4-2020

# MOTHERS' EXPERIENCE WITH INFANT COMPLEMENTARY FEEDING PRACTICES: A PHENOMENOLOGICAL STUDY.

Tyler Martin
*University of Nebraska - Lincoln*, tyler.martin24@huskers.unl.edu

# MOTHERS' EXPERIENCE WITH INFANT COMPLEMENTARY FEEDING PRACTICES: A PHENOMENOLOGICAL STUDY.

by

Tyler Martin

A DISSERTATION

Presented to the Faculty of

The Graduate College at the University of Nebraska

In Partial Fulfillment of Requirements

For the Degree of Doctor of Philosophy

Major: Human Sciences

(Nutrition and Health Sciences)

Under the Supervision of Professor Megan S. Kelley

Lincoln, Nebraska

April, 2020

# MOTHERS' EXPERIENCE WITH INFANT COMPLEMENTARY FEEDING PRACTICES: A PHENOMENOLOGICAL STUDY.

Tyler Martin, Ph.D.

University of Nebraska, 2020

Advisor: Megan S. Kelley

**Background.** Complementary feeding practices include what, when, and how to feed (Birch and Doub, 2014). The gradual transition from feeding exclusively human milk, formula milk, or a combination of both to complementary foods over the first 24 months of life is necessary to ensure proper growth and development (Dewey, 2001; Pearce & Langley-Evans, 2013). While research does exist on complementary feeding, such as infant diet composition, limited research exists on exploring complementary feeding practices from first-time mothers' experiences.

**Methods.** This study utilized transcendental phenomenological qualitative research methodology. A pilot tested semi-structured interview guide was used to examine demographics as well as mothers' experiences with complementary feeding practices.

**Results.** Most (73%) of participants received complementary feeding information from their pediatrician. Eight themes emerged from the data. The themes included: "Going in Pretty Blind;" An Array of Feelings; "What the Heck is This;" "Food is Fun Until One;" "The Whole Allergy Concept;" Challenges to Complementary Feeding; Support Systems make Complementary Feeding Easier; and Cues to Start Complementary Feeding.

**Conclusion.** These findings are important to the field of nutrition and provide nutrition professionals with a better understanding of complementary feeding from the first-time

mothers' perspective. The knowledge gained can be used in practice to better support and prepare mothers during the transition from milk feeding to complementary feeding. These findings could also be used as the foundation to design health promotion programs that focus on the introduction of new foods to infants.

Author's Acknowledgements

I would like to take a moment and acknowledge my committee members. Without you all, completing this would not have been possible. Each of you brought expertise in areas of this dissertation that were invaluable to me. Dr. Jason Coleman, Dr. Lisa Franzen-Castle, Dr. Megan Kelley, and Dr. Heather Rasmussen... Thank you!

I would like to extend a special thank you to Dr. Megan Kelley. I cannot thank you enough for stepping in and being my advisor and dissertation chair in a difficult situation. Without you doing this, I would not be fulfilling my goal of completing my Ph.D. I lack the words to express how grateful I am. Thank you!

To my friends and family, thank you for all you have done. Your support and patience has been great.

Finally, THANK YOU to the 15 mothers that participated in this study. Thank you for your willingness to spend time with me and share your experiences. I am hopeful to dedicate a research career to improving the phase of complementary feeding. Each one of you has had a profound impact on me professionally and personally.

Table of Contents

List of Figures and Tables

# Chapter I

## Introduction

Caregivers' complementary feeding practices, including diet quality and the age of introduction, are two aspects that shape infant dietary behavior. The gradual transition from feeding exclusively human milk, formula milk, or a combination of both to complementary foods over the first 24 months of life is necessary to ensure proper growth and development (Dewey, 2001; Pearce & Langley-Evans, 2013). At six months of age, human milk, formula, or a combination of both no longer adequately supplies infants with some micronutrients. To make up for the deficiencies, a variety of complementary foods rich in iron, zinc, phosphorus, magnesium, calcium, and vitamin $B_6$ need to be offered (Dewey, 2001). Unhealthy complementary feeding practices can further lead to micronutrient deficiencies and include introducing complementary foods after eight months of age, feeding low nutrient dense foods, and parental feeding styles including feeding to soothe and pressure to eat (Birch & Doub, 2014; Dewey, 2002).

The diet quality of American infants and young children has been quantitatively assessed by the Feeding Infants and Toddlers Study (FITS) and showed that diets tend to resemble adults' diets, which are typically high in sugary foods and beverages and low in fruits and vegetables (Siega-Riz et al., 2010). When infants regularly consume complementary foods that are not nutrient-dense, negative health outcomes are possible. These include suboptimal growth and development and rapid weight gain that may lead to an unhealthy weight status (Dewey, 200; Siega-Riz et al., 2010). Recommendations for the age of introduction of complementary foods has been established at the age of six months by the World Health Organization (WHO) (Dewey, 2002; WHO, 2008). It is

possible for infants to become overweight or obese and lose the ability to self-regulate hunger if complementary foods are introduced prior to when he or she is developmentally ready to consume foods other than breast or formula milk (Birch & Doub, 2014).

Since the 1990s, obesity has risen to alarming levels in both adults and children. According to the Centers for Disease Control and Prevention (CDC), the prevalence of obese children, aged two to five years, was 13.9% in 2016 (Hales et al., 2017). While obesity rate of infants from birth to two years old is not widely assessed, the 2009-2010 United States National Health and Nutrition Examination Survey (NHANES) reported that 9.7% of zero to two-year olds were at or above 95$^{th}$ percentile on the weight for length chart (Saavedra et al., 2013). Infants at or above the 95$^{th}$ percentile are deemed in the obese category. Obese children have increased rates of morbidities and mortality, as well as psychological and social problems that can last into adulthood (Gibbs & Forste, 2014). According to Birch and Doub (2014), what children learn during infancy and young childhood affects subsequent eating behavior, growth, and weight status. Understanding unhealthy complementary feeding practices and recognizing the potential negative impacts on health, eating behavior, growth, and weight status early in life is an under studied area of importance (Birch & Doub, 2014; Gibbs & Forste, 2014; Raiten, Raghavan, Porter, Obbagy, & Spahn, 2014).

*Purpose Statement and Research Questions*

When reviewing the current literature, few studies were found that explored first-time mothers' experiences with complementary feeding practices between the ages of six months to two years through a qualitative lens. Eating behaviors develop and change over the first two years of life, therefore it is important to study complementary feeding

experiences first-time mothers have with their infant (Birch & Doub, 2014). The purpose of this study was to explore first-time mothers' experiences of complementary feeding practices with their infant aged four months to 12 months utilizing transcendental phenomenology.

Transcendental phenomenology focuses on a description of the shared, lived experiences of individuals who have experienced a phenomenon (Creswell & Poth, 2018; Moustakas, 1994). This study used transcendental phenomenology to understand complementary feeding practices from first-time mothers' perspective. This study followed the steps to conducting a phenomenological study outlined by Creswell and Poth (2018). These steps include highlighting significant statements from interview data that provide an understanding of the experience, developing the significant statements into clusters of meaning, and creating themes and textural/structural descriptions of the experience.

By examining these experiences with complementary feeding through transcendental phenomenology, this study provided a better understanding of how and what first-time mothers experience with complementary feeding and contributes to a limited body of knowledge on infant feeding. Results from this study provide nutrition professionals with an understanding of complementary feeding from the mother's perspective, which may allow them to provide better, more accurate guidance during this complex transition from feeding exclusively human or formula milk to solid foods.

*Central Research Question:*

1. How do first-time mothers describe experiences with complementary feeding practices?

*Sub-questions:*

2. What do first-time mothers perceive to be barriers to complementary feeding practices?
3. What do first-time mothers perceive to be facilitators to complementary feeding practices?
4. How do first-time mothers know their infant is ready to initiate complementary feeding?
5. What foods do first-time mothers initially introduce to their infant?
6. Where do first-time mothers get information on complementary feeding?

## Definition of Terms

There are a number of terms associated with complementary feeding that are used throughout this manuscript. Below is a description of the terms.

**Complementary Feeding.** The transition time from exclusive breast feeding, formula feeding, or a combination of both to introducing foods and liquids to an infant.

**Responsive Feeding.** Characterized as the caregiver provides what the infant will eat and attending to hunger and satiety cues while the infant decides how much to consume.

**Baby-led Weaning.** A method of feeding in which the caregiver provides the infant with softened whole foods and allows the infant to feed him or herself, as opposed to being spoon fed.

**Social constructivism.** A worldview that states multiple realities exist and are dependent on the individual (Guba as cited in Denzin & Lincoln, 2011).

**Infant age.** Infant age is defined as the time of life from birth to 12 months (CDC, 2019).

# Chapter II

## Literature Review

This section examines and summarizes the qualitative methodology utilized in this dissertation. Specifically, the phenomenological sub-approach transcendental phenomenology. Further, this section provides an examination of the literature that has addressed complementary feeding.

### *Phenomenology*

Phenomenology has a foundation in philosophy and can be traced to Edmund Husserl, a German mathematician, who pioneered new realms of philosophy and science (Moustakas, 1994; Starks & Trinidad, 2007). Phenomenology refers to knowledge as it appears to consciousness, the science of describing what one perceives, senses, and knows in one's immediate awareness and experience (Moustakas, 1994). Creswell and Poth (2018) define a phenomenological study as the common meaning for several individuals lived experiences of a phenomenon. While different philosophical arguments for the use of phenomenology are made, there is agreement on some common grounds to using phenomenology. The commonalities include the study of shared lived experiences, the view that the lived experiences are conscious ones, and the development of descriptions of the essences of these experiences, not explanations or analyses (Creswell & Poth, 2018; Moustakas, 1994).

Moustakas's (1994) transcendental phenomenology focuses on a description of the essences of the shared experience of individuals (Creswell & Poth, 2018). Moustakas (1994) describes transcendental as everything perceived freshly, as if for the first time. To achieve perceiving a phenomenon for the first time, Moustakas focuses on the concept

of Epoche (Creswell & Poth, 2018). Epoche, sometimes known as bracketing, requires the elimination of suppositions and the raising of knowledge above every possible doubt (Moustakas, 1994). More simply put, a researcher brackets, or sets aside their experiences, as much as possible, to take a fresh perspective toward the phenomenon of interest (Creswell & Poth, 2018; Moustakas, 1994).

Creswell and Poth (2018) state the procedures in conducting a transcendental phenomenology consist of identifying a phenomenon to study, bracketing researcher's experiences, and collecting data from 3 to 15 participants who have experienced the phenomenon. After data collection, researchers first analyze data by horizonalization (Moustakas, 1994). Horizonalization occurs when interview transcriptions are analyzed for significant statements that provide understanding of how participants experienced the phenomenon (Creswell & Poth, 2018).

Following horizonalization, significant statements are clustered into themes (Creswell & Poth, 2018). These statements and themes are used to develop individual textural and structural descriptions (Creswell & Poth, 2018; Moustakas, 1994). Textural descriptions describe what each participant experienced. Structural descriptions describe how participants experienced the phenomenon in terms of the conditions, situations, or contexts (Creswell and Poth, 2018). Finally, individual textural and structural descriptions form a composite description of the essence of the phenomenon (Creswell & Poth, 2018). The essence of the experience describes the overall experience of all study participants; what participants experienced and how they experienced it (Moustakas, 1994). This study used Creswell and Poth's (2018) procedures for data analysis for a phenomenology. Figure 1 shows a diagram of the procedures:

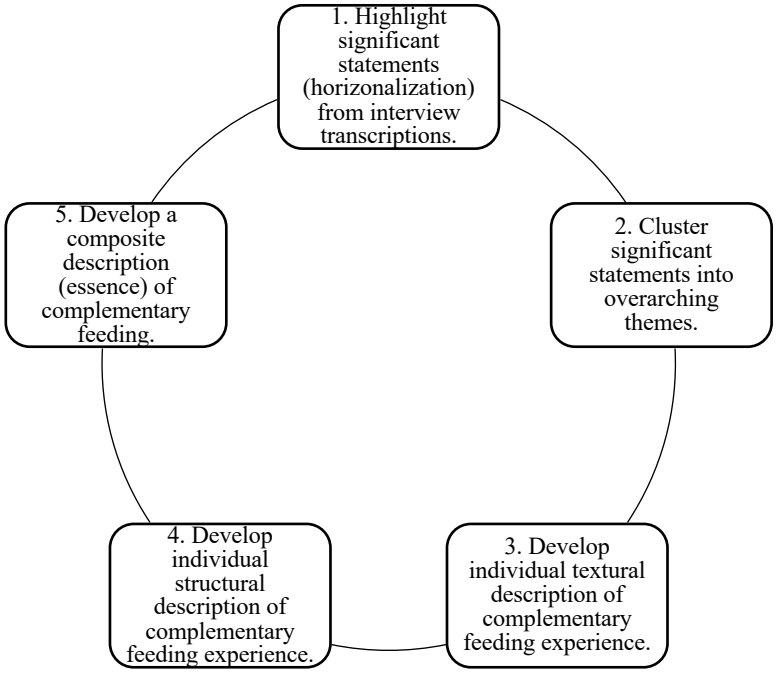


Figure 1: Process Diagram for Data Analysis

*Infants and Obesity*

During the first two years of life, many developmental stages occur. These stages of development include learning to sit, stand, walk, talk, and eat (Birch & Doub, 2014). Eating behaviors start to develop during infancy and gradually, over the first two years, provide all the nutrients a rapidly developing infant needs to ensure healthy growth and development (Dewey, 2011; Nicklaus, 2016). Developing healthy eating behaviors during this time of development is essential to the current and future health of the infant (Birch & Doub, 2014; Dewey, 2001).

Childhood obesity trends have been well documented since the 1970s. The Centers for Disease Control and Prevention (CDC) use body mass index (BMI) at or above the 95$^{th}$ percentile on the CDC sex-specific BMI-for-age growth chart to determine if a child is considered obese (Hales et al., 2017). The prevalence of obesity among children ages two to 19-years old has increased from approximately 5% in 1974 to 18.5%

in 2016 (Hales et al., 2017; Freedman et al., 2017). Childhood obesity trends are separated into age groups. Currently, 13.9% of children ages two to five are obese, 18.4% of children ages six to 11 are obese, and 20.6% of children ages 12 to 19 are obese (Hales et al., 2017). Lesser known are obesity rates of infants from birth to two years old.

Infant obesity rate is difficult to assess because there is no accepted definition for excess adiposity in infants under two years old (Roy et al., 2016). The American Academy of Pediatrics (AAP) currently uses weight-for-length to assess nutritional status from birth to two years (Roy et al., 2016). Using weight-for-length charts, infants in the 95$^{th}$ percentile or greater are considered at risk for obesity later in life. In 2014, 12.3% of infants participating in The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) were at or above the 95$^{th}$ percentile (Freedman et al., 2017). In Nebraska, 14.9% of WIC infants were at or above the 95$^{th}$ percentile for weight-for-length in 2004, and the most recent data from 2014 shows this rate has not changed (Freedman et al., supplemental information, 2017). Participation in the WIC program is based on income level. The above percentages represent low-income infants that are receiving WIC benefits and are not representative of the general population.

*Breastfeeding and Complementary Feeding*

The WHO has established feeding practice guidelines for infants and young children. These guidelines include:

- initiating breastfeeding within one hour of birth;
- exclusive breastfeeding for the first 6 months of life;
- introducing complementary foods at 6 months with continued, on-demand breastfeeding up to 2 years of age or beyond;

- practice responsive feeding;
- practice good hygiene and proper food handling;
- at six months, start with a small amounts of food and gradually increase the quantity as the infant gets older;
- gradually increase food consistency and variety as the infant gets older (Dewey, 2002).

The United States set new goals for breastfeeding in the release of Healthy People 2020. Healthy People 2020 target rates of breastfeeding include 81.9% of infants are ever breastfed, 60.6% of infants being breastfed at six months, 34.1% of infants breastfed at one year, 46.2% of infants exclusively breastfed through three months, and 25.5% of infants exclusively breastfed through six months (CDC, 2016). Current national rates indicate target percentages are not being met. According to the CDC (2016), 81.1% of infants from baby friendly hospitals and birthing centers are ever breastfed, 51.8% of infants are breastfed at six months, 30.7% of infants are breastfed at one year, 44.4% of infants are breastfed exclusively through three months, and 22.3% of infants are exclusively breastfed through six months.

Dieterich and colleagues (2013) grouped determinants of breastfeeding into five categories including demographic variables, biological factors, attitudinal characteristics, hospital practices and social variables. Examples of determinants of breastfeeding include:

- black women being less likely to breastfeed compared to non-black women;
- obese mothers are less likely to breastfeed than non-obese mothers;

- high maternal self-efficacy for breastfeeding is associated with prolonged breastfeeding;
- baby and breastfeeding friendly hospitals show improved breastfeeding duration compared to hospitals that are not part of the Baby Friendly Hospital Initiative;
- mothers who return to full-time work outside the home breastfeed for a shorter duration (Dieterich, Felice, O'Sullivan, & Rasmussen, 2013).

Benefits for both the breastfeeding mother and her infant have been observed. Health benefits for the mother include lowered risk of breast cancer, heart disease, ovarian cancer, and type two diabetes (Bartick et al., 2013; Chowdhury et al., 2015; Dietrich et al., 2013). Exclusive breastfeeding for the first six months of life provides infants with optimal nutrition, immune protection, and regulation of growth, development and metabolism (Dieterich et al., 2013). Breastfed infants have a reduced risk of asthma, ear and respiratory infections, obesity, sudden infant death syndrome (SIDS), and type two diabetes (Dietrich et al., 2013).

Complementary foods along with frequent, on-demand breast or bottle feedings make up an infant's dietary intake for up to two years or beyond (Dewey, 2002). The United States Department of Agriculture (USDA) has established dietary guidelines for persons ages two years and older. These guidelines include following and supporting a healthy eating pattern across the life span, eating a variety of nutrient dense foods, and limiting caloric intake from added sugar and saturated fat (USDA, 2015). In 2010, the 7$^{th}$ edition of the Dietary Guidelines for Americans recognized a need for a separate committee to review nutrition and physical activity needs for pregnant women and infants/young children from birth to two years old (Raiten et al., 2014). Currently, the

USDA is in the process of creating dietary guidelines for pregnant women and infants/young children ages birth to two years old. These guidelines have yet to be published, but are set to be released by the end of the year 2020.

The composition of infant's diet may have an immediate impact on development and can lead to either undernutrition or overnutrition (Spence et al., 2016; Ruel, Brown, & Caulfield, 2003). Undernutrition is mostly observed in low and middle-income countries while over-nutrition is typically observed in high-income countries. Research in the United States indicates the diet of infants and young children is similar to that of adults and are typically high in low-nutrient foods including sugary drinks, cookies, candy, desserts, while low in fruits and vegetables (Spence et al., 2016; Birch & Doub, 2014). Complementary foods should be healthy, nutrient-adequate foods including lean meats, fruits, vegetables, and snacks that are low energy but nutrient dense (Dewey, 2002). It is important to introduce healthy foods during infancy because food habits have an impact across the lifespan (Spence et al., 2016; Birch & Doub, 2014).

**Timing of Feeding.** Healthy infants are developmentally ready to start consuming complementary foods at the age of six months (WHO, 2008). The introduction of complementary foods prior to when an infant is developmentally ready has been associated with negative health outcomes. The negative health outcomes associated with introducing solid foods prior to when an infant is developmentally ready can be separated into two different categories. The first category of negative associations is nutrition related and include poor dietary intake, rapid weight gain potentially leading to unhealthy weight range, and chronic disease later in life (Birch and Doub, 2014; Dattilo et al., 2012; Dewey, 2001; Schwartz et al., 2011). The second category of negative associations tends

to be physiological and include altered posture, harming articulation of speech sounds due to strengthening of the speech organs, and harm to the function of chewing, swallowing, and breathing (Adair, 2012; Muniandy et al., 2016). Negative health outcomes associated with delaying infant complementary feeding to eight months of age or later include consumption of fewer fruits and vegetables later in life, micronutrient deficiencies, increased potential for food allergies, and late oral motor skill development (Barrera et al., 2018; Hetherington et al., 2011; Schwartz et al., 2011).

The Feeding Infants and Toddlers Survey (FITS) is one known data set that can provide insight into approximately how many infants are introduced to solid foods before recommendations. Data from the 2002 FITS found 26% of infants were fed infant cereals before the age of 4 months (Huh et al., 2011; Saavedra et al., 2013). FITS data from 2008 found 10% of infants were fed solid foods before the age of 4 months (infant cereal) (Saavedra et al., 2013; Siega-Riz et al., 2010). While the data does show improvement in the timing of the introduction of solid foods, recommendations are still not being met. Barrera and colleagues (2018) reported previous studies conducted in the United States, while not nationally representative, found 20% to 40% of infants were introduced to new foods prior to four months of age. After examining NHANES data from 2009 to 2014, Barrera and colleagues (2018) found 16.3% of U.S. infants were fed foods prior to four months of age.

*Food Allergies*

An allergy is a response to an allergen, in this case food or a food substance, in which specific immunoglobulin E antibodies activate leading to an inflammatory response (Portnoy, 2015 as cited in Larson et al., 2017). The foods most likely to induce

an allergic response in infants include eggs, cow's milk, peanuts, fish, tree nuts, wheat and soy (Fiocci et al., 2006). The severity of the response, or allergic reaction, to potential food allergens varies amongst individuals. A mild allergic response may include sneezing, hives, an itchy mouth or throat, nausea or vomiting, and diarrhea (Larson et al., 2017). More severe allergic responses include obstructive swelling of the lips, tongue, and/or throat, difficult swallowing, shortness of breath, and anaphylactic shock (Larson et al., 2017).

It was previously believed allergic reactions occurred through exposure and therefore the most effective way to prevent food allergies was by delaying the exposure to potentially allergenic foods (Sansotta et al., 2013). From the 1990s until about 2005, avoidance of potentially allergenic foods including peanuts, eggs, and cow's milk for at least the first year of life was recommended by many clinical allergy societies (Netting et al., 2017). The avoidance of these foods was an effort to stop new and rising rates of food allergy (Netting et al., 2017). Since 2005, recommendations have changed to not delay the introduction of potentially allergenic foods (Muraro et al., 2014; Netting et al., 2017). Findings from observational studies and randomized control trials, showed an almost 50% increase in food allergy prevalence for children under the age of 18 years and led to current recommendations (Larson et al., 2017; Netting et al., 2017). Observational studies suggest the delay in introducing potentially allergenic foods was not associated with reduced food allergy (Netting et al., 2017). The Learning Early about Peanut (LEAP) study was a randomized control trial and found the early introduction to peanuts significantly decreased the frequency of peanut allergy among high risk children (Du Toit et al., 2015). This study concluded delaying the introduction of peanuts past 11 months in

infants with eczema and egg allergy (high risk) is associated with increased risk of peanut allergy (Du Toit et al., 2015; Netting et al., 2017).

*Food Preferences*

The belief that food preferences are innate and unlearned was termed the "wisdom of the body" theory (Birch, 1999). The wisdom of the body theory suggested the environment has little to do with food preferences and food preferences reflected an innate need for nutrients including sugar, salt, fat, protein, carbohydrates, and micronutrients (Birch, 1999). Now, food preferences are believed to have developed from the interaction between genetic predispositions and the food environment (Birch, 1999; Birch and Doub, 2014; Gibson and Cooke, 2017).

Genetic predispositions toward food include an evolutionary preference for sweet and salty food and the rejection of bitter and sour foods (Birch, 1999). The food environment influence on food preferences early in life stem from the ability to learn preferences for foods that are offered often and are based on the contexts and consequences of eating them (Birch, 1999; Gibson and Cooke, 2017). In an environment with limited food availability, it is believed genetic predisposition to sweet foods evolved to promote the consumption of edible foods that were good sources of needed nutrients and to encourage the consumption of breastmilk (Birch, 1999; Gibson and Cooke, 2017; Scaglioni et al., 2018). The rejection of bitter and sour foods may be an evolved mechanism to protect humans from consuming foods that are poisonous (Birch, 1999; Gibson and Cooke, 2017).

The current food environment is characterized as having abundant availability of inexpensive, energy-dense, palatable foods (Birch and Doub, 2014). This energy-dense

food environment has been around for a short period of time and humans have yet to adjust genetic predispositions to food preferences in an obesogenic environment. Because the preference for sweet and salty foods have evolved over hundreds of thousands of years, focusing on the genetics of food preferences may not be as effective of a strategy to shape food preferences as focusing on the food environment (Birch, 1999).

*Food Neophobia*

Food neophobia is defined as avoidance of trying new or unfamiliar foods (Gibson and Cooke, 2017). According to Rozin and colleagues, as cited by Ventura and Worobey (2013), the strongest factor for food neophobia in infants is the dislike of the sensory characteristics of a food. In other words, food neophobia tends to start out as the dislike of new tastes and textures. While the initial dislike of new tastes and textures exists, most researchers agree food neophobia in the first year of life is minimal (Birch, 1999; Moding and Stifter, 2016). When rated by their mothers, infant's reactions to novel foods tend to be positive (Moding and Stifter, 2016). During the toddler and preschool age, neophobia increases, and by approximately six years old, food neophobia declines (Birch, 1999; Gibson and Cooke, 2017; Moding and Stifer, 2016).

While food neophobia does exist during infancy, the food environment and number of exposures to food can increase the consumption of novel foods (Birch and Doub, 2014; Gibson and Cooke, 2017; Moding and Stifter, 2016). At the time of infancy, food preference and the food environment provided by caregivers are the main determinants to intake (Birch and Doub, 2014). Foods regularly made available to infants by caregivers are likely to become familiar and preferred foods. Until new foods become

familiar, it is possible for infants to have neophobic reactions and reject these novel foods and flavors (Birch and Doub, 2014).

While evidence is limited, at the early stages of introducing new foods, the effects of exposure on the development of food preferences may be the greatest (Birch and Doub, 2014). During infancy, one exposure to a novel food can more than double consumption of the new food on the subsequent offer (Birch, Gunder, Grimm-Thomas, and Laing, 1998, as cited in, Moding and Stifter, 2016). Early experience with a variety of flavors in pureed foods has been found to promote acceptance of other unfamiliar flavors (Birch and Doub, 2014). A few studies have also found that early exposure to flavor variety and regular breastfeeding has been associated with lower occurrence of food neophobia (Gibson and Cooke, 2017).

*Baby Led Weaning*

The traditional approach to feeding is identified as spoon-feeding purees before moving on to more solid mashed and finger foods (Cameron, Heath, and Taylor, 2012). A newer approach to feeding is baby led weaning. Baby led weaning is a method of feeding in which the caregiver provides the infant with softened whole foods and allows the infant to feed him or herself, as opposed to being spoon fed (Brown and Lee, 2013; Cameron, Heath, and Taylor, 2012). Baby led weaning emphasizes developmental readiness of the infant for introduction to complementary foods, suggesting the infant is ready for complementary foods when he or she is physically able to self-feed (Brown and Lee, 2013).

While research on baby led weaning is limited, both negative and positive benefits have been found (Gomez et al., 2020). Negative outcomes associated with baby

led weaning include increased risk of choking, greater probability of low energy intake, and low micronutrient consumption (Gomez et al., 2020). Positive benefits associated with baby led weaning include increased self-regulation of food intake, higher consumption of fruits and vegetables, improved development of motor skills, and positive effects on parent behavior (Gomez et al., 2020).

*Responsive Feeding*

Responsive feeding comes from the theoretical framework of responsive parenting. Responsive parenting occurs when infants and caregivers learn to recognize verbal and nonverbal communication (Black & Aboud, 2011). This process forms an emotional bond or attachment between the infant and caregivers that is essential to healthy social-emotional functioning (Black & Aboud, 2011). Schwartz et al. (2011) define responsive feeding as recognizing the child's developmental abilities in respect to feeding, balancing the child's need for assistance with encouragement to self-feed, allowing the child to initiate and guide feeding, and responding appropriately to hunger and satiety cues. According to Black and Aboud (2011), the responsive parenting framework can be applied to feeding.

Currently, responsive feeding is thought of as the most appropriate way to feed starting at breastfeeding and continuing to the complementary feeding stage (Black & Aboud, 2011; Schwartz et al., 2011). When complementary foods are introduced to infants it is the responsibility of the parent to decide what and when to feed their infant and the infant decides how much to consume (Butte et al. as cited in Schwartz et al., 2011). Black and Aboud (2011) breakdown responsive feeding into three sections. First, the caregiver ensures feeding is pleasant with few distractions, the child is seated

comfortably facing others, expectations are communicated clearly, and the food is healthy, tasty, developmentally appropriate, and offered on a schedule when the child is hungry. Second, caregivers are encouraging and attending to the child's signals of hunger and satiety. Last, caregivers respond to the child in a prompt, emotionally supportive, contingent, and developmentally appropriate manner.

*Qualitative Studies on Complementary Feeding*

Qualitative approaches to studying complementary feeding practices has enhanced the understanding of this phenomenon. Qualitative studies on complementary feeding themes include: inconsistencies between sources of complementary feeding information; describing infant feeding as a process involving different stages; parents' engaging in feeding methods based on instinct or trial and error; and problems with cost of complementary foods and time constraints parents face that interfere with feeding (Matvienko-Sikar et al., 2018).

In the United States, qualitative studies have been conducted in low income populations including Native Americans in a Midwest state and WIC mothers (Horodynski, Calcatera, and Carpenter, 2012; Kavanagh et al., 2010; Savage et al., 2016). Results from these studies have increased the understanding of maternal feeding practices, for example, in identifying influence by health professionals (Horodynski, Calcatera, and Carpenter, 2012); solid foods being offered when the mother perceived her infant wanted the food and cues to wanting solid food include staring at and grabbing/reaching for foods (Horodynski, Calcatera, and Carpenter, 2012; Kavanagh et al., 2010); that mothers receive conflicting advice from healthcare professionals, WIC nutritionists and family members leading to confusion (Kavanagh et al., 2010; Savage et

al., 2016); dissatisfaction with one sized fits most approach to complementary feeding (Savage et al., 2016); and mothers relying on their instinct when deciding on what feeding guidance to follow (Savage et al., 2016).

## Conclusion

Existing literature demonstrated that dietary intake during infancy tends to mimic adult diets and are often high in calorie dense foods and lacking in fruits and vegetables. Food preferences were found to be influenced by both genetic predisposition and the food environment. While influencing genetics in the short term is not possible, during infancy, the food environment is dependent on caregivers feeding practices. Based on present literature, feeding practices start to develop during infancy and can have impacts on eating behavior through adulthood. This literature review also found several aspects of low-income mothers' complementary feeding experiences highlighted, including receiving confusing and conflicting complementary feeding advice, relying on instinct to decide what feeding guidance to follow, and dissatisfaction with general feeding guidance instead of receiving guidance specific to her situation. The experiences with complementary feeding from a first-time mother's perspective is understudied.

# Chapter III

## Methodology

This chapter provides a rationale for a qualitative approach to understand mothers' experiences with complementary feeding using a transcendental phenomenology approach. A description of this study's worldview – constructivism - follows the rationale. Creswell and Poth (2018) suggest researchers engage in reflexivity and openly discuss their experiences with the phenomenon under exploration. This positioning of oneself in the research enables readers to see how the researcher may have interpreted data. In the case of this study, my desire to understand feeding experiences of first-time mothers as they enter a time of feeding transition was informed by my educational backgrounds in nutrition and behavioral science and by the knowledge that early eating experiences shape long-term dietary behaviors. After research positioning, this section presents ethical considerations, sample selection, recruitment, data collection, data analysis, and strategies to overcome potential biases of qualitative research.

### *Rationale for Qualitative Research Methods*

Creswell and Poth (2018) state qualitative research is conducted because an issue needs to be explored and research is needed to study a group, identify variables that cannot easily be measured, or to hear silenced voices. Phenomenological methodology explores and describes a common phenomenon experienced by many individuals. Through an extensive literature review, few studies were found that examined complementary feeding practices from the perspective of first-time mothers. As a result of this finding, an in-depth study of complementary feeding practices is needed to understand the unknowns of complementary feeding practices of first-time mothers. It is

difficult at this juncture to quantitively assess complementary feeding due to unknown variables that have yet to be identified and understood. Much of the unknown variables can be discovered in our understanding of complementary feeding from qualitatively exploring how new mothers perceive her experiences with introducing new foods to her infant.

Transcendental phenomenology is designed to discover the process of lived experiences shared by a group of individuals (Moustakas, 1994) and situates itself comfortably in the constructivist world view. Transcendental phenomenology is suited well to explore the shared realities of individuals who have experienced a shared phenomenon, such as first-time mothers who have experienced the transition from milk feeding to complementary feeding. Ultimately, this qualitative approach allowed this study to create themes to answer the research questions as well as create textural and structural descriptions to understand the essence of this group of participants' experience with complementary feeding.

*Researcher Positioning*

When conducting qualitative research, the researcher must acknowledge that his or her own background and experiences shape their interpretations (Creswell & Poth, 2018). In this study on infant complementary feeding practices, prior to interviewing participants, it was important to recognize and discuss any experiences with the phenomenon to become aware of any possible prejudices, viewpoints, and assumptions (Merriam & Tisdell, 2016). Creswell and Poth (2018) use the term bracketing, meaning to set aside ones' experiences as much as possible to take a fresh perspective toward the phenomenon under examination. This process, developed by Edmund Husserl, is known

as Epoche. Moustakas (1994) describes Epoche as setting aside the everyday understandings, judgements, and knowings. It is not fully understood if a researcher can completely set aside bias (Moustakas, 1994). Husserl believed it was possible, while Moustakas did not believe it was possible. Epoche was a difficult process that required patience and several sessions to achieve an inward clearing toward a person, situation, or issue (Moustakas, 1994).

Whether or not it is possible to completely set aside bias, the principal investigator engaged in the process of Epoche outlined by Moustakas (1994) to limit the influence of biases from personal experiences with nutrition and infant feeding in this study. Personal experiences set aside included an in-depth knowledge in the nutrition field and behavioral science, research experiences, personal family feeding practices, feeding practices of friends, and volunteer work with the University of Nebraska – Lincoln Health Education Extension office.

Approximately ten minutes of a deep thought process, similar to meditation, was used to reflect on and set aside previously stated experiences. During this meditation like process, the principal investigator continually examined all of his experiences with nutrition and feeding practices to reduce the possibility these experiences added bias to the study. During this process, the principal investigator consciously reminded himself these experiences should not influence how these data were viewed and interpreted. This constant reminder allowed for viewing these data from the perspective of the participant reducing researcher bias. All of these experiences were bracketed prior to reading transcripts or data analysis in order to take a fresh look at first-time mothers' experiences with complementary feeding practices.

*Theoretical Lens*

Social constructivism is a worldview that states multiple realities exist and are dependent on the individual (Guba as cited in Denzin & Lincoln, 2011). Constructivist research does not start with a theory about the phenomenon of interest; instead, a theory or pattern of meaning is developed through interpretation of what is found during the study (Creswell and Poth, 2018). Individuals seek understanding of the world in which they live and work (Creswell & Poth, 2018). Denzin and Lincoln (2011) state that knowledge is socially constructed therefore individuals develop subjective meanings of their experiences. In the case of the current study, mothers construct a reality to complementary feeding that is it uniquely theirs. Often times these meanings are formed through interactions with others, historical norms, and cultural norms (Creswell & Poth, 2018). This dissertation utilized the theoretical lens of social constructivism to understand experiences with complementary feeding, since one-way mothers construct reality with complementary feeding is through unique life experiences.

*Ethical Considerations*

When considering ethics in qualitative research, the researcher needs to ensure the protection of participants from harm, the right to privacy, the notion of informed consent, and the issue of a perceived power dynamic between participant and researcher (Merriam & Tisdell, 2016). Prior to data collection, approval to conduct this study was received from the University of Nebraska – Lincoln Institutional Review Board (IRB) on June 26th, 2019. Participants had the informed consent document explained to them to ensure they understood the research and their rights. Participants were given a signed copy of the informed consent document.

Several steps were taken to protect participants from potential harm and emotional stress due to the possibility of nutrition being a sensitive topic. The principal investigator ensured participants they could stop the interview at any point. Stopping the interview would not negatively affect the relationship between the participant and the interviewer or the University of Nebraska – Lincoln. Receiving IRB approval prior to participant recruitment, a thorough explanation of the study prior to participation in the study, the use of pseudonyms in place of participants' actual names, and obtaining informed consent were approaches used to protect participants.

During the study, it was possible a perceived power dynamic between participant and researcher could occur. To overcome perceptions of power dynamics between the participant and researcher, building trust was important. Though time spent with participants was limited, to build trust prior to the interview, the researcher had a conversation to get to know the participant and answer any questions they had about the researcher or the study.

Participants' privacy was another important priority of this study. Interviews were conducted in a private setting and conducted only by the principal investigator to protect the identity of participants during interviews. During the study, pseudonyms were used to ensure confidentiality, and all mention of names, place of employment, and locations were redacted from transcripts and replaced with labels such as "[husband]" or "[place of employment]." Any collected documents and audio recordings were kept in a locked file cabinet that only the principal investigator had access to. Electronic data including codebook, transcripts, and research data from NVivo 12 (QSR International Pty Ltd. Version 12, 2018.) were kept on the principal investigator's password protected

computer. Audio recordings were uploaded onto the principal investigator's computer following the interview as a backup in case something happened to the audio recorder. Once audio recordings were transcribed, the audio recordings on the audio recorder were deleted. While it is possible to keep all study documents and data for up to 5 years, per IRB, the signed informed consent documents and audio recordings uploaded to the computer were destroyed at the completion of this dissertation. Finally, member checking, defined as soliciting participants' views of the credibility of the research findings and interpretations, was employed in the study for validity, credibility of findings, and ethical responsibility (Creswell and Poth, 2018; Merriam and Tisdell, 2016). When individual results were completed, member checking was used through the sharing of individual textural – structural descriptions.

*Sample Selection*

This dissertation employed a purposeful, criterion-based sample of 15 first-time mothers who had introduced foods other than milk to their infant. Inclusion criteria to participate in this study included being an English-speaking, first-time mother of childbearing age (19 to 49 years of age) (Parker et al., 2013), who had started complementary feeding, and whose infant was between the ages of four months to twelve months old. Participant recruitment was complete once theme saturation was met and not a specific number of participants recruited. Theme saturation was reached when responses to interview questions were the same; there were no new insights forthcoming (Merriam & Tisdell, 2016). In this study, theme saturation was determined by the principal investigator at interview 12, as there were no new data emerging during the analysis of participant twelve's data, but interviews 13 – 15 were completed, nonetheless.

A researcher must select a sample from which the most can be learned (Merriam & Tisdell, 2016). In this study, purposeful sampling and chain sampling were used. A purposeful sampling technique is used to intentionally sample a group of people who can best inform the researcher about the phenomenon under examination (Creswell & Poth, 2018). Chain sampling identifies cases of interest from study participants who have acquaintances who fit inclusion criteria (Creswell & Poth, 2018). The rationale for using purposeful sampling is to discover, understand, and gain insight into participants' experiences with complementary feeding. The purposeful sample in this study was first-time mothers. Chain sampling occurred because participants shared they have a friend or family member who would be interested in the study. In these cases, a recruitment flier was provided to participants to share with the person they knew who fit the inclusion criteria.

*Recruitment*

Participant recruitment occurred through organizations in a Midwestern city that had access to the study population, their social media accounts (social media posts were open to the public and were shared by others), and word of mouth through the principal investigator or study participants' networks including friends, family members, or place of employment. Recruitment fliers were handed out to mothers who fit the inclusion criteria at these organizations by staff members or the principal investigator. Fliers were also placed in public areas around the Midwestern city.

*Data Collection*

Data were collected using a semi-structured interview protocol. The interview guide was developed by the principal investigator and was based on transcendental

phenomenology and research interests. A broad question asking the participant to describe their experiences with complementary feeding allowed the study to examine the "what" and "how" of the phenomenon and develop the essences of the group's experience. Questions were also developed to gather data and answer research questions. These questions included describing potential challenges and facilitators to complementary feeding, where participants sought information about complementary feeding, possible impacts the transition to complementary feeding has on the mother, and frequency of daily complementary feedings (For all interview questions, see appendix A). The interview protocol was semi-structured to allow the interviewer to ask the participant to further explain a statement when appropriate. The interview protocol also included demographic questions.

Prior to this study, the interview protocol was pilot tested with two first-time mothers whose infants were between four to 12 months old. Data from these interviews were not included in the current study. The pilot test was approved by the University of Nebraska – Lincoln IRB on March 3rd, 2019. Each participant was interviewed one-on-one and at the end of the interview was asked four questions related to the interview, which included:

- Did you have difficulty understanding any of the interview questions and, if so, which questions and how could I make them easier to understand?
- Are there any questions related to complementary feeding practices I missed that you believe I should add?
- Is there anything else you would like me to know about the interview questions?
- Is there anything you would like me to know about the interview process?

The two participants stated they could understand all of the questions on the interview protocol and the questions were appropriate for exploring complementary feeding. Based on the suggestion of one of the participants, a question was added asking the number of daily complementary feedings given to the infant. Neither participant stated anything to improve the interview process.

The location of the interviews were determined by the participant. Private locations to conduct interviews included the principal investigator's office, a room at a local community breastfeeding organization, or at the participant's home. Interviews were audio recorded and, following the interview, downloaded and stored on a password protected computer. The audio recorded interviews were transcribed verbatim into a Microsoft document by the principal investigator. Verbatim transcription by the principal investigator helped to ensure a deep understanding of the data. Transcribed data were copied into NVivo 12 (2018). NVivo 12 qualitative data analysis software (2018) was used to manage data, assist in theme development, and create a codebook.

Memoing played a complementary role during a study and helped track the development of ideas through the process (Creswell & Poth, 2018). Memoing occurs when the researcher writes down ideas or observations that may occur during interviews, initial exploration of collected data, and data analysis (Creswell & Poth, 2018). Memos are described by Miles, Huberman, and Saldana (2014, as cited in Creswell & Poth, 2018) as "not just descriptive summaries of data but attempts to synthesize in them into higher level analytic meanings." In this study, memos were written by the principal investigator for reflection throughout the entire study. During the interviews, memos were kept on the interview process, when more probing may be necessary, and nonverbal

reactions during the interview. Memoing during the initial exploration of data were used in this study to help build a sense of the data as a whole without getting caught up in the details of coding (Creswell & Poth, 2018). Referred to as *annotation* in NVivo 12, memoing during data analysis tracked the evolution of codes and theme development (Creswell & Poth, 2018).

*Data Analysis*

NVivo 12 qualitative data analysis software (2018) was used to manage data. Following Epoche, the principal investigator annotated initial thoughts of the participant's experience to become more familiar with the data. After the initial reading of the transcript, the principal investigator highlighted relevant statements or sentences that provide an understanding of the participants' experiences with complementary feeding – a process known as horizonalization (Moustakas, 1994). To conduct this in NVivo, the nodes function is used. Following this round of coding, the principal investigator read through all initial nodes. The nodes were sorted and either grouped together or deleted if repetitive. This step "cleans up" the initial noding. The relevant statements were then transferred to a document to develop clusters of meaning and themes (Creswell & Poth, 2018).

To create themes, structural coding and in vivo coding were used together. Structural coding applied a content-based phrase to a segment of data that relates to a specific research question to both code and categorize these data (Saldana, 2016). Structural coding was selected to answer the study research questions of interest. Saldana (2016) states structural coding is appropriate for exploratory investigations to gather indexes of major themes. In vivo coding was also used to code data. In vivo coding used

words or phrases from the participant's own language as codes or themes (Saldana, 2016). In vivo coding allowed the principal investigator to honor the participant's voices (Saldana, 2016). This study was interested in complementary feeding from the perspective of the participants and answering research questions, therefore it was appropriate to use in vivo coding along with structural coding.

Once themes were developed, individual textural and structural descriptions were created. Textural descriptions described what the participant experienced, and structural descriptions described the context that influence how the participant experienced the phenomenon (Creswell & Poth, 2018; Moustakas, 1994). From the textural and structural descriptions, a passage was created that focused on the common experiences of the participants known as the essence of the phenomenon (Creswell & Poth, 2018; Moustakas, 1994).

*Data Validation*

This study took steps to provide evidence the study was valid and reliable. Validity and reliability are terms historically associated with quantitative research. Lincoln and Guba (1985) reframed validity, reliability, and generalizability under the term trustworthiness. To establish trustworthiness, Lincoln and Guba (1985) state that a study needs to follow several techniques to show credibility, transferability, dependability, and confirmability (Creswell & Poth, 2018; Lincoln & Guba, 1985). Eisner (1991), quoted by Creswell and Poth (2018), state "we seek a confluence of evidence that breeds credibility, and this allows us to feel confident about our observations, interpretations and conclusions" (pg. 256). Angen (2000) is quoted in the Creswell and Poth (2018) text and suggests "validation is a judgment of the

trustworthiness or goodness of a piece of research" (pg. 257). The following paragraphs highlight several techniques used to show rigor of this study.

Steps to build credibility and reliability in this dissertation included engaging in Epoche, member checking of results, collaboration with participants, the use of multiple coders, and negative case analysis. Lincoln and Guba (1985) consider member checking the most critical validation technique. Member checking requires researchers to take data, analyses, interpretations, and conclusions back to participants so they can provide feedback on accuracy and credibility (Creswell & Poth, 2018). Following data analysis and completion of individual textural – structural descriptions, member checking was employed. Participants were emailed a copy of themes and results from their interview and were asked to provide feedback on the accuracy of the principal investigator's interpretations. A sub-sample of four participants completed member checking. Participant recommendations were reviewed, considered and incorporated. Any changes made to individual findings were then addressed in the final essence of the phenomenon.

Collaborating with participants gave them the opportunity to be involved throughout the research process (Creswell & Poth, 2018). When participants are involved throughout the research process, research has found the study is more likely to be supported and findings used (Creswell & Poth, 2018). As previously stated, the semi-structured interview protocol was pilot tested by two first-time mothers separate from the current study. Member checking of the interview guide was another way this study involved the participants throughout the research process.

As described by Creswell and Poth (2018), peer review is conducted by experts in fields related to the study. The peer review process keeps the researcher honest by asking

and making the researcher consider difficult questions about methods, meanings, and interpretations (Creswell & Poth, 2018). A fellow graduate student with experience in qualitative research and nutrition was the second coder (A.T.) in this study. A.T. analyzed transcripts resulting in a peer review of data. Codes and themes created by the principal investigator were compared with those created by A.T. Although few differences were found between coders, when interpretations of the transcripts differed, a discussion was had to clarify the interpretations. Mutually agreed upon recommendations to results were considered and incorporated to 100% agreement.

Negative case analysis involves a researcher refining working hypotheses as the inquiry advances in light of rival evidence (Creswell and Poth, 2018). In the case of this study, differing experiences with some aspects of complementary feeding were taken into consideration when coding and theming these data. It was necessary to investigate the differing cases to get a complete understanding of the socially constructed realities each participant has constructed of complementary feeding practices. This study was aware of a few negative cases and followed these "points of intrigue" throughout the study (Creswell and Poth, 2018). For instance, most participants told of experiences that highlighted being unprepared for introducing new foods. However, one participant only told positive experiences; as though she was completely prepared for complementary feeding. One stand-alone difference found in the interview that could be a possible explanation, though further interviews would be needed to draw a conclusion, for this differing case was her infant's grandmas provided care when the participant went to work. It is possible the grandmas were more involved with preparing this participant for introducing new foods, but this was not investigated in this study.

# Chapter IV

# Findings: Themes

The purpose of this study was to examine first-time mothers' experiences with complementary feeding. This chapter includes a description of participant characteristics and demographics, themes that emerged from the data, a section to answer proposed study questions, and individual textural and structural descriptions, and the essences of the experience.

## *Participant Information*

Fifteen first-time mothers living in the central United States volunteered to be in the study. The names given to the mothers in this study are pseudonyms to maintain anonymity. The participants' ages ranged from 20 to 37 years old, with average age being 27.5 ± 4.91 years old and majority (87%) reporting a full-time employment status. Twelve participants identified as Caucasian. The other three participants' race were self-described as Black, Mexican, and Native; Native American; and Black. The infants' ages ranged from four and a half months to twelve months old, with average age being 8.43 ± 2.48 months old. Forty percent of participants reported feeding breast milk only, 40% fed a combination of breast milk and formula milk, and 20% fed formula milk only. The average age of the infants' at the introduction of complementary feeding was 5.77 ± 1.21 months old. One participant's infant had delayed muscle development in the neck and shoulder area known as hypotonia which has an impact on eating. While this health problem likely has an impact on complementary feeding experiences, the data from this interview were included and will be discussed later in this section. Tables 4.1 and 4.2 summarize demographic data and other relevant characteristics.

Table 4.1: Participant Demographics and Characteristics

| Demographic Characteristics of the Sample of First-Time Mothers and Infant Characteristics | | | | | | | |
|---|---|---|---|---|---|---|---|
| Pseudonym | Age (Years) | Race | Employment Status | Type of Milk Fed to Infant | Infant Age (Months) | Known Health Problem Impacting Eating | Infant Age (Months) at Introduction to complementary food |
| Emma | 37 | Caucasian | Full-time | Breast milk | 10 | No | 7 to 8 |
| Claire | 30 | Caucasian | Full-time | Combination of breast milk and formula | 10 | No | Approx. 5 |
| Olivia | 29 | Caucasian | Full-time | Breast milk | 6 | No | 5 |
| Ava | 35 | Caucasian | Full-time | Combination of breast milk and formula | 11.5 | No | Approx. 6 |
| Mia | 22 | Black, Mexican, Native | Unemployed | Breast milk | 8 | No | 6 |
| Kate | 28 | Caucasian | Full-time | Breast milk | 7 | No | 6 |
| Sue | 29 | Caucasian | Full-time | Formula milk | 7 | No | 6 |
| Grace | 27 | Caucasian | Full-time | Breast milk | 10 | No | 8 to 9 |
| Emily | 28 | Caucasian | Full-time | Breast milk | 6 | No | Approx. 6 |
| Sarah | 30 | Caucasian | Full-time | Combination of breast milk and formula | 6.5 | No | 5 |
| Ella | 29 | Caucasian | Full-time | Combination of breast milk and formula | 10 | Yes – Delayed muscle development | 6 to 7 |
| Lily | 20 | Native American | Part-time | Combination of breast milk and formula | 6 | No | 4 |
| Tracy | 27 | Caucasian | Full-time | Formula milk | 12 | No | 4 |
| Jenna | 21 | African American | Full-time | Formula milk | 12 | No | 6 |
| Kelly | 21 | Caucasian | Full-time | Combination of breast milk and formula | 4.5 | No | 4.5 |

Table 4.2: Summary of Demographic Characteristics

| Summary of the Demographic Characteristics of the Sample of First-Time Mothers in a Midwest City | | |
|---|---|---|
| Variable | Frequency (n) | Percent |
| Age (19 to 49 years) | | |
| 1. Yes | 15 | 100 |
| 2. No | 0 | 0 |
| Race | | |
| 1. Caucasian | 12 | 80 |
| 2. African American | 1 | 6.66 |
| 3. Native American | 1 | 6.66 |
| 4. Hispanic | 0 | 0 |
| 5. Asian | 0 | 0 |
| 6. Other | 1 | 6.66 |
| Employment Status | | |
| 1. Full-Time | 13 | 86.66 |
| 2. Part-Time | 1 | 6.66 |
| 3. Unemployed | 1 | 6.66 |
| Type of Milk Feeding | | |
| 1. Breast Milk | 6 | 40 |
| 2. Formula Milk | 3 | 20 |
| 3. Combination of Both | 6 | 40 |
| Known Health Problem that Impacts Eating | | |
| 1. Yes | 1 | 6.66 |
| 2. No | 14 | 93.33 |
| Infants Age (4 to 12 months) | | |
| 1. Yes | 15 | 100 |
| 2. No | 0 | 0 |
| Infants Age (months) at Introduction to Complementary Food | | |
| 1. Prior to 6 | 6 | 40 |
| 2. 6 to 9 | 9 | 60 |

In this study of how first-time mothers perceive the phenomenon of complementary feeding, participants described this transition as “frustrating,” “stressful,” “a time commitment,” “worry,” “complicated,” “in the dark,” but also used words such as “fun,” “exciting,” “entertaining,” or “laughable.” Themes emerged showing the complexity of a new phase of feeding; that introducing new foods was a slow process of mother learning to feed baby, like starting back over from the very beginning. Mothers indicated having a support system in place - whether family, a friend, or a Facebook group - was vital in overcoming the uncertainty of transitioning from milk feeding to complementary feeding. Regardless, complementary feeding seems to be a new phase of

exploration for infants which mothers have been left to figure out mostly on their own. In the words of one participant, Sarah, "[I am] still just trying to figure it out... I am just going with the flow." It is the theme of "going in pretty blind" that shows mothers may be inadequately prepared for this new phase of feeding and which begins this chapter. Results will be presented in terms of each research question.

Research Question 1. How do first-time mothers describe experiences with complementary feeding practices? Themes 1 through 5 described these experiences.

**Theme 1. "Going in Pretty Blind."**

A common theme which emerged among most participants was how first-time mothers perceived the transition to introducing new foods as "going in pretty blind." The findings of this study suggest as mothers transition into this new phase of feeding there may be uncertainty about complementary feeding that leads to feeding by "trial and error." When asked about experiences with complementary feeding, Lily stated "I kind of just take it day by day. Sometimes I am like am I doing this right? I don't know if I should feed her this. It is a learning experience. I take it day by day." Another participant, Claire, stated the following about being a first-time mom, trying new foods and navigating this time by saying:

> As a first-time mom, I, I mean I didn't know anything. So, um, kinda like I mentioned before. I really have just been going in pretty blind and just slowly trying new foods.
>
> You're not supposed to give babies apples. I didn't know that so... So, um, I mean she was fine. It's just that they are harder. That was the reason why. I was like, oh gosh, did I poison my kid, but no, it's because they are a little harder. But, yea, so it's just really a lot of trial and error and there's really not a lot of direction. So it's really hard.

> And, also knowing when to try new stuff is, it's really a gamble.. it's I don't know, so I'll give her something and then, um, oh, I probably should have waited.
>
> It's really just trying to figure it out myself kind of a thing and I mean I know my pediatrician is available if I ever need to call, but it's just easier I guess to do it this way.

Tracy shared similar feelings around this challenging stage of transition with complementary feeding. Tracy described second guessing herself on whether or not she was doing the right things or feeding adequately. Tracy stated:

> It was tough. I mean I would think being first-time you question are you doing the right thing? Am I giving him the right amount? Um, and then the consistency of that. Cause you are so used to doing bottles every two hours. I was kind of nervous. Like, now am I going to do 3 times a day cause we are used to 3 times a day meals. Or am I doing it wrong by not doing it [feeding complementary foods] 3 times a day. So I think, kind of trial and error.
>
> It was challenging. I mean, you know, not to really have that cut and dry, are you doing the right thing. So maybe if, I wish more moms would know, or should know that it's not so bad. Or, you know, you are not always doing the wrong thing. As a first-time mom you want to get it right and not make mistakes. You know, it's tough. You kind of just have to trial and error a lot.

Some mothers approached complementary feeding with a "trial and error" method and just kept trying different food items to see what worked and what did not. When Emma was asked to describe her experiences with complementary feeding, she stated the following, "I think mostly just, trial and error as far as what they are going to like and what they aren't going to like. Keep trying it over and over." Ava stated that "I just went for it and I started introducing more solids like, um, not just the purees and mash ups, I would introduce like full fruits." However, when experimenting with trying different foods, there was also a level of apprehension for some around what is considered

appropriate. Found within this theme is “being in the dark”. When Sue described experiences with complementary feeding, she stated:

> Um, you know, if there are certain foods that we are not supposed to feed her until she’s older obviously we won’t, so. That we are kind of in the dark about that, too. What’s ok and what’s not ok.

**Theme 2. An Array of Feelings.**

Another common theme among many participants was the contrasting collection of feelings to describe complementary feeding. Findings from this study suggested the transition to complementary feeding varied from an emotional experience to stressful to excitement. Some of Ella’s experiences displayed her feelings toward transitioning to complementary feeding. When she was asked about the impact the transition to foods other than milk had on her, Ella stated:

> Um, it’s a little more stressful. It just takes more time, right. You finally get used to feeding one way and then you have to learn this new way and she’s really bad at it again. Like how she was in the beginning. Um, but it’s also kind of fun I think. You know it’s fun, fun watching her reactions to things and watching how much she hates something that you think she’s gonna love.

Mothers also described experiences with the addition of complementary foods with continued milk feeding as “complicated”. When Sue described an experience with introducing complementary foods, she stated:

> It made it a little bit more stressful. I mean not super stressful, but just, um, more complicated. You can’t just do a bottle and be done. We gotta do a bottle and then move her over and spend more time. I mean it’s just to see her to like it or not like it. That was kind of exciting. So, it wasn’t a huge deal, but it’s just something new that we haven’t done.

Claire’s experience with transitioning to complementary feeding also provided insight that perhaps messy feeding can lead to a feeling of frustration, but relaxing and realizing the mess made during feeding was a sign her infant was learning and getting better at

eating helped ease her frustration. These data indicate loosening control over feeding can help lead to a "good bonding experience." Claire stated:

> It's very messy so you just need to relax [laughter]. Just need to relax. I would cringe at the beginning and I always tried to like feed her myself because I'm like she's not gonna be messy. She's not going to get messy and then, well, no she need to learn how to do it herself and that's how she gets better and a little messy is by practice. So, really just relaxing. Make it enjoyable that's what it should be. It shouldn't be frustrating. It should be a good bonding experience.

Ella also had similar feelings as Claire toward allowing for messy feedings. Ella stated:

> One thing our speech therapist said that I think is really hard sometimes to handle, but don't be afraid to let your kid get messy. It's gonna happen no matter if you want it to or not and honestly I think it makes it a little more fun if you are ok with applesauce flying everywhere and just kind of becomes funny and laughable as opposed to getting mad at something you can't control is getting really dirty [laughter].

Emma described excitement toward this transition in spite of this phase becoming more time consuming when she stated:

> I am pretty excited about it as far as I think, you know, it's, it takes a little bit longer than just feeding her bottles so there's a little bit more of a time commitment. But it's for the most part fun to do with her and as she keeps exploring new things we have fun with it so... it's entertaining too. So, other than... the effort that takes to make everything.

**Theme 3. "What the Heck is This."**

Participants' experiences showed a preference to orange colored vegetables such as sweet potatoes. According to Olivia, "peas were a stronger flavor" and when cooking peaches "they turned too sour" causing her infant to respond negatively and reject each type of food. Other participants stated her infant "was not a fan of vegetables," "hates green beans," or "he likes the orange not the green [vegetables]."

Interestingly, it is possible for mothers to create a neophobic food environment. In the study, when Sarah was asked "what influenced" her complementary feeding practices

she stated, “I haven’t done puréed meat because I think it just seems gross” and “I guess [I feed] things that I think are going to taste alright.” This response indicates how the mother’s views on complementary foods may create a neophobic food environment.

Another finding from this study described infant’s neophobic responses to new foods. Sometimes mothers indicated the negative response was due to new tastes and / or textures. When Ella was asked to describe any of her infant’s reactions she had noticed to different tastes or textures, she stated:

> We had tried rice cereal mixed with breast milk a few times and she just was not into that. We have stopped trying that cause she just didn’t really like it. Now we’re kind of having the same reaction to like fork mashed bananas and avocados and stuff. It’s just that new texture she is not really into, but we have learned it just takes a few times to get into it and realize she has to chew [laughter] and swallow.

Sue described a similar experience with a reaction to texture. Sue preferred to puree her own food for her infant but when the texture was not just right her infant rejected the food. When Sue described an instance of her pureed sweet potatoes compared to store-bought sweet potatoes puree she stated:

> We did our own but I think it was too stringy for her and so she kinda didn’t like it at first, but then when we did the baby food sweet potato, then she was better about it. I think she liked that because it was more pureed then our version of puree cause it was kind of stringy. So maybe that was something texture she noticed.

In this study, mothers described facial expressions as well as other physical signs of reaction to new foods. Lily noticed that “when we do purees she kind of does this weird face thing, but, I mean it is kind of right off the bat.” Claire shared a similar observation and stated:

> She likes everything I give her but the first couple bites she gets a kind of very confused face and like, ooooo, kind of sticks her tongue out like [baby noises] oooollllll I don’t, I don’t know about this, but she’ll eat it.

Jenna noticed a “scrunchy” facial expression to new foods. She also observed rejection of the food, not just an initial neophobic reaction typical for this phase of feeding. Jenna stated:

> I mean she does this little like scrunchy face [laughter]. If she doesn’t like it she will definitely spit it out and walk away. If she likes it she will scrunch it up in her hand and stuff it in her mouth.

Kate observed her infant’s facial expression of disapproval for a new food. Interestingly, she described her infant quickly overcoming his neophobic response to new foods when she stated:

> He is usually like, makes that face [goofy face], like what the heck is in my mouth, and this is foreign and then if he has another bite or two he kind of, his facial expression goes away because he’s used to it. That initial bite of whatever new is being introduced to him, texture wise or taste wise, he is like what the heck is this [Laughter].

Olivia described something similar to Kate when she said, based on recommendations from her pediatrician, she should offer a new food three times in a row. Olivia described her experience as “I find that usually the 1st time she doesn’t really like something, the 2nd time she might, and the 3rd time it’s either definitely yes or no type of thing.”

**Theme 4. “Food is Fun Until One.”**

Theme 4 may be a way to calm any distress that may come from the previous theme of neophobic response to foods. In this study, Ava said “if they are spitting it [food] out and they’re not eating it. That’s... it kind of gave me worry as first.” Repeat exposure, or offering foods many times over for food acceptance, does not seem to be a part of complementary feeding practices from birth to one year old.

Finding from this study indicated that while these neophobic like responses did occur and cause “worry” sometimes, this time of transition from milk feeding to complementary feeding should be about exploring. This time for exploring foods was captured by Ava when she was asked “what advice would you give other new moms going through this transition?” Ava stated:

> The complementary food isn’t there to get [infant all of his or her nutrients], cause he's getting so much nutrition from the bottles that... let em have fun with their food and like explore and not get wrapped in the mess and the that they're not eating. Like if he’s spitting. Or if they are spitting it out and they’re not eating it. That’s, it kind of gave me worry at first, but then I am like, wait no, food. Like that’s what I always said to myself, food is fun until they are one.
>
> I think the one slogan that stuck with me throughout this whole process was food is fun until they are one.

More insight from other mothers was found when Emma described finding information on an online blog about natural reactions an infant will have when starting to consume complementary foods. She also described a situation of allowing her infant to “dictate” feeding. Emma described when she was relaxed in the situation and allowed her infant to lead and explore new foods negative feelings toward feeding complementary foods reduced. Emma stated:

> I did read up to not be as nervous about (pause), if, I think there’s a blog from other moms saying like, ok, their gonna gag, they are going to make all these reactions. And they're all natural and ok, don’t freak out. Let them... Let her figure out what to do on her own which was helpful.
>
> I guess, yea, it’s just, and for me I’ve had to kinda let go a little bit more, like, [husband] is a little bit better about “let’s just try giving this to her”. Aaaa, you know, whereas I’m a little bit, like, well that is not what we’re supposed to do. So realizing that’s it not... you don’t have to follow it as closely. Um, but also letting her, like she’s gonna kinda dictate when she’s really ready.

Kate shared a similar thought on letting go of feeding a little bit and allowed her infant to "dictate" feeding when she stated:

> I think us being relaxed in the situation and just being like whatever about it and kind of letting him dictate what he's going to eat and what not has made it a lot more relaxing for us and not so stressful.

**Theme 5: "The Whole Allergy Concept."**

This study found a range of feelings toward food allergies. Participants were immensely aware of the updated guideline of introducing potentially allergenic foods to their infant at earlier ages even if it was kind of a "hurdle" to follow. As Ava stated:

> One of the biggest hurdles from my just knowledge was getting passed the whole allergy concept of [short pause] I, growing up it was always stay away from peanuts, stay away from eggs, and stuff. And then comes to find out, like, no I should have... sooner you introduce that stuff, um, the better it is.

Another mother was provided information on potentially allergenic foods from health professionals. Claire's pediatrician and a friend that was a registered dietitian provided her guidance to introduce potentially allergenic foods to her infant at an earlier age. Claire stated:

> From what I have heard with the pediatrician and my registered dietitian friend, um, it's been, I guess it's been found that, you know, tryin to introduce those high allergen foods earlier rather than later. And so I've been giving her eggs, peanut butter, um, all those kinds of things early on. I started using those around 6 months.

It was also found participants had feelings of worry, caution, and nervousness when introducing potentially allergenic foods even if immediate family members did not have known food allergies. Ava stated:

> At first I was, I was really leery about, like I don't know why eggs, just, I don't even know. We don't have no. There is no history of allergies in our family. And when I started like really like thinking about it. I'm like, ok, does it, we're not. No body. Like. Cousins, brothers, sister, there's nobody

> in our immediate family that has any reaction to peanut butter, eggs, anything. So I'm like why am I so worried about it.

Another participant, Ella, described knowing to introduce potentially allergenic foods early and that she planned to be cautious introducing these foods. Ella stated:

> I mean nowadays, at least, they recommend you introducing peanut butter and stuff and peanuts and stuff really early on so... definitely want to make sure she's not allergic to those things. Not to be crazy but we're again we are really like cautious with introducing and then test that out for a few days and then make sure she doesn't have an allergy before we start giving it to her a lot.

Interestingly, Kate shared how her social surroundings may have caused fear about potentially allergenic foods when she stated:

> I know I have seen that people say to give it to them now, but I... it is a fear. Another mom goes, their baby go to the same daycare as him and their baby is allergic to eggs now so I would say that's... In today's society people really play on allergies and what not, so, it kind of creates a fear to say they could have a reaction to that.

Another interesting finding on food allergies is described by Mia. She described having less concern for potentially allergenic foods because she breastfeeds her infant when she stated:

> If I was formula feeding I think I would be a little more concerned just because of, the, my knowledge for what breast milk does. I like to try to introduce her to possible allergens. In a safe environment of course and just monitoring it a couple of days and so, I just think her immune system is a lot more built.

Finally, an alarming finding from this study was described by a participant, Sue, when she described treating potentially allergenic foods as if it were not going to happen and "hope for the best. Sue stated:

> I just pretend she's not going to be allergic to anything. We obviously have not done any like peanuts or nuts or anything like that, but I mean I ate plenty of nuts and peanut butter when I was pregnant with her, so I just, I'm going to just pretend she's not allergic and hope for the best.

Research Question 2: What do first-time mothers perceive to be barriers to complementary feeding?

**Theme 6. Challenges to Complementary Feeding.**

Participants in this study faced several challenges to complementary feeding practices. These challenges varied in nature. For instance, Ava lacked support from family members and other people in her network. Ava faced these challenges because she used the baby-led weaning approach to feeding instead of the traditional approach of spoon-fed purees. Ava described these challenges to complementary feeding as "family members that see me feeding my son, like a, letting him eat like a French fry at 7 months. People are like what are you doing he's going to choke" and "I would say the biggest barriers were just people that, just, not knowing, or, just thinking in a different way."

Emma faced two challenges. When Emma's infant figured out foods she did not like were hidden in her other foods she would not eat the foods. Emma said "I think it's just when she, she, she gets smart about knowing if you are ever trying to sneak something in, that, you know, she doesn't like." Emma also struggled to get her infant to hand feed. Her infant did not like her hands getting food on them. As described by Emma:

> Um. Again, I think it's a texture thing. She doesn't like it on her hands. So we've kind of struggled to get her to do more of that" and "so she'll do passing it around a lot in her hands, but again she's like "what is this, I don't like my hands being dirty.

A more common challenge to complementary feeding found in this study was swallowing difficulties. Emily said, "There was, like, nervous with her swallowing so that kind of. She would like swallow so hard that you could hear it. I was like maybe

something is wrong." Grace also described her infant learning to swallow was a time of throwing up and the fear of choking made her more cautions during feeding. Grace stated:

> So trying to get him used to swallowing was interesting. Lots of gagging and occasionally throwing up." Along the same lines as swallowing difficulties was a fear of choking. Sue said, "we don't want her to choke. Um, so that's probably the number one concern that I am more cautious on.

Ella faced a unique challenge. Ella's infant was born with hypotonia - a delay in the development of neck and shoulder muscles. Because of this, Ella shared, "it was really, really hard in the beginning to have your kid that wasn't like going down the traditional path." This challenge led to feelings of disappointment and sadness. Ella stated:

> I do remember feeling really, you know, disappointed and sad that we weren't having the same experiences as other people that I had seen, but then you learn there are a lot of other people going through the same thing. It's just the people I know have done it a different way.

Findings from this study revealed challenges tended to be unique to each participant. Other challenges participants shared included not knowing how "to find new healthy foods to feed" and distractions during feeding time. For example, Emma said:

> I think she does better when we are all sitting down together. Um, she can get distracted if one of us is doing other things in the house that she's turning to watch what we're doing and not focusing.

While there were not many challenges with negative reactions to foods, Kate said her infant "does not respond well to carrots. Um, so he loves the taste of them, but he will wake up in the middle of the night after eating them and has a really upset stomach." Grace also encountered negative reactions to foods and shared "I mean there's been

certain foods that he's eaten that he's had worse diapers and then caused a rash, so we are trying to stay away from things like that."

Research Question 3. What do first-time mothers perceive to be facilitators to complementary feeding practices?

**Theme 7. Support Systems make Complementary Feeding Easier.**

One common facilitator found in this study was social support. This support came in a variety of ways to create a social network supportive of the mother's complementary feeding practices. For one participant, Olivia, it was her husband that provided support preparing baby food that made feeding easier. Olivia stated:

> Oh my husband helps quite a bit. He's better at making the texture than I am. I am not as patient with the blender.

For another participant, Jenna, it was her mother that provided support by lending a helping hand during difficult times of getting her infant to try and accept new foods. Jenna stated:

> I know my mom helps a lot. She is very supportive. Especially with things she [infant] doesn't like. We try and explore her, well not explore, but get her to open up to different kinds of foods.

For Mia, just having another person's support would be helpful. Mia stated "when you do have another person there. Sometimes just that interaction of having another person there where say if you need to step away [is helpful]." The social support did not necessarily have to come from people near to the participant. Facebook groups were another form of support. For Ava, she was able to find a Facebook group that focused content specific to her method of feeding, baby-led weaning, and described finding helpful advice and new items to feed her infant. Ava stated:

> The Facebook group on baby-led weaning. There's tons of them out there that provide lots of advice and it just kind of puts into perspective that you're not the only one in this world doing this. There are thousands of moms out there doing the same thing. And they are great. There are moms out there that do it way better than I do. Great advice and recipes and just ways to do it. That definitely helps. A lot.

These data indicated social media provided a look into other mothers' experiences and information that was helpful, but could also, in rare cases, have members exaggerate experiences. This was observed in this study when Ella stated:

> The internet [laughter]. I am part of a mom group on Facebook that is pretty helpful and, um, people can overact definitely, but I would say more helpful than not. Like, people ask questions that I have in my head and then you can see a bunch of experience of other moms and stuff.

Research Question 4. How do first-time mothers know their infant is ready to initiate complementary feeding?

**Theme 8. Cues to Start Complementary Feeding.**

In this study, Emma recognized the developmental sign of her infant being able to sit-up on her own as an important indicator of readiness to start eating and said, "it was also just realizing, ya know, you needed to wait until she was sitting up very well by herself." Another very common cue to start feeding shared by many participants was her pediatrician giving them the "okay" to start feeding at the infant's six-month check-up.

Interestingly, most mothers in the study had observed a common cue her infant was ready to start consuming foods. While one mother said the cue did not start for her infant until six and a half months, many of the mothers said at approximately five months old, her infant became interested in what she was eating and "kind of eyeballed our food". This visual cue was consistently found during this study. When asked "how did

you know your baby was ready to start consuming foods other than the breast milk?" Mia described the cue in great detail when she stated:

> It's kinda funny. Just because she started to pay attention more to what I was eating. When it was time for me to eat normally she's around me and so before when she was all about the breast milk she didn't care what I was eating before. But now she'll lean forward and open her mouth toward my actual food (laughter). So I'm like, ok, you might be a little more hungry.

Research Question 5. What foods do first-time mother initially introduce to their infant?

Participants were asked what foods they initially fed when she started complementary feeding. These data indicated the foods first-time mothers in this study first fed to her infant included a variety of fruits, vegetables, and infant cereals. 14 of 15 mothers started complementary feeding using pureed baby food. However, one participant, Ava, rarely fed pureed food and provided her infant with softened pieces of whole fruits and vegetables. Common foods to start feeding during complementary feeding included rice and oatmeal cereals, sweet potatoes, peas, carrots, and bananas (See table 4.3 for complete list of foods).

Research Question 6. Where do first-time mothers get information on complementary feeding?

Participants identified several different ways they got information or guidance on complementary feeding. One common source of information on complementary feeding was the internet. Many participants received information from blogs, social media, and google searches. 11 participants (73%) said they received some information on complementary feeding for her pediatrician. Some of these participants stated she preferred complementary feeding information from her pediatrician and followed the

guidance. The information received varied from participant to participant. Some participants were simply told it was “okay” to start feeding. Other participants were provided in-depth information such as guidance on foods to avoid initially due to “under development of the infant gut biome.” Other individuals to provide information included friends, family members, and daycare providers.

During this study, participants were asked if her infant went to daycare and if so, how she thought daycare influenced her complementary feeding practices. 11 participants said her infant went to daycare. One participant, Sarah, said her mother and mother in law (grandmas) took turns watching her infant while she was at work. In this study, Sarah’s infant was not considered as attending daycare. Sarah did state while both grandmas followed what Sarah wanted, she believed they would eventually influence feeding. Sarah state, “so far they have listened to what I have told them to do, but I assume that they will start to kind of branch out and feed their own things.”

In this study, some mothers said daycare provided a feeding schedule for her infant and the schedule was viewed as positive because, as working mothers, it was something she may not be able to provide. Ava said:

> I can see a difference. Like, he takes more food and I, I don’t know. I don’t think it would be that way if... Well if I was a stay at home mom maybe I’d give him more but, I don’t know, I think they keep him on a great schedule and do great. So, I’m, I’m lucky I have a good daycare.

Other mothers indicated the foods provided by her daycare were better than what she was feeding. Kate state:

> They are going to start mashing up actual food and giving it to him. I think that will be almost even more helpful then the baby food he’s getting because it will be the actual natural food.

Another experience counter to what Kate described was daycare provided unhealthy foods. Unhealthy foods provided by daycare was seen as negative, but mothers tried to find positivity from the experience. Claire state:

> It seems when you have a bunch of kids and you feed them kid food. It's like, aaaaa, sometimes I cringe a little bit. Tater tots and French fries and grilled cheese. But yea, I think, she [daycare] does give her a lot of different foods too that we don't make at home. So I think that kind of, I mean, I think that's helpful. It expands her palate (laughter).

Mothers in this study also indicated they did not believe daycare had an influence on feeding practices; actually quite the opposite. As stated by Emily, "I don't think it [daycare influencing feeding] will. I think they will do whatever I ask them to do."

Finally, participants were asked how frequently they fed complementary foods to their infant. All mothers indicated they continued frequent, on demand milk feeding while feeding complementary foods. The average number of complementary feedings per day were 2.68 ± .89. No data were recorded on frequency of complementary feedings for one participant, Kelly, because she had just started complementary feeding two days prior to the interview.

Table 4.3: Study Variables Table

| Study Variables from the Sample of First-Time Mothers in a Midwest City | | | | |
|---|---|---|---|---|
| Pseudonym | First Foods | Information Sources | Attended Daycare | Complementary Feedings Per Day |
| Emma | Sweet potatoes<br>Apples<br>Carrots<br>Pears<br>Green beans<br>Peas<br>Squash | Pediatrician<br>Google searches<br>Blogs from other moms | Yes | 3 |
| Claire | Oatmeal cereal | Pediatrician<br>Instagram | Yes | 2 |
| Olivia | Rice cereal<br>Peas<br>Green beans | Pediatrician<br>Internet | Yes | 3 |

| | | | | |
|---|---|---|---|---|
| Ava | Avocado<br>Banana | Pediatrician<br>Facebook<br>Friends<br>Internet | Yes | 3 - 4 |
| Mia | Butternut squash<br>Sweet potatoes<br>Corn<br>Green beans | WIC<br>Online websites (not specified)<br>Other moms | No | 3 |
| Kate | Rice cereal<br>Oatmeal cereal | Pediatrician<br>Google<br>Facebook | Yes | 3 |
| Sue | Avocados<br>Bananas<br>Carrots<br>Pears | Daycare<br>Pinterest | Yes | 2 |
| Grace | Peaches<br>Apple sauce<br>Mixed vegetable purees | Pediatrician<br>Daycare provider<br>Mother<br>Word of mouth | Yes | 2 |
| Emily | Applesauce<br>Sweet potatoes<br>Bananas<br>Peas or green beans | Pediatrician<br>Google | Yes | 3 |
| Sarah | Applesauce<br>Sweet potatoes<br>Cereal | Other moms<br>Glow baby (phone app) | Grandmother as daycare provider | 2 |
| Ella | Pureed fruits | Pediatrician<br>Speech Therapist<br>Relatives/Others | Yes | 2 |
| Lily | Pureed Carrots<br>Pureed Peas | Pediatrician<br>WIC<br>DHHS Home Visitor | Yes | 1 |
| Tracy | Rice cereal<br>Plain rice cereal<br>Fruit | Pediatrician<br>Friends<br>Website – Google (Gerber website) | No | 3 - 4 |
| Jenna | Oranges<br>Bananas<br>Peaches<br>Mangos<br>Vegetables | Mom<br>Grandma | Yes | 4 - 5 |
| Kelly | Carrots | Pediatrician<br>Family<br>Friends | No | No information |

*Textural-Structural Descriptions*

Once themes emerged from the data, the significant statements and clusters of meaning were used to examine the individualized experiences of the participants. This phase was accomplished by describing textural descriptions - the "what" of the experience – and structural descriptions - the "how" of the experience (Creswell and Poth, 2018; Moustakas, 1994). Moustakas (1994) states the descriptions are accomplished by freely considering and constructing the possibilities of meaning through Phenomenological Reduction and Imaginative Variation. In this study, while experiences are unique to each participant, most participants shared similar experiences. The following passages are examples of textural-structural descriptions.

The experience of complementary feeding for Emma started off "slow going". At the beginning, there was a struggle with consistency of making purees very smooth to ensure acceptance of the food. At times, finding liked foods to feed was a challenge. "I think mostly just trial and error as far as what they are going to like and what they aren't going to like. Keep trying it over and over." The uncertainty of whether or not her infant would be able to swallow new foods has "been the hardest part with the solids" and was met with feelings of nervousness and slight feelings of panic. As time went on, she realized her need to balance control over feeding while allowing her infant to "kinda dictate" things as well. In the beginning it was about following recommendations. Now, she realized "you don't have to follow it as closely." Now, "we are getting a little bit more loosey goosey" with feeding complementary foods.

Complementary feeding for Emma was a significant time commitment. From the first offerings of new foods, a realization that it took time and effort to properly prepare

complementary foods occurred. But it was time and effort well spent. This was a time of food exploration by her infant that was “exciting” and “entertaining too.” During this new phase in feeding, structure was important. Mealtime typically was done together as a family. Sitting down together as a family limited the opportunity for distractions. Eating together led to a more focused feeding, and in the end, led to consuming more food.

Claire’s experience of introducing new foods to her infant would be similar to riding a bike for the first time with training wheels. “I really have been going in pretty blind.” She “did not know anything about” this phase of feeding and just slowly started adding baby food. At the beginning, she tried to control feeding and “always tried to feed her” herself. As feeding continued she came to realize “no, she needs to learn how to do it herself and that’s how she gets better” at eating complementary foods. Her pediatrician provided the training wheels; she was given the ok to start feeding, advised to start with smoothly pureed cereal, and gradually “work your way up through the baby foods and then to the solid foods.” This transition was difficult, and patience was needed. “You got to plan a lot more and you couldn’t just, you know, heat up a bottle or whatever and give it to her.” “Children eat very slow” and it was “messy so you just need to relax.” Eventually, this change in feeding became less difficult. “After a while you, I mean you get used to it and it becomes your new normal.”

Not being prepared for the phase of complementary feeding led to feelings of frustration when introducing new foods. This unfamiliarity with complementary feeding created a situation where Claire was feeding blindly. She valued mealtime together and would prefer this social context for feeding, but “that just right now does not happen”. Like so many families in today’s society, they had hectic schedules. She tried to provide

this structure for mealtime by “snacking on something... so it looks like we’re having a meal together, but that is as good as it gets right now.”

The experience of complementary feeding for Olivia was complex. This experience was influenced by family and calls for being prepared. Her husband has food allergies “so I want to be a little more cautious.” Even though Olivia and her husband “don’t eat healthy” they wanted their infant to have healthy foods. Because of her husband’s known food allergies, and “mimicking” off her sisters complementary feeding practices, she decided to make her own baby food. Making her own baby food allowed her to “know exactly what’s in there [the foods]... that way there’s nothing extra”, but also increased the demand to be prepared. Sometimes “it’s like the night before, oh my gosh, like we’re out of whatever” so “you have to have it prepped beforehand.” A few difficulties with complementary feeding arose based on tastes and texture of food. She had to be careful cooking the foods she fed to her infant to ensure they were not sour. “When we blanched or boiled [peaches] they turned too sour and she didn’t like that.” Texture wise the foods needed to be a very smooth texture otherwise her infant “would like make funny faces and not really want it.” Unfortunately due to feeding complementary foods along with a hectic work schedule her milk supply had dropped. “I just would like skip a pump and so my milk supply has dropped. As well as with like work like I might skip a pump cause of, I don’t know, it’s kind of hard and so then try to gauge how much do I still need to be pumping that way I can get enough for her like 6 to 7 ounce bottles.”

Olivia’s ability to separate her own “unhealthy” eating habits and wanting to provide health meals to her infant mattered. She was willing to invest extra time to

prepare these foods and ensure the safety of her infant due to the high risk she has for potential food allergies. She is dedicated to her infant's health. She realized it would "probably be easier if I just bought it [foods] from the store, but oh well."

The unique experience of complementary feeding for Ella started with her infant having delayed and weakened muscles in her neck and shoulders. This muscle development issue, hypotonia, had an impact on eating. While it could have delayed the timing of introducing new foods at the recommended age of six months of age, Ella introduced purees close to that at six to seven months. A major concern due to the health condition was ensuring "she is swallowing correctly." Because of the concern with swallowing, Ella had the unique experience of having multiple health professions help her with feeding. Unfortunately, she felt "like we are off the normal path because we are going to someone that like works with feeding babies." While starting with purees went great, transitioning to table foods "has been a little more complicated." The complication came from the tongue being off the midline possibly leading to "a little more choking." This led to feeling like her infant "is just not quite ready" for more solid foods and being cautious. When her infant was ready to start consuming complementary foods, Ella noticed the "normal cues" to feeding but "just didn't feel very comfortable with it." This uncomfortable feeling and being cautious led to hesitation to feed and for her to "stick to the rules of just like only introduce one [food] for three days and then try more" and "we were very to the "T" is what it feels like... making sure allergies weren't happening and stuff." Ella has also experienced more stress due to the demand for more time to feed complementary foods. "You finally get used to feeding one way and then you have to learn this new way and she's really bad at it again. Like how she was in the beginning."

The experience was not always been negative. “You know, it’s fun. Fun watching her reactions to things and watching how much she hates something you think she’s gonna love.”

Complementary feeding for Ella has been different than what she expected due to the delayed muscle development. Her experience was different than what she had observed in her social reality. Currently, the “main driver now is wanting her to get as close to on track with her development as possible.” This difference in what she observed around her and her social reality has led to a desire of being consistent with feeding. “The more consistent we can be with it [feeding], the better we can be with how we introduce things to her. I just know that is going to help her in her development.”

*Essence*

The final step in transcendental phenomenology is to create a unified statement of the experience of the phenomenon as a whole (Moustakas, 1994). Moustakas (1994) states the essences of any experience are never totally exhausted and textural-structural synthesis represents the essences at a particular time and place. Below is essence of complementary feeding found in this study.

The final truth seems to be that complementary feeding was a complex experience for first-time mothers that produced feelings of stress, worry, and frustration, while at the same time, excitement and an opportunity to bond with her infant. Most mothers entered blindly into this new phase of feeding and fed by trial and error. The reality was, both infant and mother are developing their complementary feeding practices simultaneously. For the infant, participants described a time to explore new tastes and textures and to be on their way to independence. For the mother, letting go of being the primary source of

nutrition was difficult. They quickly realized their infant was not totally dependent on them for feeding anymore. Participants struggled to keep control over the feeding environment while also allowing the infant to dictate some aspects. As infants learned to eat complementary foods, new issues emerged. Questions arose around issues such as swallowing novel foods and choking hazards and potential allergic reactions to novel foods. As both mother and infant learned, feelings of worry and stress eased as they continued down this new complex phase of feeding.

# Chapter V

## Discussion

Complementary feeding practices are an important area of study to help ensure proper growth and development of infants. The purpose of this study was to understand experiences of complementary feeding practices from the viewpoint of first-time mothers because they shape many aspects of an infant's food environment. This study revealed that participants may not be adequately prepared to introduce new foods to their infant, leaving them feeling worried, nervous, frustrated, and stressed. These mothers also had feelings of excitement for this new phase of feeding, and many felt this time was a bonding experience. Understanding the variety of positive and negative feelings toward these first-time mothers' experiences with complementary feeding contributed to the limited existing research. This study contributed valuable findings to the nutrition field and can enable health professionals to better prepare guidance for the complexity of infant complementary feeding practices.

The qualitative method, transcendental phenomenology, was used to explore first-time mothers' experiences with complementary feeding practices to their infant. Fifteen one-on-one interviews were conducted, and eight major themes emerged. These themes, along with individual textural and structural descriptions, and a group description or essence of the experience provide a dense description of the experiences of the participants.

Participants in this study were first-time mothers, ranging from 20 to 37 years in age and predominately Caucasian (80%). The first foods introduced by participants included fruits, vegetables, and infant cereals. Most sources of information on

complementary feeding came from pediatricians. Other common sources of information included the internet and social media. In line with research by Moon and colleagues (2019) on the use of internet and social media, participants in this study typically used social media as social support. When mothers gather opinions from multiple online sources, and the opinions are in agreement, then mothers move forward with the decision with more confidence (Moon et al., 2019).

If the study sample population had been more diverse, where health information was sought/received may have been different. Disadvantaged populations tend to lack trust in health care providers, have limited access to technology to seek information online, lack literacy to understand the information, and face language barriers (Armstrong et al., 2007; Fertman and Allensworth, 2017; Guendelman et al., 2017). Due to the inability of disadvantaged populations to use health information, they are more likely to have less knowledge about their medical conditions, worse health status, and less understanding and use of preventive services (Fertman and Allensworth, 2017).

Theme one found during this study was “going in pretty blind.” This finding suggested mothers may be inadequately prepared to introduce new foods to their infant. Being inadequately prepared for this new phase of feeding may lead to taking risks during complementary feeding because participants are trying to figure out the transition from milk feeding to complementary feeding by “trial and error.” One possible solution to minimize the potential risks of feeding by “trial and error” would be to provide mothers with complementary feeding education prior to starting this phase.

Another theme found in this study focused on food neophobia. According to Birch (1999), infants have a tendency to prefer sweet and salty tastes, reject sour and

bitter tastes, and have an aversion to newly introduced foods. Findings in this study were in line with the predisposition for sweet tastes and the rejection of sour and bitter. Participants' experiences showed a preference to orange colored vegetables such as sweet potatoes likely due to its sweeter taste and a rejection of "stronger" tasting vegetables and sour peaches.

Interestingly, it is possible for mothers to create a neophobic food environment (Birch, 1999). In this study, one response indicated how the mother's views on complementary foods may have created a neophobic food environment specific to pureed meats. The mother had yet to feed pureed meats because she viewed them as "gross." In a neophobic food environment, food preferences can be shaped, and infants are provided fewer opportunities to experience new foods and reduce their neophobia (Birch, 1999).

Finally, findings from this study indicated acute issues with neophobic responses to new foods. For some mothers, this neophobic response was resolved after one or two bites of the new food. For others, a strategy of combining the new food with breast milk was used to help overcome the neophobic response. The combination of breast milk with new foods provided a familiar element and made the infant "more willing to take it" and created a reaction of "oh this isn't so bad." Later in life, typically between the ages of two to six when food neophobia is at its highest, to overcome a neophobic response to foods, repeat exposure to the problematic food of 5 to 10 times or more may be necessary (Birch, 1999).

Findings from this study on "food is fun until one" indicated that allowing infants to "dictate" or "explore" foods may not happen right away, but when parents realize this time of transition was a time to explore, complementary feeding practices became less

"stressful" and worrisome. These findings exemplify responsive feeding; when parents provide what and when the infant will eat, and the infant decides or "dictates" how much will be eaten. One could argue the exploration of foods by the infant is part of the responsive feeding framework that suggests infants should initiate and guide feeding (Schwartz et al., 2011).

"The Whole Allergy Concept" was a finding that was both positive and negative. It was positive participants were aware that potentially allergenic foods are now recommended to be introduced during early infancy; that is at six months old (insert ref). On the negative side, mothers may not be adequately prepared to introduce potentially allergenic foods. Allergenic responses to some foods can have severe consequences such as anaphylactic shock that can lead to death (insert ref). Providing mothers education on food allergies so they do not "pretend" their infant is not allergic and "hope for the best" may be an effective strategy to reduce some of the worry, fear, and nervousness toward allergenic foods experienced by participants in this study.

*Implications.*

The findings from this study suggest these first-time mothers were inadequately prepared for the complementary feeding phase. By being inadequately prepared, many of these mothers were "in the dark" on complementary feeding practices and fed by "trial and error." If these first-time mothers were better prepared for this phase of feeding, it is possible feelings of worry and stress would reduce leading to and enhanced bond that develops during this time.

*Limitations.*

A few potential limitations exist when using transcendental phenomenology. Transcendental phenomenology provided a structured approach to data analysis that may be too structured for some qualitative researchers (Creswell & Poth, 2018). This does not mean transcendental phenomenology was a flawed approach to data analysis. It simply may not allow the freedom of data analysis that more experienced qualitative researchers seek. Another problem in phenomenology can be recruitment. Researchers need to ensure all participants have experienced the phenomenon of interest (Creswell & Poth, 2018). In this study, recruitment proved difficult due to the limitation set forth by the inclusion criteria. First-time mothers who have experienced complementary feeding and whose infant was currently four months to 12 months old was a narrow population. To overcome this limitation, ample time was taken to recruit participants.

Another possible limitation was one's inability to completely bracket researcher bias. It is possible interpretations of these data may have incorporated assumptions the researcher had toward the phenomenon of interest (Creswell & Poth, 2018). These potential biases of the principal investigator's personal experiences were limited by the previously stated techniques this study used to build credibility.

A possible limitation in this study was the principal investigator's sex compared to the participants. The principal investigator was male, and all participants were female. It is possible that due to sex differences, participants may have been uncomfortable fully disclosing all experiences with complementary feeding. The principal investigator distantly knew many of the participants, which could have been a study limitation. Distant familiarity between the principal investigator and many participants should decrease the chance of participants limiting disclosure of experiences. It is possible,

though unlikely, participants disclosed experiences they thought the principal investigator wanted to hear due to being somewhat familiar with the principal investigator. While these issues are study limitations, they are not believed to have significantly impacted results of this study.

*Recommendations.*

In this study, participants indicated a wide range of information received from pediatricians. While some of the participants said they received adequate information from their pediatrician, most participants were not adequately prepared to introduce new foods. Currently, it is unknown the extent to complementary feeding information offered by pediatricians. Future research could assess the kind of, and amount of information pediatricians offer. Future research in this area could also evaluate what guidance first-time mothers seek.

Participants in this study used the internet and social media for complementary feeding advice. Future research could create a website or social media page to provide first-time mothers with complementary feeding education. Researchers in the complementary feeding area creating the website or social media page would ensure the information received is up-to-date and based on current knowledge. Future researchers could also provide education on media literacy to help first-time mothers navigate and find accurate information in a time where there is an abundance of information, some inaccurate, on the internet.

Future research should examine complementary feeding practices from different perspectives other than first-time mothers. It is possible unique insights could be found by interviewing mothers with multiple children, other parents, and / or daycare providers.

Also, future research could examine complementary feeding using a different qualitative methodology. For example, grounded theory methodology would explore the process of complementary feeding and create a theory on this process.

Finally, future studies could conduct multiple interviews with participants. Conducting multiple interviews over a period of time could allow for an even deeper understanding of complementary feeding. Multiple interviews over time could allow researchers to study how complementary feeding practices change and develop over time.

*Conclusion.*

In this study, transcendental phenomenology was used to explore first-time mothers' experiences with introducing new foods to their infant. Fifteen first-time mothers in the central United States provided insight into their experiences with complementary feeding. They shared feelings of stress, worry, and fear, but also excitement for this new phase of feeding. They also provided insight that this is a time for mother and baby to bond. Their experiences identified infant feeding concepts that could be useful in practice and research and shed light on areas of opportunity to educate and better prepare mothers for this new phase of feeding. Eight themes emerged from the data highlighting the complexity of complementary feeding. These themes were used to obtain a deep understanding of the nature of infant feeding for first-time mothers. Through the interview data, the principal investigator was able to identify facilitators and challenges faced by the participants. The possibility exists for nutrition and healthcare professionals to be instrumental in adequately preparing first-time mothers for this phase of infant feeding. Further research with more diverse respondents is needed to identify culturally appropriate strategies to assist with this phase of feeding. Adequate preparation for

complementary feeding may decrease worry and increase excitement and bonding between mother and infant.

References

Adair, L. S. (2012). How could complementary feeding patterns affect the susceptibility to NCD later in life?. *Nutrition, Metabolism and CardiovascularDiseases*, *22*(10), 765-769.

Armstrong, K., Ravenell, K. L., McMurphy, S., & Putt, M. (2007). Racial/ethnic differences in physician distrust in the United States. *American journal of public health*, *97*(7), 1283-1289.

Barrera, C. M., Hamner, H. C., Perrine, C. G., & Scanlon, K. S. (2018). Timing of Introduction of Complementary Foods to US Infants, National Health and Nutrition Examination Survey 2009-2014. *Journal of the Academy of Nutrition and Dietetics*, *118*(3), 464-470.

Bartick, M. C., Stuebe, A. M., Schwarz, E. B., Luongo, C., Reinhold, A. G., & Foster, E. M. (2013). Cost analysis of maternal disease associated with suboptimal breastfeeding. *Obstetrics & Gynecology*, *122*(1), 111-119.

Birch, L. L. (1999). Development of food preferences. *Annual review of nutrition*, *19*(1), 41-62.

Birch, L. L., & Doub, A. E. (2014). Learning to eat: birth to age 2 y–. *The American journal of clinical nutrition*, *99*(3), 723S-728S.

Black, M. M., & Aboud, F. E. (2011). Responsive Feeding Is Embedded in a Theoretical Framework of Responsive Parenting–3. *The Journal of nutrition*, *141*(3), 490-494. Centers for Disease Control and Prevention. (2016). Breastfeeding report card, progressing toward national breastfeeding goals: United States, 2016. *Atlanta*.

Brown, A., & Lee, M. (2013). An exploration of experiences of mothers following a baby-led weaning style: developmental readiness for complementary foods. *Maternal & child nutrition*, *9*(2), 233-243.

Cameron, S. L., Heath, A. L. M., & Taylor, R. W. (2012). Healthcare professionals' and mothers' knowledge of, attitudes to and experiences with, baby-led weaning: a content analysis study. *BMJ open*, *2*(6), e001542.

Centers for Disease Control and Prevention. (2019). Child Development. 2019. Retrieved on July 5th, 2019, from: https://www.cdc.gov/ncbddd/childdevelopment/positiveparenting/infants.html.

Chowdhury, R., Sinha, B., Sankar, M. J., Taneja, S., Bhandari, N., Rollins, N., ... & Martines, J. (2015). Breastfeeding and maternal health outcomes: a systematic review and meta-analysis. *Acta Paediatrica*, *104*, 96-113.

Creswell, J. W. & Poth, C. N. (2018). Qualitative inquiry and research design: Choosing among five approaches (4th ed.). Thousand Oaks, CA: Sage.

Dattilo, A. M., Birch, L., Krebs, N. F., Lake, A., Taveras, E. M., & Saavedra, J. M. (2012). Need for early interventions in the prevention of pediatric overweight: a review and upcoming directions. *Journal of obesity*, *2012*.

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2011). *The Sage handbook of qualitative research*. Sage.

Dewey, K. G. (2001). Nutrition, growth, and complementary feeding of the breastfed infant. Pediatric Clinics of North America, 48(1), 87-104.

Dewey, K. (2002). Guiding principles for complementary feeding of the breastfed child.

Dieterich, C. M., Felice, J. P., O'Sullivan, E., & Rasmussen, K. M. (2013). Breastfeeding

and health outcomes for the mother-infant dyad. *Pediatric Clinics of North America*, *60*(1), 31.

Du Toit G, Roberts G, Sayre PH, et al; LEAP Study Team. Randomized trial of peanut consumption in infants at risk for peanut allergy. N Engl J Med. 2015;372:803-13

Freedman, D. S., Sharma, A. J., Hamner, H. C., Pan, L., Panzera, A., Smith, R. B., & Blanck, H.M. (2017). Trends in weight-for-length among infants in WIC from 2000 to 2014. *Pediatrics*, *139*(1), supplemental information, *Pediatrics* 2016 Dec 13. pii: e20162034.

Fertman, C. I., & Allensworth, D. D. (2016). *Health promotion programs: from theory to practice*. John Wiley & Sons.

Gibbs, B. G., & Forste, R. (2014). Socioeconomic status, infant feeding practices and early childhood obesity. *Pediatric obesity*, *9*(2), 135-146.

Gibson, E. L., & Cooke, L. (2017). Understanding food fussiness and its implications for food choice, health, weight and interventions in young children: the impact of professor Jane Wardle. *Current obesity reports*, *6*(1), 46-56.

Gomez, M. S., Novaes, A. P. T., Silva, J. P. D., Guerra, L. M., & Possobon, R. D. F. (2020). Baby-led weaning, an overview of the new approach to food introduction: integrative literature review. *Revista Paulista de Pediatria*, *38*.

Guendelman, S., Broderick, A., Mlo, H., Gemmill, A., & Lindeman, D. (2017). Listening to communities: mixed-method study of the engagement of disadvantaged mothers and pregnant women with digital health technologies. *Journal of medical Internet research*, *19*(7), e240.

Hales, C. M., Carroll, M. D., Fryar, C. D., & Ogden, C. L. (2017). *Prevalence of obesity among adults and youth: United States, 2015-2016*. US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics.

Hetherington, M. M., Cecil, J. E., Jackson, D. M., & Schwartz, C. (2011). Feeding infants and young children. From guidelines to practice. *Appetite*, *57*(3), 791-795.

Horodynski, M. A., Calcatera, M., & Carpenter, A. (2012). Infant feeding practices: Perceptions of Native American mothers and health paraprofessionals. *Health Education Journal*, *71*(3), 327-339.

Huh, S. Y., Rifas-Shiman, S. L., Taveras, E. M., Oken, E., & Gillman, M. W. (2011). Timing of solid food introduction and risk of obesity in preschool-aged children. *Pediatrics*, peds 2010.

Kavanagh, K. F., Habibi, M., Anderson, K., & Spence, M. (2010). Caregiver-vs infant oriented feeding: a model of infant-feeding strategies among special supplemental nutrition program for women, infants, and children participants in rural east Tennessee. *Journal of the American Dietetic Association*, *110*(10), 1485-1491.

Larson, K., McLaughlin, J., Stonehouse, M., Young, B., & Haglund, K. (2017). Introducing Allergenic Food into Infants' Diets: Systematic Review. *MCN: The American Journal of Maternal/Child Nursing*, *42*(2), 72-80.

Lincoln, Y. S., & Guba, E. G. (1985). Naturalistic inquiry. Newberry Park.

Lindsay, A. C., Machado, M. T., Sussner, K. M., Hardwick, C. K., & Peterson, K. E.

(2008). Infant-feeding practices and beliefs about complementary feeding among low-income Brazilian mothers: a qualitative study. *Food and nutrition bulletin*, *29*(1), 15-24.

Matvienko-Sikar, K., Kelly, C., Sinnott, C., McSharry, J., Houghton, C., Heary, C., ... & Kearney, P. M. (2018). Parental experiences and perceptions of infant complementary feeding: a qualitative evidence synthesis. *Obesity Reviews*, *19*(4), 501-517.

Merriam, S., & Tisdell, E.J. (2016). Qualitative research: A guide to design and implementation (4th ed.). San Francisco: John Wiley and Sons.

Moding, K. J., & Stifter, C. A. (2016). Stability of food neophobia from infancy through early childhood. *Appetite*, *97*, 72-78.

Moon, R. Y., Mathews, A., Oden, R., & Carlin, R. (2019). Mothers' Perceptions of the Internet and social media as sources of parenting and health information: qualitative study. *Journal of medical Internet research*, *21*(7), e14289.

Moustakas, C. (1994). *Phenomenological research methods*. Sage.

Muniandy, N. D., Allotey, P. A., Soyiri, I. N., & Reidpath, D. D. (2016). Complementary feeding and the early origins of obesity risk: A study protocol. *BMJ open*, *6*(11), e011635

Muraro, A., Halken, S., Arshad, S. H., Beyer, K., Dubois, A. E. J., Du Toit, G., ... & O'Mahony, L. (2014). EAACI food allergy and anaphylaxis guidelines. Primary prevention of food allergy. *Allergy*, *69*(5), 590-601.

Netting, M. J., Campbell, D. E., Koplin, J. J., Beck, K. M., McWilliam, V., Dharmage, S. C., ... & Loh, R. K. (2017). An Australian consensus on infant feeding guidelines

to prevent food allergy: outcomes from the Australian Infant Feeding Summit. *The Journal of Allergy and Clinical Immunology: In Practice*, *5*(6), 1617-1624.

Nicklaus, S. (2016). The role of food experiences during early childhood in food pleasure earning. *Appetite*, *104*, 3-9.

NVivo qualitative data analysis software; QSR International Pty Ltd. Version 12, 2018.

Parker, J. D., Branum, A. M., Axelrad, D., & Cohen, J. (2013). Adjusting National Health and Nutrition Examination Survey sample weights for women of childbearing age.

Pearce, J., Taylor, M. A., & Langley-Evans, S. C. (2013). Timing of the introduction of complementary feeding and risk of childhood obesity: a systematic review. *International journal of obesity*, *37*(10), 1295.

Raiten, D. J., Raghavan, R., Porter, A., Obbagy, J. E., & Spahn, J. M. (2014). Executive summary: evaluating the evidence base to support the inclusion of infants and children from birth to 24 mo of age in the Dietary Guidelines for Americans "the B-24 Project". *The American journal of clinical nutrition*, *99*(3), 663S-691S.

Roy, S. M., Spivack, J. G., Faith, M. S., Chesi, A., Mitchell, J. A., Kelly, A., ... & Zemel, B. S. (2016). Infant BMI or weight-for-length and obesity risk in early childhood. *Pediatrics*, *137*(5), e20153492.

Ruel, M. T., Brown, K. H., & Caulfield, L. E. (2003). Moving forward with complementary feeding: indicators and research priorities. *Food and nutrition bulletin*, *24*(3), 289-90.

Saavedra, J. M., Deming, D., Dattilo, A., & Reidy, K. (2013). Lessons from the feeding

infants and toddlers study in North America: what children eat, and implications for obesity prevention. *Annals of Nutrition and Metabolism*, *62*(Suppl. 3), 27-36.

Sansotta, N., Piacentini, G. L., Mazzei, F., Minniti, F., Boner, A. L., & Peroni, D. G. (2013). Timing of introduction of solid food and risk of allergic disease development: understanding the evidence. *Allergologia et immunopathologia*, *41*(5), 337-345.

Savage, J. S., Neshteruk, C. D., Balantekin, K. N., & Birch, L. L. (2016). Low-Income women's feeding practices and perceptions of dietary guidance: A qualitative study. *Maternal and child health journal*, *20*(12), 2510-2517.

Scaglioni, S., De Cosmi, V., Ciappolino, V., Parazzini, F., Brambilla, P., & Agostoni, C. (2018). Factors influencing children's eating behaviours. *Nutrients*, *10*(6), 706.

Schwartz, C., Scholtens, P. A., Lalanne, A., Weenen, H., & Nicklaus, S. (2011). Development of healthy eating habits early in life. Review of recent evidence and selected guidelines. *Appetite*, *57*(3), 796-807.

Siega-Riz, A. M., Deming, D. M., Reidy, K. C., Fox, M. K., Condon, E., & Briefel, R. R. (2010). Food consumption patterns of infants and toddlers: where are we now?. *Journal of the American Dietetic Association*, *110*(12), S38-S51.

Spence, A. C., Hesketh, K. D., Crawford, D. A., & Campbell, K. J. (2016). Mothers' perceptions of the influences on their child feeding practices–a qualitative study. *Appetite*, *105*, 596-603.

Starks, H., & Brown Trinidad, S. (2007). Choose your method: A comparison of phenomenology, discourse analysis, and grounded theory. *Qualitative health research*, *17*(10), 1372-1380.

US Department of Health and Human Services; US Department of Agriculture (2015). *Scientific Report of the 2015 Dietary Guidelines Advisory Committee.* Part D. Washington, DC: US Dept of Health and Human Services.

Ventura, A. K., & Worobey, J. (2013). Early influences on the development of food preferences. *Current biology*, *23*(9), R401-R408.

Walsh, A., Kearney, L., & Dennis, N. (2015). Factors influencing first-time mothers' introduction of complementary foods: a qualitative exploration. *BMC public health*, *15*(1), 939.

World Health Organization (2008): Indicators for assessing infants and young child feeding practices. Part 1 definitions. Washington DC; 2008.

# Appendix A

## Interview Protocol

Project: Mothers' Experiences with Infant Complementary Feeding Practices: A

Phenomenological Study.

Date:

Time of Interview:

Place of Interview:

Interviewer:

Interviewee Pseudonym:

*Introduction:* I would like to thank you for taking the time to speak with me about your experiences with infant complementary feeding practices and your openness to participating in this study. First, I will go over the informed consent form with you and you can decide whether you consent to participate in this study. If you do, then we can get started.

Defining terms:

Complementary feeding is the transition time from exclusive breast or formula feeding to introducing any foods and liquids other than breast or formula milk. These foods include baby food, infant cereals, any fruit and vegetable, meat, fish, poultry, eggs, and dairy.

I will start the interview by asking some general questions about you and your infant.

1. What is your age?
2. What is your race/ethnicity?
3. What is your employment status?
4. What is your infants age in months?
5. Prior to introducing new foods to your infant, did they drink breast milk, formula, or both?
6. Does your infant have any known health problems that impact eating?
    a. Probe: If yes, please describe.
7. At what age did you introduce complementary foods to your infant?
8. Where do you get information on complementary feeding?

Now I will ask you questions related to your experiences with complementary feeding practices.

9. Please describe your experiences with complementary feeding practices.
    a. Probe: Who typically feeds your infant?
    b. Probe: Who is involved in introducing new foods to your child?
    c. Probe: How do you feed your infant complementary foods?
    d. Probe: How did you know your infant was ready to start consuming foods other than breast/formula milk?
    e. Probe: What complementary foods did you first introduce your infant to?
    f. Probe: What influences you decisions on feeding your infant?
    g. Probe: Does potentially allergenic foods influence your complementary feeding practices? If yes, how does potentially allergenic foods influence your complementary feeding practices?
    h. Probe: How frequently do you feed your infant complementary foods?
    i. Probe: How frequently do you currently breast or bottle feed?
10. Does your infant go to daycare?
    a. Probe: If yes, how do you think daycare influences your complementary feeding practices?
    b. Probe: How many feedings of complementary foods does your infant eat at daycare? At home?
11. How did the transition from exclusively breast or formula feeding your infant to introducing new foods impact you as a new mother?
    a. Probe: How did you feel when you started introducing new foods to your infant?
12. What advice would you give to other new mothers going through this transition?
13. What person(s) or things make complementary feeding practices easier for you?
14. What barriers or challenges to complementary feeding practices do you experience?
    a. Probe: How do you overcome the barriers to complementary feeding practices?
    b. Probe: Who are you most likely to seek support from to overcome barriers to feeding practices?
15. Is there anything else you would like me to know about your experiences with complementary feeding?

This is the end of the interview.

I would like to invite you to participate in a second interview in 2 weeks. I will provide you with a copy of your results and ask you to review and evaluate the accuracy of my interpretations and findings. This interview will take approximately 30 minutes to complete.

Thank you for participating in my study.

Appendix B

University of Nebraska Lincoln

**IRB Exempt**
**Title of this Research Study**
**Mothers Experiences with Infant Complementary Feeding Practices: A Phenomenological Study.**

**Authorized Study Personnel**

**Principal Investigator:** Tyler Martin, MS Phone: (402) 910-0013
**Secondary Investigator:** Megan Kelley, PhD Phone: (402) 472-7116

**Invitation**

You are invited to take part in this research study. The information in this form is meant to help you decide whether or not to participate. If you have any questions, please ask.

**Why are you being asked to be in this research study?**

You are being asked to be in this study because you are a mother who has begun feeding your infant foods other than breastmilk or formula. To participate in this study, you must be an English-speaking first-time mother 19 to 49 years of age. Your infant must be between 4 months to 12 months old.

**What is the reason for doing this research study?**

Mothers will initiate complementary feeding practices of their infant at some point during the infant's development. There is limited qualitative research about how mothers experience this transition. This study is designed to give voice to these mothers and to better understand their experiences with complementary feeding practices.

**What will be done during this research study?**

You will be asked to complete two one-on-one interviews. Each interview will be conducted in a private location, audio recorded, and take approximately 30 minutes to complete. The second interview will be conducted approximately 2 weeks after the first interview to review results found from the first interview.

**What are the possible risks of being in this research study?**

Due to the sensitivity of the interview, emotional distress is possible in rare instances.

**What are the possible benefits to you?**

You are not expected to get any benefit from being in this study.

**What are the possible benefits to other people?**

This study may contribute to the understanding of first-time mother's experience with complementary feeding practices by identifying the common themes mothers describe about this phenomenon. This study may identify facilitators and barriers to complementary feeding, how mothers overcome barriers, and hunger and satiety cues. Determining facilitators and barriers, how to overcome barriers, and hunger and satiety cues could be useful in the promotion of healthy complementary feeding practices to first-time mothers.

**What will being in this research study cost you?**

There is no cost to you to be in this research study.

**Will you be compensated for being in this research study?**

You will not be compensated for your participation in this study.

**What should you do if you have a problem during this research study?**
Your welfare is the major concern of every member of the research team. If you have a problem as a direct result of being in this study, you should immediately contact one of the people listed at the beginning of this consent form.

**How will information about you be protected?**
Reasonable steps will be taken to protect your privacy and the confidentiality of your study data. For the interview, your name will not be used. A pseudonym will be used. A list will be kept on the principal investigator's password protected computer that will link your pseudonym to your name. This list is needed for the second interview. Your name will be deleted immediately following the second interview. Only the investigators listed on this consent form will have access to this list. The audio recorded data will be stored in a locked cabinet in the investigator's office and will only be listened to by the research team during the study and for up to 5 years after the study is complete. Transcribed data will be stored electronically through a secure server and will only be seen by the research team during the study and for up to 5 years after the study is complete. The only persons who will have access to your research records are the study personnel, the Institutional Review Board (IRB), and any other person, agency, or sponsor as required by law. The information from this study may be published in scientific journals or presented at scientific meetings. In such cases, the data will be reported as group or summarized. However the results of this study are shared, your identity will be kept strictly confidential.

**What are your rights as a research subject?**
You may ask any questions concerning this research and have those questions answered before agreeing to participate in or during the study.

For study related questions, please contact the investigator(s) listed at the beginning of this form.

For questions concerning your rights or complaints about the research contact the Institutional Review Board (IRB):

- Phone: 1(402)472-6965
- Email: irb@unl.edu

**What will happen if you decide not to be in this research study or decide to stop participating once you start?**
You can decide not to be in this research study, or you can stop being in this research study ("withdraw') at any time before, during, or after the research begins for any reason. Deciding not to be in this research study or deciding to withdraw will not affect your relationship with the investigator or with the University of Nebraska-Lincoln.

You will not lose any benefits to which you are entitled.

**Documentation of informed consent**
You are voluntarily making a decision whether or not to be in this research study. Signing this form means that (1) you have read and understood this consent form, (2) you have had the consent form explained to you, (3) you have had your questions answered and (4) you have decided to be in the research study. You will be given a copy of this consent form to keep.

**Participant Feedback Survey**
The University of Nebraska-Lincoln wants to know about your research experience. This 14 question, multiple-choice survey is anonymous. This survey should be completed after your participation in this research. Please complete this optional online survey at: http://bit.ly/UNLresearchfeedback.

**Participant Name:**

_____
(Name of Participant: Please print)

**Participant Signature:**

_____
Signature of Research Participant Date