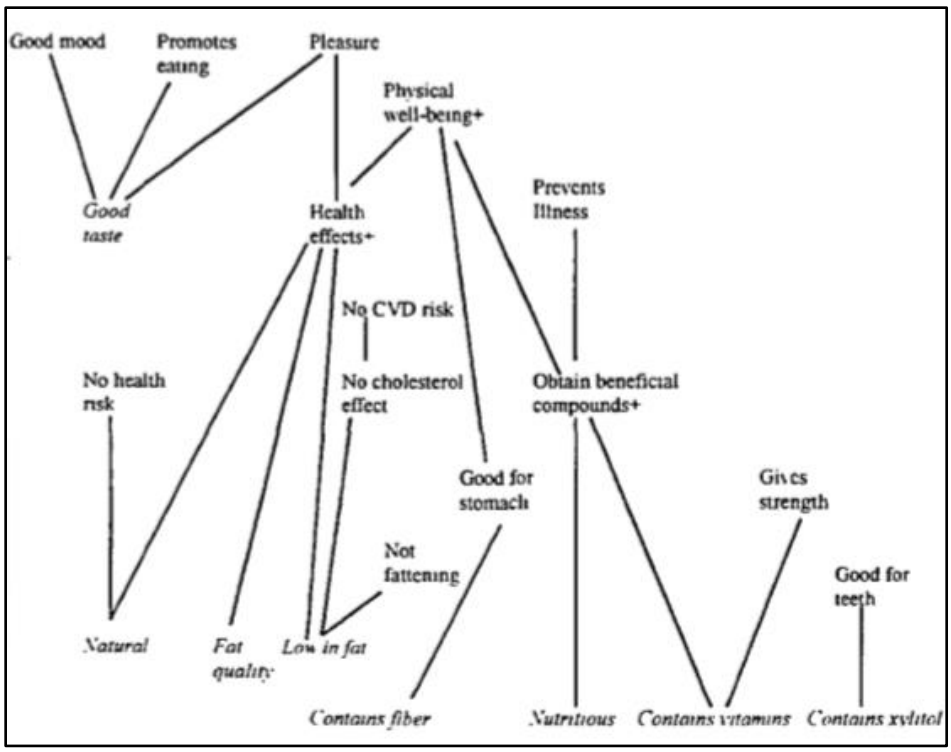

Figure 1. Example of Hierarchical Value Map for perceptions of foods from Roininen & Tuorila (2010)

Another study examined the values, meanings, and specific benefits that adult consumers associate with local food products (Roininen, Arvola & Lahteenmaki, 2006). Participants were given a list with a variety of foods and then asked to explain their preferences for how they were produced: locally, organically, conventionally, and intensively. Ladders were formed by using their preference for production (attribute), and then probing for the reasoning behind their preference compared to the other methods of production. By examining the specific consequences (such as "price not expensive") and values (such as "respect for nature"), this study identified the links in the decision-making process for adult food choice.

A study by Urala & Lahteenmaki (2003) examined the reasons consumers provide for their choice in "functional foods." Examples of functional foods were "probiotic yogurt" and "light margarine" and were defined as foods that respond to individual needs such as improving gut health or cholesterol levels. Participants were given laminated cards with functional foods as well as their conventional counterpart (such as probiotic yogurt compared to natural yogurt) and asked which one they commonly used. The commonly used functional or conventional foods were then

laddered off by asking "why did you choose this product?" to determine consequences (such as "promotes health"), and values (such as "well-being").

Another study examined parent food choices for vegetables for their household (Sonergaard & Edelenbos, 2007). Parents were asked to rank food products (full meals, side dishes, and snacks) by how likely they were to buy for their families. They were then asked to identify product attributes for each food product, from which ladders were built using "why" questions. Separately, children (all age 14) were interviewed on their preference for a variety of foods. In the laddering interviews with the parents, distinct links were identified in parental purchasing of foods based on their own motivations as well as preferences of the child. Common attributes behind food choice for the parents (such as "easy to prepare"), were linked to consequences that aligned with child food preference (such as "the children like it"), which then linked to values (such as "family well-being"). The example below in Figure 2 is of the HVM determined through the laddering interviews for the specific food spinach lasagna.

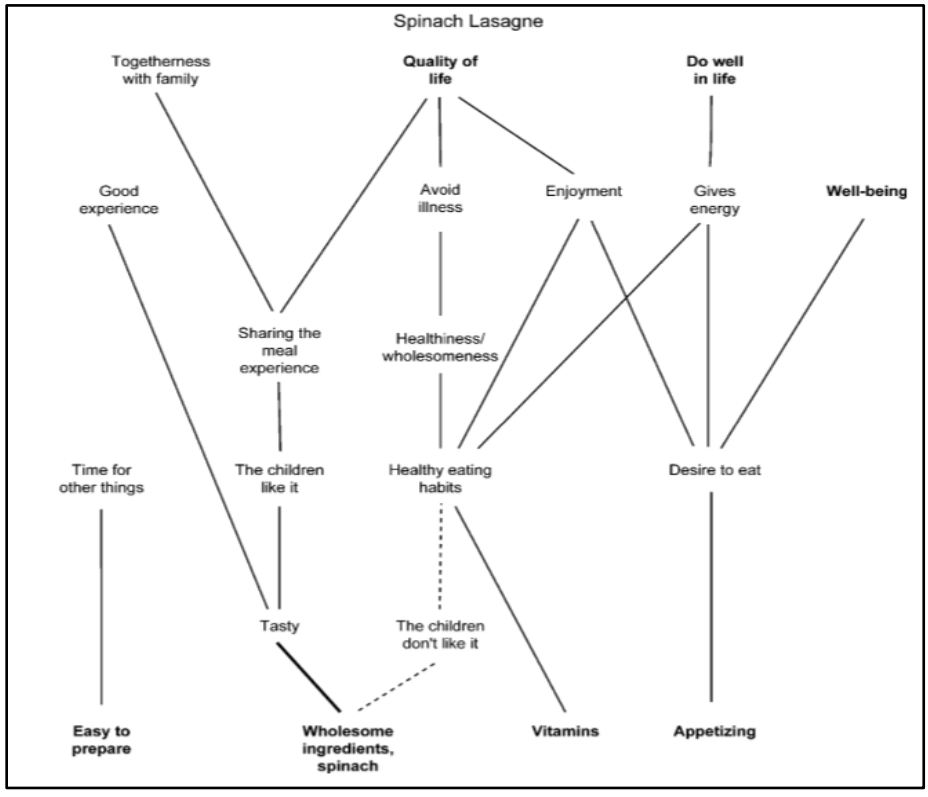

Figure 2. Hierarchical Value Map for Spinach Lasagna from Sonergaard & Edelenbos, 2007

A study by Gengler, Mulvey & Ogelthorpe (1999) examined the reasons that were important to mothers behind their choice to begin or end breastfeeding. Participants were first asked if they had breastfed their most recent child. Their answer became the entry point to the first ladder, which was then probed by asking, "Why did you decide to breastfeed?" If mothers had previously answered that they had breastfed their most recent child, they were then asked if they had stopped breastfeeding. An additional ladder was then created from the question, "Why did you stop breastfeeding?" By investigating groups of breastfeeding and non-breastfeeding women, attributes (such as "transfers immunity to child"), consequences (such as "fewer allergies" and "healthy child"), and values (such as "good parent") could be determined for initiating or terminating breastfeeding. Figure 3 is the HVM for reasons mother's chose to breastfeed, determined through laddering interviews.

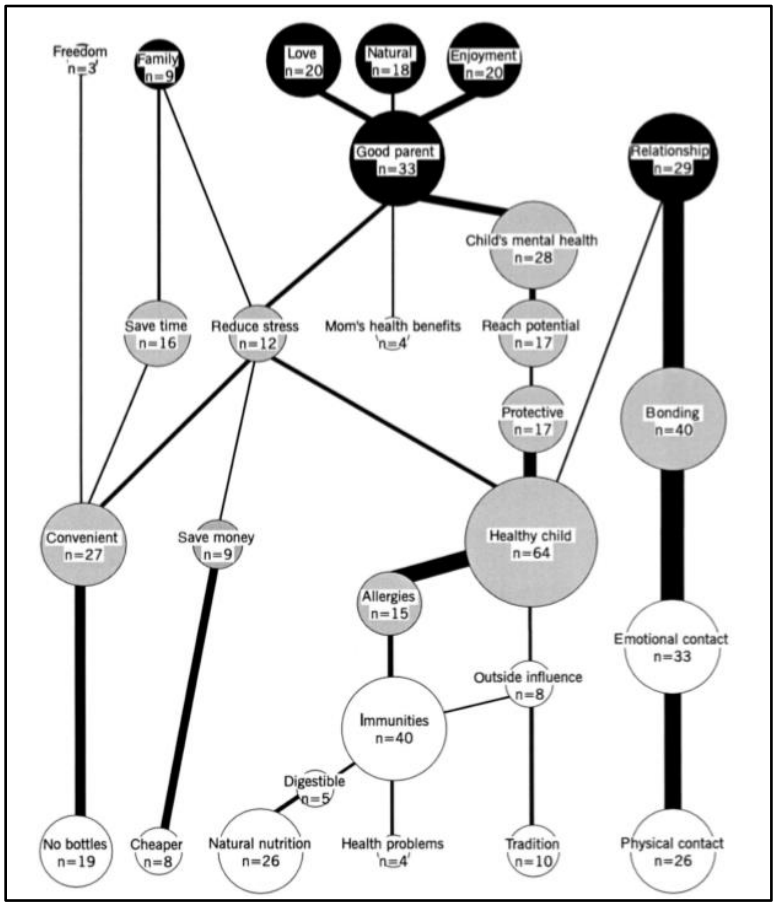

Figure 3. Hierarchical Value Map for reasons mothers chose to breastfeed from Gengler, Mulvey & Ogelthorpe, 1999.

A final study explored mothers' perceptions of commonly consumed preschooler beverages (Rigo, Wilcox, Spence & Worsley 2018). Mothers were given images (13) of drinks commonly consumed by preschoolers. A grid containing images of beverages was used for mothers to then choose which beverages they thought best fit certain categories (such as contains sugar, or dairy based). This served as the entry point to laddering, from which mothers were asked if each classification of beverage was important to them. Ladders were then built to elicit linkages between the category of beverage (attribute), to perceived consequences (such as "high in sugar"), to values (such as "drive for healthiness").

Study Goals and Objectives

The present research builds on these prior applications of the means-end approach by investigating the factors underlying how parents make food choice decisions for their preschool-aged child. The specific study objectives were:

1) To use means-end theory and laddering interviews to uncover attributes that influence parental food choice, as well as the consequences and values that determine what these factors mean to parents.

2) To identify common parental feeding strategies used with preschoolers, and explore why these strategies are helpful for parents.

CHAPTER 3. METHODOLOGY

Research Design

This study used the means-end framework to better understand *why* parents of preschoolers decide to offer their children certain foods and *why* certain feeding strategies are helpful. To examine these issues one-on-one laddering interviews were conducted over the phone with parents of preschool-age (3-to 5-year-old) children.

Subjects

Subjects were recruited through convenience sampling and consisted of adult parents of at least one child 3-5 years of age. Participants were recruited through social media platforms such as Facebook and NextDoor, and through preschools in the Greater Lafayette Area. Participants were recruited during the months of September- November 2020. 33 total participants completed one-one-one phone interviews.

Procedure

Individuals that agreed to participate in the study were contacted by phone and reminded that their participation was completely voluntary, and all responses would be kept anonymous and confidential. Participants were also informed that their data would be analyzed at the group level only, no data would be retained or analyzed that could be used to identify individual respondents. Once the participants were informed of the details of the study, laddering interviews were completed using a discussion guide to direct the interview.

Instrument Design

In the discussion guide developed for this study [Appendix A], participants were first asked, "please list 3-5 foods you have offered [child/children's name(s)] in the last day?" The interviewer then laddered off each food item mentioned to extract the attribute-consequence-value relationships underlying parental food choice decisions. More specifically, participants were asked, "Why is offering this [food item] different than offering other foods?"; "OK and why is that important to you" (or "good for you to do"). This process of laddering (or asking why) for each response given continued until the respondent could not go on or mentioned a value. The discussion guide included additional prompts that were used if needed or if time allowed. These included prompts to elicit foods parents typically avoid offering ("list 3-5 foods that you prefer not to give"), foods parents prefer to offer ("list 2-3 foods that are your favorite foods to offer your child"), and foods the child prefers to be offered ("list 2-3 foods that you would say are your CHILD's favorites"). Another question was used to elicit the feeding strategies parents use with their preschooler ("What strategies do you use to get your child to eat or eat certain foods/foods you want him/her to eat?"). The final part of the interview collected information of participant demographics, such as age, gender, and number of children in the home.

CHAPTER 4. RESULTS

The purpose of this research was to develop a better understanding of the factors that influence how parents choose foods for their preschool age children as well as the strategies parents commonly use when feeding their preschoolers. This chapter presents the study results. The first section provides a profile of the study participants. The second section presents an analysis of the laddering data collected from participants. The final section overviews the feeding strategies commonly used by parents of preschoolers. Each of these sections will provide examples of the means-end relationship among attributes, consequences, and values behind *why* parents decide to offer their children certain foods and *why* certain feeding strategies are helpful.

Respondent Profile

Demographic information was collected during one-on-one phone interviews with participants (Appendix A). All 33 study participants were parents of a preschool age child (3-5 years of age). Out the 33, 29 (87.9%) were female, and 4 (12.1%) male. The larger number of females/mothers versus males/fathers is not suprising. For instance, Jones (2018) describes mothers as 1) the primary gatekeeper, and 2) the main party responsible for the foods their preschooler eats. Participant age ranged from 27-42 years (M = 35.73, SD=4.24). Most participants (n=24, 72.7%), had at least one other child living in the same home as their preschooler. There were slightly more female preschoolers (n=19, 57.6%) than male preschoolers (n=14, 42.4%) in the study. Child age ranged from 3-5 years of age (M = 3.85, SD=0.75). These results can be seen in Table 2.

Table 2. Characteristics of families in the study

		N (%)
Parent Biological Sex	Female	29 (87.9)
	Male	4 (12.1)
Other Children/Siblings	Yes	24 (72.7)
	No	9 (27.3)
Child Biological Sex	Female	19 (57.6)
	Male	14 (42.4)
		M (SD)
Parent Age		35.73 (4.24)
Child Age		3.85 (0.75)

Analysis and Findings

Phone interviews were manually transcribed and coded using Nvivo 12 software. Nvivo is a qualitative data analysis software used to analyze text and open-ended questions. Participant responses were analyzed to identify similar content and themes.

Participants were first asked, "Would you be able to list 3-5 foods that you have given your preschooler in the last day?" Responses were used in two ways 1) to categorize the types of foods parents had offered their preschoolers, and 2) to ladder off of using the prompt, "Why is offering [X food] better? Or "Why might this be a good food to offer?" All key constructs resulting from the content analysis can be seen in Tables 3, 4, and 5.

The most frequently mentioned categories for attributes of foods parents offered their preschoolers were child is more likely to eat it (78.7%), food item is healthy (75.7%), taste or texture of food item (63.6%), identifying specific vitamins, minerals, and nutrients of food item (60.6%), child excited/likes it/fun (57.5%), and food item is convenient (54.5%). Results for all key attributes are shown in Table 3.

Table 3. Key attributes associated with foods offered

Attribute	Number of IDs mentioned	Representative examples
Child more likely to eat it	26	"I know she will eat it" "He's more likely to eat it"
Food item is healthy	25	"It's healthy" "It's a healthy food" "Salmon is good for her, it's healthy"
Food item taste or texture	21	"She likes the taste" "The texture is smooth and creamy, he likes that"
Food item is high in vitamins, minerals, or nutrients	20	"It's high in protein" "The vitamins—Vitamin A, Vitamin C, she needs those"
Child gets excited/likes it/fun	19	"He runs to the table, he's so excited" "It has Frozen characters on it, so it's fun for him"
Food item is convenient	18	"it's convenient" "It can be used so many ways"
Food item is easily digested/good for stomach or gut health	8	"It's high in fiber" "Sauerkraut is a fermented food, so that's good for digestive stuff"
Food is a family favorite	5	"It's a family favorite" "We all love it, it's a favorite for sure"
Food item has natural ingredients	5	"Not processed, like natural ingredients" "If it's something more natural, something with a smaller ingredient list"
Food item keeps child full	4	"It keeps her full all day when she's at preschool" "It keeps him full"
Child can help make food item	2	"He loves to cook and bake, so we do that a lot"

The most frequently mentioned categories for consquences parents associated with offering their preschooler certain foods were waste (time, food, money) (45.4%), fights/battles (42.4%), child's negative physical reactions (36.3%), it leads to negative outcomes for the child (33.3%), and promotes growth and development (24%). Results for all key consequences are shown in Table 4.

Table 4. Key consequences associated with foods offered

Consequences	Number of IDs mentioned	Representative examples
Causes waste (time, food, money)	15	"Just a waste of money" "It's a waste of time"
Leads to fights/battles	14	"Then it becomes a whole fight" "I don't want to fight with him during meals"
Child has a negative physical reaction	12	"It makes him constipated" "She's allergic, so she has a bad reaction"
Leads to negative outcomes for the child	11	"It leads to obesity" "I don't want her to develop an eating disorder"
Causes negative parent emotions	8	"I feel stressed" "I get really frustrated"
Promotes healthy growth and development	8	"He needs enough calories to grow" "He needs a full range of nutrients because it's such a critical period of growth"
Food item is unhealthy	7	"It's high in sodium" "It's super processed"
Don't want child to be a picky eater	7	"I don't want her to be a picky eater" "I don't want him to be picky as an adult"
Child is easier to deal with	6	"When she's running around and getting her energy out, she's a lot easier to handle" "When he's distracted, it's just easier"
Want child to have good experiences/relationship with food	6	"I want her to have a good relationship with food" "I don't want him thinking about food all the time, I want him to have a good relationship with hunger and food"
Don't want child to snack	3	"I don't want her to be snacking all day" "Snacking isn't enough and then she's not hungry for meals, but she's not getting what she needs either"
Want child to be adventurous	3	"I want her to be open-minded" "I want him to be an adventurous eater"
Don't want to restrict foods	2	"My parents were very restrictive, so I don't want that for her"

The most frequently mentioned values associated with the foods parents offered their preschooler were want child to be healthy (60.6%), teaching child/responsibility as a parent (51.5%), quality time/connection (42.4%), want child to be independent (36.3%), and forming healthy habits when young (30.3%). Results for all key values are shown in Table 5.

Table 5. Key values associated with foods offered

Values	Number of IDs mentioned	Representative examples
Want child to be healthy	20	"I want her to be healthy" "I just want him to be healthy and grow"
Teaching child/my responsibility as a parent	17	"It's my job as a mom" "I'm supposed to teach her, I'm her mom!"
Quality time/connection	14	"It's a time for us all to sit down and talk about our days" "It's some of the only time we all get to spend together"
Want child to be independent	12	"I want him to do things for himself on his own" "I want him to be independent"
Want child to form healthy habits when young	10	"I want her to form habits now" "Hopefully, he will learn good habits now when he's young"
Parental well-being/happiness	8	"Makes me feel better" "It's better for me—for my well-being"
Fun experiences	8	"It's fun for us" "It's a fun activity"
Want child to be happy	7	"I want her to be happy" "His happiness is the most important thing, he's an extension of my heart"
Want child to make good choices	7	"So, he can make good decisions for himself" "I want her to make good decisions on her own and feel good about that"
Want child to be open minded	6	"I want her to be open to other things, foods, other cultures" "I want him to be open to trying things"
Makes parent sad	4	"It just makes me sad" "It just makes me feel bad"
Want child to be safe	3	"I want her to be safe" "I don't want him to be put in harm's way"
Family traditions/values	2	"It's a cultural tradition, I want to give her that, I want her to have that" "Growing up I always had family dinners, it's important I pass that on"
Lowers family stress	2	"It's better for all of us, lowers tension"

Means-End Findings

The laddering technique revealed means-end connections, or ladders, among the attributes, consequences, and value concepts. A total of 159 ladders were identified across the 33 respondents,

with a range of 1-8 ladders and an average of 4.81 ladders per respondent. These ladders are summarized around three groupings: foods typically offered, foods typically avoided, and foods parents prefer to offer. Grouping emerged from three specific questions in the discussion guide: 1) list 3-5 foods offered in the last day, foods you avoid offering, foods you prefer to offer. A hierarchical value map (HVM) was developed to summarize the ladders associated with each of these groupings.

Foods Typically Offered

Analysis of responses to the prompt "list 3-5 foods you offered your preschooler in the last day" were used to identify foods that participants typically offered their preschooler. Food items were categorized according to USDA guidelines and fell into 7 major food groups: grains, proteins, fruits, vegetables, dairy, and desserts. Frequency and percentage of foods offered can be seen in Table 6. Examples of commonly offered grains were: cereal, bread, and rice. Examples of proteins were: chicken, beef, and pork. Examples of fruits were: strawberries, apples, and mandarin oranges. Examples of vegetables were: mixed vegetables, green beans, and peas. Examples of dairy were yogurt and cheese. Examples of desserts were bundt cake, halloween candy, and ice cream.

Table 6. Foods typically offered

Food Group	**N (%)**
Grains	45 (23.8)
Proteins	41 (21.7)
Fruits	37 (19.6)
Vegetables	37 (19.6)
Dairy	22 (11.6)
Desserts	7 (3.7)

The hierarchical value map (HVM) developed to summarize the ladders elicited from the foods typically offered is shown in Figure 4. Analysis identified three attributes of foods typically offered: *food item is a healthy choice*, *food is convenient*, and their *child likes the food*. On the right side of the figure, meanings from the attribute *child likes it*, led to *knew child would eat it*, *avoid fights/battles*, which ultimately led to *enjoy quality time as a family*. In the center of the figure, the attribute *food is convenient*, linked to *don't waste (time, energy, or food)*, to *establish healthy habits/routine*, and finally to *want child to be healthy*. Finally, on the left side the attribute

food is a healthy choice linked to both *food item is high in vitamins/minerals/nutrients*, and *want child to be full*, which both led to *promote growth and development*, *teaching child/parental responsibility*, and finally to *want child to be healthy*.

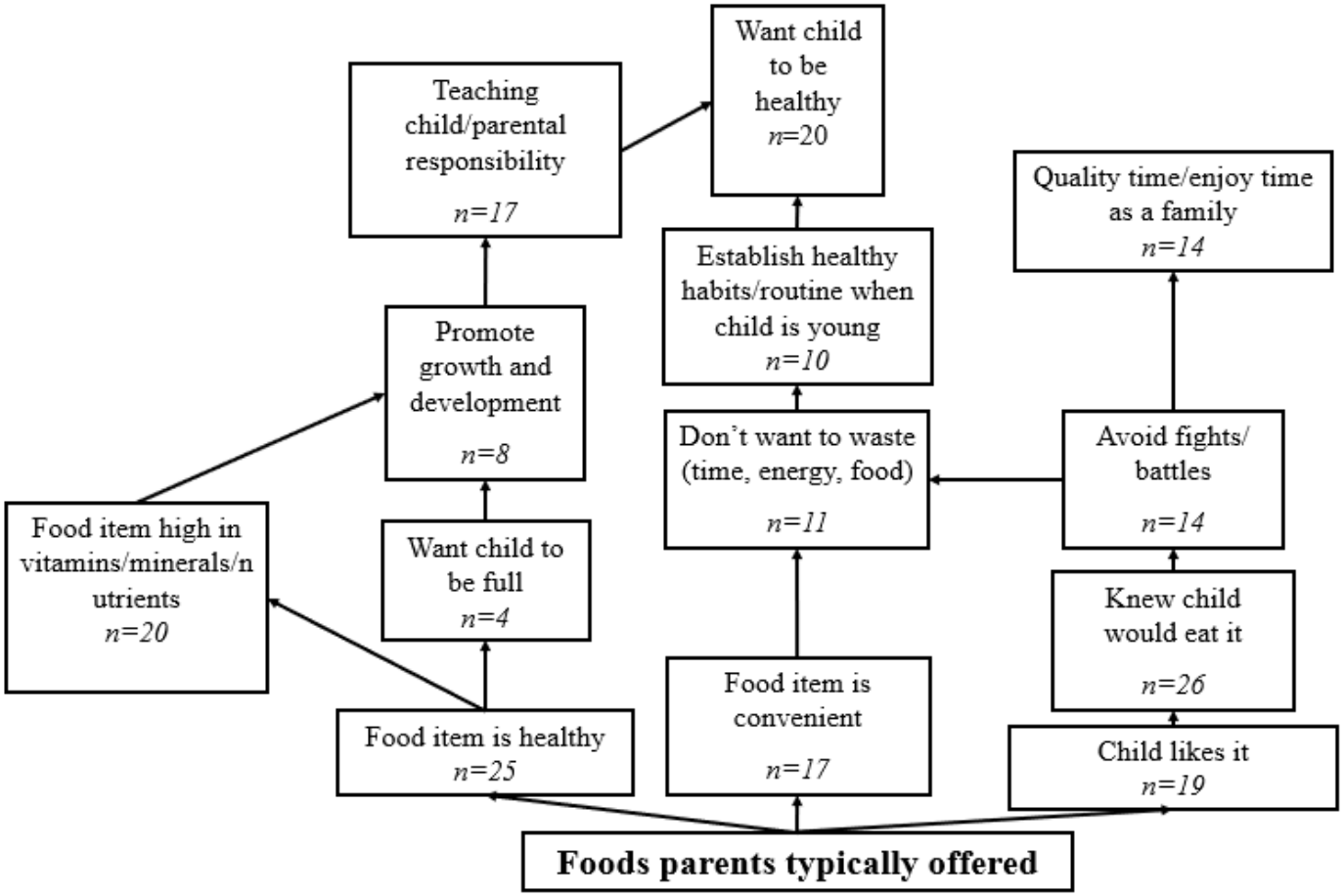

Figure 4 HVM for foods parents typically offer their preschooler

Foods Typically Avoided

Analysis from responses to "list a few foods you avoid offering" elicited responses to foods parents avoid offering their child, for any reason. Foods were categorized into groups using USDA guidelines where appropriate, with separate single-item categories for certain foods. Foods fell into 13 major groups: processed foods, desserts, artificial colors/flavors, proteins, spicy foods, vegetables, fruits, salty snacks, sauces, dairy, sugar-sweetened beverages, grains, and fast food. Number and percentage of foods parents avoid can be seen in Table 7.

Table 7. Foods parents avoid offering

Food Group	**N (%)**
Desserts	20 (21.4)
Sugar-sweetened beverages	10 (12.0)
Processed foods	9 (10.8)
Spicy foods	8 (9.6)
Vegetables	7 (8.4)
Proteins	6 (7.2)
Artificial colors/flavors	4 (4.8)
Salty snacks	3 (3.6)
Sauces	3 (3.6)
Dairy	3 (3.6)
Grains	3 (3.6)
Fast food	3 (3.6)
Fruits	1 (1.2)

The hierarchical value map (HVM) developed to summarize the foods to avoid ladders is shown in Figure 5. Analysis identified four key attributes of foods parents avoid offering: *food is unhealthy, child has a negative physical reaction, likelihood child would eat it*, and *choking/safety hazard.* On the right side of the figure, meanings from the attribute *likelihood child would/wouldn't eat it* led to *avoid fights/battles*, which then branched to *negative parent emotions* and *wastes food,* which finally leading to *bad for the environment*. Meanings from the attribute *food item is unhealthy* led to both *negative child health outcomes*, and *behavioral issues*, which led to *want child to have a positive relationship with food* and *negative parent emotions*, respectively. Meanings from the attribute *negative physical reaction* led to both *negative health outcomes* and *don't want child to be in pain/suffer*, which led to *want child to have a positive relationship with food* and *don't want child to be unhealthy* respectively. Finally, on the left side of the figure,

meanings from the attribute *choking/safety hazard* led to *want child to be safe*, *don't want child to be in pain/suffer*, and finally *don't want child to be unhealthy*.

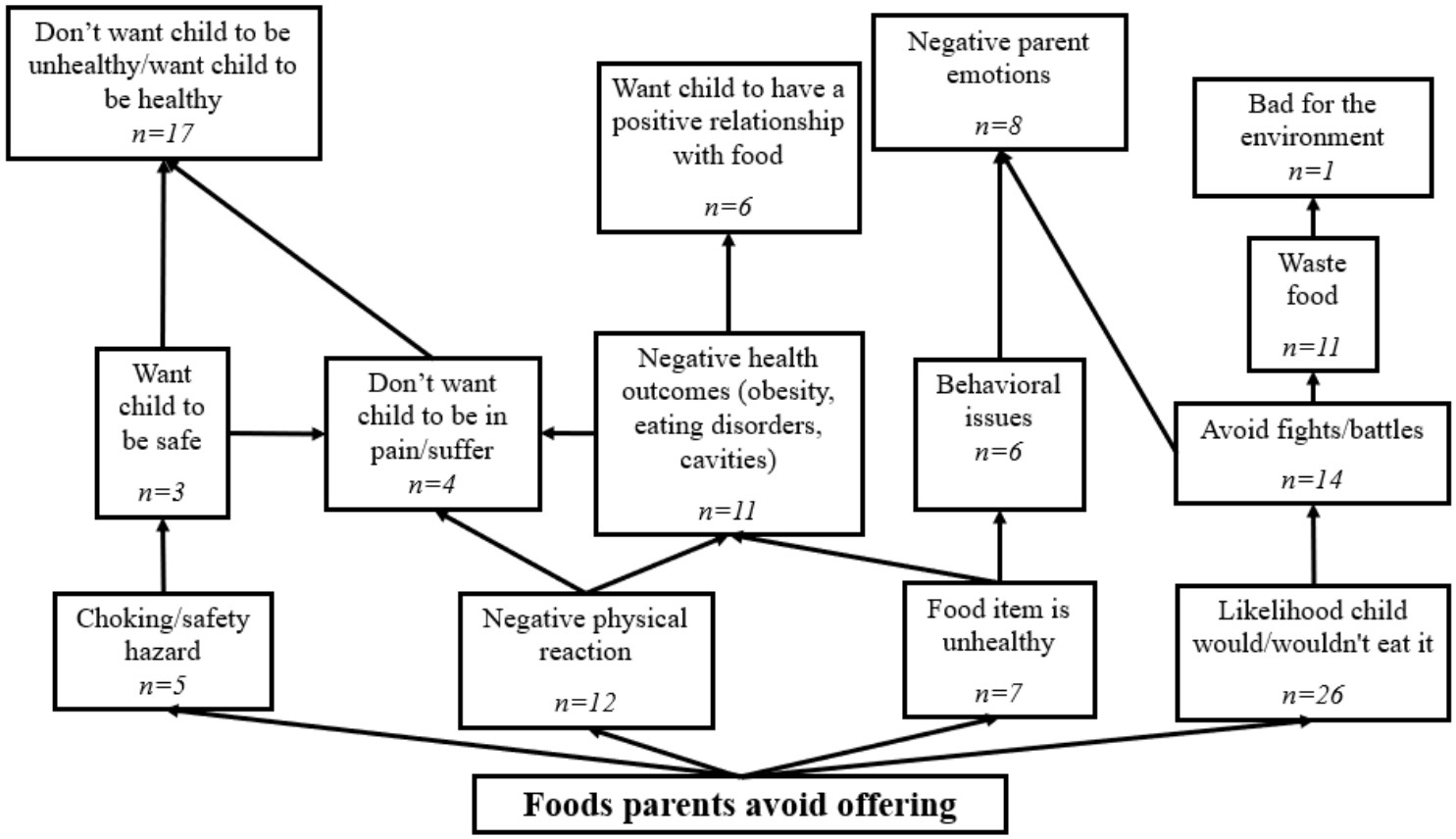

Figure 5. HVM for foods parents avoid offering their preschooler

Food Parents Prefer to Offer

Analysis from responses to "'List a few foods you prefer offering your preschooler" elicitedresponses for participants' favorite foods to offer their preschooler. Food items were categorizedaccording to USDA guidelines and fell into 7 major food groups: grains, proteins, fruits, vegetables, dairy, and desserts. Frequency and percentage of foods offered can be seen in Table 8. Examples of vegetables were: cucumbers, bell peppers, and peas. Examples of grains offered were: cereal, bread, and rice. Examples of proteins were: salmon, chicken, and hot dogs. Examples of fruits were: strawberries, apples, and grapes. Examples of dairy were: yogurt and cheese. Examples of desserts were pastries and chocolate milkshakes.

Table 8 Foods parents prefer to offer

Food Group	**N (%)**
Vegetables	36 (28.6)
Grains	27 (28.6)
Proteins	22 (21.4)
Fruits	18 (14.3)
Dairy	13 (10.3)
Desserts	3 (2.3)

The hierarchical value map (HVM) developed to summarize the foods parents prefer ladders can be found in Figure 6. The analysis suggested four key attributes of foods parents prefer to offer: *child more likely to eat it, food item is convenient, family favorite/traditional food,* and *child is involved/helps make it/can get it themselves.* Meanings from the attribute on the right side of the figure *child is involved/helps make it/can get it themselves* led to *child is excited/invested*, which then branched to *want child to be independent* and *fun experience*, which finally led to *quality time as a family*. The attribute *food item is a family favorite/traditional food* linked to *want child to be open-minded/adventurous* before branching to both *don't want child to be picky/limited* and *want child to have good experiences/relationship with food*, before both linking to *want child to be happy*. The attribute *food item is convenient* linked to *want to avoid waste.* On the far left side of the figure, the attribute *child more likely to eat it* linked to *want child to be full, child easier to deal with*, and finally *parent happiness/well-being*.

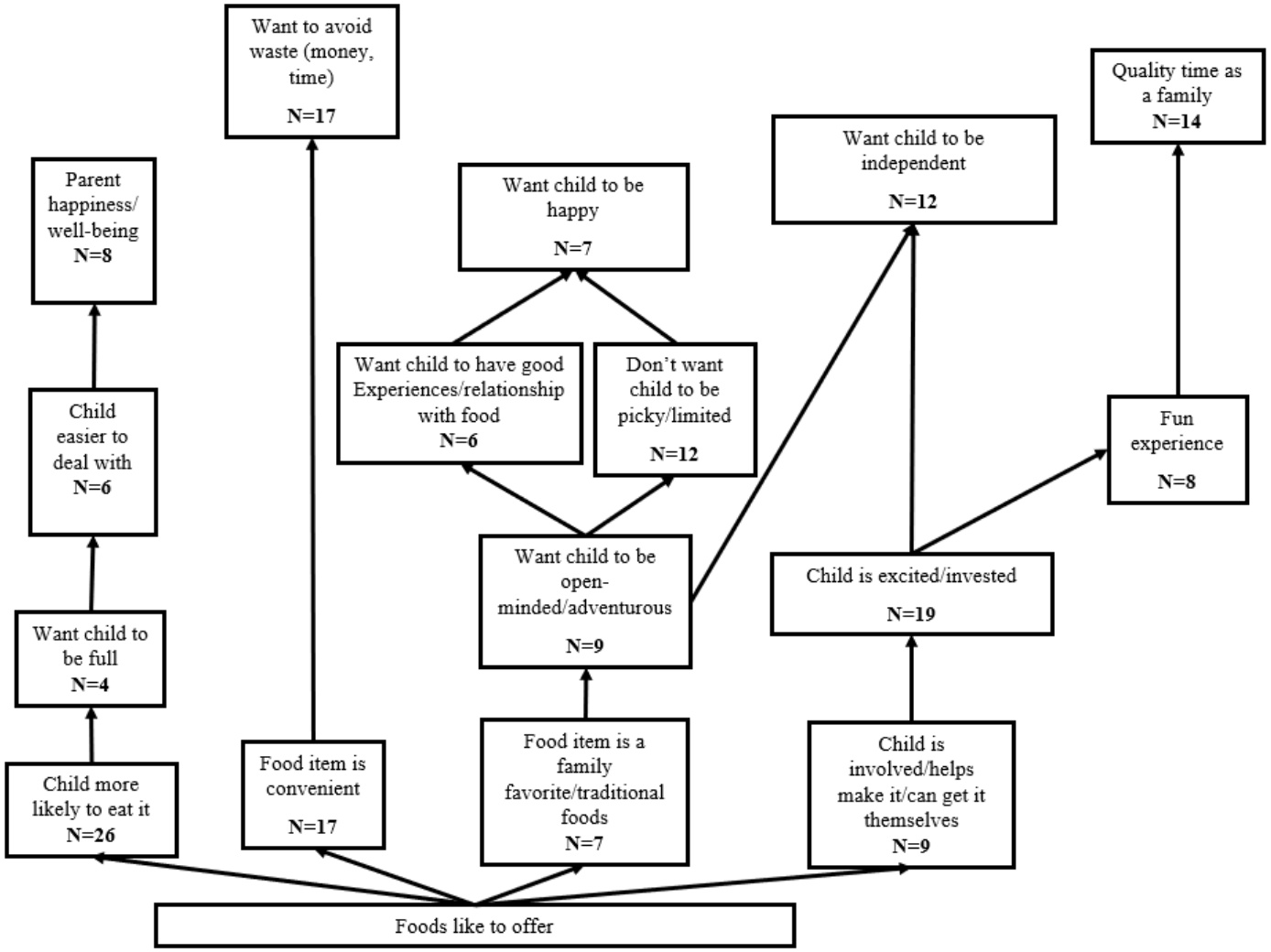

Figure 6. Foods parents prefer to offer

Parental Feeding Strategies

Participants were asked to describe whether they use any feeding strategies with their preschooler, and why these strategies are helpful for them. A total of twenty-two independent feeding strategies were identified as shown in Figure 7. The most frequently mentioned strategies were *providing child with choices* (n=19), *carefully preparing color, texture, or presentation of food (n=17), bribery or reward (n=14), hiding foods (n=14), taste rule (n=13),*and *repeated exposure (n=11).* Additional details on each of these strategies follows.

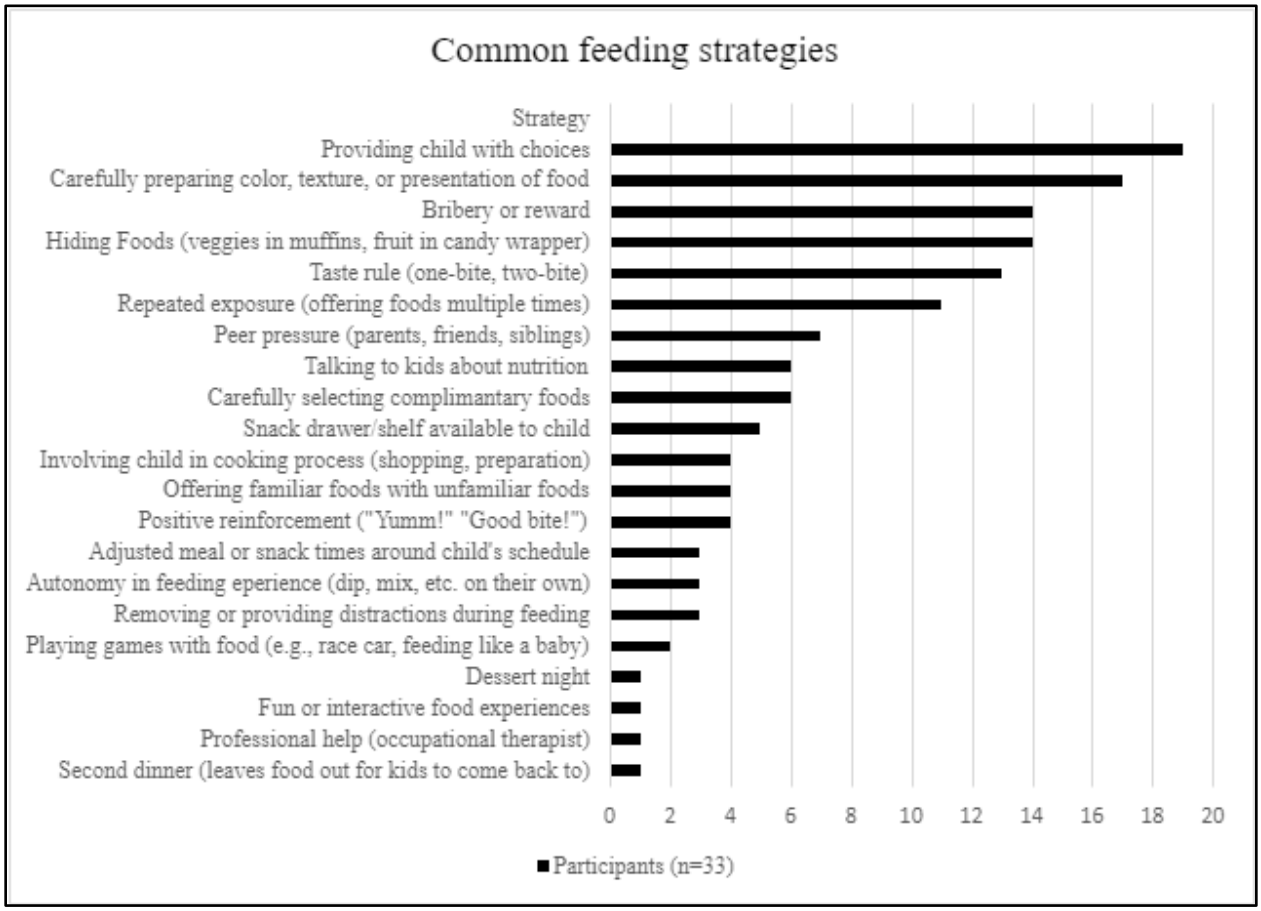

Figure 7 Common feeding strategies

Providing child with choices

A total of 19 respondents mentioned offering choices between a few predetermined options as a strategy to get their child to eat something. This builds on previous research that has explored providing children with choices as a strategy for conflict resolution during meals (Norgaard & Brunso, 2011). Means-end findings for providing preschoolers with choices as a strategy led to *want child to develop healthy habits while young, want child to be independent,* and *teaching child/parental responsibilities*. Examples of providing child with choices can be seen in Table 9.

Table 9 Examples for providing child with choices

"We do try to let him choose, we give him a couple options, especially side dishes like 'do you want an orange or a banana?'"
"If we have eggs, I'll ask them 'do you want scrambled, or do you want over easy?"
"I'll say 'what would you like? Do you want sauerkraut and pickles?' I encourage each kid to have at least a nibble of one of them, but they have that choice of 'which one do you want' "

Carefully preparing color, texture, or presentation of food

A total of 19 respondents mentioned carefully preparing color, texture, or presentation of the food they offered their preschooler. This aligns with previous findings that indicate taste, texture, or cooking methods played a key role in child food preferences (Alm, Olsen & Honkanen, 2015). Participants identified working around colors, textures, or presentation was helpful for parents to encourage the child to eat a food item with or without specific characteristics. Examples for *colors, textures, and presentation* can be seen in Table 10.

Table 10 Examples for colors, textures, and presentation

"So just that like –offering lots of different colors help, and we have a bento like a lunchbox, and you can kind of –I don't know it just looks the presentation looks nice if you put different colors and textures and stuff"
"I think it's more of the color, she really likes Elmo and she's obsessed with anything red"
"Unless it's green if it's green she doesn't care—she's not going to like it. So, I make sure nothing is that color"
"They don't like red sauce, they don't mind it on pizza, but she won't eat like a marinara sauce like on pasta or a lasagna, um and beef for some reason they never want to try like a beef steak or ground beef in sauce or anything like that – I don't even try anymore I kind of just stopped trying for a while"
"It's frustrating for me because they're not going to eat it because it's red when I really think they would like it, and it's somewhat healthy it has vitamin c and some other things, and it's just frustrating, you know, like please just try it—because of the look or afraid it won't taste good"
"If I make pasta, I only put sauce on half the noodles, because they'll eat plain noodles but not the sauce. And if I put the sauce on it and put it on their plates it's a whole bunch of meltdowns"
*"B*ut *I will say we are most conscious about the presentation of the food"*

Bribery or reward

A total of 14 participants mentioned using some form of bribery or a reward to get their child to eat a food they wanted them to eat. Previous research has found that using food as a reward for good behavior in preschoolers increased food preference for 'reward' foods. The unintended consequence of this strategy is the promotion of reward foods, which are often energy dense or sweet, leading to preference for unhealthy foods. Using treats as a reward for eating a desired food (e.g., vegetables) has also been found to result in children learning to dislike or avoid these foods (Russell, Worsley & Campbell, 2015; Savage, Fisher & Birch, 2007). Additionally, previous studies have identified rewarding or bribing children with food as an 'unhealthy' parental feeding behavior (Russell, Worsley & Campbell, 2015). Results from the current study support findings that children inherently prefer sweet foods, with 13 participants (39.4%) identifying their child's favorite foods as "sweets." Examples of *bribery or reward* can be seen in Table 12.

Table 11 Examples for bribery or reward

"I'll say like 'if you eat this then after dinner you can have this or you can go watch this tv show' "
"We've fallen into the like 'if you don't eat you don't get treats' trap"
"I don't shy away from bribery. So okay 'if you finish all your vegetables, you can have dessert'"
"Sometimes incentives. So, like if you eat this, then you can have a dessert for snack later tonight, so maybe using something on the snack side maybe a bedtime snack so if you eat two bites of this or do a good job of eating this then have a reward, like maybe a piece of cake of a cupcake or something later that night as incentive as like a reward/bribe."

Hiding foods

A total of 14 participants mentioned hiding foods in liked or familiar foods to get their child to eat it. Some parents specifically did not want their child to know what they were eating, while others just didn't want their child to taste the food (see example below).

"I also use old candy wrappings, and I wrap the fruit with that candy wrapper, and I give her that and she thinks it's candy"

"I try to make a lot of muffins like we make "hulk" muffins, but they're really spinach muffins, but I say they're hulk muffins and they'll make them strong"

This aligns with previous research that identified covertly feeding children certain foods without their knowledge as a commonly used strategy by parents. However, this strategy has mixed consequences. Although this strategy leads to higher intake of certain desired foods, it reduces opportunities for children to model parent and peer behavior and may not lead to lasting healthy food preference for the child (Russell, Worsley & Campbell, 2015). Examples of *hiding foods* can be seen in Table 13.

Table 12 Examples of hiding foods

"I hide vegetables in everything. I put vegetables in smoothies, red sauce, white sauce, I put them in brownies, I hide them in everything"
"And she will definitely eat vegetables if they're mixed into other foods—so, I do a lot of combining, and a lot of like Indian dishes or other dishes that have included vegetables in it"
"So now that I found something that works, I just keep with it, I also make some peanut butter energy balls, they love peanut butter so they would probably eat it in anything, but I hide flax seed in the peanut butter balls, and they don't know it's there and I feel like I'm giving them more nutrition that way"
"I do a little bit of mixing healthy food – like I'll put flax seeds into his oatmeal, or chia seeds into his oatmeal"
"I like to hide certain foods in other foods. Um so for example, I fixed them pancakes but it's just oats and banana and egg"

Taste rule

A total of 13 participants mentioned using a taste rule (e.g., one bite rule) to get their child to try a new food or eat more of a food item. However, most parents who noted using a taste rule as a strategy also stated that if the child tried the taste and still did not like the food, they would not force the child to eat the food. Previous research has identified coercing children to eat foods as an unhealthy parental feeding strategy. However, previous research on parents pulling back after determining foods their child disliked led to less food aversion and healthier food preferences of the child (Russell, Worsley, & Campbell, 2015). Examples of the *taste rule* can be seen in Table 14.

Table 13 Examples of taste rule

"I'll say like 'take two more bites and then you can leave the table' or like 'take one bite of your green beans'"
"They have to eat at least one bite of whatever it is I want them to eat, which sometimes is the meat, sometimes is the vegetable"
"One thing is 'just try a bite and you might be surprised you might love it' and if you don't love it you don't have to eat it, but you have to try one bite"

Repeated exposure

One-third, or 11 participants, mentioned using a form of repeated exposure as a strategy for increasing food acceptance in their preschoolers. Previous studies including the Colorado LEAP study have provided consistent evidence to support the use of repeated exposure to improve liking of new foods (Johnson et al, 2019) and preference for healthy foods (Russell, Worsley, & Campbell, 2015). Participants in the current study did not align with any set formula for repeated exposure (e.g., repeatedly offering a food a specified number of times in a set timeframe) and repeatedly offered foods in ways that were realistic for them. Participants also noted that if their child stopped liking a food suddenly (not just new foods), they would rotate those food items back in and see if their child preferred them again later. Examples of *repeated exposure* are listed in Table 15.

Table 14 Examples of repeated exposure

"We will keep having it so she can keep trying it and start to grow to like it"
"We also keep foods in a rotation, so foods that he used to really love like avocados, but now he claims he doesn't like"
"This is not the only time he will try a Brussels sprout; I'll have him try it again for sure in the future"
"Repeated times. There has been a bunch of times where the first few times he didn't really like it and then he really liked it"
"I will try like a couple times—it's not just if they don't like it. We say like, 'oh you're not preferring this right now' or' maybe you just don't prefer it.' I'll just wait a little while—maybe a few weeks, then try again"
"But if there are things that are healthy that they will eat—other categories or foods they just don't prefer—it doesn't mean we won't try again"

CHAPTER 5. DISCUSSION AND CONCLUSIONS

The purpose of this study was to use means-end theory and the laddering interview technique to 1) better understand the reasons underlying the food choice decisions parents make for their preschoolers, and 2) to garner insight into the feeding strategies used by these parents. This section will discuss the key contributions of this research, limitations, and implications for future investigation.

Prior research has explored the foods parents provide their preschool aged children through quantitative methods such as dietary recall (Fox et al, 2010; Welker et al, 2017; Chong et al, 2017; Herbert et al, 2020) and food diaries (Carnell, Cooke, Cheng, Robbins & Wardle, 2011) as well as qualitative methods such as focus groups with parents of preschoolers (Goodell et al, 2016; Holley, Farrow & Haycraft, 2016), and individual interviews with parents of school-age children (Nepper & Chai, 2016). The present research employed an alternate approach, based on means-end theory and the laddering interview technique, to examine how and why certain factors are important to parents when determining what foods to offer their child. This approach accesses the linkages between factors involved the decision-making process parents undergo, adding to the existing qualitative research on food choice for children.

A series of HVMs summarizing the means-end linkages or ladders identified through the interview process provides insight into the meanings associated with this particular context. Although each grouping of ladders (foods typically offered, foods avoid offering, foods prefer to offer) elicited varying attributes, consequences, and values, certain factors appeared in all contexts suggesting core elements associated with parental food choice decision making. They key attribute "likelihood child would eat it" appeared in all three categories and led to differing values such as *quality time/connection*, *avoid waste*, and *parent happiness/wellbeing*. The consequence fights/battles appeared in both foods typically offered and food parents avoid offering and led to *avoid waste and quality time/connection*. Finally, the value *want child to be healthy* appeared in both foods parents typically offer and foods parents avoid offering. These key factors (*likelihood child would eat it, quality time/connection, avoid fights/battles, avoid waste*, and *want child to be happy*) were prevalent in multiple contexts and provide insights into why parents avoid offering their preschooler certain foods.

The factors identified in this study for why parents offered their preschoolers certain foods could be viewed as involving either parent-centric or child-centric themes. Parent-centric themes revolve around the well-being of the parent and family unit. Although several parents in this study commented on their own happiness or well-being independent of their child or family, parental motivations were more likely to relate back to the happiness or well-being of the child or family unit than their own well-being. This is not surprising given that parents in previous studies have expressed placing greater value in family well-being than their own personal well-being (Krys et al, 2019). Mcgregor & Goldsmith (1998) define well-being as a multi-faceted and versatile concept that can be applied to emotions, personal finances, home environment, social status, and physical health. Additionally, parent-centered feeding strategies and behaviors have been noted in previous research as a likely determinant of healthy diets in children, when compared to child-centered feeding strategies and behaviors (Russell, Worsley, & Campbell, 2015). In the current study, this overarching concept appeared in several ways such as *teaching child/parental responsibility quality time/connection, parent negative emotions*, and *parent happiness/well-being.*

In contrast to parent-centric themes, child-centric themes focus primarily on the child. The most prevalent child-centric theme in this study was *want child to be healthy*, which was anticipated. Within this overarching theme, were sub-themes such as not wanting child to suffer from psychological or physical risk (e.g., obesity, eating disorders, cavities) related to food or feeding. This is consistent with previous research that has identified strong parental stigma against excessive weight in children (Thomas et al, 2014), as well as health risks related to obesity such as diabetes and cardiovascular disease (Kumar & Kelly, 2017). In previous research parents with school-aged children often described themselves as 'walking on a tightrope' when referring to a fear their child would develop an eating disorder, which is often associated with risks for heart disease and high mortality rates (Gorrido & Lobera, 2012). It is notable, however, that current research is just beginning to come out with literature regarding eating disorders in preschool-aged children. Other child-centric themes included *want child to have a positive relationship with food, want child to establish healthy habits while young*, and *want child to be happy*.

Several themes identified in the analysis appeared to refer to benefitting the family unit or parent-child relationship as opposed to being specifically parent or child-centric. Examples of these are the consequence *fights/battles*, which frequently led to *quality time/connection*. Parents commonly noted that mealtimes were one of the few times their family all sat down together, and

they wanted to use the most of their time together. Additionally, although fights/battles were noted for a variety of foods, participants showed higher willingness to fight over their child's vegetable consumption over any other food type.

"We definitely fight battles, they'll have meltdowns about having to eat dinner, but that's different—that's a hill I'm willing to die on, <u>they will eat a vegetable</u>. But them eating a sauce? Like meh I just don't care."

These results support nutritional findings that out of total foods that parents 'typically offer' only 19.6% were vegetables, compared to 'preferred foods' to offer, of which 28.6% were vegetables. This indicates that although parents are not typically offering many vegetables, they believe they are an important food to offer, making it worth fighting over. This aligns with previous research that indicates parents know vegetables are healthy (Maynard et al, 2003), but they are still under-eaten by preschoolers (Lennox et al, 2011). Means-end findings for the consequence *fights/battles* often led to *quality time/connection, avoid waste,* and *want child to be healthy*.

The other focus of this research was to identify and better understand the feeding strategies used by parents of preschoolers. The most common strategies identified were *providing child with choices, carefully preparing color, texture, or presentation of food, bribery or reward, hiding foods, taste rule,* and *repeated exposure.* Additional strategies such as *peer pressure, talking to kids about nutrition, offering certain foods when the child was very young, creating a snack drawer that is always available to the child,* and *involving the child in the shopping or cooking process* were also mentioned by several participants. Some strategies elicited means-end linkages, while others did not.

The most frequently mentioned strategy, offering their preschooler choices between a few predetermined options was generally used to get their child to eat something (rather than nothing). This builds on previous research that has explored providing children with choices as a strategy for conflict resolution during meals (Norgaard & Brunso, 2011). Means-end findings for providing preschoolers with choices as a strategy led to *want child to develop healthy habits while young, want child to be independent,* and *teaching child/parental responsibilities*. Additional strategies that led to *want child to be independent* were involving the child in the shopping or cooking process and creating a snack drawer that the child has access to. These strategies and means-end findings support results from Levine & Philips (2020), which suggested strategies for parents to encourage independence in preschoolers. Additionally, previous studies have identified the preschool years

as a time of great physiological and cognitive growth, wherein children are no longer completely dependent on their caregiver (Suveg, Shaffer & Davis, 2015).

Participants also frequently mentioned the strategy of carefully preparing color, texture, or presentation of food they offered their preschooler. This aligns with previous findings that indicate taste, texture, or cooking methods played a key role in child food preferences (Alm, Olsen & Honkanen, 2015). Parents particularly noted that their child had strong preferences for certain colors or textures and working around colors, textures, or presentation was helpful for parents to increase the likelihood the child would eat a food item.

Additionally, participants identified using a form of repeated exposure as a strategy for increasing food acceptance in their preschoolers. Previous studies including the Colorado LEAP study have provided consistent evidence to support the use of repeated exposure to improve liking of new foods (Johnson et al, 2019) and preference for healthy foods (Russell, Worsley, & Campbell, 2015). Participants in the current study did not align with any set formula for repeated exposure (e.g., offering a food a specific number of times over a set period). Several participants noted that if their child stopped liking a food suddenly (not just new foods), they would rotate those food items back in and see if their child would eat them again later.

Finally, several participants identified methods of tricking or coercing their child into eating certain foods as a helpful strategy for increasing intake of vegetables. These include *hiding foods*, using a *taste rule,* and using *food as a reward/bribe*. Previous research has identified coercing children to eat foods as an unhealthy feeding strategy (Russell, Worsley, & Campbell, 2015). Some parents specifically did not want their child to know what they were eating, while others just did not want their child to taste the food. Contrary to parents that stated they regularly *hid foods*, most parents who noted using a taste rule as a strategy also stated that they would not force the child to eat the food item if the child persistently stated they did not like it. Previous research on parents pulling back after determining their child disliked a food led to less food aversion and healthier food preferences of the child (Russell, Worsley, & Campbell, 2015). Using food as a reward for good behavior in preschoolers can also increase food preference for 'reward' foods. Using treats as a reward for eating a desired food (e.g., vegetables) has also been found to result in children learning to dislike or avoid these foods (Russell, Worsley & Campbell, 2015; Savage, Fisher & Birch, 2007). Although these strategies lead to higher *intake* of certain desired

foods, it reduces opportunities for children to model parent and peer behavior and may not lead to lasting healthy food preference for the child (Russell, Worsley & Campbell, 2015).

Limitations and Future Research

As with any investigation, several factors limit the generalizability of the study results. At the same time, however, these factors suggest potentially fruitful directions for future research. One basic limitation relates to the size and scope of the study sample. Participants were recruited through convenience sampling, which resulted in a certain amount of self-selection bias. Those that participated may have had a bias in how they view child nutrition and related issues (e.g., occupation in a nutrition or childcare setting). In addition, participants were also primarily female; so, no comparisons could be made across genders. However due to the qualitative nature of this work, the limited generalizability of this work does not negate the meaningful implications of this work for parents of preschoolers. Follow-up studies should involve more thorough sampling of participants from a wider range of backgrounds, as well as equivalent numbers of males and females (i.e., mothers and fathers) to explore how these potential differences would impact the results. Another potential direction is to explore how parental food choice decisions are impacted by issues like preferences for certain feeding styles (vegetarian, vegan, keto, etc.), attitudes toward food/feeding practices, and child/parent weight status.

In addition, while the current study identified different feeding strategies and collected some data on why different strategies are helpful. Future research could expand this line of inquiry by examining the use and efficacy of selected feeding strategies (e.g., how different strategies affect current child health and possibly later eating habits, eating disorders, etc.).

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APPENDIX A. DISCUSSION GUIDE

Discussion Guide

[DATE]

Introduction: Good morning/afternoon/evening _____. My name is Elizabeth Kielb, I am a graduate student at Purdue University, calling regarding a study that we're conducting that you had previously shown interest in.

If they say they do not remember contacting researcher or showing interest, give a short description:

I am a graduate student Health Promotion program at Purdue and I'm in the process of completing my thesis project. My project focuses on developing a better understanding of the decisions that parents make concerning the foods they offer their children.

Is this a good time to do the interview? [If not ask when a good time would be].

As you know the purpose of this interview is to learn more about the types of foods you offer your child in the home. I want you to feel comfortable talking with me and answering my questions. So please be assured that all your responses will remain completely confidential. Your responses will be combined with others and reported as a group, and no one will be able to know what we have discussed in this interview.

Just a couple of more things before we get started: First, please know that there are no right or wrong answers to any of the questions I'll ask, I'm simply interested in hearing your opinions. And second, sometimes what I ask will seem obvious to you. It's not that I don't understand the obvious; it's just that I need to hear things in your own words to know exactly what you mean.

Would it be ok if I taped this interview? It just makes it easier for me to take notes. No one else but me will hear this tape and the tape will be erased upon the completion of this project.

Ok? Shall we begin?

1. *For this study, I am trying to get an idea of the types of foods that you have given to [CHILD NAME], would you be able to list 3-5 foods that you have given to [CHILD NAME] in the last day?*
    a. [use laddering technique here for each food mentioned First ask *"Why is offering [food item] to [CHILD NAME] different than offering a different food?"* and *"what makes [food item] better than other options?"* and "*Why is offering [FOOD ITEM] different than offering other foods you didn't list*?" repeat the laddering approach for each food, listen until answers are repeated or a higher value is reached
2. "What strategies do you use to get [CHILD NAME] to eat or eat certain foods/foods you want him/her to eat?"
    a. [use laddering technique here for each food mentioned, first ask "*What makes this strategy helpful or good to use? Etc.*
3. I am trying to understand the types of foods you avoid giving [CHILD NAME], would you be able to list 3-5 foods that you prefer not to give [CHILD NAME]?
    a. [use laddering technique here for each food mentioned First ask *"Why do you avoid giving [CHILD NAME] this food? Etc.*
4. We are trying to understand the types of foods that you like giving [CHILD NAME], could you list 2-3 foods that are your favorite foods to offer your child?
    a. [use laddering technique here for each food mentioned First ask "*Why is offering [food item] to [CHILD NAME] one of your favorites?*" and *"How is offering this food different/better/easier than other foods?* "repeat the laddering approach for each food, listen until answers are repeated or a higher value is reached.
5. We are also trying to understand YOUR CHILD'S favorite foods, could you list 2-3 foods that you would say are your CHILD's favorites
    a. [use laddering technique here for each food mentioned <u>IF APPLICABLE</u>]. Begin by asking *"why is [food item] one of your child's favorite foods?"* and *"What about this food makes it one of [CHILD NAME]'s favorite?"*

"Now I just have a few final questions for classification purposes"

Non-Laddering Questions:

1. What biological sex are you? Male__ Female__
2. What is your age __ Years Old
3. What is the age of your preschool child? __Years Old
4. Do you have other children living in the same home Yes__ No__
    a. If yes, what are their ages? _____

"That's all the questions I have for you, thank you so much for your help!"