The Development of an Online Survey and Screening Tool to Assess Toddler Feeding Behaviors in a Low-Income Connecticut Community

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The Development of an Online Survey and Screening Tool to Assess Toddler Feeding Behaviors in a Low-Income Connecticut Community

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CHAPTER ONE

INTRODUCTION

1.1 - Childhood Obesity Epidemic

The rise of obesity in children has become a national health problem. The U.S. Department of Health and Human Services proposed an objective in Healthy Goals 2020 to “reduce the proportion of children and adolescents who are considered obese” by the year 2020.\(^1\) Based on data from the National Health and Nutrition Examination Survey (NHANES), a specific sub-target of this objective was set to reduce the number of children ages 2-5 years who are considered obese from 10.4% (2005-2008) to 9.4% by the year 2020.\(^1\) Unfortunately the childhood obesity rate is more than double the rate since 1980, from 5.0% to 13.9% in 2016 based on the 2015-2016 NHANES data.\(^2\) Higher obesity rates are seen in older child populations – 18.4% and 20.6% for school-aged children and adolescents, respectively.\(^2\) Obesity at a young age has deleterious short and long-term metabolic and psychological effects such as metabolic syndrome, cardiovascular disease, stroke, type II diabetes, negative body image and self-awareness.\(^3,4\) Moreover, children with obesity have a greater likelihood to be obese as adults. A simulation study projected a 79% chance that severely obese children (BMI >95\(^\text{th}\) percentile) at 2 years will be obese at 35 years.\(^5\) Obesity also is costly. Compared to a normal-weight child, the cost of medical expenses for an obese child is $19,000 more in a lifetime.\(^6\) In 2014, the number of obese 10-year-olds alone produced $14 billion in medical costs.\(^6\)

Prevention of obesity in young children requires the development of healthy food preferences and dietary behaviors. Several studies have suggested the importance of proper nutritional status of mothers and children during the first 1,000 days, from the point of
conception until a child turns 2 years, as important determinants of the development of childhood obesity and other comorbidities later during adulthood. Furthermore, researchers propose the importance of 10 practices to minimize child obesity risk during the first 1,000 days. These practices consist of good dietary habits followed by both mother and father during pregnancy, growth monitoring at an early age, exclusive breastfeeding, appropriate introduction to complementary foods (4 to 6 months), early exposure to a variety of fruits and vegetables (F/V), responsive feeding practices, limiting animal proteins, adequate intake of essential fatty acids, role modeling of healthy behaviors, and promotion of physical activity and proper sleep. There are a number of behavioral risk factors associated with the development of obesity at a young age such as parent feeding practices that are characterized as excessive intake of added sugars, unhealthy snacking, nonresponsive feeding, unhealthy snacking, inadequate fruit and vegetable intake, and sedentary behaviors.

1.1.1 – Sugar Exposure and Sugar-Sweetened Beverages (SSB)

One of the major contributing factors to the childhood obesity epidemic is excessive exposure to added sugars found in toddler snacks, sugary cereals, fruit juice, soda, and other sugar-sweetened beverages. Added sugars are present in most packaged food and beverage products – many of these are marketed to parents for toddler consumption using packaging claims and nutrition-related messages. According to a 2014 report from the Rudd Center for Food Policy and Obesity, parents perceive fruit-flavored drinks like Capri Sun, Sunny D, Gatorade, and Vitamin Water as healthy drink selections for their children. These nutrition-related messages create a “health halo” perception among parents about these specific beverage products, which increases purchasing frequency. The consumption of these beverages in young children leads to unnecessary intake of empty calories and positive energy balance.
Moreover, research has identified that SSB intake before a child turns 6 months doubles the risk for obesity at 6 years of age.\textsuperscript{14} Other research suggests that the consumption of SSB during early childhood (ages 0-5) is not only correlated with obesity risk but an increased preference for sweet foods/beverages and decreases a child’s acceptance of foods with bitter/sour tastes (e.g., vegetables).\textsuperscript{15,16}

Currently, the American Heart Association recommends that children under two years of age should not be given foods and beverages with added sugars since this will increase a child’s preference for sweet tastes resulting in negative weight outcomes.\textsuperscript{17} This recommendation includes added sugars in milk products like toddler formulas and PediaSure, which are commonly marketed for children between 9-36 months old to encourage “healthy” growth and development.\textsuperscript{11}

1.1.2 – Pre-Packaged and Unhealthy Snacking

Another risk factor for childhood obesity is the elevated exposure of unhealthy and packaged snacks among toddlers. Since packaged and ready-made snacks contain little to no nutrition and often are high in sugars, they should be limited in a toddler’s diet. Special toddler snacks also have questionable nutritional benefit for toddlers. Instead, toddlers should be offered a variety of different F/V to encourage them to learn to like healthy snacks. According to the American Academy of Pediatrics (AAP), a child should be offered 2-3 healthy snacks per day containing fruits and/or vegetables once a child turns 9 months.\textsuperscript{18}

1.1.3 – Responsive vs. Nonresponsive Feeding Practices

Responsiveness refers to the level at which parents and/or caregivers show affection, acceptance, and involvement with their child.\textsuperscript{19} Responsive feeding is the concept that a parent should be able to recognize their child’s hunger and satiety cues and respond in a timely,
supportive, and developmentally appropriate manner. To practice responsive feeding behaviors, a parent must be able to identify when a child signals hunger and satiety through verbal and body expressions. Physically leaning toward food is a signal indicating a toddler is hungry whereas spitting out/pushing food away indicates a child may be full. Not appropriately responding to these signals can affect a child’s ability to develop a healthy relationship with food.

Forcing a child to eat and serving a child food when they are fussy are examples of nonresponsive feeding. These common examples of nonresponsive feeding ignore the child’s internal appetite control system, which can lead to the development of poor dietary habits and disregard for their internal hunger and satiety cues (e.g., overeating or emotional eating) later in life.

1.2 – Racial and Ethnic Disparities

Although obesity is increasing among all child populations, differences in obesity pervasiveness among youth (2-19 years) are apparent between races/ethnicities – more common among Hispanics (25.8%) and non-Hispanic Blacks (22.0%) versus non-Hispanic White children (14.1%) based on the Centers for Disease Control (CDC) data from 2016. These differences among ethnic and racial groups are a result of a multitude of factors like socioeconomic status, access to health care, environment, food tradition, and genetics.

Analysis of 2009 to 2014 NHANES data showed significant differences in fruit and vegetable consumption between non-Hispanic White/Black and Hispanic children between 6 to 11 months. The analysis shows that 75.4%, 49.4%, and 64.0% of non-Hispanic Whites, non-Hispanic Blacks, and Hispanics, respectively, consumed fruit. Likewise, 64.6%, 52.4%, and 44.4% of non-Hispanic Whites, non-Hispanic Blacks, and Hispanics, respectively, consumed vegetables (excluding white potatoes). These results indicate that non-Hispanic White infants
ages 6 to 11 months consume more F/V than Black and Hispanic infants. Sweet consumption among non-Hispanic Whites in the 2009 to 2014 NHANES data also is significantly lower in 6 to 11 month infants—9.2%, 15.7%, and 20.3% among non-Hispanic Whites, non-Hispanic Blacks, and Hispanics, respectively. 24 Sweet consumption is higher in non-Hispanic Black toddlers ages 12 to 18 months (62.8%), while it is highest in Hispanic toddlers ages 19 to 24 months (64.1%). 24

Socioeconomic status also plays a role in child obesity risk, particularly when it comes to living in areas without access to healthy foods, also known as food deserts, and food swamps, areas with an abundance of unhealthy food options (e.g., fast food restaurants). 25,26 According to the USDA, food deserts are “neighborhoods that lack healthy food sources,” which is measured based on distance and number of grocery stores in a location. 26 The limited access to healthy foods accompanied by areas with easy access to unhealthy food options leads to unbalanced eating patterns and the excessive intake of empty calories from foods high in saturated fat, sodium, and sugar. Children living in low-income versus high-income neighborhoods have greater than a 20% elevated obesity risk. 27 Additionally, as of 2014, 14.5% of toddlers from income-challenged Women, Infants, and Children (WIC) families are obese. 27

1.3 – Purpose of Research

Although planned for release in 2020, there is a current lack of evidence-based guidelines in the Dietary Guidelines for Americans for toddlers less than 2 years. New guidelines about toddler feeding practices are constantly emerging. For example, the United States Department of Agriculture just released a new feeding guideline for infants in the Child and Adult Care Food Program (CACFP) in March 2019. 28 While pediatricians’ advice is highly trusted, well-child visits are as brief as 15 minutes to assess and address health needs, leaving limited time for
Moreover, low-income parents report receiving inconsistent information from different information sources such as family members, social media, and parenting magazines, further adding to the confusion.

Improving parent education and health literacy/numeracy on proper nutrition and weight status of toddlers will potentially reduce a child’s risk of developing obesity and comorbidities later in life. Low health literacy is a common problem in the United States and many other countries – primarily in economically disadvantaged populations and it influences the link between low education level and poor health. Living in economic disadvantage not only is associated with low health literacy, but it also challenges families’ ability to offer and consume healthy food. As a result, there is a strong need to provide low-income parents with clear and consistent evidence-based guidelines for toddler feeding practices to reduce the risk of childhood obesity.

Since parents are primarily responsible for what they serve their children, they need accurate nutrition knowledge, self-efficacy, support and skills regarding healthful toddler feeding. The purpose of this research was to identify gaps in behaviors that are supported by the Robert Wood Johnson Foundation (RWJF) Healthy Eating Research (HER) Feeding Guidelines for Infants and Toddlers (a national program that aims to promote health through nutrition to children of income disadvantage and minority populations), and other evidence-based guidelines in an effort to improve childhood feeding practices in a low-income Connecticut community.

1.4 – Research Goals

The goals for this research are addressed in 3 chapters outlined below.

Chapter 2: Construction of an Online Survey to Assess Toddler Feeding Practices Among Income-Disadvantaged Families

This chapter will discuss the development of an online survey to be completed by parents of
economic disadvantage to identify toddler-feeding practices. Specifically, the goals were:

1. To develop an online survey (Qualtrics-based platform) to assess feeding practices of toddlers (ages 12 months to 36 months) against evidence-based guidelines, the toddlers’ diet quality, parental beliefs and attitudes about toddler feeding, potential communication channels to reach parents for future nutrition messages.

2. To content validate the survey by experts in: pediatric nutrition and medicine, food marketing, developmental psychology, public health, social work, and social media.

3. To pilot-test the survey to revise to have a completion time of 20 minutes or less.

Chapter 3: Quantitative Survey Results: Gaps are Revealed in Toddler Feeding Behaviors Compared with Evidence-Based Guidelines

The third chapter describes the findings of the online survey completed by a sample of low-income families from East Hartford, Connecticut. The specific goals are to:

1. Determine if current feeding practices align with current evidence-based guidelines.

2. Analyze the interrelationships between parent feeding attitudes and behaviors.

3. Identify behaviors that need improvement based on guidelines.

Chapter 4: Results of the Quantitative Survey Form a Screener for Toddler Feeding Behaviors

The final chapter discusses the process of focusing and shortening the online quantitative survey to be used as a screener of toddler feeding behaviors in a clinic setting to help focus behavioral discussion and improve the productiveness of clinical interventions. The specific goals are to:

1. Focus the online survey on key toddler feeding behaviors for a 5-minute online survey.

2. Develop evidence-based messages tailored to parent survey responses to support healthy toddler feeding behaviors.

3. Content validate the survey and messages based on feedback from key stakeholders.

   Pilot test the survey to assure usability and coordination with nutritionists in the Special
Supplemental Nutrition Program for Women, Infants and Children (WIC).
CHAPTER TWO

Construction of an Online Survey to Assess Toddler Feeding Practices Among Income-Disadvantaged Families

2.1 – Background

The American Academy of Pediatrics (AAP) emphasizes the need for obesity prevention efforts, including the promotion of healthy eating behaviors and physical activity. In addition to the challenges low-income families face providing healthy food options to their families, this population also reports inconsistent information about toddler feeding from pediatricians, nutrition programs, family, and friends. It is important to identify low-income parent’s attitudes and practices toward feeding their toddler to inform the development of useful messages that encourage practices that meet the standard toddler feeding recommendations. It is imperative to provide consistent messages across all information sources to reduce common misconceptions and myths about proper toddler feeding.

A quantitative survey was developed in order to assess the feeding practices and beliefs about toddler feeding among parents of economic disadvantage. Given the fact that by 2016, nearly 88% of the adult population in the United States was engaged in Internet use and 69% engaged with some form of social media, it was feasible to administer the survey in an online format. The survey targets low-income parents with toddlers aged 12 months to 36 months in one Connecticut community. The broader goal was to understand feeding practices of children during an early phase of life that is crucial to the establishment of lifelong healthy feeding habits. The survey focused on toddler diet but also on trusted communication sources and channels (e.g., healthcare providers, social media, parenting magazines), communication mode preferences
(e.g., Instagram, Facebook, Twitter, text, email), and level of acculturation and food insecurity levels among participants.

2.2 – Methods

Leveraging our expertise and the most recent evidence about communicating best practices on feeding young toddlers, we created an online survey. A team of registered dietitians and other experts in the field of toddler nutrition, food marketing, research, and survey development worked together to create the survey. The survey was created using the Qualtrics online survey platform. Following a series of systematic changes described below, the survey was available to evaluate the feeding practices of low-income parents of 1 to 3 years living in East Hartford, CT.

2.2.1 – Stages of Development

We developed and pilot tested an online survey for these families in stages shown in Table 1. At each stage, the survey had substantial improvements to capture the parent’s attitudes and practices within the framework of evidence-based toddler feeding recommendations.

<table>
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<th>Table 1. Stages of development for the first quantitative online survey.</th>
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Specific themes were taken from the RWJF HER infant and toddler-feeding guidelines to create a survey used to identify key attitudes and practices that do not correspond with these guidelines but that parents would consider adopting (e.g., offering a variety of F/V).  Major
themes incorporated in the survey can be seen in Table 2 in the Survey Themes section.

Pictures were added to the survey in order to enhance participant understanding of each question asked. Questions were shortened, assessed to achieve a 4th to 5th grade reading level, and the survey was consolidated in order to enhance survey flow and improve readability. Experts in pediatric nutrition and medicine, food marketing, developmental psychology, public health, social work, and social media from different institutions across the state, including The University of Connecticut, examined the survey in order to determine if it addressed the study objectives and that the questions were congruent with practical measures for each concept addressed. Stakeholders at various Family Resource Centers, in-school programs that offer integrated family support services to enhance parenting, family involvement, and child success, in East Hartford were consulted to ensure survey feasibility and practicality to assess toddler-feeding practices in this population.

Based on expert review, the following changes were made: the survey was condensed, removing all detail about the timing of food and beverage intake; the addition of a back button to allow participants to return to previous questions; the child selected for survey to be randomly assigned if the family has more than one toddler; consistent identification of “your child” instead of “your toddler” for simplicity; the addition of a “never” option in several questions; the addition of a statement that there are no right or wrong answers to support honest responses; and the addition of questions to identify parents’ receptivity to messages about feeding toddlers via different modes of communication, including the frequency of using various social media platforms. “Skip logic,” also known as conditional branching, was added to the survey to prevent participants from receiving redundant or irrelevant questions. This feature changes what questions participants receive based on their responses to previous questions. Questions about
self-reported toddler weight and height were removed and, instead, the survey queried on perceived toddler size (e.g., too big).

For administration, larger tablets were purchased in order to improve the online usability and to ensure participants could clearly see the questions. It was also decided that it was necessary to provide nutrition education after survey completion to align with agency values and objectives of the Supplemental Nutrition Assistance Program, Nutrition Education (SNAP-Ed).

Following University IRB approval, pilot study participants were recruited from Manchester Early Learning Center and WIC centers in Norwich and Willimantic, and to avoid the planned location of the main study of East Hartford, CT. A total of 15 parents completed the survey; most were between 25-34 years and all female. The mean toddler age was 29.5 months (range 12-36 months). As incentives and to support nutrient education, participants were given child-size portable snack sets, a handout on toddler feeding guidelines, and a calendar with healthy recipes. Researchers provided healthy snacks for the children as their parent completed the survey.

After receiving feedback from pilot study participants on the length (>30 minutes), the survey was further condensed. The survey also was updated so the beginning prompted parents to start thinking about the previous week aligned with the questions inquiring about what the child ate/drank in the past 7 days. Pictures also added to clarify the meaning of feeding practices (e.g., feeding at the breast and pumping vs. toddler formula) as shown in Figure 1.
Figure 1: Example of an online-formatted survey question with pictures to clarify the meaning of specific feeding practices.

2.2.2 – Survey Themes

The HER guidelines served as a framework for the survey to assess whether parents were feeding their toddlers in accordance with these guidelines. The major themes of the survey are shown in Table 2 with examples of survey questions aligning with each theme.

<table>
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<td><strong>Major Themes</strong></td>
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| Introduction of complementary foods | How old was this child when he or she stopped drinking breast milk?  
How old was your child when he or she first started drinking something other than breast milk or infant formula?  
How old was your child when he or she first started eating solid food? |
|-------------------------------------|------------------------------------------------------------------|
| Food/beverage intake               | Which types of cow's milk did he or she drink?  
Which kinds of (fruit, vegetables, grains, protein foods) did your child eat in the past 7 days? Please do not include pureed fruit in jars or pouches. |
| Responsive Feeding (hunger signals, interpretation of signals) | In the past 7 days, how many days did you give your child something to eat or drink because he or she was fussy?  
When my child is hungry I give him or her food right away.  
Do you make your child finish all the food you serve?  
Who decides how much food your child eats?  
My child tells me when he or she is hungry. |
| Parental attitudes and beliefs     | My child is a picky eater  
I worry that my child eats too much  
It is difficult to get my child to eat enough at meals.  
I buy vegetables for my child, even if I don’t like them.  
I know enough about what is best to feed my child.  
The food we eat as a family provides enough nutrition for my child.  
Toddlers need to feed themselves even if messy.  
Toddlers should not drink more than 4 ounces (1/2 cup) of 100% juice per day. |
| Sleep                              | Do you think your child gets enough sleep at night? |
| Repeated food exposures            | It takes time for children to learn to like new vegetables.  
Children should be served F/V every day. |
| Feeding Context (environment, appropriate containers, utensils) | Please select the type of container that your child used most often to drink any of these types of drinks in the past 7 days.  
Please select the size of cup that your child used most often in the past 7 days.  
How many days did your child eat food in pouches in the past 7 days?  
How many times in the past 7 days did your child go to bed with a bottle? |
Food acculturation and security

You said that you were born XX. Do you think that your diet is more similar to the typical American diet (US) or the XX diet? Within the past 12 months, we worried whether our food would run out before we could get money to buy more. Within the past 12 months, the food we bought just didn't last and we didn't have enough money to buy more.

Communication Channels

Which of these have you ever used to get information about feeding your child? How much do you trust these sources of information about feeding your child?

2.3 – Results

The final survey consisted of 94 questions: consent (2); screening (11); breastfeeding and complementary feeding (4); milk and PediaSure (4); other drinks (6); beverage serving containers (7); F/V consumption (12); meal questions (11); toddler sources of information (6); parent feeding attitudes (4); ethnicity and acculturation (7); and demographics (20). Since skip logic was used to ensure question relevance, participants did not receive all of the 94 questions.

Survey responses from the pilot testing showed that within a given week, fruit exposure was more common than vegetable consumption among toddlers (100% served their child fruit every day, but only 50% served their child vegetables every day). Additionally, 50% of parents reported serving their child 100% juice at least 5 days a week within the preceding week. Most parents admitted to “sometimes” forcing their child to finish their plate and all parents either were neutral or disagreed to the statement “I know enough about what is best to feed my child,” indicating a need for nutrition education among this population.

2.4 – Discussion

The objective was to complete 150 surveys, recruiting low-income families with young toddlers via the WIC program, Family Resource Centers, and childcare centers in East Hartford,
Connecticut. These findings will inform system-building to develop clear, consistent, and coordinated communications on early child feeding with parents and between pediatricians, nutritionists and educators, supported by regular communications via digital (e.g., social media) platforms. Findings will also inform local policies, including standards of practice and communication materials in pediatric clinics, WIC, and educational outreach in family resource centers.

2.4.1 – *Strengths and Limitations*

A limitation of the study is the length of the survey. Although skip logic was added to ensure parents will not receive all 94 questions, the survey length (about 30 minutes for an average reader) is still not feasible to incorporate into waiting rooms and school systems without disrupting system flow, which will likely affect participation. With this in mind, survey administrators will likely have to provide childcare to allow parents to complete the survey without interruption from their child. Although the length of the survey is a limitation, the survey serves as a comprehensive analysis of young toddler feeding practices and beliefs; trusted communication sources/channels for information and advice about toddler nutrition; preferences for communication modes (e.g., Facebook, Twitter, text messages); level of acculturation; and food insecurity.
CHAPTER THREE

Quantitative Survey Results: Gaps are Revealed in Toddler Feeding Behaviors Compared with Evidence-Based Guidelines

3.1 – Introduction
3.1.1 – Assumptions about Toddler Feeding Practices

As previously discussed, excessive sugar-sweetened beverage intake (SSB) is a risk factor for obesity and other health disparities, particularly in toddlers because it leads to decreased preference for vegetables, unnecessary caloric intake, and dental caries.\textsuperscript{15,35} According to data from NHANES 2005-2012, 100% fruit juice contributed to 1.5\% of daily energy and accounted for over \( \frac{1}{2} \) of all fruit consumed in toddlers ages 0-24 months.\textsuperscript{36} Although 100\% juices are often fortified with calcium and iron, which are important nutrients, the inclusion of whole fruits/vegetables vs. juice is recommended to enhance fiber intake and to promote a diet varied in textures and flavors.\textsuperscript{32,37,38} Furthermore, based on the results from the Feeding Infants and Toddlers (FITS) study, higher intakes of 100\% juice and other SSB is often linked with lower calcium intakes - indicating the fact that these beverages often displace milk.\textsuperscript{39} Considering data from the NHANES and the FITS, we hypothesized that toddlers from low-income families have high sugar exposure and this exposure exceeds the current toddler feeding recommendations.

We further hypothesized that fruit and vegetable consumption would not meet the recommended daily intake for toddlers. A diet high in fruits, vegetables, and texture is necessary for a toddler’s proper growth and development in addition to promoting future healthy dietary behaviors.\textsuperscript{38} According to measures from the 2009 to 2014 NHANES, there appears to be an inverse relationship between vegetable consumption and sweet consumption as children age. The
reports show 57.4% of toddlers ages 6-11 months reported eating vegetables but this number dropped to 45.1% in toddlers 19-23 months. Data show that 13.6% of children aged 6-11 months consumed sweets, but this number jumps to 62.9% in toddlers 19-23 months. Part of the decrease in vegetable acceptance is likely due to the development of food neophobia, which normally occurs during toddlerhood. However, vegetable acceptance can be promoted through early exposure to a variety of vegetables. According to results published from the Gateshead Millennium study, liking of fruits/vegetables at 30 months is associated with increased intake at 7 years. More specifically, the number of vegetables tried at 30 months is correlated with increased intake later in childhood. Since increased vegetable diversity in a toddler’s diet promotes vegetable intake later in life, the aim for this survey is to identify parent attitudes and feeding practices associated with better reported fruit/vegetable consumption in toddlers.

3.1.2 – Research Aims

This research was the first stage of a larger mixed-methods designed study incorporating quantitative and qualitative methods to develop and test the feasibility of an integrated communications program about recommended feeding practices for young toddlers (1-3 years old). This stage aimed for the quantitative survey to be completed by 150 parents of low-income families in East Hartford, Connecticut with toddlers 12 to 36 months of age. The aim of the survey was to identify toddler-feeding attitudes and practices that deviate from recommendations and to identify 3 or 4 key areas for further investigation by qualitative focus groups. A low-income community in Connecticut was identified where we could identify collaborators across multiple programs that reached families of economic disadvantage. According to the Connecticut Data Collaborative, as of 2016, 11.9% of families living in Hartford County and 15.4% in East Hartford are living with poverty, which is greater than the national statistics of those living
below the poverty level. Currently, East Hartford has a number of programs in place to help meet the needs of the community. Such programs include but are not limited to: *Crossroad Out of School Learning Programs*; partnership with the *University of Connecticut SNAP-Ed*; *WIC* (currently 2 locations); *Family Resource Centers* (2 locations serving families in schools); and the *Head Start Program* for preschoolers. According to the 2017-2018 Head Start Program Information Report, 162 children 3 to 4 years old were enrolled in the program at the Early Childhood Learning Center at Hockanum School in East Hartford. Of these enrolled students, 13% had an overweight BMI and 20% were considered obese. Each of these programs provide nutrition education to parents of economic disadvantage to encourage proper growth and development of their children. However, there is still a lack of coordination of consistent toddler feeding messages across programs and health providers within the community. This inconsistency of information can lead to confusion with parents about appropriate toddler feeding practices. As a result, we intend to identify parent feeding attitudes and practices as the first stage of developing relevant and consistent messages for parents and nutrition educators (e.g., SNAP-Ed nutrition educators, pediatrists, WIC nutritionists) across the East Hartford community.

3.2 – Methods
3.2.1 – Participants

A convenience sample of participants was recruited from programs that reach low-income families as well as the public library in East Hartford, CT from May 2018 until August 2018. A total of 150 parent-child dyads were recruited. Parents completed in-person and online surveys on ASUS ZenPad tablets at the East Hartford Woman, Infant, and Children (WIC) office, Silva’s Youth of Today Childcare Center, the East Hartford Public Library, and Family Resource Centers at Silver Lane Elementary School and Franklin H. Mayberry Elementary
School. Inclusion criterion was primary caregivers with at least one child between 12 and 36 months old. Participants needed to be one of the primary food providers and decision makers for their child. Individuals were excluded from the study if their child was on a special diet due to an error of metabolism or another nutrition-related disorder. Individuals who did not speak English or Spanish as their primary language were excluded from the study since the survey was provided in English and Spanish only. Participants provided informed and online written responses and were compensated a $10 Aldi gift card as an incentive, as well as provided nutrition education incentives (e.g., toddler feeding handouts, memo pads, pencils) as part of collaboration with SNAP-Ed. This quantitative phase of the study was approved by the University of Connecticut (UConn) Institutional Review Board (IRB) in December 2017. Parents provided informed consent prior to starting the survey.

Recruitment lasted until 150 parents were surveyed. The analysis sample includes 143 participants since 7 surveys were incomplete. Most parents were between the ages of 25-34 years (57.4%) and were almost exclusively female (91.2%). Most reported that 2 parents care for the child (51.5%). The mean age of the toddlers was 22.8 months old (range 12-36 months). Table 3 shows more of the characteristics of the study sample.

3.2.2 – Online Quantitative Survey

An online survey was created in a Qualtrics-based platform to assess feeding practices of toddlers (ages 12 to 36 months) against evidence-based guidelines, including the toddler’s diet quality; parental beliefs and attitudes about toddler feeding; and potential communication channels to reach parents for future nutrition messages. The 94-question survey went through a series of alterations to ensure content was easily understandable with a low reading level requirement. Skip logic was added so not all participants received all 94 questions. The mean
time to complete the survey was 28 minutes.

3.2.3 – Statistics

First, descriptive analyses were performed using SPSS Statistics 25 (SPSS Inc., Chicago, IL, US) with responses compared to toddler feeding recommendations and peer-reviewed literature. Frequencies and percentages were used to identify specific population characteristics of categorical variables reporting on topics querying breastfeeding, complementary feeding, food/beverage intake, responsive feeding, and feeding context. The frequency of reporting for these variables was categorized as – never in the past 7 days, 1-2 days, 3-4 days, 5-6 days, or every day in the past 7 days. Questions about parent attitudes and beliefs were categorized as – disagree strongly, disagree, neutral, agree, or agree strongly.

Variables were tested for normality based on the Shapiro-Wilk test for normality for all variables (a p-value of < 0.05 accepted the null hypothesis for a normal distribution). Variables with non-normal distribution were tested with nonparametric tests including Spearman Rank Correlation for correlations between sets of variables.

Next, an exploratory factor analysis was applied to the questions on parents’ attitudes toward feeding to determine how and to what extent observed variables are linked. Varimax rotation was used since it was assumed that the variables are not correlated. A total of 15 attitude statements were analyzed. All attitude statements were measured on a 5-point Likert scale from strongly disagree (1) to strongly agree (5). Nine statements were negative – if parents agree to the statement, this indicates a negative feeding practice or belief (e.g., agreement to PediaSure products are needed for picky eaters). Before performing the factor analysis, the negative statements were recoded in SPSS so all 15 attitude statements were unidirectional (negative statements were measured on a Likert scale from strongly agree (1) to strongly disagree (5)).
Once factors were extracted using exploratory factor analysis, Spearman Rank was again used to find correlations between parental attitude latent variables (relationship between variables is not directly observed but identified through factor analysis) and toddler feeding practices. Those with significant correlations were included in the results.

A generalized linear model was used to determine the relationship between parent education level and toddler sugar exposure. Parent education level was measured as: less than high school; high school/GED; some college/technical or trade school; 2-year college; 4-year college; and Master’s/Doctoral or other professional degrees (JD, MD). The model used a Poisson distribution because of only two possible outcomes for total sugar exposure. Total sugar exposure score was generated by totaling the sum of the toddler’s exposure (1=yes vs. 0=no) to the following food/beverage items within a given week: sweet snacks (fruit snacks, sweets (i.e. cookies, pastries, cakes, or cupcakes); sweet cereal; sugar-sweetened beverages (fruit-flavored drinks, soda, sweet tea, flavored water, flavored milk (low fat or whole), sports drinks, and other non-specified sweetened drinks).

To further explain this relationship, a mediation model was conducted to test exactly how parent education is related to a toddler’s exposure to added sugars in foods and beverages. Currently, there are limited studies on the mechanisms affecting the relationship between parent education and the influence on early exposure to dietary sugar among toddlers. As a result, the following mechanisms were examined. The chosen mediator variable (M) was parental perception of the healthiness of fruit-flavored drinks on a scale from 1-10 (1=unhealthy; 10=healthy). As previously discussed, fruit-flavored drinks are commonly marketed towards parents with young children with nutrition health claims on their packaging. Andrew F. Hayes’s PROCESS V3.1 system was used in order to interpret the direct effect of X on Y (C’), the effect
of X on M (a), the effect of M on Y, the indirect effect of X on Y (the product of a and b), and the total effect of X on Y (C). It is important to note that the current data is not normal. However, according to Hayes, normality does not need to be met and only the most severe violations of normality will affect the validity of the analysis.\textsuperscript{45} Bootstrapping, a type of versatile resampling method, is used where the original sample size of 143 participants is treated as a representation of the population, then is resampled 5,000 times to calculate a new sample size. Bootstrapping is a better method than the normal theory approach (Sobel) because it allows you to reach multiple samples by doing the experiment thousands of times with the same sample.\textsuperscript{45} Additionally, bootstrapping does not require an assumption about the shape of the distribution, thus it is more suited for the current data, which has an irregular sampling distribution.\textsuperscript{45} Since the suspected relationship is a simple mediation model, Model 4 of the PROCESS V3.1 system was used to determine the mediated relationship between parent education levels on toddler sweet exposure.

3.3 – Results and Discussion
3.3.1 – Population Descriptive Statistics

<table>
<thead>
<tr>
<th>Table 3. Population Demographics</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parent Age</strong></td>
<td></td>
</tr>
<tr>
<td>18-24 years</td>
<td>11.8</td>
</tr>
<tr>
<td>25-34 years</td>
<td>57.4</td>
</tr>
<tr>
<td>35-44 years</td>
<td>24.3</td>
</tr>
<tr>
<td>45-54 years</td>
<td>1.5</td>
</tr>
<tr>
<td>55-64 years</td>
<td>2.9</td>
</tr>
<tr>
<td>65-74 years</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Parent Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>7.4</td>
</tr>
<tr>
<td>Female</td>
<td>91.2</td>
</tr>
<tr>
<td><strong>Parent Race/Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>40.4</td>
</tr>
<tr>
<td>White</td>
<td>28.7</td>
</tr>
<tr>
<td>Black</td>
<td>35.3</td>
</tr>
</tbody>
</table>
Table 3: Demographics of the sample showed most parents were between the ages of 25 and 34 years, female, and Black for race/ethnicity.

The sample reported a level of food insecurity equal to or above that level in the U.S. and Connecticut and that most of the sample received nutrition and food assistance (Table 4).

<table>
<thead>
<tr>
<th>Child Race/Ethnicity</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic</td>
<td>45.6</td>
</tr>
<tr>
<td>White</td>
<td>30.9</td>
</tr>
<tr>
<td>Black</td>
<td>45.6</td>
</tr>
<tr>
<td>American Indian/Alaskan</td>
<td>2.9</td>
</tr>
<tr>
<td>Asian/Island Pacific</td>
<td>4.4</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 4: Food insecurity responses and use of nutrition and food assistance among a sample of low-income parents of toddlers.

3.3.2 – Positive Toddler Feeding Practices and Attitudes
Over 60% of parents reported serving a variety of F/V and serving them 5 or more times in the past week. Eighty-one (81%) said their toddlers ate with the family and 93% enjoyed mealtimes with their toddler (Figures 2, 3, 4, 5). Fruit and vegetable diversity scores were calculated by adding up the total number of types of fruits or vegetables, respectively, offered during the week before the survey.

**Figure 2.** Most parents served their toddler fruit every day within the past week.

**Figure 3:** Most parents served their toddler vegetables every day within the past week.
Another important aspect of toddler feeding is parental modeling of healthy eating behaviors. Research suggests that toddler food acceptance is increased when they see a parent or caregiver eating the same food.\textsuperscript{32,46} This finding can be applied to the importance of modeling foods that are typically not readily accepted by toddlers (e.g., vegetables) and to decrease food neophobia around these foods. This quantitative survey showed that 72\% of parents reported that their toddler ate with the family every day in the past week and 93\% enjoyed spending time with their child during mealtime. These findings are positive because it is essential for a developing toddler to engage in family meals, especially in an encouraging and accepting environment, so they learn to emulate healthy eating behaviors from other family members.

![Figure 4: My child ate with the rest of the family](image)

\textit{Figure 4: Most parents reported eating with their toddler in the past 7 days.}
Figure 5: Almost all parents reported enjoying time eating with their toddler.

3.3.3 – Relationships between parental attitudes and toddler feeding practices

Descriptive statistics for 15 parental attitude statements in a Likert scale (disagree strongly (1); disagree (2); neutral (3); agree (4); agree strongly (5)) are shown in Table 5.

<table>
<thead>
<tr>
<th>Table 5. Parental Attitude Statements</th>
<th>Disagree Strg</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Agree Strg</th>
</tr>
</thead>
<tbody>
<tr>
<td>*My child will not taste a new food</td>
<td>52</td>
<td>38</td>
<td>26</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>My child eats enough fruit</td>
<td>2</td>
<td>9</td>
<td>17</td>
<td>56</td>
<td>50</td>
</tr>
<tr>
<td>My child eats enough vegetables</td>
<td>4</td>
<td>14</td>
<td>34</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td>*It is difficult to get my child to eat enough at meals</td>
<td>36</td>
<td>41</td>
<td>33</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>*My child only eats a few foods</td>
<td>34</td>
<td>49</td>
<td>25</td>
<td>21</td>
<td>5</td>
</tr>
<tr>
<td>I buy vegetables for my child, even if I don’t like them</td>
<td>10</td>
<td>14</td>
<td>13</td>
<td>58</td>
<td>39</td>
</tr>
<tr>
<td>I know enough about what is best to feed my child</td>
<td>1</td>
<td>10</td>
<td>33</td>
<td>57</td>
<td>33</td>
</tr>
<tr>
<td>The food we eat as a family provides enough nutrition for my child</td>
<td>0</td>
<td>5</td>
<td>23</td>
<td>60</td>
<td>46</td>
</tr>
<tr>
<td>*Toddler formulas or powdered milks provide nutrition that children don't get from other food and drinks</td>
<td>12</td>
<td>13</td>
<td>48</td>
<td>49</td>
<td>12</td>
</tr>
<tr>
<td>*Picky eaters need products like Pediasure, Enfagrow or Nido to get enough nutrition</td>
<td>8</td>
<td>9</td>
<td>48</td>
<td>51</td>
<td>18</td>
</tr>
<tr>
<td>*100% juice is a good choice if a child won't eat fruit or vegetables</td>
<td>12</td>
<td>33</td>
<td>40</td>
<td>36</td>
<td>13</td>
</tr>
<tr>
<td>*Pureed food that comes in pouches is a good way to teach toddlers to like the taste of F/V</td>
<td>6</td>
<td>16</td>
<td>45</td>
<td>57</td>
<td>10</td>
</tr>
<tr>
<td>*Children won't eat the same food as the rest of the family. They need their own type of food</td>
<td>32</td>
<td>49</td>
<td>22</td>
<td>26</td>
<td>5</td>
</tr>
<tr>
<td>Most children are picky eaters</td>
<td>7</td>
<td>21</td>
<td>44</td>
<td>52</td>
<td>10</td>
</tr>
<tr>
<td>*My child does not like to have his/her teeth brushed</td>
<td>50</td>
<td>34</td>
<td>26</td>
<td>18</td>
<td>6</td>
</tr>
</tbody>
</table>

* Negative statements with opposite interpretation.

After the 9 negative statements were re-coded to ensure all statements were unidirectional, exploratory factor analysis revealed 3 distinct factors extracted with multiple items for each factor. Three factors explain 45% of the variance across all 15 of the attitude statements.
Figure 6: Attitude Factor Plot; 3 different factors were found that explained 45% of the variance across all statements.

Items that loaded 0.4 or higher were considered significantly correlated to the factor. Items with a negative magnitude were eliminated unless they loaded greater than positive 0.4 on another factor. From the mean ± standard deviation for each factor (Table 6), parents averaged near neutral/disagree that their child is a “picky” eater. The mean for positive feeding practices factor averaged near agree whereas the negative feeding attitudes averaged near neutral to these negative statements.

<table>
<thead>
<tr>
<th>Table 6. Descriptive Statistics for Attitude Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor</td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>Neophobia</td>
</tr>
<tr>
<td>Positive Feeding Practices</td>
</tr>
<tr>
<td>Negative Feeding Attitudes</td>
</tr>
</tbody>
</table>
Table 6: Average ratings (5-point Likert, disagree strongly (1); disagree (2); neutral (3); agree (4); agree strongly (5)) for three factors extracted from exploratory factor analysis of parent attitudes toward feeding their toddler.

The first factor identified was termed ‘Neophobia’ and consisted of the following statements – “my child does not like to have his/her teeth brushed;” “my child will not taste a new food;” “it is difficult to get my child to eat enough at meals;” “my child only eats a few foods.” The neophobia factor has a 22.8% variance with a Cronbach’s alpha of 0.66, indicating acceptable internal consistency. From Spearman’s rho analysis, higher scores on the neophobia factor were significantly associated with less healthy feeding practices (more sweet drinks, offering salty snacks, less diversity in fruits, and less diversity in vegetables), less frequent family meals and lower diet quality of the parent (Table 7).

Table 7. Significant associations between Food Neophobia Factor (Cronbach’s alpha 0.683) and toddler feeding practices and parent demographics

<table>
<thead>
<tr>
<th></th>
<th>Spearman's rho</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td># Days consumed sweet drinks</td>
<td>0.201</td>
<td>0.020</td>
</tr>
<tr>
<td>Salty snack (Y/N)</td>
<td>0.197</td>
<td>0.023</td>
</tr>
<tr>
<td>Fruit diversity/variety</td>
<td>-0.277</td>
<td>0.001</td>
</tr>
<tr>
<td>Vegetable diversity/variety</td>
<td>-0.212</td>
<td>0.014</td>
</tr>
<tr>
<td># Days child eats with family</td>
<td>-0.253</td>
<td>0.003</td>
</tr>
<tr>
<td>Parent diet quality</td>
<td>-0.221</td>
<td>0.010</td>
</tr>
</tbody>
</table>

The second factor identified was termed ‘Positive Feeding Practices’ with a 12.9% variance and a 0.71 Cronbach’s alpha, with acceptable internal consistency among variables. Variables identified under this factor were – “my child eats enough fruit;” “my child eats enough vegetables;” “I buy vegetables for my child even if I don’t like them;” “I know enough
what is best to feed my child;” and “the food we eat as a family provides enough nutrition for my child.” From Spearman’s rho analysis, higher scores on the positive eating practices factor were significantly associated with healthier feeding practices (more diversity in fruits/vegetables, more days offering fruits/vegetables, more days eating with the family, higher parent diet quality) and negatively with less healthy feeding practices (less frequent family meals and lower diet quality of parent (Table 7)).

| Table 8. Significant associations between Positive Feeding Practices (Cronbach’s alpha 0.71) and toddler feeding behaviors, parent attitudes and characteristics |
|-------------------------------------------------|----------------|
| Vegetable diversity/variety                    | 0.273          |
| Fruit diversity/variety                        | 0.339          |
| # Days consumed vegetables                      | 0.325          |
| # Days consumed fruits                          | 0.273          |
| # Days child eats with family                   | 0.267          |
| Parent diet quality                             | 0.310          |
| Fruit snack (e.g., Gummy Bears) consumption     | -0.188         |
| Parent’s perceived healthfulness of soda         | -0.210         |

The third factor identified via exploratory factor analysis was termed ‘Negative Feeding Attitudes,’ and explains 9.45% of the total variance and has a Cronbach’s alpha of 0.489, showing limited internal consistency between variables. The variables included in this factor were – “toddler formulas or powdered milks provide nutrition that children don't get from family food;” “picky eaters need products like PediaSure, Enfagrow or Nido to get enough nutrition to grow;” “100% juice is a good choice if a child won't eat fruit or vegetables;” and “pureed food that comes in pouches is a good way to teach toddlers to like the taste of fruits and vegetables.”

| Table 9. Significant associations between Negative Feeding Attitudes (Cronbach’s alpha 0.534) and toddler feeding behaviors, child characteristics, parent attitudes and |
|-------------------------------------------------|----------------|

31
Greater negative feeding attitude scores were associated with younger make toddlers from parents with less education and who used the food security net and toddlers who were less progressed on their food tolerance (e.g., purred vegetables, toddler formula) or less healthy (e.g., lower days consuming fruit) (Table 9).

3.3.4 – Sugar-Sweetened Beverage Consumption

Table 10 shows parent reported frequency of sugar-sweetened beverages within the week prior to the online survey in their 12-36 month-old toddlers.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Correlation Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male child</td>
<td>0.186</td>
<td>0.032</td>
</tr>
<tr>
<td>Pureed vegetable consumption</td>
<td>0.201</td>
<td>0.020</td>
</tr>
<tr>
<td>Special baby/toddler snack consumption</td>
<td>0.177</td>
<td>0.041</td>
</tr>
<tr>
<td>Cracker consumption</td>
<td>0.181</td>
<td>0.037</td>
</tr>
<tr>
<td>Parent’s perceived healthfulness of toddler formula</td>
<td>0.292</td>
<td>0.001</td>
</tr>
<tr>
<td>Parent’s perceived healthfulness of 100% juice</td>
<td>0.390</td>
<td>0.00</td>
</tr>
<tr>
<td>Involvement in SNAP</td>
<td>0.182</td>
<td>0.035</td>
</tr>
<tr>
<td>Use of mobile food pantries</td>
<td>0.191</td>
<td>0.027</td>
</tr>
<tr>
<td>Use of food pantries</td>
<td>0.248</td>
<td>0.004</td>
</tr>
<tr>
<td># Days drank water</td>
<td>-0.202</td>
<td>0.019</td>
</tr>
<tr>
<td># Days consuming fruit</td>
<td>-0.219</td>
<td>0.011</td>
</tr>
<tr>
<td>Parent education</td>
<td>-0.228</td>
<td>0.008</td>
</tr>
<tr>
<td>Child age</td>
<td>-0.230</td>
<td>0.026</td>
</tr>
</tbody>
</table>

### Table 10

<table>
<thead>
<tr>
<th>Type of Sweetened Drink Given to Toddlers</th>
<th>Percentage Reporting Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit-Flavored Drink</td>
<td>29.4</td>
</tr>
<tr>
<td>Flavored Water</td>
<td>13.2</td>
</tr>
<tr>
<td>Other</td>
<td>12.5</td>
</tr>
<tr>
<td>Sports Drink</td>
<td>8.1</td>
</tr>
<tr>
<td>Soda</td>
<td>8.1</td>
</tr>
<tr>
<td>Sweet Tea</td>
<td>3.7</td>
</tr>
<tr>
<td>Diet Soda</td>
<td>1.5</td>
</tr>
</tbody>
</table>
A total of 29.1% of parents served their toddler these sweetened drinks at least 3 times in a given week and 11% served these drinks every day (see Figure 7). The high consumption of sweetened drinks in toddlers is consistent with the NHANES report from 2005 to 2012; the most frequently consumed SSB were fruit-flavored drinks followed by carbonated beverages among children 0-23 months.47

![Figure 7. How many days did your child consume SSB in the past 7 days?](image)

Frequency of offering juice within the week further provided information about exposure to sweet beverages in toddlers. Although 100% juices contain important vitamins/minerals, the inclusion of whole F/V is important to enhance fiber intake and promote exposure to food sensory exploration (texture, taste, and flavor).37,48 From our study, 57.3% of the toddlers were offered 100% juice for 3+ days and 29.4% every day within a given week as shown in Figure 8.
Although 91.8% of parents agreed/strongly agreed that water was the best beverage choice to serve their child when they are thirsty (Tables 11 and 12), when comparing this response to serving juice, 36.5% of these parents served their child 100% juice every day. Thus, the rating of the value of water did not necessarily translate less frequent juice offering. Furthermore, parents may serve more beverages to their toddlers, including SSB, if they perceive that tap water is unsafe. 49

![Figure 8. How many days did your child consume 100% juice in the past 7 days?](image)

### Table 11. “Water is Best” Attitude Statement by Parents of Toddlers

<table>
<thead>
<tr>
<th>Statement</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree Strongly</td>
<td>0.75</td>
</tr>
<tr>
<td>Disagree</td>
<td>1.49</td>
</tr>
<tr>
<td>Neutral</td>
<td>5.97</td>
</tr>
<tr>
<td>Agree</td>
<td>35.1</td>
</tr>
<tr>
<td>Agree Strongly</td>
<td>56.7</td>
</tr>
</tbody>
</table>

### Table 12. Water is Best x 100% Juice Offering in Past 7 Days (Count)*

<table>
<thead>
<tr>
<th></th>
<th>Never in the past 7 days</th>
<th>1.5 days</th>
<th>3.5 days</th>
<th>5.5 days</th>
<th>Every day in the past 7 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
Strongly Disagree | 1 | 0 | 1 | 0 | 0
Neutral | 1 | 2 | 1 | 1 | 3
Agree | 8 | 8 | 7 | 3 | 21
Agree Strongly | 13 | 23 | 15 | 10 | 15

*Highlighted cells suggest discrepancy between attitude statement and behavior.

Table 13 below shows the joint distribution of serving juice based on the number of days and parent-perceived healthiness of the juice (1=unhealthy; 10=healthy). If compressing the both variables, significantly more parents fell into the group who rated the healthiness at 8 and above as well as served juice greater than 5 days a week (dark blue) versus the parents who reported the healthiness less than 8 and served the juice less than 5 days a week (light green) (chi-square = 18.37, p<.001).

<table>
<thead>
<tr>
<th>Never in past 7 days</th>
<th>1.5</th>
<th>3.5</th>
<th>5.5</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Differences in juice offering between race/ethnicity were identified, which is consistent with the most recent Healthy Eating Research (HER) data report on SSB intake in toddlers (Table 14). According to the report, there was a reduction in juice intake among non-Hispanic
White and African American toddlers (aged 6-11 months) in 2017, but not in Mexican American toddlers. We identified that there was a relationship between minority parents and higher juice offering. White children were significantly less likely to receive juice daily or nearly every day compared to non-White children. Children who were White were less likely to receive fruit juice greater than 5 times per week (chi-square = 11.48, p <.001).

<table>
<thead>
<tr>
<th>Table 14. 100% Juice Consumption</th>
<th>&lt; 4 days/week</th>
<th>&gt; 5 days/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-White</td>
<td>46</td>
<td>46</td>
</tr>
<tr>
<td>White</td>
<td>34</td>
<td>8</td>
</tr>
</tbody>
</table>

Another area of concern was the size of the cup used most often by toddlers. According to the American Academy of Pediatrics, juice consumption should be limited to 4-6 ounces/day; however, a majority of toddlers (see Table 15) used cup sizes were 8 ounces or larger (61%).

<table>
<thead>
<tr>
<th>Table 15. Size of Cup Used Most Often by Toddlers</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 4 ounces</td>
<td>7.4</td>
</tr>
<tr>
<td>4 ounces</td>
<td>27.2</td>
</tr>
<tr>
<td>8 ounces</td>
<td>52.9</td>
</tr>
<tr>
<td>&gt; 8 ounces</td>
<td>8.1</td>
</tr>
</tbody>
</table>

Additionally, most parents reported sippy cups as the type of container that toddlers used most often to drink (66.2%). This is contrary to AAP recommendations that toddlers should not be given juice or other beverages containing sugar in easily transportable cups (e.g., sippy cups) that allow them to easily consume these beverages throughout the day.
Figure 9: Compared to other types of containers, sippy cups are used most often by toddlers (age 12-36 months).

### 3.3.5 – Modeling Associations Between Parent Education, Attitudes, and Exposure to Sweets

A significant correlation was found between sweet exposure and parent education level using a generalized linear model. Sweet exposure was the total number of yes responses to offering sugar-sweetened beverages and sweet snacks during the week before the survey. A generalized linear model was used since the variables violate the assumption of normality. Descriptive statistics of variables included in the generalized linear model are found in Table 16 and Table 17.

<table>
<thead>
<tr>
<th>Parent Education Level</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; High school</td>
<td>7.4</td>
</tr>
<tr>
<td>High school/GED</td>
<td>25.7</td>
</tr>
<tr>
<td>Some college, technical/trade school</td>
<td>27.2</td>
</tr>
<tr>
<td>2-Year college</td>
<td>12.5</td>
</tr>
<tr>
<td>4-Year college</td>
<td>16.9</td>
</tr>
<tr>
<td>Master’s, doctoral, or higher</td>
<td>8.8</td>
</tr>
</tbody>
</table>
Based on the Omnibus Chi-Square test, the relationship between parent education and toddler sweet exposure was significant (p=0.000), indicating that the model outperforms the null model. The Wald Chi-Square test, which analyzes the strength of the relationship between each category of parent education and sweet exposure, was significant in all categories except for when a parent attended some college/technical or trade school (p=0.103) as shown in Table 18. Overall, the β-coefficients were lower in size as parent education increased, indicating that there is a relationship between higher parent education and lower sweet exposure in toddlers (see Table 18).

<table>
<thead>
<tr>
<th>Table 17. Amount of Added Sugar Products Exposed to Within a Week</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>20.6</td>
</tr>
<tr>
<td>1</td>
<td>23.5</td>
</tr>
<tr>
<td>2</td>
<td>19.1</td>
</tr>
<tr>
<td>3</td>
<td>13.2</td>
</tr>
<tr>
<td>4</td>
<td>14.7</td>
</tr>
<tr>
<td>5</td>
<td>3.7</td>
</tr>
<tr>
<td>6</td>
<td>3.7</td>
</tr>
<tr>
<td>7</td>
<td>1.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 18. Parameter Estimates for Generalized Linear Model of Parent Education and Sweet Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Education</td>
</tr>
<tr>
<td>&lt; High school</td>
</tr>
<tr>
<td>High school/GED</td>
</tr>
<tr>
<td>Some college, technical/trade school</td>
</tr>
<tr>
<td>2-Year college</td>
</tr>
<tr>
<td>4-Year college</td>
</tr>
</tbody>
</table>
Next, a mediation model was conducted to determine the relationship between parent education, attitudes, and toddler sweet exposure. The proposed conceptual mediation model is shown in Figure 10.

![Conceptual Mediation Model](image)

**Figure 10: Conceptual Mediation Model**

The output results from the simple mediation model using parent education as the independent variable, toddler sweet exposure as the dependent variable, and parent perception of the healthiness of fruit drinks as the mediator are significant. As shown in Table 19, the relationship between higher parent education (x) and lower parent perception of the healthiness of fruit drinks (M), also known as path a, was statistically significant (P= 0.0031). The effect the mediator (higher perceived healthfulness of fruit-flavored drinks) had on higher toddler’s sweet exposure within a given week (path b) was also significant (P=0.0001). The direct effect (c’) of higher parent education on lower sweet exposure, ignoring the mediator, was significant -0.269 (-0.47, 0.069 CI; P=0.0087). The total effect of parent education (C) on sweet exposure score accounting for parental perceived healthfulness of fruit-flavored drinks was -0.371 (-0.575, -

| Significance levels: <0.05 (*); <0.01 (**); <0.001 (***) | 95% CI |
The indirect effect of X on Y is $-0.101(-0.1857, -0.034 \text{ CI})$. Since both indirect and direct effects were significant, this indicated that perceived healthfulness of fruit-flavored drinks was a partial mediator concerning the relationship between parent education level and toddler sweet exposure (see Table 19). Figure 11 represents the statistical mediation model. Note that since this is a cross-sectional study, the actual cause cannot be determined between the relationships observed.

![Figure 11: Statistical Mediation Model](image)

Analysis of the mediation model between parental education levels and sweet exposure with the perception of the healthfulness of fruit drinks showed a correlation between variables.
within a causal system. The model had significant indirect and direct effects, supporting that perceived healthfulness of fruit drinks partially mediated the association between independent and dependent variables. There was a significant inverse relationship between parent education and perceived health score of fruit drinks. Moreover, there was a direct relationship between perceived health score of fruit drinks and toddler sweet exposure – a higher parental perception of the healthiness of fruit drinks was correlated with an increased exposure of sugars in their toddlers. Both indirect and direct effects between parent education and sweet exposure in the mediation model had negative beta-coefficients, indicating an inverse relationship between parent education and toddler sweet exposure.

Improving parent education and health literacy/numeracy regarding proper nutritional guidelines and weight status of toddlers will potentially reduce a child’s risk of developing obesity and comorbidities later in life. According to data from NHANES 2007-2008 and 2009-2010, 25.2% of parents underestimate their child’s weight, which is concerning because parents play a key role in enforcing their child’s health behaviors. Cultural aspects may also play a role in the decreased perception of child weight status. Low health literacy is a common problem in the United States and many other countries – primarily in economically disadvantaged populations and it influences the link between low education level and poor health. Having economic disadvantage not only is associated with low health literacy, but it also challenges families’ ability to offer and consume healthy food. As a result, there is a strong need to provide low-income parents with clear and consistent evidence-based guidelines for toddler feeding practices in an effort to reduce the risk of childhood obesity.

3.3.6 – Pre-Packaged and Unhealthy Snack Consumption
Different types of snacks offered to the toddlers within a given week were broken down into sweet and salty categories (see Table 20). The sweet snack category consisted of sweets such as cookies, pastries, cakes/cupcakes, cereal, or granola bar; fruit snacks; sweetened cereals. In the sweet snack category, a majority of toddlers were offered cookies, pastries, cakes/cupcakes, or granola bars (55%). The salty snacks category consisted of crackers and chips (potato or tortilla)/other salty snacks. The majority of toddlers were offered crackers as a snack (78%). Other popular snacks included plain cereal (e.g., plain Cheerios) (73%) and baby/toddler snacks (e.g., Gerber Lil’ Crunchies) (42%). Additionally, 34% of the toddlers were offered any type of snack food at least 5 days a week.

<table>
<thead>
<tr>
<th>Table 20. Did XXX have any of the following snack foods in the past 7 days?</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sweet Snacks</strong></td>
<td></td>
</tr>
<tr>
<td>Sweets like cookies, pastries, cakes or cupcakes, or granola bar</td>
<td>55</td>
</tr>
<tr>
<td>Fruit Snacks</td>
<td>31</td>
</tr>
<tr>
<td>Sweetened Cereals</td>
<td>37</td>
</tr>
<tr>
<td><strong>Salty Snacks</strong></td>
<td></td>
</tr>
<tr>
<td>Crackers</td>
<td>78</td>
</tr>
<tr>
<td>Potato or tortilla chips and other salty snacks</td>
<td>52</td>
</tr>
<tr>
<td><strong>Other Snacks</strong></td>
<td></td>
</tr>
<tr>
<td>Plain Cheerios, Kix or similar cereal</td>
<td>73</td>
</tr>
<tr>
<td>Baby or Toddler Snacks</td>
<td>42</td>
</tr>
</tbody>
</table>
Figure 12: Number of days toddlers (age 12-36 months) consumed snack foods within a given week.

Similar to the calculation of fruit and vegetable diversity scores, summing all of the “yes” responses to the child eating the 7 different snack groups computed a score for the diversity in the type of snacks offered to the toddlers. The data show that within a given week, 52.9% of toddlers (aged 12-36 months) were offered 4 or more of the different types of snacks listed (Table 20). The average amount of different snack products offered within a week among toddlers age 2-3 years was 3.77; the average for toddlers age 1-2 years was 3.4 indicating the mean diversity score did not vary significantly between 1 to 2-year-olds versus 2 to 3-year-olds (Table 21).

<table>
<thead>
<tr>
<th>Table 21. Amount of Snack Products Exposed to Within a Week</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4.4</td>
</tr>
<tr>
<td>1</td>
<td>6.6</td>
</tr>
<tr>
<td>2</td>
<td>11.8</td>
</tr>
<tr>
<td>3</td>
<td>24.3</td>
</tr>
<tr>
<td>4</td>
<td>23.5</td>
</tr>
<tr>
<td>5</td>
<td>16.9</td>
</tr>
<tr>
<td>6</td>
<td>7.4</td>
</tr>
<tr>
<td>7</td>
<td>5.1</td>
</tr>
</tbody>
</table>
3.3.7 – *Responsive and Nonresponsive feeding*

The last major area of concern based on parent responses to survey questions was low responsive feeding (Figure 12). From one question about who decides how much the child eats, 65.4% reported that either a parent/another adult mostly or only decides the amount of food the child eats, which would bypass the child’s ability to self-regulate energy consumption. Likewise, only 3.7% indicated that the child is the only one to decide how much they eat.

![Figure 13. Who decides how much food your child eats?](image)

Another question asked about making their child to finish all the food they served in the past 7 days. A total of 53.7% indicated “yes” or “sometimes” to forcing their child to finish their plates (Figure 14). The current survey did not inquire about why; however, a future survey will determine why parents make their child finish all the food they serve.
3.4 – Conclusion

It is important to note that since this was a cross-sectional study, the results cannot be discussed as causality, but rather correlational. Convenience sampling was used to recruit 150 parent-child dyads from the different locations in East Hartford, thus results may not generalize to other populations. Despite these limitations however, the results indicated a relationship between parent demographics and attitudes that influence toddler-feeding practices. The results also supported a need to address feeding practices that were inconsistent with recommendations made by toddler and infant feeding experts (American Academy of Pediatrics and the RWJF Healthy Eating Research Program). This research can inform the development of a simplified survey that can be used in a clinical setting to assess parent and toddler feeding practices for tailored messages. Tailored messages will address key behaviors that parents should focus on to support the development of healthy eating behaviors in children.

The findings suggest that interventions to address the high exposure to sugar-sweetened beverages and unhealthy snacking coupled with the importance of responsive feeding practices
should be implemented. Our data on sugar-sweetened beverage offering align with 2005 to 2012 NHANES data in regards to the rise in consumption of these drinks in addition to the popularity of fruit-flavored drinks. \(^4^7\) Surprisingly, toddlers offered fruits and vegetables in our data may indicate a better level of consumption of these foods among toddlers than previously documented studies, which was not expected. \(^5^3\)

Technology can be used as an effective mode of communication to educate parents about healthy child behaviors and can lead to healthy weight changes in overweight and obese children while promoting positive feeding practices and improving dietary quality. \(^5^4^5^8\) However, technology alone is not always an effective intervention to promote weight loss or healthy rates of weight gain in children, but can be most effective when coupled with face-to-face communication. \(^5^7^5^8\) Taking into account the effectiveness of combining online-based interventions with in-person communication, the next phase of this project is to create an online screener based on the longer survey focused on the identified areas of concern to be used in clinical settings, including WIC, to inform face-to-face communication between clinician/nutritionist and parents of toddlers.
CHAPTER FOUR

Developing a Online Screener for Toddler Feeding Practices

4.1 – Introduction

Online platforms for screening and delivering tailored messages have the potential to support healthy toddler feeding practices. New research is emerging about the benefits of tailored health messaging and toddler feeding practices for reducing sugar-sweetened beverage intake in young children specifically. Tailoring increases one’s perceived relevance to an intervention, which can promote self-efficacy to change behavior. These messages are different from traditional health education via provision on an intervention based on personal differences rather than targeting a whole group. According to a meta-analysis, using tailored communication as an approach to promote health behavior change is becoming more popular and has largely proven to be more effective than generalized generic communication among a wide variety of populations. Based on the lack of current literature, it is clear that more research is necessary to determine the effects both tailored messaging and telecommunication interventions promoting healthy toddler feeding practices.

4.1.1 – Research Aims

Results from our online survey of 143 low-income families found deviations between toddler feeding and the recommendations for sugar-sweetened beverages (SSB), responsive feeding practices, and snacking (Chapter 3). We aim to create a shorter online survey to screen for deviations from feeding guidelines in these three identified areas. This survey will be used in clinical settings, such as WIC offices, to help further identify nutrition risk and focus secondary nutrition consults. Based on individualized survey responses, participants will be provided a
tailored message(s) on the topic of SSB, responsive feeding practices, and/or snacking, which will then be further addressed during WIC consultation appointments.

4.2 – Methods

After sharing the results from the quantitative survey with our project stakeholders at the East Hartford Women, Infant, and Children office (see quantitative survey results in Chapter 3), WIC nutritionists showed interest in implementing a tool in the waiting room to be used to identify negative feeding behaviors prior to nutrition consults and improve productiveness of face-to-face counseling sessions. We developed an online screener to meet this need. As shown in the table below, the original quantitative survey was shortened in a series of systematic stages to develop the new online screener.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I</td>
<td>Statistical assessment was used to identify the three significant focus areas: sugar-sweetened beverage (SSB) consumption, parents’ responsive feeding practices, and snacking.</td>
</tr>
<tr>
<td>Stage II</td>
<td>Aligned with the three focus areas in mind (SSB consumption, responsive feeding practices, and snacking), unrelated survey questions were eliminated. Questions that queried about F/V offering to identify whether parents are feeding F/V as snacks. Questions were further eliminated based on lack of variability in responses (e.g., 78% of parents said that they serve their child plain water every day).</td>
</tr>
<tr>
<td>Stage III</td>
<td>Questions were then condensed to achieve completion time of &lt;10 minutes (e.g., all beverage questions were condensed from 10 to 5 questions). Questions were added to further assess identified areas of concern (e.g., questions about why parents make their child finish food). The survey was content validated by experts in pediatric nutrition and medicine, public health, and social work.</td>
</tr>
<tr>
<td>Stage IV</td>
<td>Tailored messages for the 3 focus areas were created using literature reviews and feedback from focus groups strengthened the messages. Skip logic in Qualtrics was used to ensure participants receive the appropriate message based on survey responses.</td>
</tr>
</tbody>
</table>

4.2.1 – Eliminations from Original Quantitative Survey

Quantitative survey results were consolidated and analyzed using SPSS Statistics 25 (SPSS Inc., Chicago, IL, US) with a significance level set to $\alpha < 0.05$. During the statistical
analysis process, literature reviews were conducted to further support survey findings and imputed into a collective document of data. Team members reviewed the collective data with various professionals involved such as registered dietitians; Michael Puglisi, PhD, RD, extension professor for UConn’s department for nutritional sciences and coordinator for the Expanded Food and Nutrition Education Program (EFNEP); and WIC nutritionists. The survey content was further assessed based on variability, commonality, and significance. Through this assessment, three significant focus areas were determined; sugar-sweetened beverage (SSB) consumption, parents responsive feeding practices, and snacking. Questions were eliminated from the primary survey if they were unrelated to these three areas. However, questions about fruits and vegetable consumption were kept since we aim to determine if parents are serving these to their children for snacks. A total of 23 questions were eliminated during this phase. Next, responses were assessed based on the extent to which responses differed between participants – questions with limited variability in responses were eliminated (20 questions). Figure 15 represents an example of a question that was eliminated due to limited response variability (almost 80% said that their child drank plain water every day). On the other hand, Figure 16 shows a question with varied responses.
4.2.2 – Additions to Original Quantitative Survey

Questions were added to the survey to further address the key areas of concern. For the topic on SSB, a question was added about if the toddler ever walks around with a sippy cup. Additionally, a question was added that allowed parents to select a picture of the size of the cup.
that the child uses most often in the past 7 days. This question was added based on feedback with confusion about querying parents on the exact size of the cup (e.g., 4 ounces versus 8 ounces).

Figure 17. Example of cup size screener question

For the topic about snacking, a question was added asking parents if they offer F/V to the child as snacks. Another question was added to identify overeating during snack time (which best describes how your child eats – grazes all day; eats most food during snack time; eats most food during mealtime; eats the same amount at snack time and mealtime). Finally, a question was added in order to determine why so many parents are insisting their child finish all of the food served. Potential responses could be – “I worry about wasting food;” “I worry that my child doesn’t eat enough;” “I know how much my child needs to eat;” or “other.” Potential responses were created based on responses given from parents during the qualitative arm of this study. Skip logic was added to ensure parents only receive relevant questions. Participants indicating food insecurity will be provided a link to another browser showing Mobile Foodshare locations. Finally, pictures will further support question meaning. Pictures were chosen with the following in mind – diversity, age-appropriate toddlers, and relatable brands (e.g., HappyBaby, Gerber).
4.2.3 – Elimination of Variables using Factor Analysis

Questions about parent feeding attitudes were systematically eliminated using exploratory factor analysis. From Chapter 3, a total of 15 parent attitude statements were analyzed and using SPSS v25, 3 distinct factors were extracted with multiple items for each factor. Statistical significance of factor loadings was based on item magnitude – items that loaded 0.4 or higher were considered significantly correlated to the factor. The three factors were termed ‘neophobia,’ ‘positive feeding practices,’ and ‘negative feeding attitudes.’ The neophobia factor loaded the following statements – “my child does not like to have his/her teeth brushed;” “my child will not taste a new food;” “it is difficult to get my child to eat enough at meals;” “my child only eats a few foods;” and “most children are picky eaters.” Variables identified under the ‘positive feeding practices’ factor are – “I enjoy spending time with my child at mealtimes;” “my child eats enough fruit;” “my child eats enough vegetables;” “I buy vegetables for my child even if I don’t like them;” “I know enough what is best to feed my child;” and “the food we eat as a family provides enough nutrition for my child.” The variables included in the ‘negative feeding attitudes’ factor are – “toddler formulas or powdered milks provide nutrition that children don’t get from family food;” “picky eaters need products like PediaSure, Enfagrow or Nido to get enough nutrition to grow;” “100% juice is a good choice if a child won’t eat fruit or vegetables;” “pureed food that comes in pouches is a good way to teach toddlers to like the taste of fruits and vegetables;” and “children won’t eat the same food as the rest of the family. They need their own food.”

The statements that loaded the highest, indicating a strong relationship between an attitude statement and the respective factor, for each of these three factors were kept. Other attitude statements with weaker relationships to the factor were removed.
4.2.4 – Tailored Messaging Development

Three messages were created using literature from the American Academy of Pediatrics (AAP) and Healthy Eating Research Guidelines (HER) in addition to feedback provided by parents during the focus group phase of this project (not included in this review). Pictures were added to the messages to reinforce meaning (e.g., picture of a toddler expressing they are full vs. when they are hungry). Using the motivational interviewing model as a guide, pull messages were used to encourage behavior change (e.g., try offering plain water for thirst) rather than push messages, which are more forceful. Content matching was used as a determinant of identifying which message should be provided. Algorithms within Qualtrics were used to content match answers from survey questions to tailored messages.

4.3 – Results

The original survey of 94 questions was altered to create a concentrated 33-question screener to be used in the East Hartford WIC office as a brief intervention to improve face-to-face communications with nutritionists. The number of questions for each nutrition topic found in the screener is as follows: drinks (5); containers (3); snacks (6); F/V (5); responsive feeding (7); and demographics (7). As previously mentioned, questions from the original survey were combined to create a survey with a completion time of less than 10 minutes.

4.3.1 – Eliminated Variables using Factor Analysis

Out of the 5 statements that loaded onto the ‘neophobia’ factor, “my child only eats a few foods” loaded the highest at 0.77, thus the others were eliminated. The 6 statements that loaded onto the ‘positive feeding practices’ factor were analyzed and the statement “the food we eat as a family provides enough nutrition for my child” loaded the highest at 0.638. The other statements were eliminated. There were originally 5 variables that loaded onto the ‘negative feeding
attitudes’ factor. The statement that loaded the highest was “pureed food that comes in pouches is a good way to teach toddlers to like the taste of fruits and vegetables” at 0.60 and others were eliminated. Elimination using this factor analysis technique within SPSS yielded 3 attitude statements from the original 15 statements.

4.3.2 – Tailored Messages

Three separate messages were created for each of the focus areas – SSB consumption, snacking, and responsive feeding. We aim to pilot test these messages for feasibility, acceptability, and relevance before implementation into a clinic setting. Further analysis will be conducted to determine a preference for push versus pull messages. See figures 18-20 below for messages.

Sugary drinks have no nutrition, make children want more sweets, and can hurt their teeth.

Try offering plain water for thirst and plain milk (or breastmilk) for calcium, vitamin D, and protein!

Figure 18: Sugar-Sweetened Beverage Tailored Message
Giving packaged snacks makes it harder for children to learn to like fruits and vegetables.

Instead, try to serve 2 or 3 (raw or cooked) fruits or vegetables at every snack. They might not like the taste or texture of a fruit or vegetable the first time. Keep trying!

Figure 19: Snacking Tailored Message

It is important to let your child decide when they are full on their own. Forcing your child to eat when they are not hungry may affect their ability to control their eating and emotions.

Here are some tips to tell whether your child is hungry or full

When your toddler is full they may:
- spit out or push food away
- turn their head or close mouth
- get distracted easily

When your toddler is hungry they may:
- lean toward food or open their mouth
- get excited when they see food
- focus on or follow food with their eyes

Remember - you provide, your child decides!

Figure 20: Responsive Feeding Tailored Message

4.3.3 – Tailored Message Algorithms through Qualtrics
Responses to screener questions were developed into algorithms to generate tailored messages. See Table 23 to see response cut-offs that generate the presence of the tailored message(s) at the end of the survey. Based on responses to the questions, survey respondents can receive 0-3 tailored messages.

<table>
<thead>
<tr>
<th>Table 23. Response cut-offs to generate tailored messages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tailored Message 1: SSB</strong></td>
</tr>
<tr>
<td>- Toddler drank ( \geq 3 ) of the following beverages in the past 7 days: soda, flavored water, sweet tea, fruit-flavored drinks, sports drinks, or diet soda.</td>
</tr>
<tr>
<td>- Use of large container size (&gt; 4 ounces).</td>
</tr>
<tr>
<td><strong>Tailored Message 2: Snacking</strong></td>
</tr>
<tr>
<td>- Consumption of ( \geq 3 ) of the following snacks in the past 7 days: unsweetened cereals (e.g., Cheerios); sweets (cookies, cakes, cupcake, granola bar); crackers (e.g., Goldfish); Fruit Snacks; baby or toddler snacks (e.g., Gerber Puffs); sweetened cereals; or salty snacks (e.g., potato chips).</td>
</tr>
<tr>
<td>- Above snack foods consumed ( &gt; 2 ) days in past 7 days</td>
</tr>
<tr>
<td>- Variety of F/V served in the past 7 days is (&lt; 3 ) varieties</td>
</tr>
<tr>
<td>- Did not serve F/V for snack in the past 7 days</td>
</tr>
<tr>
<td><strong>Tailored Message 3: Responsive Feeding</strong></td>
</tr>
<tr>
<td>- Parents forced their child to finish all food served in the past 7 days.</td>
</tr>
<tr>
<td>- Parents gave their child something to eat/drink because they were fussy.</td>
</tr>
<tr>
<td>- Parents offered sweets as a reward to the child.</td>
</tr>
</tbody>
</table>

4.4 – Future Implementation

Project coordinators met with state WIC representatives in Hartford, Connecticut to assess practicality and acceptability of the screening tool. During the meeting, WIC representatives identified the need to be able to effectively translate the information accumulated from the screener to the nutritionist in a timely manner. The meeting also provided guidance on feasible was to implement the screener in the waiting room during secondary follow-up visits to further identify nutrition risk, which impacts WIC food packages and benefits. Future meetings with the East Hartford WIC nutritionists will assist in determining a practical way to communicate this information; however, this will most likely involve the use of an identification number to identify clients, which will then be emailed to the WIC nutritionists on a secure email. Currently, WIC already uses an identification number to distinguish which clients are using the
WICSmart, an online education tool used in WIC institutions across the United States to encourage clients to learn more about specific nutrition topics, thus the use of identification numbers for this screener should not be an issue.

The WIC locations already started implementing a paper-pencil survey in waiting rooms entitled “Tell me more about your child” to assess toddler feeding; however, many local WIC agencies, including the East Hartford operation are resistant to apply it. We believe that our screener will be more feasible for this population since it is on an online platform that can be easily accessed via smartphone with algorithms to generate tailored messages based on quantitative data. Given the fact that 86% of participants stated that they own a smartphone, interventions for addressing the lack of knowledge about childhood feeding practices and other healthy child behaviors could be most effective by utilizing technology-based platforms.

Following IRB approval, we plan to pilot test the screener feasibility and liking of tailored messages in a clinical setting. Pending pilot study success, we plan to implement the screener into the East Hartford WIC and other clinical settings in Connecticut. Information gained from ongoing qualitative research will further inform the tailored messages to support healthy eating in toddlers.
CHAPTER FIVE

Conclusion

Multi-level interventions are necessary to address childhood obesity, which is a growing issue in the United States and is often associated with a multitude of comorbidities like metabolic syndrome, cardiovascular disease, stroke, and type II diabetes.\(^3,4\) According to an obesity report (2017), about 3 out of 5 children in the United States are projected to be obese by the age of 35 years.\(^{64}\) Consequently, because eating behaviors that may track to adulthood can start in childhood, it is important that parents are correctly informed about accurate feeding guidelines for infants and toddlers through evidence-based practice from sources like the American Academy of Pediatrics (AAP) and the RWJF Health Eating Research (HER) guidelines.

The first phase of this toddler-feeding project was to create an online quantitative survey to assess the toddler feeding practice attitudes and behaviors to identify practices that are inconsistent with feeding guidelines (AAP and HER) in an income-disadvantaged Connecticut community. Other areas of concentration were food acculturation and security as well as preferred communication channels for information on toddler nutrition (e.g., face-to-face communication vs. social media like Facebook or Twitter).

These findings were then used to develop consistent, clear, and coordinated messages that we aim to provide to parents in a tailored manner based on responses to a toddler feeding practice screener with tailored nutrition education messages. We plan to implement this nutrition risk screener into healthcare settings and the East Hartford WIC waiting room as an adjunct to face-to-face nutrition counseling. This project will continue to grow in an effort to inform clear, concise and consistent messages about healthy toddler feeding practices as well as to inform
local policies for the delivery of these messages across multiple sectors to reach low-income families with toddlers.

**References**


8. Travers E, Perkins M, JA Bridal W. The impact of the first 1,000 days on childhood obesity. . 2016.


49. A national research agenda to reduce consumption of sugar sweetened beverages and increase safe water access and consumption among zero- to five-year olds.. 2018;1106.


Appendix A
Consent Form

You can take this survey in English or Spanish. Please select the language you prefer now by clicking the dropdown box above. You can change it back and forth throughout the survey if you find it helpful.

Puedes contestar esta encuesta en inglés o español. Por favor selecciona ahora el lenguaje que prefieras haciendo click en el menú de arriba. Puedes cambiar el lenguaje durante la encuesta si te resulta útil.

Feeding toddlers

Purpose:
This is a study about feeding toddlers. We want to ask what your toddler eats and drinks. We will ask your feelings and concerns about feeding your toddler. We hope to survey 150 parents/caregivers.

Procedure:
This study involves doing a survey. The survey is online. The survey should take about 20 minutes to finish.

Risk and benefits:
There is no risk in doing the study. It takes some of your time. This study will not benefit you directly. We hope these responses will help us make simple messages about toddler feeding.

Will I receive payment for being in the study? Are there costs for being in the study?
You will not be paid to be in this study. We will provide you with a small gift for participation. We also will provide you information on healthy eating. There are no costs to be in the study.

Confidentiality:
We will not ask information that can identify you or your family. You will not be contacted for this study again.

Voluntary participation:
You can do the study only if you want. You are free to decline. You can stop the survey at any time.

Questions:
You can contact Valerie Duffy if you have any questions about this study. The number is 860-486-1997.

Contact the Institution Review Board (IRB) if you have questions about your rights as a study participant. The IRB is at the University of Connecticut. The number is 860-486-8802. The IRB is a group of people who review studies. They work to protect the rights and welfare of study participants.

Thank you.
If you give your consent to do the study, please check the box below:

- I agree to participate
- I wish to leave the survey

Screening Questions

Please give the tablet to the interviewer for the first couple of questions in this survey. After a couple of questions, the interviewer will give back the tablet.

Interviewer:
Please write down place of data collection

Interviewer:
These first questions ask about the children in your home.

How many children live with you in your home?

How many of those children are between 12 months and 36 months old?

Interviewer:
Do you decide what your children eat or drink? Or do you share this decision?
Please select the one that best describes your situation.

- Yes, I decide most of the time
- I share the decision most of the time
- No, someone else decides most of the time

Chose child with most recent birthday

Interviewer:
What is the age and sex of the children between 12 months and 36 months old living in your house?

<table>
<thead>
<tr>
<th>Age</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>▼</td>
</tr>
<tr>
<td>2</td>
<td>▼</td>
</tr>
<tr>
<td>3</td>
<td>▼</td>
</tr>
<tr>
<td>4</td>
<td>▼</td>
</tr>
<tr>
<td>5</td>
<td>▼</td>
</tr>
</tbody>
</table>

Interviewer:
Do any of these children need a special diet because your doctor told you they have a disease? (For example food allergies or error of metabolism)

This child requires a special diet | No special diet required
-----------------------------|---------------------------
your $(q://QID8%231/ChoiceGroup/SelectedAnswers/1)$ $(q://QID8%232/ChoiceGroup/SelectedAnswers/1)$ | o | o

2 children available: use child 1
3 children available: use child 3
4 children available: use child 3
5 children available: use child 2

From now on, we will be asking you questions about this child (mention the child that was randomized).

☐ your ${q://QID8%231/ChoiceGroup/SelectedAnswers/1} ${q://QID8%232/ChoiceGroup/SelectedAnswers/1}
☐ your ${q://QID8%231/ChoiceGroup/SelectedAnswers/2} ${q://QID8%232/ChoiceGroup/SelectedAnswers/2}
☐ your ${q://QID8%231/ChoiceGroup/SelectedAnswers/3} ${q://QID8%232/ChoiceGroup/SelectedAnswers/3}
☐ your ${q://QID8%231/ChoiceGroup/SelectedAnswers/4} ${q://QID8%232/ChoiceGroup/SelectedAnswers/4}
☐ your ${q://QID8%231/ChoiceGroup/SelectedAnswers/5} ${q://QID8%232/ChoiceGroup/SelectedAnswers/5}

**Interviewer:**

Now I will show you how to answer some questions.

For these kind of questions, please be sure to click the scale to activate the question (it will turn from gray to black), even if you would like to keep your response neutral.

For example:

Think about ${q://QID10/ChoiceGroup/SelectedChoices}, how much does he or she likes to do the following activities?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Running</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dancing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For these kinds of questions please be sure to click and drag each option to place them in order from the most (at the top) to the least (at the bottom). You need to move the items at least once to activate the question.

For example:

How much does ${q://QID10/ChoiceGroup/SelectedChoices} like to do the following activities? Please place them in order from the one they like the most (at the top) to the one they like the least (at the bottom). You can still move the items back to the original order.

Running
Jumping
Dancing
For the rest of the survey you will have the tablet. Please let me know if you have any questions.

Breastfeeding and complementary feeding

Please answer the following questions thinking about ${q://QID10/ChoiceGroup/SelectedChoices}.

**Breast milk** includes:
- When a child is fed at the breast
- When a child is fed breast milk from pumping the breast in a bottle

**Infant formula** refers to preparing infant formula from a powdered product.

Did this child ever drink breast milk or infant formula?
- This child was breastfed or drank breast milk (little or no infant formula)
- This child drank breast milk and also infant formula
- This child only drank infant formula (little or no breast milk)
**Breast milk** includes:
- When a child is fed at the breast
- When a child is fed breast milk from pumping the breast in a bottle

How old was this child when he or she stopped drinking **breast milk**?
- [ ] Less than 2 months old
- [ ] 2 to 4 months old
- [ ] 5 to 6 months old
- [ ] Older than 6 months old
- [ ] This child is still drinking breastmilk

How old was your child when he or she first started drinking something other than **breast milk or infant formula**?
- [ ] Between 1 and 2 months
- [ ] Between 3 and 4 months
- [ ] Between 4 and 6 months
- [ ] Older than 6 months

How old was your child when he or she first started eating **solid food**?
- [ ] Between 1 and 2 months
- [ ] Between 3 and 4 months
Now we are going to ask you some questions about feeding ${q://QID10/ChoiceGroup/SelectedChoices}. What types of things he or she ate and drank in the past week or 7 days. Please answer the questions as best you can remember. There are no right or wrong answers.

It might be helpful to think about things that happened this past week to help you remember. What day is it today?

Please think about the different types of milk your child drank in the past 7 days. Include milks he or she drank with you or others (like in daycare).

Did ${q://QID10/ChoiceGroup/SelectedChoices} drink any of these milks in the past 7 days, since last ${q://QID420/ChoiceGroup/SelectedChoices}?

Infant formulas

- [ ] Yes
- [ ] No

Toddler formulas

- [ ] Yes
- [ ] No
Other than breast milk. Please think about all the different types of milk (formulas, cow's, almond, soy, etc) that your child drank in the past 7 days.

How many days did your child drink any type of milk in the past 7 days?

- [ ] 1 or 2 days
- [ ] 3 or 4 days
- [ ] 5 or 6 days
- [ ] Everyday

You said that ${q://QID10/ChoiceGroup/SelectedChoices} drank cow's milk in the past 7 days.

Which types of cow's milk did he or she drink?
Please select all types that he or she drank in the past 7 days.

- [ ] Plain (unflavored) whole milk
- [ ] Plain (unflavored) reduced or low fat milk (2%, 1% or skim)
- [ ] Flavored whole milk (like chocolate or strawberry)
- [ ] Flavored (like chocolate or strawberry) reduced or low fat milk (2%, 1% or skim)
Other drinks

Please think about plain water, including water from the tap, water fountain or bottles.

How many days did ${q://QID10/ChoiceGroup/SelectedChoices} drink plain water in the past 7 days?

- Never in the past 7 days
- 1 or 2 days
- 3 or 4 days
- 5 or 6 days
- Everyday

Now we are going to ask about 100% juice that your child drank in the past 7 days. That is fruit or vegetable juice with nothing else added.
How many days did your child drink **100% fruit or vegetable juice** in the past 7 days?

- Never in the past 7 days
- 1 or 2 days
- 3 or 4 days
- 5 or 6 days
- Everyday

Now we would like to ask you about other types of drinks that your child had in the past 7 days.

Did your child have any of these other drinks in the past 7 days? Please include drinks that you or others gave to your child.

Flavored water

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
You said that your child drank these other types of drinks in the past 7 days.

How many days did your child have these drinks in the past 7 days?

- 1 or 2 days
- 3 or 4 days
- 5 or 6 days
- Everyday

**Containers**
Please select the type of container that your child used most often to drink any of these types of drinks in the past 7 days.

- [ ] Cup with straw
- [ ] Sippy cup
- [ ] Cup with no top
- [ ] Bottle
- [ ] Individual package (carton, box or bottle)

Please select the size of cup that your child used most often in the past 7 days.

- [ ] Smaller than 4 oz cup
- [ ] 4 oz cup (size of small juice box)
- [ ] 8 oz cup (size of a regular juice box)
- [ ] More than 8 oz cup (bigger than regular juice box)

How many times in the past 7 days did your child go to bed with a bottle?

- [ ] Never
- [ ] 1 or 2 nights
- [ ] Some nights (3 or 4 times)
- [ ] Almost every night (5 or 6 times)
- [ ] Every night in the past 7 days
In the past 7 days, how often did your child get a bottle in the middle of the night?

- Never
- 1 or 2 nights
- Some nights (3 or 4 times)
- Almost every night (5 or 6 times)
- Every night in the past 7 days

When your child got a bottle in the middle of the night, what kind of drink did he or she get?

- Milk (regular, almond, soy, rice, coconut)
- Infant formula or toddler formula
- 100% juice
- Sweet drinks (fruit drinks, soda, flavored water, sports drinks, sweet teas, etc.)
- Plain water
- Pediasure or other (please describe)

How many times in the past 7 days did your child have cereal added to his or her bottle of milk or formula?

- Never in the past 7 days
- 1 or 2 nights in the past 7 days
- Some nights (3 or 4 times)
- Almost every night (5 or 6 times)
- Every night in the past 7 days

Fruits and veggies

Please think about all the types of **fruit** that your child ate in the past 7 days.
- Please include any type of fresh, canned, frozen, or dried fruit. May be whole, cut-up, or pureed.

![Fruit Images]

How many days did your child eat any kind **fruit** in the past 7 days?

- [ ] Never in the past 7 days
- [ ] 1 or 2 days
- [ ] 3 or 4 days
- [ ] 5 or 6 days
- [ ] Everyday

Which kinds of **fruit** did your child eat in the past 7 days? Please do not include pureed fruit in jars or pouches.
Select all that your child ate in the past 7 days.

- [ ] Oranges, mandarins, or grapefruits
- [ ] Watermelons, melons, cantaloupes, or honeydew
- [ ] Strawberries, raspberries, blackberries, or grapes
- [ ] Apples or pears
- [ ] Raisins or dried fruit
- [ ] Bananas or plantains
- [ ] Peaches, plums, or apricots
- [ ] Pineapples, mangoes, or papayas
- [ ] Other (please specify)

Please think about all the types of **vegetables** that your child ate in the past 7 days.
- Please include any type of raw or cooked, fresh, frozen, canned, or dried vegetable. May be whole, cut-up, or mashed.
How many days did your child eat any kind **vegetables** in the past 7 days?

- Never in the past 7 days
- 1 or 2 days
- 3 or 4 days
- 5 or 6 days
- Everyday

Which kinds of **vegetables** did your child eat in the past 7 days? Please do not include pureed vegetables in jars or pouches. Select all that your child ate in the past 7 days.

- Carrots
- Corn, or peas
- Greens like salad, lettuce, spinach, or collards
- Peppers or bell peppers
- Onion
- Broccoli, cabbage, or cauliflower
- Cucumber, squash, or zucchini
- Green beans or soy beans
- Baked potato or baked sweet potato
- Fried potato or fried sweet potato
- Tomato, green tomato, or tomatillo
- Other (please specify)
- My child only ate pureed vegetables from jars or pouches

Did your child eat any **grains** in the past 7 days?

Yes  No
Did your child eat any **protein foods** in the past 7 days?
Please include any meat, poultry, seafood, beans and peas, eggs, soy products, nuts, and nut butters.

Did your child eat any **dairy foods** (other than milk) the past 7 days?
Please include any foods made from milk like cheese and yogurt.

How many days did your child eat food in **pouches** in the past **7 days**?
- Please include all foods that you or someone else provided.
Did ${q://QID10/ChoiceGroup/SelectedChoices} have any of the following snack foods in the past 7 days?
- Please include all snack foods that you or someone else provided.

Never in the past 7 days

1 or 2 days

3 or 4 days

5 or 6 days

Everyday

Plain Cheerios, Kix or similar cereal

Yes  No

Sweets like cookies, pastries, cakes or cupcakes, cereal or granola bar

Yes  No
Crackers:

- Goldfish
- Cheez-It

Fruit snacks:

- Welch's

Baby or toddler snacks:

- Puffs

Sweetened cereals:

- Various cereals

Potato or tortilla chips and other salty snacks:

- Lays
- Veggie Lays
Please think about the snack foods that your child ate in the past 7 days.

How many days did your child eat any of these snack foods in the past 7 days?

☐ 1 or 2 days
☐ 3 or 4 days
☐ 5 or 6 days
☐ Everyday

Please think about the fast food that your child ate in the past 7 days.

How many days did your child eat fast food in the past 7 days?

☐ Never in the past 7 days
☐ 1 or 2 days
☐ 3 or 4 days
☐ 5 or 6 days
☐ Everyday
Meal Questions

Now we are going to ask you some general questions about feeding your child. Please answer these questions about $(q://QID10/ChoiceGroup/SelectedChoices)$.

Thinking about the past 7 days, how many days did your child eat like this?

<table>
<thead>
<tr>
<th></th>
<th>Never in the past 7 days</th>
<th>1 or 2 days</th>
<th>3 or 4 days</th>
<th>5 or 6 days</th>
<th>Everyday</th>
</tr>
</thead>
<tbody>
<tr>
<td>My child ate with the rest of the family</td>
<td>○</td>
<td></td>
<td></td>
<td></td>
<td>○</td>
</tr>
<tr>
<td>My child ate at the table or in a high chair</td>
<td>○</td>
<td>○</td>
<td></td>
<td></td>
<td>○</td>
</tr>
<tr>
<td>My child ate while watching TV</td>
<td>○</td>
<td>○</td>
<td></td>
<td></td>
<td>○</td>
</tr>
<tr>
<td>My child ate on the go, such as in a stroller or car seat, or on the bus</td>
<td>○</td>
<td>○</td>
<td></td>
<td></td>
<td>○</td>
</tr>
</tbody>
</table>

Now think about **all the ways** your child eats
Which best describes the way your child eats?

- My child never eats with a fork or spoon (that they hold or someone else holds for them)
- My child eats with their hands more than with a fork or spoon
- My child eats with their hands the same amount as with a fork or spoon
- My child eats with a fork or spoon more than with their hands
- My child never eats with their hands

Please think about fruits such as apples. Which fruit forms did your child eat in the last 7 days?

- Fruit juice
- Pureed fruit
- Your child eats and chews small pieces or chunks of fruit
Please look at the meal shown in the picture:

Is it like the amount of food you serve at a meal for your child?

- More food than shown in the picture
- Same amount of food shown in the picture
- Less food than shown in the picture

What is it like to feed your child? Please pick the statement that best describes feeding your child.

- My child eats whatever is put in front of him or her.
- My child only eats his or her favorite foods. I only serve these favorite foods.
- My child doesn't like everything I serve. I encourage my child to eat what I serve.
- I need to make something different for my child. He or she will not eat what the family eats.
Who decides how much food your child eats?

- Only me or another adult
- Mostly me or another adult
- Me or another adult and my child the same
- Mostly my child
- My child only

Do you make your child finish all the food you serve?

- Yes
- No
- Sometimes

Please answer the following questions about your child.

<table>
<thead>
<tr>
<th></th>
<th>All the time</th>
<th>Most of the time</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>My child tells me when he or she is hungry.</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When my child is hungry I give him or her food right away.</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My child is a picky eater.</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My child goes through periods of only eating his or her favorite foods.</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

In the past 7 days, how many days did you give your child something to eat or drink because he or she was fussy?

- Never in the past 7 days
- 1 or 2 days
Do you think your child gets enough sleep at night?

☐ Yes
☐ No

**Toddler. Sources of information**

Now we are going to ask you about the ways you might get information about feeding your child.

Which of these have you **ever used** to get information about feeding your child?

Select all that you have used

☐ Health professionals (such as a pediatrician, nurse, dietitian)
☐ Social media (such as Facebook, Twitter, Pinterest)
☐ Online blogs (such as Kelly Mom, Mom Blog Society, Cool Mom Picks, Family Focus Blog)
☐ Online parenting forums (such as CafeMom, MothersClick, Mamanpedia)
☐ Company or brand websites (such as Gerber.com, Similac.com, Pampers.com)
☐ Community programs (such as WIC, SNAP-ED, ChooseMyPlate)
☐ Parenting magazines (such as Family Fun, Parents, Babytalk, American Baby)
☐ Family (including your partner's family)
☐ Your mother or your partner's mother
☐ Friends
☐ Other mothers (not friends)
☐ Day care, or others who care for your child outside your home

How much do you trust these sources of information about feeding your child? Please place them in order from the one you trust the most (at the top) to the one you trust the least (at the bottom).

Please be sure to click and drag each option to place them in order from the one you trust the most (at the top) to the one you trust the least (at the bottom). You need to move the items at least once to activate the question. You can still move the items back to the original order.
We'd like to hear your thoughts on who might send you messages about feeding your child, and how you would get these messages.

Thinking about who might send you messages about feeding your child, how interested would you be in getting health messages from the following sources?

- Health professionals (such as a pediatrician, nurse, dietitian)
- Social media (such as Facebook, Twitter, Pinterest)
- Online blogs (such as Kelly Mom, Mom Blog Society, Cool Mom Picks, Family Focus Blog)
- Online parenting forums (such as CafeMom, MothersClick, Mamapedia)
- Company or brand websites (such as Gerber.com, Similac.com, Pampers.com)
- Community programs (such as WIC, SNAP-ED, ChooseMyPlate)
- Parenting magazines (such as Family Fun, Parents, Babytalk, American Baby)
- Family (including your partner's family)
- Your mother or your partner's mother
- Friends
- Other mothers (not friends)
- Day care, or others who care for your child outside your home

Thinking about how you would get these messages, how interested would you be in getting messages in each of the following ways?

- Your child’s doctor (pediatrician) or nurse
- A dietitian
- Family Resource Center
- Researchers from UConn

Thinking about how you would get these messages, how interested would you be in getting messages in each of the following ways?

- In-person (talk with someone)
- Handout (paper)
Toddler. Agreement with expert claims

How healthy do you think the following drinks are for your child?

Please be sure to click the scale to activate the question (it will turn from gray to black), even if you would like to keep your response neutral.

<table>
<thead>
<tr>
<th></th>
<th>Unhealthy</th>
<th>Healthy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone call</td>
<td>o o o o o</td>
<td>o o o o</td>
</tr>
<tr>
<td>Email</td>
<td>o o o o o</td>
<td>o o o o</td>
</tr>
<tr>
<td>Text message</td>
<td>o o o o o</td>
<td>o o o o</td>
</tr>
<tr>
<td>Facebook page (public; anyone can see it)</td>
<td>o o o o o</td>
<td>o o o o</td>
</tr>
<tr>
<td>Private Facebook group (you and other parents of toddlers)</td>
<td>o o o o o</td>
<td>o o o o</td>
</tr>
<tr>
<td>Twitter</td>
<td>o o o o o</td>
<td>o o o o</td>
</tr>
<tr>
<td>Instagram</td>
<td>o o o o o</td>
<td>o o o o</td>
</tr>
<tr>
<td>Pinterest</td>
<td>o o o o o</td>
<td>o o o o</td>
</tr>
<tr>
<td>YouTube videos</td>
<td>o o o o o</td>
<td>o o o o</td>
</tr>
</tbody>
</table>

Keep Going

you're doing GREAT!
Now we are going to ask you some general questions about feeding your child.

Please think about ${q://QID10/ChoiceGroup/SelectedChoices} when answering these questions. How much do you agree with the following statements?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Disagree strongly</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Agree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>My child will not taste a new food.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I know enough about what is best to feed my child.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I worry that my child eats too much</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I enjoy spending time with my child at mealtimes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My child only eats a few foods</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other people in my family make it hard for me to feed my child healthy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It would be helpful to get tips from other parents about what to feed my child.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Now we are going to ask you some questions about types of drinks to serve toddlers (12 to 36 months). These questions are about toddlers in general, and may or may not apply to your child.

How much do you agree with the following statements about drinks to serve toddlers (12 to 36 months)?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Disagree strongly</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Agree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>My child eats enough vegetables</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I don't buy vegetables because my family will not eat them</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>My child does not like to have his/her teeth brushed.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>My child eats enough fruit</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I buy vegetables for my child, even if I don't like them</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>It is difficult to get my child to eat enough at meals.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The food we eat as a family provides enough nutrition for my child.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statement</th>
<th>Disagree strongly</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Agree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% juice is a good choice if a child won't eat fruit or vegetables.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Toddler formulas or powdered milks provide nutrition that children don't get from other food and drinks.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Water is the best choice when a child is thirsty.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Picky eaters need products like Pediasure, Enfagrow or Nido to get enough nutrition.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Toddlers should not drink more than 4 ounces (1/2 cup) of 100% juice per day.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Plain whole milk is the best drink for children between 1 and 2 years old.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>It's OK to give children drinks with added sugar once in a while.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

How much do you agree with the following statements about feeding toddlers (ages 12 to 36 months):

<table>
<thead>
<tr>
<th>Statement</th>
<th>Disagree strongly</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Agree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>By age two, children should be eating the same food as the rest of the family.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>It would be mean to not give children sweet treats once in a while.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Toddlers need to feed themselves even if messy.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Children won't eat the same food as the rest of the family. They need their own type of food.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Ethnicity and acculturation

Where were you born?

If you were not born in the United States or Puerto Rico, where were you born?

Please select your racial and/or ethnic background.
- Select all that apply.

- White or Caucasian
- Black or African-American
- Hispanic or Latino
- American Indian or Alaska Native
- Asian or Pacific Islander
- Other (please describe)

Please select your child's racial and ethnic background.
- Select all that apply.

- White or Caucasian
- Black or African-American
- Hispanic or Latino
- American Indian or Alaska Native
- Asian or Pacific Islander
Which is your preferred language in the following situations?

<table>
<thead>
<tr>
<th>In general, what language(s) do you read and speak?</th>
<th>Only English</th>
<th>English more than Spanish</th>
<th>English and Spanish equally</th>
<th>Spanish more than English</th>
<th>Only Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What language do you usually speak at home?</th>
<th>Only English</th>
<th>English more than Spanish</th>
<th>English and Spanish equally</th>
<th>Spanish more than English</th>
<th>Only Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>In what language do you usually think?</th>
<th>Only English</th>
<th>English more than Spanish</th>
<th>English and Spanish equally</th>
<th>Spanish more than English</th>
<th>Only Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What language do you usually speak with your friends?</th>
<th>Only English</th>
<th>English more than Spanish</th>
<th>English and Spanish equally</th>
<th>Spanish more than English</th>
<th>Only Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

You mentioned that you were born in Puerto Rico or outside the US. Do you think that your diet is more similar to the typical American diet (US) or the typical diet from \(q://QID304/ChoiceTextEntryValue\)?

<table>
<thead>
<tr>
<th>When I eat at home</th>
<th>Typical American diet only</th>
<th>More typical American diet than typical diet from my place of birth</th>
<th>Typical American diet and typical diet from my place of birth</th>
<th>Typical diet from my place of birth more than typical American diet</th>
<th>Typical diet from my place of birth</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>When I eat away from home, like in a restaurant</th>
<th>Typical American diet only</th>
<th>More typical American diet than typical diet from my place of birth</th>
<th>Typical American diet and typical diet from my place of birth</th>
<th>Typical diet from my place of birth more than typical American diet</th>
<th>Typical diet from my place of birth</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
Demographics

How would you describe your child's body size?

- Underweight/ too little
- Healthy weight / just right
- Slightly overweight / big
- Unhealthy weight / too big

How would you rate the quality of your own diet?

- Excellent
- Very good
- Good
- Fair
- Poor

Please answer the following questions about the food in your home.

Within the past 12 months, we worried whether our food would run out before we could get money to buy more.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
You are almost finished. We just have a few more questions.

Which gender do you identify with?

- Male
- Female

How old are you?

[Dropdown]

How many adults live in your house with you?

[Dropdown]

Of those adults that live in your house, how many care for your child?

[Dropdown]

Does your child attend day care, or out-of-home care regularly?

- Yes
- No

What is the highest level of education you have completed?

- Less than High School
- High School / GED
- Some College, technical or trade school
- 2-year College
- 4-year College
- Master's, Doctoral or Professional Degree (JD, MD)

Within the past 12 months, the food we bought just didn't last and we didn't have enough money to buy more.

- Yes
- No
What is the zip code where you currently live?

[Blank field]

Do you currently use or have ever used any of the following services?

<table>
<thead>
<tr>
<th>Service</th>
<th>Yes</th>
<th>No</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>WIC (Special Supplemental Nutrition Program for Women, Infants, and Children)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Food Stamps or Supplemental Nutrition Assistance Program (SNAP)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Mobile food pantry</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Food pantry</td>
<td>Yes</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Has a doctor or healthcare professional told you or someone in your immediate family (including parents, siblings, or children) that they have any of the following? Please check all that apply.

- ☐ Obesity
- ☐ Hypertension
- ☐ Diabetes
- ☐ Cardiovascular disease
- ☐ Celiac disease
- ☐ Other diet related disease [Blank field]
- ☐ None

In the past 4 weeks, have you used any of the following?

- ☐ Facebook
- ☐ Twitter
- ☐ Instagram
In the past 4 weeks, how often did you check the following:

<table>
<thead>
<tr>
<th></th>
<th>Once or twice</th>
<th>Once per week</th>
<th>Every day</th>
<th>Multiple times per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook</td>
<td><img src="facebook.png" alt="" /></td>
<td><img src="facebook.png" alt="" /></td>
<td><img src="facebook.png" alt="" /></td>
<td><img src="facebook.png" alt="" /></td>
</tr>
<tr>
<td>Twitter</td>
<td><img src="twitter.png" alt="" /></td>
<td><img src="twitter.png" alt="" /></td>
<td><img src="twitter.png" alt="" /></td>
<td><img src="twitter.png" alt="" /></td>
</tr>
<tr>
<td>Instagram</td>
<td><img src="instagram.png" alt="" /></td>
<td><img src="instagram.png" alt="" /></td>
<td><img src="instagram.png" alt="" /></td>
<td><img src="instagram.png" alt="" /></td>
</tr>
<tr>
<td>YouTube</td>
<td><img src="youtube.png" alt="" /></td>
<td><img src="youtube.png" alt="" /></td>
<td><img src="youtube.png" alt="" /></td>
<td><img src="youtube.png" alt="" /></td>
</tr>
<tr>
<td>Snapchat</td>
<td><img src="snapchat.png" alt="" /></td>
<td><img src="snapchat.png" alt="" /></td>
<td><img src="snapchat.png" alt="" /></td>
<td><img src="snapchat.png" alt="" /></td>
</tr>
<tr>
<td>Reddit</td>
<td><img src="reddit.png" alt="" /></td>
<td><img src="reddit.png" alt="" /></td>
<td><img src="reddit.png" alt="" /></td>
<td><img src="reddit.png" alt="" /></td>
</tr>
<tr>
<td>Pinterest</td>
<td><img src="pinterest.png" alt="" /></td>
<td><img src="pinterest.png" alt="" /></td>
<td><img src="pinterest.png" alt="" /></td>
<td><img src="pinterest.png" alt="" /></td>
</tr>
</tbody>
</table>
Do you have a cell phone or a smart phone?

- Yes, a smartphone
- Yes, a cell phone (not a smartphone)
- No, but I use someone else’s smartphone or cell phone

Does your cell phone plan include text messages?

- Yes, unlimited text messages
- Yes, limited text messages
- No text messages

Do you use a wireless network ("wifi") at home?

- Yes
- No
- Not sure

In the past 7 days, have you gone online or accessed the Internet from any of the following? Please check all that apply.

- Desktop computer
- Laptop computer
- Tablet computer, like an iPad, Samsung Galaxy, or Motorola Zoom
- A cell phone, like an iPhone or Android phone
- A device that can connect to the internet but is not a phone, like an iPod touch

Do you have any feedback regarding this survey or the topics it covers? Thank you for your time!
You are done!
We appreciate your participation!

Thank you!!

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Appendix B
Drinks

Please enter your **client ID number** from the WIC staff checking you in

Please think about the types of drinks your toddler drank in the past 7 days. Select all the beverages your child has consumed in the past 7 days.

Select YES or NO to each option.

<table>
<thead>
<tr>
<th>Option</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Soda</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>![Soda Image]</td>
<td>![Yes]</td>
<td>![No]</td>
</tr>
<tr>
<td><strong>Diet soda</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>![Diet Soda Image]</td>
<td>![Yes]</td>
<td>![No]</td>
</tr>
<tr>
<td><strong>Sports drinks</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>![Sports Drinks Image]</td>
<td>![Yes]</td>
<td>![No]</td>
</tr>
<tr>
<td><strong>Sweet tea</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>![Sweet Tea Image]</td>
<td>![Yes]</td>
<td>![No]</td>
</tr>
</tbody>
</table>
You said that your child drank these *sweet drinks* in the past 7 days.

How many days did your child have these drinks in the past 7 days?

- Never
- 1 to 3 days
- 4 to 6 days
- Everyday

Please think about the different *types of milk* your child drank in the past 7 days. Include milks he or she drank with you or others (like in daycare).

Did your child drink any of these *milks* in the past 7 days?

Select YES or NO to each option.
You said that your child drank cow's milk in the past 7 days.

Which types of cow's milk did he or she drink?

Select YES or NO to each option.

<table>
<thead>
<tr>
<th>Types of Milk</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toddler formulas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular (cow's) milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nido or powdered milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Almond milk, soy milk, rice milk, coconut milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toddler formulas</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Regular (cow's) milk</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Nido or powdered milk</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Almond milk, soy milk, rice milk, coconut milk</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>PediaSure</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Plain (unflavored) whole milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plain (unflavored) reduced or low fat milk (2%, 1% or skim)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flavored whole milk (like chocolate or strawberry)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flavored (like chocolate or strawberry) reduced or low fat milk (2%, 1% or skim)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Other than breast milk, please think about all the different **types of milk** (formulas, cow's, almond, soy, etc) that your child drank in the past 7 days.

**How many days** did your child drink any type of **milk** in the past 7 days?

- Never
- 1 to 3 days
- 4 to 6 days
- Everyday

Please select the type of container that your child used **most often** to drink in the past 7 days.

- Trainer cup (360 cup or non-soil proof)
- Cup with no top
- Bottle
- Sippy cup
- Cup with straw
- Individual package (carton, box or bottle)

You said that in the past 7 days your child drank from a sippy cup. **Does your child ever walk around with a sippy cup?**

- Yes
- No
Please select the image the best represents the size of the cup that your child used most often in the past 7 days.

a  

b  

Snacks

Did your child have any of the following snack foods in the past 7 days?

Select YES or NO to each option.

Plain Cheerios, Kix or similar cereal

Sweets like cookies, cakes, cupcakes, or granola bar

Crackers
Please think about the **snack foods** that your child ate in the past 7 days.

**How many days** did your child eat any of these snack foods in the past 7 days?

Never 1 to 3 days 4 to 6 days Everyday

In the past 7 days, did you offer fruits or vegetables to your child as **snacks**?

- Yes
- No
You said that you offered fruits or vegetables to your child as snacks in the past 7 days.

In the past 7 days, how often did you offer fruits or vegetables for your child’s snacks?

- Never
- 1 to 3 days
- 4 to 6 days
- Everyday

Which best describes how your child eats? Please select one option.

- Grazes all day
- Eats most food during snack time
- Eats most food during mealtime
- Eats the same amount at snack time and mealtime

In the past 7 days, did your child eat while watching TV? Include meals/snacks.

- Yes
- No

Fruits and Vegetables

Please think about all the types of vegetables that your child ate in the past 7 days.

Please include any type of raw or cooked, fresh, frozen, canned, or dried vegetables. May be whole, cut-up, or mashed.
How many days did your child eat any kind of vegetables in the past 7 days?

- Never
- 1 to 3 days
- 4 to 6 days
- Everyday

Which kinds of vegetables did your child eat in the past 7 days? Please do not include pureed vegetables in jars or pouches.

Select all that your child ate in the past 7 days.

- Carrots
- Corn, or peas
- Greens like salad, lettuce, spinach, or collards
- Peppers or bell peppers
- Onion
- Broccoli, cabbage, or cauliflower
- Cucumber, squash, or zucchini
- Green beans or soy beans
- Baked potato or baked sweet potato
- Fried potato or fried sweet potato
- Tomato, green tomato, or tomatillo
- Other (please specify)
- My child only ate pureed vegetables from jars or pouches

Please think about all the types of fruit that your child ate in the past 7 days.

Please include any type of fresh, canned, frozen, or dried fruit. May be whole, cut-up, or pureed.

How many days did your child eat any kind of fruit in the past 7 days?
Which kinds of **fruit** did your child eat in the past 7 days? Please **do not** include pureed fruit in jars or pouches.

Select all that your child ate in the past 7 days.

- [ ] Oranges, mandarins, or grapefruits
- [ ] Watermelons, melons, cantaloupes, or honeydew
- [ ] Strawberries, raspberries, blackberries, or grapes
- [ ] Apples or pears
- [ ] Raisins or dried fruit
- [ ] Bananas or plantains
- [ ] Peaches, plums, or apricots
- [ ] Pineapples, mangoes, or papayas
- [ ] Other (please specify)
- [ ] My child only ate pureed fruit from jars or pouches

Pureed food that comes in pouches is a good way to teach toddlers to like the taste of fruits/vegetables.

Responsive feeding

In the past 7 days, how often did you make your child finish all of the food you served?

- [ ] Never
- [ ] 1 to 3 days
- [ ] 4 to 6 days
- [ ] Everyday
Please pick the best answer for you. I make my child finish their food because...

- [ ] I worry about wasting food
- [ ] I worry that my child doesn't eat enough
- [ ] I know how much my child needs to eat
- [ ] Other (please specify)

In the past 7 days, how many days did you give your child something to eat or drink because he or she was fussy?

<table>
<thead>
<tr>
<th>Never</th>
<th>1 to 3 days</th>
<th>4 to 6 days</th>
<th>Everyday</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
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</tbody>
</table>

In the past 7 days, how often did you offer sweets as a reward to your child?

<table>
<thead>
<tr>
<th>Never</th>
<th>1 to 3 days</th>
<th>4 to 6 days</th>
<th>Everyday</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
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<td>[ ]</td>
<td>[ ]</td>
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</tbody>
</table>

My child is a picky eater.

<table>
<thead>
<tr>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Most of the time</th>
<th>All of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

My child only eats a few foods.

<table>
<thead>
<tr>
<th>Disagree strongly</th>
<th>Disagree</th>
<th>Neither agree/disagree</th>
<th>Agree</th>
<th>Agree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
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</tbody>
</table>

The food we eat as a family provides enough nutrition for my child.

<table>
<thead>
<tr>
<th>Disagree strongly</th>
<th>Disagree</th>
<th>Neither agree/disagree</th>
<th>Agree</th>
<th>Agree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
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</tbody>
</table>

Demographics

The following information is collected to provide information about the activities of all states participating in SNAP-Ed activities that can inform management decisions, policy initiatives, and provide data for...
legislation.

How old are you?

- 5-17 years
- 18-59 years
- 60 years or older

Which gender do you identify with?

- Male
- Female
- Prefer not to specify

Please select your ethnic background

- Hispanic/Latino
- Non-Hispanic/Latino
- Prefer not to specify

Please select your race (select one or more)

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- White
- Other
- Prefer not to specify

Please select your child's ethnic background

- Hispanic/Latino
- Non-Hispanic/Latino
- Prefer not to specify

Please select your child's race (select one or more)
Food insecurity and lack of food access correlate with children’s health and therefore it is important to inform you about available resources in the area to improve your family’s food availability.

Please answer honestly to the following questions; all answers are confidential and anonymous.

Please answer the following questions about the food in your home.

Within the past 12 months, we worried whether our food would run out before we could get money to buy more.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

Within the past 12 months, the food we bought just didn't last and we didn't have enough money to buy more.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Click on the link below for a list of Mobile Foodshare sites that are open to anyone in need of food assistance.

http://site.foodshare.org/site/DocServer/Mobile_Foodshare_Calendar.pdf?docID=10024

Block 5
Sugary drinks have **NO nutrition**, make children want more sweets, & can hurt their health!

Try offering plain water for thirst & plain milk (or breastmilk) for calcium, vitamin D, & protein!

Packaged snacks make it harder for children to learn to like fruits & vegetables.

Try to serve 2 or 3 fruits or vegetables for SNACKS daily!

It may take **up to 20 tries** for your child to eat and like fruits & vegetables.
It is important to let your child decide when they are full.

Forcing your child to eat when they are NOT hungry may affect their ability to control their hunger cues.

Would you like to receive these tailored messages sent to your email?

- Yes
- No

Please type the email you would like the messages sent to

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