

2023

## A National Assessment of Household, Community, and Environmental Situations on Breastfeeding Decisions

Marnita Siglar Thomas  
*Walden University*

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# Walden University

College of Health Sciences and Public Policy

This is to certify that the doctoral dissertation by

Marnita S. Thomas

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## Review Committee

Dr. Manoj Sharma, Committee Chairperson, Public Health Faculty

Dr. Allison Litton, Committee Member, Public Health Faculty

Dr. Simone Salandy, University Reviewer, Public Health Faculty

Chief Academic Officer and Provost  
Sue Subocz, Ph.D.

Walden University  
2023

Abstract

A National Assessment of Household, Community, and Environmental Situations on  
Breastfeeding Decisions

by

Marnita S. Thomas

MS, Walden University, 2016

BS, University of Louisiana at Monroe, 2013

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health

Walden University

July 2023

## Abstract

Exclusively breastfeeding has been proven to be an effective preventive measure for childhood obesity; however, breastfeeding practices decline after 6 months. Secondary data from the 2018-2019 combined National Survey of Children's Health were used for this study to determine the household, community, and physical environment relationship between individuals' decisions to breastfeed and sustainment in the United States ( $N=16,750$ ). Grounded by the theoretical framework of the socio-ecological model, the results suggested that household, community, and physical environments predict individuals' decisions to initiate breastfeeding and sustainment nationally ( $p < 0.001$ ). Binary logistic regression, controlling for maternal age, indicated a statistical significance between breastfeeding initiation and income ( $p = 0.043$ ,  $p = 0.041$ ), family structure ( $p = 0.003$ ,  $p < 0.001$ ), education ( $p < 0.001$ ,  $p < 0.001$ ,  $p < 0.001$ ), neighborhood support ( $p < 0.001$ ), and neighborhood amenities ( $p = 0.039$ ,  $p < 0.001$ ,  $p < 0.001$ ). A statistical significance between breastfeeding duration and family structure ( $p = 0.061$ ), education ( $p < 0.001$ ,  $p < 0.001$ ), maternal overall health ( $p < 0.001$ ), neighborhood support ( $p = 0.008$ ), neighborhood safety ( $p = 0.006$ ), and neighborhood amenities ( $p = 0.019$ ) was found when controlling for maternal age. Implications for positive social change include providing health professionals with knowledge on breastfeeding decision making to encourage new recommendations and implement new practices and policies to promote breastfeeding and ultimately reduce the incidence of overweight and obesity in children nationwide.

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## Dedication

I want to dedicate this dissertation to my parents, Willie B. Siglar and the late Gussie A. Siglar, who taught me that anything is achievable with faith in God and the importance of education. In addition, I would like to dedicate this dissertation to my husband, Lee, and son, Levi Micah, for providing encouragement and support throughout this journey daily. To God be the Glory.

## Acknowledgments

I thank God, first and foremost, for allowing me to complete this journey. Thank you to Dr. Zin Htway, my committee member, Dr. Allison Litton, and chair, Dr. Manoj Sharma, for your expertise and time. I want to thank the Data Resource Center for Child and Adolescent Health for allowing me to use the National Children's Health Survey data as the primary source for this study. Lastly, I would like to thank my husband, son, late mother, father, sister (Marci), brother (Bernard), nieces (Addison & Madilyn), nephews (Gavin, Ernest, Jr. (EJ), & Noah), and extended family and friends for your continuous encouragement, support, and understanding.

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## Chapter 1: Introduction to the Study

Obesity is a significant concern affecting adults and children. According to the Centers for Disease Control and Prevention (CDC, 2021a), more than 40% of Americans over the age of 20 are obese, and nearly 20% of children ages 2 to 19 are obese. Due to the vast number of cases, this condition has become normalized, especially in the United States. Therefore, it is often overlooked by physicians. Obesity is a contributor to several chronic diseases. Most of these conditions are leading causes of death, increasing a child's risk of premature mortality (Kinlen et al., 2018). Therefore, pediatric obesity must be controlled.

It is known that childhood obesity has several contributors. Throughout the literature, researchers focus on controlling children's diet and physical activity to combat this condition after a child is diagnosed. These factors are the prominent causes of childhood obesity. Nevertheless, research has shown that early prevention of diseases is the best method of prevention and control (Kisling & Das, 2023). One of the primary early preventive measures recommended for childhood obesity is breastfeeding for at least the first six months of life (Gibbs & Forste, 2014). This method has been proven to be valid through countless studies. However, most mothers in the United States seem to initiate breastfeeding but choose not to continue (CDC, 2021c). In this study, I evaluated the impact of household, community, and environmental situations on breastfeeding decisions. Once this influence is revealed, programs and policies can be implemented to

educate soon-to-be mothers on the importance of breastfeeding for the health of their future children.

### **Background**

Obesity is linked to several chronic conditions that can lead to death. This condition is concerning in adults but even more in children. Worldwide, research has shown that obese children often become obese adults (Kinlen et al., 2018). Therefore, preventive measures must be implemented to reduce the incidence of obesity. Early prevention is the most effective way to prevent childhood obesity (Gibbs & Forste, 2014). Introducing healthy diets and the importance of physical activity should be a part of the expecting mothers' prenatal education.

Breastfeeding is a primary method to decrease the risk of childhood obesity nationwide (Ahmad et al., 2010). The American Academy of Pediatrics (AAP) recommendation is for mothers to exclusively breastfeed (EBF) for a minimum of 6 months and should be encouraged to continue until 24 months with the addition of solid foods (Meek & Noble, 2022). Breastfeeding protects infants from diseases and aids in strengthening the child's immune system.

Obesity is caused by excess fat around the body (Ahmad et al., 2010). Several factors, such as poor diet, overeating, lack of physical activity, and physical and natural environments contribute to the condition (Elberg et al., 2004). Breastfeeding introduces pace feeding at an early age (Yan et al., 2014). This feeding method allows the child to determine when they are full, reducing



the risk of premature stomach expansion, hence, why breastfeeding reduces the risks of childhood obesity.

In 2019 in the United States, 24.9% of mothers exclusively breastfed, 55.8% of mothers breastfed with some form of supplementation until 6 months, and 83.2% of mothers tried breastfeeding at some point (CDC, 2021c). My primary goal was to determine what factors contribute to this decline in EBF. Studies have been conducted on the association between parental, mental, and physical health impacts of breastfeeding (see Penniston et al., 2021; Jiang et al., 2021; Williams & Smith, 2018). However, through the literature review, no studies have been conducted on the influence household, community, and physical environment have on breastfeeding decisions in the United States. The results of this study add to those of others to create new standards and enact policies nationwide to reduce the incidence of childhood obesity.

### **Problem Statement**

Childhood obesity has risen to epidemic proportions over the past 3 decades. In the 1980s and 1990s, childhood obesity prevalence increased from 5% to 15% (CDC, 2011). Today, the prevalence of childhood obesity is 19.7% (CDC, 2021b). Obesity is the primary contributor to many chronic diseases; therefore, it is essential that childhood obesity is controlled and prevented to decrease the risk of immature mortality in this population (Lindberg et al., 2020). In the past, the underweight population surpassed the overweight and obese population globally (World Health Organization, 2021). Successful poverty and hunger campaigns and initiatives were established to mitigate this problem

worldwide. Today there are more obese children and adults worldwide than underweight (WHO, 2021). Therefore, health professionals and community leaders must develop more effective initiatives to make the world healthier. Preventing childhood obesity is the ideal foundation for this mission.

The primary challenge with controlling and preventing childhood obesity is that there is no one method to complete this task. However, Gibbs et al. (2014) explained that early prevention is the most effective approach to control and avoid childhood obesity. Modrek et al. (2017) concurred with this notion by identifying that breastfeeding with respect to duration is a protective measure that decreases the risk of childhood obesity. In the United States, it is recommended for mothers to EBF for the first 6 months and continue breastfeeding with the introduction of solid food (Meek & Noble, 2022). However, after 6 months, U.S. mothers' breastfeeding practices tend to significantly decline (CDC, 2021c). It is known that mothers face many responsibilities and do not have support at home, in the community, or access to resources. Though early prevention is effective, these challenges possibly contribute to a mother's decision to breastfeed and duration.

### **Purpose of the Study**

In this quantitative study I aimed to determine if household, community, and physical environment predict an individual's decision to breastfeed and breastfeeding duration, grounded by McLeroy's socio-ecological model (SEM).

The targeted population for this study was caregivers of children between the ages of 0-5 years old in the United States.

### **Research Question(s) and Hypotheses**

The research questions (RQs) developed for this study are as follows:

RQ1: When evaluating individuals on a national level, do income, family structure, education, working situation, maternal and paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions predict individuals' decisions to breastfeed when controlling for maternal age?

*H<sub>0</sub>1*: When controlling for maternal age, individuals on a national level, income, family structure, education, working situation, maternal and paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions do not predict individuals' decisions to breastfeed.

*H<sub>a</sub>1*: When controlling for maternal age, individuals on a national level, income, family structure, education, working situation, maternal and paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions predict individuals' decisions to breastfeed.

RQ2: When evaluating individuals on a national level, do income, family structure, household education, working situation, maternal and paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions predict individuals' breastfeeding duration decisions when controlling for maternal age?

$H_02$ : When controlling for maternal age, individuals on a national level, income, family structure, household education, working situation, maternal and paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions do not predict individuals' breastfeeding duration decisions.

$H_{a2}$ : When controlling for maternal age, individuals on a national level, income, family structure, household education, working situation, maternal and paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions predict individuals' breastfeeding duration decisions.

Both dependent variables, if the child was ever breastfed (yes or no) and breastfeeding duration (< 6 months or 6 months/longer/ still breastfeeding), were measured dichotomously. The household independent variables were measured by household income using the federal poverty level (ordinal), family structure using the parental household type (nominal), household education (ordinal), working situation (nominal), and mother's and father's overall health (nominal).

Neighborhood support (nominal) and neighborhood safety (ordinal) are the predictors for the community. The physical environment was measured using neighborhood amenities (ordinal) and neighborhood detractions (ordinal). The controlling variable used was mother's age (scale). The statistical analysis is detailed in Chapter 3.

### **Theoretical Foundation**

The theory that grounds this study is SEM. This theory assessed how individuals' surroundings influence their decisions (Kilanowski, 2017). This theory focuses on five areas to promote health prevention: intrapersonal, interpersonal, community, institutional, and public policy (Kilanowski, 2017).

The SEM has been used widely in public health to identify factors affecting a person's behavior and develop health policies to combat childhood obesity (Ottley, 2018). I used this model's structure to evaluate an individual's surroundings' impact on breastfeeding. Four areas of the SEM were evaluated for this study: the individual's (intrapersonal) income, household education, workload, and maternal overall health were observed to identify a relationship between their decision to breastfeed and sustainment. To associate interpersonal relationships between an individual's decision, family structure, father's overall physical health, and neighborhood support was used. The individual's neighborhood amenities, detractions, and safety were used to link the community involvement in breastfeeding decision making. Once the influence of the predictors' effect on breastfeeding decisions is identified, recommendations can be made for standard practices, policies, and laws to improve these situations to prevent childhood obesity on a national level.

### **Nature of the Study**

Secondary data were used to address this quantitative study's research questions. The results of this cross-sectional quantitative study provided the influence that

household, community, and physical environmental situations have on individuals' decisions to breastfeed while controlling for maternal age. Data were used from the National Survey of Children's Health (NSCH). Data were collected from the 2018 and 2019 combined NSCH dataset. Information on breastfeeding, duration, household (income level, family structure, caregiver's education, caregiver's working situation, and mother's and father's overall health), community (neighborhood support and safety), and physical environmental situations (neighborhood amenities and detractors) were used for analysis. Binary logistic regression was used for data analysis.

The primary limitations of this study were the use of secondary data and the study design. Using secondary data limits the study because the primary data is not accessible, which opens a window for the possibility of an abundance of data being missing during data analysis using this form of data as well. Therefore, I used G\*Power to determine an appropriate sample size to give the study statistical power. However, this sample size may not represent the nation's population well. Therefore, over/underestimation may exist within the study results. Also, using a cross-sectional study design did not explain the cause of an individual making specific breastfeeding decisions. Nevertheless, this study design provided predictors that influence individuals' breastfeeding decisions.

## Definitions

To provide clarity of essential terms used in this study, they are defined as follows:

*Breastfeeding duration:* The length of time a child was exclusively breastfed (Child and Adolescent Health Measurement Initiative, 2020).

*Community Situation:* Lives in a supportive and safe neighborhood (Child and Adolescent Health Measurement Initiative, 2020).

*Ever breastfed:* Whether the child was ever breastfed, no matter the duration (Child and Adolescent Health Measurement Initiative, 2020).

*Household Situation:* Encompasses these variables from the NSCH; income level, family structure, caregiver's education, caregivers working situation, and mother's & father's overall health (Child and Adolescent Health Measurement Initiative, 2020).

*Lactation Room:* A hygienic area, other than a restroom, that is shielded, free from interruptions, has chairs, working space, and has electricity with an electrical outlet (Congress.gov, 2019).

*Physical Environmental Situation:* Amenities available to the neighborhood and the presence of detracting neighborhood elements (Child and Adolescent Health Measurement Initiative, 2020).

*Public Buildings:* Defined by law as a covered public building with public restrooms or workplace (Congress.gov, 2019).

*Skin to Skin*: Mother and infant skin-to-skin contact after delivery (Karimi, et al. 2019).

*Working Poor*: Individuals that spend 27 weeks or more annually in the labor force working or looking for work, but income falls below the poverty level (U.S. Bureau of Labor Statistics, 2020).

### **Assumptions**

This study used secondary data from a national survey. Therefore, I assumed that the respondents were cognitively able to take the survey and answered each question honestly. There is a possibility that not all respondents fell into this category. I also assumed that the data exactor recorded the data correctly. I cannot access original documents; therefore, they cannot be compared to the provided dataset.

Nevertheless, for this study, each assumption was likely met. The number of surveys returned strongly indicates that most respondents understood the survey well and took their time. In addition, the dataset used for this study has been created and organized by trained data managers.

### **Scope and Delimitations**

I aimed to assess the impact household, community, and physical environmental situations have on a mother's breastfeeding decisions and the duration. Using SEM, the study results reflected individuals' decisions on



breastfeeding based on their surroundings. There are no known confounders that would affect the internal validity of this study.

This study evaluated children's caregivers in the United States using data from the 2018 and 2019 NSCH. No other population was used for this study. Therefore, there is no immediate threat to the current study's external validity. In addition, the data used for this study is from a national survey. Thus, the study results are generalizable.

### **Limitations**

A limitation in this study is that the secondary data used and oversampling of children with special needs and under the age of six occurred (Child and Adolescent Health Measurement Initiative, 2020). Therefore, this method could introduce a bias within the data. To reduce this biasness, the organization uses base sampling weights (Child and Adolescent Health Measurement Initiative, 2020).

Another limitation of this study is missing data. There is a possibility that an abundance of data was missing during data analysis. Therefore, G\*Power was used to determine an appropriate sample size to give the study statistical power. However, this sample size may not represent the nation's population well. Therefore, over/underestimation may exist within the study results.

The cross-sectional study design restricted the study and made it challenging for the study to identify a causal relationship between the predictors and breastfeeding initiation and duration. Also, this type of observational study only provides information

about a population at one point in time (Creswell & Creswell, 2018). However, the results of this study provided predictors that influence individuals' breastfeeding decisions. These predictors can be observed at other time points and through prospective studies to better assess the cause of individual's making specific breastfeeding decisions.

### **Significance of the Study**

#### **Significance to Theory**

It has been proven that breastfeeding is an effective preventive measure against childhood obesity (see Ahmad et al., 2010; Meek & Noble, 2022; Yan et al., 2014). Breastmilk has all the nutrients a baby needs with low-calorie content and leptin's hunger-controlling hormone (Yan et al., 2014). Breastfeeding allows a baby's stomach to expand naturally, reducing overeating and excess fat. In contrast, infant formula is sometimes filled with more protein, fats, and sugar (Yan et al., 2014). These ingredients cause this product to have a higher calorie content and often cause a faster stomach expansion.

The AAP recommends EBF for 6 months (milk only) and continuing breastfeeding with the addition of solids until 24 months and beyond (Meek & Noble, 2022). Yet, many Americans choose not to breastfeed or stop breastfeeding after 6 months. In this study I assessed mothers' life situations to identify an association with their decisions on breastfeeding. Life situations (household, community, and physical environment) were selected because it takes a lot for a

mother to breastfeed. The process of breastfeeding is demanding and stressful (see Karcz et al., 2021; Jiang et al., 2021). Therefore, mothers need support, time, resources, and knowledge to succeed. Using SEM, I examined the impact household, community, and physical environment have on individuals' breastfeeding decisions and duration. Chapter 2 provides a detailed discussion of how SEM was used for this study.

### **Significance to Practice**

Several researchers have pinpointed how to reduce the prevalence of childhood obesity, and health professionals have developed initiatives to control the condition. Yet, that incidence and prevalence are continuously increasing (Gibbs & Forste, 2014). In my study I focused on controlling the incidence of childhood obesity rather than its prevalence. Research has shown that early health prevention is the ideal method of control (Kisling & Das, 2023). The data from my study provides public health professionals and healthcare providers with additional knowledge about why mothers decide not to breastfeed or stop breastfeeding and provide potential methods to promote breastfeeding in the United States. Once these factors are identified, individual and community programs, courses, standard practices, and policies can be established to encourage breastfeeding.

### **Significance to Social Change**

Obese children are at a higher risk of chronic conditions and premature mortality. Furthermore, they become obese adults with severe health conditions (Sanyaolu et al., 2019). The Hispanic (26.2%) and non-Hispanic Black (24.8%) populations are more

susceptible to this condition than the non-Hispanic White (16.6%) and Asian (9%) children (CDC, 2021a). Unfortunately, The Hispanic and Black populations usually suffer from health disparities due to household, community, and environmental factors (Sanyaolu et al., 2019). Therefore, healthcare is limited, and the quality-of-care decreases (CDC, 2021a). Hence, breastfeeding practices are also lower in these populations (Meek & Noble, 2022). Therefore, I aimed to understand the home, community, and environmental predictors that impact mothers' decisions to breastfeed and sustainment. The results of this study play a significant role in implementing new practices and policies that can be used to promote breastfeeding, sustainment, and ultimately reduce the incidence of overweight and obesity in children nationwide.

### **Summary**

America is battling many public health issues, communicable and noncommunicable. Obesity in the United States has become normalized over the past decades (Robinson, 2017). Health inequalities, education, and support play significant roles in the status of obesity. This disease is negatively affecting children. Obesity puts children at a higher risk of chronic diseases, depression, sleep apnea, and death due to excess body weight (CDC, 2021b, Kumanyika, 2019, & Finkelstein et al., 2014). To avoid children growing into adulthood as obese, barriers and challenges nationwide must be identified.

EBF for at least the first 6 months of life has been proven to reduce a child's risk of obesity (see Ahmad et al., 2010; Hansstein, 2016; Modrek et al.,

2017; Ma et al., 2020). However, mothers are not engaging in this feeding method at a steady rate (CDC, 2021c). Since the breastfeeding process is very tedious, I focused on caregivers' household, community, and physical environmental situations' effects on breastfeeding and its duration. Research shows that the best method for prevention is early control (Kisling & Das, 2023). Therefore, once these factors are associated with breastfeeding decisions, public health programs, standard practices, and policies can be implemented to reduce the incidence and prevent overweight and obesity in children nationwide.

Chapter 2 will provide a detailed discussion of the theoretical foundation used in similar studies and how it was applied to the current study. Also, a synthesized literature review is presented to offer information that has been researched as it relates to this study.

## Chapter 2: Literature Review

Childhood obesity has risen to epidemic proportions over the past decades (Gibbs & Forste, 2014). Obesity is the primary contributor to many chronic diseases; therefore, it is vital that childhood obesity is controlled and prevented to decrease the risk of immature mortality in this population (Lindberg et al., 2020). Decades ago, there were more underweight children globally than overweight (NCD Risk Factor Collaboration, 2017). According to the WHO, 2021, there are more overweight and obese individuals worldwide than underweight individuals, and higher mortality is also associated with overweight and obesity. Therefore, preventing and controlling this condition is essential. The primary challenge with control and prevention is that there is no one method to complete this task. Gibbs et al. (2014) explained that early prevention is the most effective approach to control and avoid childhood obesity. This approach can reduce the risk of the presence of a condition or a condition worsening. Therefore, identifying measures that can be established early in life will ultimately reduce the incidence of childhood obesity in the United States.

Diet and physical activity are the primary contributors to obesity (Yan et al., 2014). Caregivers are responsible for children's health and make dietary decisions for them. Nutrition education is essential for families that are expecting a child or have children. Especially those families that have a history of obesity. These families need additional educational resources. Recent research has proven

that breastfeeding can significantly reduce the risk of childhood obesity. Modrek et al. (2017) identified that breastfeeding with respect to duration is a protective measure that decreases the risk.

In the United States, it is recommended for mothers to EBF for the first 6 months and continue breastfeeding with the introduction of solid foods (Meek & Noble, 2022). Breastmilk contains an ample amount of nutrients for the child. It is composed of mainly water, with the addition of protein, lipids, carbohydrates, calcium, phosphorus, magnesium, potassium, sodium, and vitamins (Yan et al., 2014). These elements are made naturally and tailored for the infant. Breastmilk is also rich in bioactive compounds. These compounds provide the child's immune, endocrine, neurological, and psychological benefits (Yan et al., 2014). The effects on the endocrine control the child's metabolism and energy level. Both components contribute to how the body progresses and breaks down food (Yan et al., 2014). Breastfeeding also allows the child to pace themselves while eating. Pace eating lets the infant's stomach expand naturally at a steady pace (Gibbs & Forste, 2014).). This natural expansion of the stomach decreases overeating. Overeating or not knowing when one is full is also a cause of obesity; hence, breastfeeding can reduce the risk of obesity.

In the United States, mothers' breastfeeding practices tend to decline significantly after 6 months (CDC, 2021d). It is known that mothers face many responsibilities and do not have support at home, in the community, or access to resources. Though early prevention is effective, these challenges possibly contribute to a mother's decision to

breastfeed and for how long. I aimed to assess if household, community, and physical environmental situations significantly impact an individual's decision to breastfeed and sustainment grounded by SEM.

### **Literature Search Strategy**

I conducted a systematic review of the literature to review the literature available on the current study. The search inclusion criteria were articles 7 years or younger (2015-2022) with respect to historical data, published in a peer-reviewed journal, full text, and publications written in English. The 2015 articles are included because, in 2015, childhood obesity prevalence increased by 1.3% after being steady for four years (CDC, 2021b). The literature reported during this time benefited the current study in understanding the reasoning behind this spike. The databases used to identify related articles were Walden University Library, MedLine, PubMed, EBSCOhost, PLOS ONE, and ProQuest. The key search terms included *childhood obesity, United States, theoretical approach, socio-ecological model, epidemiology of childhood obesity, breastfeeding, breastfeeding duration, breast reduction surgery, cultural, breastfeeding decision making, National Study of Children's Health, environment support, lifestyle, household environment, and community support*. An advanced literature search was applied using "AND" and "OR" with many of these key terms. Additional operations were applied to restrict the search.



## **Theoretical Foundation**

In my study, I explain how an individual's surroundings impact their decision to breastfeed and for how long. In public health, several theories and models are used to determine etiologies, outcomes, and policies through evidence-based approaches. Individuals' health decisions have been observed on numerous levels using theoretical approaches. Through a systematic review, the SEM is used widely to observe an individual's surroundings' effect on decision-making. Therefore, this model was the foundation for the current study.

### **Socio-ecological Model**

Bronfenbrenner developed the standard SEM in 1977. This model explains how relationship, social, and physical environmental factors affect a child's behavior (Bronfenbrenner, 1979). While observing these behaviors through this model, public health programs and interventions are developed. These elements aid in altering behaviors to induce better health outcomes.

Bronfenbrenner, 1979, argued that surroundings in five systems affect nearly every aspect of a child's life. These systems are microsystem, mesosystem, exosystem, macrosystem, and chronosystem. Each of the systems plays a significant role in the behaviors one chooses. The microsystem encompasses the direct influencers on a child (Bronfenbrenner, 1979). These influences include family, school, health services, church, and friends. The mesosystem observes influences that have an indirect effect on the child (Bronfenbrenner, 1979). Such as the parent's relationship with the child's teachers and

friends. According to this model, influencers that affect a child in the exosystem are external contributors (e.g., social media and neighborhood surroundings). The macrosystem examines the effects that one's culture has on their behavior (Bronfenbrenner, 1979). Lastly, behavior alterations due to changes that have occurred throughout a child's lifetime are assessed in the chronosystem (Bronfenbrenner, 1979). The Bronfenbrenner SEM is very detailed and provides ample information about how a child's behavior may be altered. However, this model is very complex and is centered around children. Therefore, it cannot be used within all populations.

McLeroy et al. (1988) developed a variation of Bronfenbrenner's SEM. This variation allowed for population variety and provided a similar result on how individuals' surroundings influence their behaviors by focusing on health epidemiology and promotion. The CDC has adopted this model for standard use for evaluating effects on health behaviors and prevention. The standard model and other ecological models lacked identifying the actual contributors to health conditions and establish optimal interventions (McLeroy et al., 1988). This model also uses a theoretical framework rather than a conceptual framework (Bronfenbrenner, 1979; McLeroy et al., 1988). Five factors determine the change in an individual's behavior, argued by McLeroy et al. (1988). These factors include intrapersonal, interpersonal, institutional, community, and public policy. I used four factors to evaluate the impact household, community, and physical

environmental situations have on an individual's decision to breastfeed and breastfeeding duration (intrapersonal, interpersonal, community, and public policy).

Using SEM, authors have made it clear that mothers' breastfeeding decisions are strongly related to their environment (see Dede & Bras, 2020; Yourkavitch, et al., 2018). Hence, the urgency to explain which environmental elements affect the caregiver's decisions to breastfeed and for how long. The information from this study provided knowledge on breastfeeding decision-making and what interventions must be implemented to promote and educate the American population early to decrease the incidence of childhood obesity.

### **Intrapersonal**

The intrapersonal level represents an individual's direct influences that affect knowledge, attitudes, beliefs, and personality (McLeroy et al., 1988). It is suggested that the relationships at this level directly influence learned behaviors and behavior changes (McLeroy, 1988). The decision-making process to breastfeed begins at conception (Radzynski & Callister, 2016). Breastfeeding is a very time-consuming and tedious task. A mother must be willing to sacrifice to effectively breastfeed a child or children (Edwards et al., 2021). Therefore, planning is a primary element in this decision. Socioeconomic status plays a significant role in this planning process. Mothers in the lower- and middle-income classes have more responsibilities than those in the higher class (Bialowolski, Weziak- Bialowolski, Lee, et al., 2021). Newhook et al. (2017) determined that mothers on a lower socioeconomic (SE) level (annual household <

30,000 and highest education  $\leq$  high school) that planned to breastfeed at baseline are significantly lower than those who are on a higher SE level (annual household  $\geq$  80,000 and highest education professional/postgraduate degree). Also, of these two groups, at 1 month postpartum, the lower SE mothers continuing to breastfeed significantly declined compared to higher SE mothers. A reason that was not observed in the article is the fact that mothers with lower incomes work more strenuous labor, more random hours, and receive at best standard maternity leave than higher income mothers (Newhook et al., 2017). This reason alone reduces the time and commitment mothers can put into breastfeeding.

For the current study, the mothers (caregivers) were the individuals observed. The intrapersonal influences driving their decision were evaluated as predictors of household education, workload, and the mother's overall health. Each of these elements can potentially affect breastfeeding decision-making and duration.

### **Interpersonal**

The interpersonal level observes how an individual's relationships impact their health behaviors (McLeroy et al., 1988). The primary contributors to this level are family and friends. Support is beneficial in any situation. The support of loved ones during the breastfeeding process is essential for success (Ratnasari et al., 2017). Ratnasari et al. (2017) conducted a cross-sectional study with 158 working mothers with children between the ages of 6 -12 months old. Each

mother completed a family support questionnaire. The results showed that proper family support was associated with the practice of EBF. In my study, the number of family members in a household, marital status, the father's overall health, and neighborhood support were the interpersonal predictors observed.

### **Community**

As stated previously, support is a critical element of breastfeeding (Ratnasari et al., 2017). Individuals' behaviors and perceptions are not only influenced by family and friends but also by their external surroundings. The environment where an individual lives and visits, often prepartum and postpartum, also plays a significant role. Support from physicians, health professionals, the community, neighbors, and employers are needed to encourage breastfeeding (Jiang et al., 2021). Retrospective studies have been conducted to assess the association between mothers' environments and indirect interactions and breastfeeding outcomes. Individuals that perceive to live in safe neighborhoods have better breastfeeding outcome with respect to EBF (Kummer et al., 2020). Blixt et al. (2019) validated that mothers, especially first-time mothers, are more likely to practice breastfeeding when introduced or encouraged by a healthcare professional.

Yourkavitch et al. (2018) concluded that disadvantaged neighborhoods have lower EBF rates due to insufficient support and resource availability. The authors suggested that more research was needed to identify the neighborhood disadvantage. I evaluated several

community and neighborhood amenities, detractors, and safety that may influence the decision to breastfeed and sustainment.

### **Public Policy**

In this study, I aimed to identify possible predictors of low breastfeeding rates in the United States. Therefore, interventions and policies can be developed to promote breastfeeding nationwide. The current recommendation for breastfeeding is to EBF for 6 months and continue breastfeeding while introducing complementary foods (Meek & Noble, 2022). In the United States, majority of medical and public health documents are written at or below an eighth grade reading level (Rooney et al., 2021). Therefore, the AAP recommendation terminology could confuse the public. Hence, the presentation of the information provided to the public should be in lay terms. The information gathered from this research has built the foundation for disseminating breastfeeding health literacy.

### **Literature Review**

Childhood obesity was also an area of focus for the current study literature review. Articles that support breastfeeding as an early preventive measure for childhood obesity were evaluated to provide scientific evidence. Several articles were reviewed on the influence of household, community, and environmental situations on breastfeeding/duration to defend the gap in the literature.

## **Childhood Obesity a Public Health Concern**

Childhood obesity is continuing to increase worldwide. According to the CDC, nearly 20% (19.7%) of children aged 2 years to 19 years old in America are obese (CDC, 2021b). These numbers are concerning due to the countless number of chronic diseases that are associated with obesity. Kumanyika (2019) proved that obese and overweight pediatric individuals often carry obesity into adulthood and increases the risk of immature mortality. Ultimately increasing healthcare spending (Finkelstein et al., 2014). Therefore, more effective approaches must be established to control the incidence of pediatric obesity.

The standardized scale (pediatric and adult) used to determine this condition is the body mass index (BMI). BMI is calculated based on age, weight, and height (CDC, 2021a). BMI is used to assess whether an individual is underweight, average weight, overweight, or obese. Pediatric and adult BMIs weight categories are classified differently. A number scale identifies adult BMI. Childhood obesity is identified by percentile. The percentiles categories include underweight (> the fifth percentile), average weight (fifth percentile - > the 85<sup>th</sup> percentile), overweight (85<sup>th</sup> percentile to > the 95<sup>th</sup> percentile), and obese (equal to or < the 95<sup>th</sup> percentile; CDC, 2021b). The child's BMI categorization is more complex than the adult's because children are continuously growing. Nevertheless, Ahmad et al. (2010) identified limitations of BMI. The authors expressed the need for other metrics, such as waist circumference and skinfold thickness, to determine obesity. The research showed that genetics, behavior, and environment are

primary contributors to the condition. The article also noted that childhood obesity plays a significant role in physical and psychological health.

Childhood obesity is often overlooked due to personal sensitivity, lack of health literacy, and its normality (Lee, Cardel, & Donahoo, 2019). Family and friends of overweight or obese individuals sometimes find it challenging to discuss their concerns. Therefore, they continue with their normal behaviors. With the vast number of cases in the United States and unsuccessful attempts to control obesity, the condition in the United States has become normalized. Since both families and the United States normalize the condition, most individuals do not see the great concern.

Childhood obesity is more prevalent in United States urban areas (southern states). Kumanyika (2019) observed that Hispanics and African Americans are affected more by the condition than Caucasians. African Americans and Hispanics often live in urban areas and face many health inequalities. These populations lack proper education, resources, affordable health insurance, and low socioeconomic status. However, these health inequalities are not the only contributors to childhood obesity. Many individuals in these populations inherited poor diets and inactive habits (Kumanyika, 2019). Therefore, the cycle continues for many generations.

Childhood obesity has several contributors. Researchers primarily focus on controlling children's diet and physical activity to combat this condition



(Smith, Fu, & Kobayashi, 2020). These factors are the prominent causes of childhood obesity. However, more factors contribute to the disease. An adult usually determines children's health decisions. Whether it is the parents or guardians that a child lives with, they are responsible for the child's care. Therefore, the responsible parties must understand any health concerns of the child. However, research has proven that parents are unaware of healthy diets or activities (Sanyaolu et al., 2019).

Sanyaolu et al. (2019) systematically discovered that to prevent childhood obesity prevalence, families need to be more educated on appropriate diet and physical activity and lessen unhealthy habits early to reduce carrying obesity into adulthood. Health education is better received if provided by primary care pediatricians or other health professionals. Therefore, it is the responsibility of clinicians and public health professionals to identify the etiologies, develop prevention methods, and disseminate information on childhood obesity to the public.

To effectively eradicate childhood obesity, consistency is critical. Each contributor responsible for the health of a child must be on one accord to demonstrate and encourage healthy behaviors (Tomayko, Tovar, Fitzgerald, 2021). Once healthcare professionals identify the methods to prevent and control childhood obesity, they must share the information with all involved parties. These parties include families, healthcare providers, schools, and communities. Adults caring for a child make all health decisions; therefore, to change the learned behaviors of poor eating and inactivity, information on healthy living will need to be provided at every level of the child's immediate circle.

The SEM has been used in public health to develop strategies, interventions, and programs to decrease childhood obesity. These initiatives incorporate family, community, healthcare professionals, and policies (McLeroy et al., 1988). Ottley et al. (2018) evaluated 19 sites in the United States that resulted in a decline in childhood obesity over the last decade with the implantation of initiatives in the areas of community, school, early care education, and healthcare. After 4 years of collecting data, the authors discovered that the decline in obesity was due to the policies and interventions that had been put into place. Therefore, to decrease childhood obesity nationwide, all states need to consider the policies and interventions used at these sites (Ottley et al., 2018).

### **Breastfeeding Benefits and Recommendations**

#### ***Benefits of Breastfeeding***

Breastmilk is a natural source of food produced by a mother for her child. The milk is tailored uniquely for the child. Hence, breastmilk is best for the early years of life for early prevention. Breastfeeding is beneficial for both mother and child. Benefits to mothers include lower risk of pre-menopausal breast and ovarian cancers, type 2 diabetes, hypertension, heart disease, osteoporosis, postpartum depression, and financial savings (see Brock & Long, 2018; Eidelman et al., 2012).

Schwarz et al. (2015) identified that the incidence of breast cancer was significantly reduced for mothers who breastfed with respect to duration. Also,

mothers with a predisposition for breast cancer and breastfed have a significant decline in developing breast cancer than those who do not (see Schwarz & Nothnagle, 2015; Williams & Smith, 2018). This protection is due to the properties of breast milk and the hormonal modification the body goes through while producing milk. Research has shown that the more the body ovulates, the higher the risk of ovarian cancer (see Schwarz & Nothnagle, 2015; Williams & Smith, 2018). While breastfeeding, the hormone (gonadotrophin-releasing hormone (GnRH)) that causes ovulation can be suppressed. Therefore, the body is ovulating less frequently, reducing the risk of ovarian cancer. The properties of breast milk fight against chronic conditions, suppress the hormones that cause depression, and create a bonding opportunity with the child (Williams & Smith, 2018). These advantages give the mother peace to better provide for the child.

Breastfeeding benefits for the child are countless. The primary benefits include reducing the risk of gastrointestinal (GI) problems, allergies, diabetes, and childhood cancers, strengthening the immune and respiratory systems, promoting positive neurological outcomes, and ultimately reducing childhood obesity (Yan et al., 2014). Infants often have GI issues due to transitioning from womb feeding to self-feeding. This change can confuse the infant, allowing for trapped gas and other GI problems. However, breastmilk coats the baby's stomach providing a layer of protection against bacteria and bowel blockage. Infants are also more susceptible to infections and respiratory challenges; the tailored milk provides an extra shield of protection. Eidelman et al. (2012) suggested that breastfed infants are less likely to suffer or have prolonged cases than

formula-fed infants. As stated, and further detailed in this review, there is a strong association between breastfeeding and childhood obesity. Several components within the breastmilk protect the condition. Hence, the benefits of breast milk are so significant; therefore, it is the responsibility of healthcare professionals to develop policies and standards centered around breastfeeding.

### **Recommendations of Breastfeeding**

For the last several years, the AAP has recommended for mothers to EFB the first six months of life, introduce foods at 6 months, and continue breastfeeding until one year old or older. The WHO and the CDC both adopted this recommendation. Breastmilk has all the nutrients a baby needs. The AAP suggests that hospitals and women's care centers establish and execute initiatives to promote, support, and encourage mothers to breastfeed exclusively. In doing so, the AAP recommends that these facilities offer or advise expert lactation consultation covered by insurance (Meek & Noble, 2022). The Academy also suggested policies to be enacted nationally (to be determined by each state) to help support and encourage mothers to breastfeed. However, some national laws have been legislated that all states must follow regarding breastfeeding. Some laws include that all public buildings must have a lactation room, workplaces must allow breaks for mothers to express their milk in a suitable area, and mothers can breastfeed their children in public (Meek & Noble, 2022). These guidelines and regulations are the start of improving breastfeeding outcomes.

In 2020, only 25% of Americans EBF the first six months (CDC, 2021d). The United States established two new national goals through Healthy People 2030 to increase the percentage of infants who are EBF for the first six and increase the number of babies breastfed at 1 year old. The AAP has begun working on these goals. In 2022, the nation was faced with a formula shortage. Healthcare professionals used this time to their advantage to increase the incidence of breastfeeding. As a result, in June of 2022, the AAP revised the breastfeeding recommendation to EBF the first six months of life, then introduced foods at 6 months and continued breastfeeding until two years or beyond (Meek & Noble, 2022). This recommendation was made because research has proven that the longer a child breastfeeds, the better the outcomes (Meek & Noble, 2022).

### **Breastfeeding Association with Childhood Obesity**

Control and prevention are the key goals to combat childhood obesity. Several elements contribute to childhood obesity and are challenging to address when attempting to reduce its prevalence. Diet and physical activity are the primary contributors to obesity. Nevertheless, these two factors have many layers. Each layer needs to be distinctively researched to identify the etiologies and develop interventions that will result in a significant decrease. Research has proven that early prevention is the most effective method to reduce childhood obesity (Ahmad et al., (2010). Hence, the current study concentrates on earlier dietary decision-making, where reducing incidence is the primary focus instead of prevalence.

Practices of an unhealthy diet are learned behavior. The behavior ultimately results in a habit. This habit is passed down from generation to generation, causing a cycle of unhealthy decision-making and obesity. A lack of dietary education often triggers unhealthy eating. To reduce the incidence of childhood, this education should begin at the initial prenatal visit. A proven method of early prevention of childhood obesity is EBF. Hansstein, 2016, conducted a study using data from the 2003 National Survey of Children's Health to evaluate the impact breastfeeding duration had on the likelihood of childhood overweight and obesity. The results showed that the duration of breastfeeding is essential to identify the impact on childhood obesity. Children who breastfed longer than three months had a higher probability of being average weight and lower likelihood of being obese than children who breastfed for three months or less. Therefore, breastfeeding with respect to duration is an early preventive measure against childhood obesity.

It is known that breastfeeding offers several benefits to a child and is the best source of nutrition for the first years of a child's life. However, in some cases, human milk is not available. Therefore, infant formula was created as an alternative to human milk. Its initial purpose was to support mothers that could not breastfeed due to medical issues or low supply. Once it was FDA approved and deemed safe for infants, it was a convenient alternative to breastfeeding. However, infant formula is artificial, and some risks accompany its consumption

(Yan et al., 2014). It is known that human milk has a complex composition. It contains naturally produced hormones, protein, and lipids to sustain the proper growth of a child. A considerable amount of research has been and is still being performed to create a formula to mimic human milk (Yan et al., 2014).

A primary risk is that formula feeding can unnaturally overly expand an infant's stomach (Yan et al., 2014). Formula's composition contains many substitutes to make it closely resemble and provide similar nutritional outcomes for infants. This additive may make the infant feel full quicker and hungry more often (Yan et al., 2014). Therefore, giving the parents the assumption that the baby needs more ounces of formula. In this continuous cycle, parents may often think the baby needs more than just milk before 6 months of life, resulting in overeating at an earlier age. Gibbs et al. (2014) conducted a retrospective study assessing feeding practices' impact on childhood obesity solidifies this notion. The authors used data from the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B) to address the study's objectives. The results suggested that formula-fed infants (the six months of life) were 2.5 times more likely to be obese by 24 months than breastfed infants. Also, children introduced to solid foods earlier than 4 months and put to bed with a bottle were at an increased risk of childhood obesity by 24 months.

Breastfeeding duration is an essential component in reducing the risk of childhood obesity. The 2020 United States Breastfeeding Report Card indicated over a 25% decline in breastfeeding at six months and continued as the child got older (CDC, 2021d). These results suggest some misconceptions in the interruption of the recommendation. Hence,

the need for more breastfeeding education on the AAP breastfeeding recommendation. Modrek et al. (2017) studied child weight outcomes and breastfeeding in Oregon. The results concluded that for every extra week an infant was breastfed, its likelihood of obesity by age declines. Also, the study recommended that hospital promotion for breastfeeding can positively impact childhood obesity. The support of the hospital staff given to mothers is critical for educating mothers on breastfeeding initiation and beyond.

### **Breastfeeding Decision Making**

Breastmilk is considered the highest standard of nutrients for an infant. However, the mother's decision to breastfeed requires willingness and commitment. The mother must want to provide milk for her child. This decision does not come easy due to misconceptions and challenges. Cultural beliefs, ethnicity, religion, daily stressors, workplace situations, support, education, resources, health, and low milk production have been proven to play a significant role in breastfeeding decision-making.

### **Breastfeeding Misconceptions**

#### ***Milk Expression***

Misconceptions encourage mothers not to breastfeed. These misconceptions often derive from a lack of education in the area. When the term breastfeeding is used, one would think that process only involves the child latching onto the mother (nursing). This method is uncomfortable for several reasons. An infant's ability to latch properly is a primary reason for discomfort.



However, other methods can be used to collect human milk. The two standard methods are pumping and self-expression. Using a breast pump and self-expression techniques to collect milk are efficient and convenient. This milk can be bottle fed to the child and stored for future usage. These methods are often not explained in detail to mothers, so they rule out breastfeeding altogether.

### ***Breastfeeding After Surgery***

Breast mammoplasty (reduction) is a surgical procedure to remove fat, tissue, and skin from the breast (Kraut, et al., 2017). This common procedure is usually performed to increase the quality of life or for cosmetic purposes. Surgeons perform this operation using different techniques. Years ago, it was thought that a woman could not breastfeed after breast reduction surgery. However, new techniques have evolved, allowing women to breastfeed after breast reduction surgery. Kraut et al. (2017) conducted a systematic international review to understand breastfeeding likelihood after surgery. The breast is made up of many tissues and glands. The mammary glands' function is to secrete milk. These glands, the nipple, and all other glands and tissues are attached to the column of subareolar parenchyma (Kraut et al., 2017). The results of the study suggested that women who underwent surgeries that used a method that removed the nipple and no portion of the column of subareolar parenchyma was preserved had a 0% to 4% chance of breastfeeding (Kraut et al., 2017). However, those that had procedures that did not remove the nipple and preserved at least a portion of the column of subareolar parenchyma had a

75% to 100% success rate for breastfeeding (Kraut et al., 2017). Therefore, breastfeeding after surgery is highly possible, depending on the surgical technique.

## **Challenges**

### ***Ethnicity & Cultural***

Breastfeeding is not an easy task. Therefore, challenges are associated with the process. Ethnicity and culture are primary challenges. In some cultures, breastfeeding is seen as taboo. Therefore, it is hard for acculturation to occur when moving to another area or country. However, the longer a mother lives in a country, the more she will adapt to their culture (Ladewig et al., 2014). In other countries such as the United Kingdom and Ireland, mothers of African American (AA) descent initiation in breastfeeding and sustain longer durations than the countries' natives (Ladewig et al, 2014). However, in the United States, AA mothers have a significantly lower initiation and continuation rate than White Americans and Asians. However, breastfeeding in the AA community has been depicted as disrespectful to their ancestors and racial biases (Ladewig et al., 2014).

Breastfeeding for the AA community dates back to slavery. AAs were forced to nurse White babies and leave their children without milk. Gross et al. (2014) noted that formula was a sense of freedom when it became available. Therefore, they no longer breastfed their children, not fully knowing the risk. This theme of freedom continued from generation to generation and untimely turned into AA culture. It is also African Americans' culture to believe in their healthcare providers (Gross et al, 2014). If encouragement from the doctor is not present, they will not oblige. Hence, over time the

AA community realized the benefits of breastfeeding were not adequately presented to them and inquired more about the practice, which increased this population's rates of breastfeeding in the past two decades.

### ***Stressors of Breastfeeding***

Milk production is a primary stressor of breastfeeding. An essential element for healthy milk production is timing. The mother and child need to bond immediately after birth, to enhance the prolactin and oxytocin hormones to induce lactation. The method of skin-to-skin is commonly used to initiate this process. This method increases lactation initiation (Karimi et al., 2019). However, mothers with cesarean sections or infants that go directly to the neonatal intensive care unit (NICU) after birth are disadvantaged and cannot participate in skin-to-skin immediately. Often these mothers have a more challenging time producing enough milk because of the lack of physical interaction with the infant, time, and poor mental state.

However, low milk supply can occur for numerous reasons. Maternal health and diet play a significant role in the milk supply. Physical and mental health must be stable while breastfeeding. If the mother's body cannot properly function, it will be hard to produce milk. Hence, mothers should be educated during prenatal visits on exercises and medications that can support them during pregnancy and after to promote a healthy milk supply. Low milk supply is also associated with postpartum depression (PD). The hormones that increase PD can often suppress the lactation hormones. Yet, studies have shown that a low milk supply has triggered PD (Penniston et al., 2021).

New mothers must adjust to the new life after having a child. It isn't easy to care for themselves and a newborn. In most cases, self (the mother) is neglected, and it is challenging to find a balance. Often eating is the last thing on a new mother's mind. However, nutrition is an essential factor while breastfeeding. Adopting a balanced diet will enhance the milk supply. Intake of additional calories is required to ensure the mother's body is provided with the energy and nutrition it needs to produce milk (Karcz et al., 2021). Foods and beverages high in carbohydrates and electrolytes are good sources for a healthy milk supply. Hydration is another element that is important for breastfeeding. A mother's poor diet will also affect the quality of the milk (Karcz et al., 2021).

When nursing, there is no metric for a mother to use to know if the baby is getting enough milk while nursing (Granberg, Ekström-Bergström, & Bäckström, 2020). During the first few weeks of life, the infant will want to nurse quite frequently; this is termed cluster feeding. This is a normal process to increase milk supply naturally. Cluster feeding assists the mother's body in producing enough milk to satisfy the infant (Demirci et al., 2018). However, in most cases, the mother is taught this process before leaving the hospital. This step in breastfeeding is very frustrating (Demirci et al., 2018). Therefore, mothers become discouraged because they are unaware of what is happening and immediately believe that the infant is not satisfied (Granberg, Ekström-Bergström, & Bäckström, 2020).

Though the CDC recommends breastfeeding, there is no description of what it takes to provide this feeding method. Mothers returning to work after postpartum have difficulty sustaining their milk supply and breastfeeding practices. Researchers have determined that an individual's setting can affect breastfeeding habits. Jiang et al. (2021) conducted a qualitative study to increase knowledge of working mothers' decisions on childcare in a Midwestern state. The targeted population was mothers transitioning back to work postpartum. Interviews were conducted on breastfeeding experiences (perception, expectations, and change over time) three times, once in the third trimester, 3-4 months postpartum, and 9-12 months postpartum; however, the study data only reports the postpartum results. The study concluded that breastfeeding decision-making for working mothers is key to self-efficacy (milk supply), knowledge, and support from the workplace, health professionals, and childcare providers. The many pressures placed upon new mothers make it imperative that support and education are provided during the breastfeeding journey.

### ***Support and Education***

Breastfeeding is considered the gold standard for infant nutrition. However, women are not educated on its benefits; therefore, mothers do not attempt breastfeeding. More individuals would engage in breastfeeding if a healthcare professional offered support and education. Individuals trust their healthcare providers and will be obliged to do what they deem best. Even the previous stressors mentioned can all be addressed through support and education. Radzynski et al. (2015) performed a qualitative study

on mothers' feeding practice decision-making. In this study, the focus was on professional support. Mothers stated that their midwives and physician recommended breastfeeding and offered support. However, mothers often expressed that their healthcare provider did not mention or encourage breastfeeding. The decision was left entirely up to them. Consequently, the stressors, challenges, and misconceptions encompassed within breastfeeding decision-making surfaces.

Though breastfeeding education can encourage an individual decision to breastfeed, it is important for healthcare professionals to be educated in the area. It would be ideal for breastfeeding to be encouraged at the initial prenatal visit. Hence, obstetricians, gynecologists, pediatricians, and their nursing staff should have proper training on breastfeeding. However, the theme of physicians is that the mother should make her own feeding decision without coercion (Radzysinski & Callister, 2015). Though this is true, the mother must be educated on all feeding methods to make a sound decision. Whereas, if healthcare professionals present all options to the mothers, the incidence of breastfeeding in the United States will increase.

Today, certified professionals specialize in lactation and breastfeeding (Lactation Consultants). These professionals provide guidance and support to the mother during the breastfeeding journey. Studies have shown that mothers with access to lactation consultants are more likely to sustain breastfeeding longer than those without access (Rhodes et al., 2021). Therefore, to assist physicians in

supporting mothers throughout the breastfeeding journey, ensuring the availability of lactation consultants to support mothers can positively impact the rate of breastfeeding.

### **Summary and Conclusions**

The childhood obesity morbidity rate in the United States is steadily increasing. In 2019, 17% of the nation's children were obese; today, nearly 20% of children are suffering from this condition (Sanyaolu et al.,2019). Over the years, many interventions and programs have been implemented to reduce the condition's prevalence. Nevertheless, none have been significantly successful in making a change nationally. The primary reason these initiatives have not been effective is that most of them focus on reducing the prevalence of childhood obesity instead of the incidence. Research has proven that early prevention of the condition is the key to reducing its occurrence. The literature indicates that breastfeeding is the gold standard of nutrients for infants, offering countless benefits with lowering the risk of childhood obesity as a primary benefit.

However, in the United States, initiation of breastfeeding rates is low, and rates drastically decline after 6 months. Observed through the literature, several factors have been associated with mothers' decisions to breastfeed and sustainment. These contributors include a lack of education on breastfeeding, support, time, and beliefs. These factors were observed to determine the etiology of the decline in the United States breastfeeding practices; however, the literature did not evaluate the impact that household, community, and physical environmental situations have on an individual's

decision to breastfeed and breastfeeding duration nationally. The current study conducted a national assessment of the impact of these situations on breastfeeding and duration.

Chapter 3 will discuss and explain the study's research design, methodology, population, data source, validity, and ethical procedures.



### Chapter 3: Research Method

Since breastfeeding is a known contributor to reducing the risk of childhood obesity (Ma et al., 2020), the purpose of this study was to assess if household, community, and physical environmental situations significantly impact an individual's decision to breastfeed and sustainment in the United States. Using secondary data from the 2018-2019 combined NSCH, I evaluated the households of children aged 0-5 years. This survey is funded and directed by the Health Resources and Services Administration's Maternal and Child Health Bureau (HRSA MCHB). This survey's primary purpose was to provide rich data on multiple intersecting aspects of children's health and well-being (Child and Adolescent Health Measurement Initiative, 2020). Respondents' infant feeding practices in relation to their household/personal, community, and neighborhood environments were assessed for the study. The United States public health professionals assessed the decline in breastfeeding practices but have not evaluated the effects that household, community, and environmental situations have on an individual's decision to breastfeed and breastfeeding duration nationally (CDC, 2021c). I anticipated bridging this gap through this study to decrease the incidence of childhood obesity in America ultimately. This chapter provides a comprehensive narrative of the study's research design, rationale, methodology, study variables, data management, threats to validity, and ethical procedures.

### **Research Design and Rationale**

I used a quantitative cross-sectional study design to assess if household, community, and physical environmental situations predict individuals' decisions to breastfeed and duration on a national level. Though cross-sectional studies cannot explain the cause of an outcome, it is most helpful for evaluating associations and differences among populations during periods (Setia, 2016). This type of study provides information for the future development of prospective studies. A cross-sectional study design is best for the current study because secondary data were used. Using secondary data minimizes time and cost in the research (Creswell & Creswell, 2018). Hence, using a cross-sectional design for this study offers knowledge to health professionals on situations that are expected to influence breastfeeding initiation and duration. The data from this study allows for quicker conduction of outcome studies in the future. Binary logistic regression was used to assess the impact individuals' household, community, and physical environmental situations have on breastfeeding decisions. Binary logistic regression was also used to assess the impact individuals' household, community, and physical environmental situations have on breastfeeding duration decisions.

I decided to use the 2018-2019 combined dataset to ensure data reliability and avoid skewing of individuals' decisions to breastfeed and sustainment due to the current Coronavirus pandemic. Therefore, I submitted a request through the Data Resource Center for Child and Adolescent Health (DRC) to request

permission to use the 2018-2019 NSCH combined survey data. In the combined dataset, only items that are the same across all datasets are included (Child and Adolescent Health Measurement Initiative, 2020). The organization sent me a link to access the data via email. This link provided raw primary data in Statistical Package for Social Sciences (SPSS), dataset instructions, methodology reports, and codebooks. Codebook data were assessed to develop the research questions. However, the dataset was not accessed until the approval of the institutional review board (IRB).

### **Variables**

I assessed two questions; therefore, there were two dependent variables. These variables are defined by NSCH as ever breastfed and exclusively breastfeeding. The same independent variables were used for both questions. I used several independent variables to describe the household, community, and physical environment. The variables from the NSCH for household predictors are the mother's (caregiver) income level, family structure, education, working situation, and mother's and father's overall health. Neighborhood support variables represent the community. These variables include neighborhood support and safety. The variables of household's neighborhood amenities and neighborhood detractors represent the physical environment.

### **Methodology**

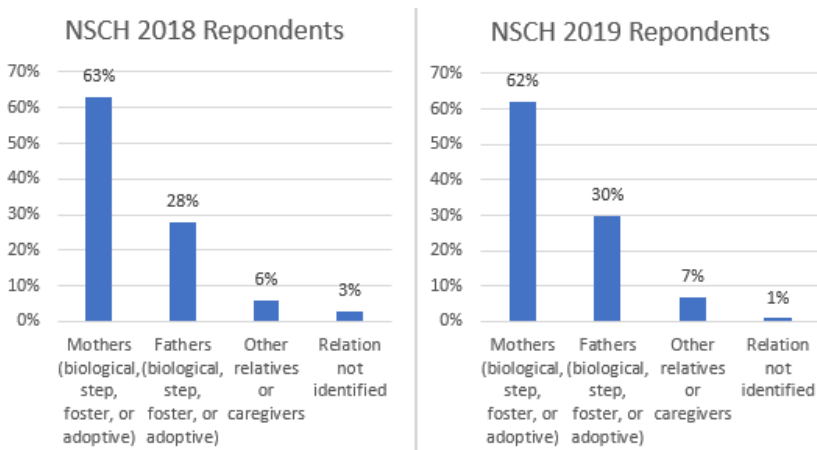
#### **Population**

Using the NSCH data, caregivers of children between the ages of 0-5 in the United States were the targeted population for the current study. Between the 2018 and

2019 surveys, 356,052 (176,052 in 2018 and 180,000 in 2019) screener questionnaires were mailed to U.S. and District of Columbia households. Of the screeners, 36,196 were completed (38,140 in 2018 and 36,196 in 2019). From June 2018 to January 2020, 59,963 surveys were completed. In 2018, 30,530 self-reported surveys were completed, and 29,433 in 2019 (Child and Adolescent Health Measurement Initiative, 2020). Per state, nearly 1,176 surveys were completed. In both 2018 and 2019, most respondents were mothers (see Figure 1). The 2018 and 2019 NSCH included Hispanic, non-Hispanic, White, non-Hispanic, Black, non-Hispanic, Asian, non-Hispanic, and Other/Multi-racial, non-Hispanic (see Table 1). Sixty percent of all respondents had a college degree or higher (Child and Adolescent Health Measurement Initiative, 2021). There were 16,516 respondents with children ages 0-5 years old.

**Figure 1**

*NSCH 2018 & 2019 Respondents*



**Table 1***2018 and 2019 NSCH Respondents Demographics*

Race/ethnicity	Percentage
Hispanic	11.9%
White, non-Hispanic	69.2%
Black, non-Hispanic	6.4%
Asian, non-Hispanic	4.8%
Other/Multi-racial, non-Hispanic	7.7%
<b>Education</b>	
Less than high school	2.5%
High school/GED	13.1%
Some College or technical school	23.6%
College degree or higher	60.8

Note: From “Child and Adolescent Health Measurement Initiative NSCH: SPSS Codebook for Data Users” 2018-2019”

**Sampling Procedures**

English and Spanish-speaking households in the 50 states and the District of Columbia were randomly sampled using an extract of the Census Bureau’s Master Address File (MAF; Child and Adolescent Health Measurement Initiative, 2020).

Households without children 17 or younger were excluded from participating.

Households identified with one or more children under 18 years old received a screener

questionnaire with a unique identifier (ID). There were three treatment groups: the screener/survey incentive, the web, and U.S. mail. One child was randomly selected based on the screener to be the subject of the NSCH survey unless there were children with special health care needs (CSHCN) or under the age of 6 (Child and Adolescent Health Measurement Initiative, 2020). Therefore, the CSHCN and children ages 0-5 years old were oversampled to increase these normally underrepresented populations.

### **Power Analysis**

A power analysis was calculated before data analysis using G Power 3.1.9.7 software. I conducted this analysis to retrieve an appropriate sample size to reject the null hypothesis when the alternative hypothesis is true. Therefore, power analysis minimizes the threat of Type I and Type II errors (Creswell, 2014). Per Cohen, the parameters that were used to determine the sample size for the binary logistic regression were  $\alpha=0.05$ , medium effect size= 0.25, and  $\beta=0.80$  (Creswell, 2014). The suggested minimum sample size was 721 participants.

## **Procedures for Recruitment, Participation, and Data Collection**

### **Participation and Data Collection**

Random U.S. households with children 0-17 years of age were selected for the NSCH. Using the MAF, administrative records such as IRS 1040s and 19099s, the Medicare Enrollment Database, the Indian Health Service Database, and the

Selective Service System were used to identify the qualifying participants (NSCH, 2019).

To collect survey data, households with adults ages 18 and older completed a screener questionnaire and the NSCH. The screener questionnaires were completed either on paper or online. The organization scored addresses based on the probability the address would respond via paper and not online (NSCH, 2019).

Completed paper screeners that were mailed in and eligible; an age based NSCH survey was mailed back to the household to complete and mail back. Paper screeners completed online, and eligible were directed to an age based NSCH survey to complete online, and results were automatically sent to the organization.

The population of households that were assessed to more likely respond via paper was first sent a screener via U.S. mail with an invitation to respond via paper or online (NSCH, 2019). The households with a higher probability of completing the survey via online were sent an invitation to respond online only (screener and survey). Each address received up to two U.S. mail reminder postcards 5 to 7 days after the initial invitation was mailed (NSCH, 2019). Households that did not complete the screener survey within 4 weeks of the primary mailing were mailed a follow-up invitation with a paper screener questionnaire with access to the online survey (NSCH, 2019). Respondents received up to three follow-up invites. After the third screener follow-up, no more invites were sent to those addresses. Any screeners received (mailed or online) that did not have a child under 17 years old were ineligible to continue the NSCH survey.

Once the screener questionnaire was submitted online, the NSCH survey was completed on paper, online, or via telephone (respondents called the helpline). Households that completed the screener but did not complete a web survey were assigned to a topical group based on the date the screener was received to the National Processing Center (NPC; NSCH, 2019). The survey packages were mailed out every 2 weeks based on the date of the completed screener. A respondent could receive up to four packages. Nine topical groups (B-J) represented each mailing group (NSCH, 2019). The incentive groups were offered monetary compensation to encourage participation. Incentives were randomly selected; 10% of the sample were selected not to receive an incentive (control group), 45% of the sample received \$2 bills, and 45% received \$5 bills (NSCH, 2019).

### **Archival Data**

The secondary data for the current study were retrieved from the DRC. I received permission to use the organization's 2018-2019 NSCH combined survey data. Although this dataset is publicly available, the organization would be like those using the data for research purposes or presentation to request the datasets and state the reason for usage. This dataset can be accessed in various formats, including Statistical Analysis System (SAS), Statistical Software Package (Stata), and SPSS. Each dataset has a codebook, methodology report, and quick facts.



Also, DRC would like researchers/users to inform them about their publications and presentations based on their data.

### **Instrumentation and Operationalization of Constructs**

#### **Instrumentation**

Since 2003, the U.S. Department of Health and Human Services organization, the HRSA MCHB, has sponsored the NSCH and the National Survey of Children with Special Health Care Needs (NS-CSHCN). These surveys provided national and state key indicators of the health and well-being of children and adolescents. In addition, essential data were gained on the factors of special health care needs, health resource availability and quality, and family/community impact on children ages 0-17. These surveys were conducted via the State and Local Area Integrated Telephone Survey (SLAITS) System (NSCH, 2019). The system was established by the CDC for Health Statistics. The SLAITS System randomly selected landline phone numbers for the survey samples. Cell phone numbers were included in 2012.

2012 was the last year both NSCH and NS-CSHCN were administrated by phone. Though the surveys provided a strong representation of the national children and adolescents and their significant strengths, the HRSA MCHB and their stakeholders saw room for improvement in the surveys and design due to a decline in response rates (NSCH, 2019). Therefore, the organization redesigned and combined the two surveys keeping the name NSCH in 2015 with the help of experts. This change introduced the

address-based sampling frame. Under Title 13, United States Code, Section 8(b), the U.S. Census Bureau conducts this on behalf of the HRSA MCHB (NSCH, 2019).

### **Validity and Reliability**

In 2015, the U.S. Census Bureau conducted a pilot survey that included 16,000 national addresses (NSCH, 2019). This survey assessed and improved the methodology, instruments, and operational procedures. Each survey after the pilot was similar in design but acquired a few differences. The survey undergoes assessments and revisions frequently to ensure the validity and reliability of the survey (NSCH, 2019).

### **Dependent Variables**

The dependent variables for this study were ever breastfed (dichotomous) and exclusively breastfed (dichotomous). These variables were defined by Questions B4(2018), B5(2019), “Have this child EVER breastfed or fed breast milk” and B5(2018), B6(2019), “Was this child exclusively breastfed for 6 months, age 6 months-5 years”. Question B4(2018)/B5(2019) expressed if the child has ever had breast milk, no matter the duration. Question B5(2018)/B6(2019) identified the child’s duration of being fed breast milk (see Table 2). These questions were only asked for children aged 0-5 years old.

## **Independent Variables**

To define the independent variables for this study, 10 variables were used. HRSA MCHB merged several NSCH variables into one variable, and they are identified as indicators in the public datasets (see Table 2).

### ***Household***

I defined household situations as factors on interpersonal and intrapersonal levels. Six NSCH variables were used to define household. Questions K1-K4 were combined to determine the household's federal poverty level (FPL; income level). This combined variable was not labeled as an indicator; however, the question was revised for the public dataset as "What is the income level (federal poverty level, FPL) of the household that this child lives in?". This variable is coded as an ordinal. Family structure was defined using questions K2, "How many of the people living or staying in the child's household are family members" and the revised question J9/J19, "What is the family structure that this child lives in?". Question J6/J18, "Highest education of adult in child's household," was used to represent education. To define the working situation, indicator 6.5, "Does this child live in a "working poor" household: that is, parent(s) are employed full-time with incomes less than 100% of the federal poverty level?" was used. Indicator 6.3, "Mother's overall physical and mental-emotional health status, children living with biological, adopted, step, or foster mother." defined the mother's overall health. Finally, Indicator 6.3a, "Father's overall physical and mental-emotional health status, children living with biological, adopted, step, or foster father." defined the father's overall health.

### ***Community***

I used neighborhood support and safety to define community. The variables used from the NSCH were indicator 7.1, “Does this child live in a supportive neighborhood?” and indicator 7.2, “Does this child live in a safe neighborhood?”.

### ***Physical Environment***

To represent the physical environment, household’s neighborhood amenities and the presence of detracting neighborhood element variables were used. These variables comprised of indicator 7.4, “Does this child live in a neighborhood that contains certain amenities -- parks, recreation centers, sidewalks or libraries?” and 7.5, “Does this child live in a neighborhood where there is litter or garbage on the street or sidewalk, poorly kept or rundown housing, or vandalism such as broken windows and graffiti?”.

**Table 2***Operational Definitions*

Operational Definition	NSCH Survey Question	Variable Code	Answer Choices	Level of Measurement
<i>Dependent Variables</i>				
Breastfed ever	Was this child ever breastfed or fed breast milk, age 0-5 years?	BrstEver_1819	1 = Yes 2 = No 99 = Missing 90 = Children age 6-17 years	Dichotomous
Exclusively Breastfed	Was this child exclusively breastfed for 6 months, age 6 months-5 years?	ExBrstFd_1819	1 = Less than 6 months 2 = 6 months or longer, or still breastfeeding 95 = Never breastfeed 99 = Missing 90 = Children age 6-17 years	Dichotomous
<i>Independent Variables</i>				
Income level of child's household	What is the income level (federal poverty level, FPL) of the household that this child lives in?	Povlev4_1819	1 = 0-99% FPL 2 = 100-199% FPL 3 = 200-399% FPL 4 = 400% FPL or greater	Ordinal
Number of family members	How many of the people living or staying in the child's household are family members?	FamCount_1819	1 = 1 or 2 people 2 = 3 people 3 = 4 people 4 = 5 people 5 = 6 or more people 99 = Missing	Ordinal
Family structure of child's household	What is the family structure that this child lives in?	Famstruct5_1819	1 = Two parents, currently married 2 = Two parents, not currently married 3 = Single parent (mother or father) 4 = Grandparent household 5 = Other family type 99 = Missing	Nominal

Operational Definition	NSCH Survey Question	Variable Code	Answer Choices	Level of Measurement
Education of adult caregivers in the household	What is the highest education of adult(s) in this child's household?	AdultEduc_1819	1 = Less than high school 2 = High school or GED 3 = Some college or technical school 4 = College degree or higher 99 = Missing	Ordinal
Working poor	Does this child live in a "working poor" household: that is, parent(s) are employed full-time with incomes less than 100% of the federal poverty level?	WrkngPoor_1819	1 = Yes 2 = No 99 = Missing	Nominal
Mothers' overall health	If this child's mother is a primary caregiver and lives in the household, are the mother's physical and mental health both excellent or very good?	MotherHSt_1819	1 = Physical & mental health BOTH excellent or very good 2 = One or both of physical & mental health are NOT excellent/very good 99 = Missing	Nominal
Father's overall health	If this child's father is a primary caregiver and lives in the household, are the father's physical and mental health both excellent or very good?	FatherHSt_1819	1 = Physical & mental health BOTH excellent or very good 2 = One or both of physical & mental health are NOT excellent/very good 99 = Missing	Nominal
Neighborhood Safe	Does this child live in a safe neighborhood?	NbhdSafe_1819	1 = Definitely agree 2 = Somewhat agree	Ordinal

Operational Definition	NSCH Survey Question	Variable Code	Answer Choices	Level of Measurement
			3 = Somewhat/Definitely disagree 99 = Missing	
Neighborhood Amenities	Does this child live in a neighborhood that contains certain amenities--parks, recreation centers, sidewalks, or libraries?	NbhdAmenities_1819	0 = Neighborhood does not contain any amenities 1 = Neighborhood contains 1 amenity 2 = Neighborhood contains 2 amenities 3 = Neighborhood contains 3 amenities 4 = Neighborhood contains all 4 amenities 99 = Missing	Ordinal
Neighborhood Detractions	Does this child live in a neighborhood where there is litter or garbage on the street or sidewalk, poorly kept or run-down housing, or vandalism such as broken windows and graffiti?	NbhdDetract_1819	0 = Neighborhood does not have any detracting elements 1 = Neighborhood has 1 detracting element 2 = Neighborhood has 2 detracting elements 3 = Neighborhood has 3 detracting elements 99 = Missing	Ordinal
Neighborhood Support	Does this child live in a supportive neighborhood?	NbhdSupp_1819	1 = Live in supportive neighborhoods 2 = Do not live in supportive neighborhoods 99 = Missing to all	Nominal

*Note:* From “Child and Adolescent Health Measurement Initiative NSCH: SPSS

Codebook for Data Users” 2018-2019”

### **Data Analysis Plan**

IBM SPSS Statistics Version 28 was the software used for analyses. This software was downloaded from the Walden University website. The 2018-2019 NSCH dataset was downloaded from the DRC website. DRC created this combined dataset for researchers to use. Therefore, all missing data were recoded to 99. Questions B4(2018)/B5(2019) and B5(2018)/B6(2019), were age specific questions. Therefore, if the child the respondent was answering for was ages 6 to 17, they were recoded to 90. The organization has cleaned the web and paper survey responses for analysis, including removing duplicate responses, editing for data quality, creating standardized and derived variables, and imputing missing values (NSCH, 2019).

Using SPSS, descriptive statistics of the sample were calculated. The test statistic of binary logistic regression was used to assess if household, community, and physical environment predict individuals' decisions to breastfeed and if these elements predict individuals' breastfeeding duration decisions. The statistical tests were conducted at  $\alpha = 0.05$  with a 95% confidence interval.

### **Research Question(s) and Hypotheses**

The research questions (RQs) developed for the current study are as follows:

RQ1: When evaluating individuals on a national level, do income, family structure, education, working situation, maternal and paternal overall health,



neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions predict individuals' decisions to breastfeed when controlling for maternal age?

*H<sub>0</sub>1*: When controlling for maternal age, individuals on a national level, income, family structure, education, working situation, maternal and paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions do not predict individuals' decisions to breastfeed.

*H<sub>a</sub>1*: When controlling for maternal age, individuals on a national level, income, family structure, education, working situation, maternal and paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions predict individuals' decisions to breastfeed.

RQ2: When evaluating individuals on a national level, do income, family structure, household education, working situation, maternal and paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions predict individuals' breastfeeding duration decisions when controlling for maternal age?

*H<sub>0</sub>2*: When controlling for maternal age, individuals on a national level, income, family structure, household education, working situation, maternal and paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions do not predict individuals' breastfeeding duration decisions.

*H<sub>a2</sub>*: When controlling for maternal age, individuals on a national level, income, family structure, household education, working situation, maternal and paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractors predict individuals' breastfeeding duration decisions.

### **Threats to Validity**

Threats and biases are possible in all research designs. These factors can impact the external and internal validity of the study and results. An essential factor for research is generalizability. Ensuring that the sample used for a study is an appropriate representation of the targeted population. External validity evaluates the generalizability of a study (Andrade, 2018). Internal validity determines the presence of systematic error within a study (Andrade, 2018). The trustworthiness of a study's results is evaluated by the study design, procedures, and data analysis (Andrade, 2018). The subjective examination of validity verifies a study's quality and accuracy.

Since 2016, NSCH has collected national population-based data. All 50 states and the District of Columbia participate in the survey each year. The sample has equal representation from each state. NSCH data sources have been used in several research studies, and the validity and reliability of the data have been determined in the United States.

**External Validity**

Assessment of threats to external validity uses tests to determine if a study's findings are generalized across different times, populations, and settings (Creswell, 2014). The current study encompasses data on caregivers of children between the ages of 0-5 in the United States. Thus, the results must be able to be applied to past and future settings of this population. Ensuring national representation in this sample causes a possible threat to the study's external validity. This threat is present because the NSCH collected data from households with children 0-17 years old, and this sample represented the United States nationally. However, I used a portion of the collected sample for the current study. Nevertheless, ages 0-5 were oversampled for the NSCH, reducing the threat to external validity for the current study (Child and Adolescent Health Measurement Initiative, 2020).

**Internal Validity**

In research, internal validity aids in evaluating the effect of the independent variable on the dependent variable with respect to other confounding variables. The current study's threat to internal validity is response bias. Response bias is a type of information bias that occurs when errors are present during data collection (Szklo & Nieto, 2019). The NSCH survey is a self-reported assessment. Therefore, participants provided their responses without any known assistance. Self-reported outcomes tools have their benefits and challenges (McDonald, 2008). These assessments provide unfiltered information from the eligible participant and collect the most factual data from

participants (McDonald, 2008). Alternatively, subjects can report incorrect responses based on their feelings, increasing response/respondent bias (Creswell, 2014).

Threats to the external validity of the current study are minimized by the NSCH survey using a large sample size, making the results more sensitive to other variables that may occur inconsistency in the outcomes (Creswell, 2014). HRSA MCHB offered compensation to achieve the highest participation in the survey (Child and Adolescent Health Measurement Initiative, 2020).

### **Ethical Procedures**

An online request was submitted to the DRC for permission to use the 2018-2019 NSCH combined survey data. I accessed the dataset link via email. Since using archival data, I did not have any interactions with survey participants; therefore, informed consent is not applicable. Before conducting this study, IRB approval from the Walden University's IRB was granted.

### **Summary**

In this chapter, a detailed discussion to explain the current study's research design and methodology was provided. This quantitative cross-sectional study was used to assess if household, community, and physical environmental situations predict an individual's decision to breastfeed and duration on a national level using binary logistic regression test statistic in SPSS. This study was carried out using the 2018-2019 combined NSCH dataset. The Walden University's IRB

granted approval before data collection (IRB Approval #:12-14-22-0515342). Chapter 4 will provide the statistical analysis and findings of the study.

## Chapter 4: Results

In this quantitative cross-sectional study, I aimed to determine if household, community, and environmental situations predict individuals' decisions to breastfeed and sustainment in the United States to reduce the incidence of childhood obesity ultimately. Secondary data from the 2018-2019 combined NSCH were analyzed to assess the predictors that impact breastfeeding decisions.

There were two research questions and associated null and alternate hypotheses developed. Using SPSS, binary logistic regression was used to address each question and evaluate the hypotheses. All assumptions for using binary logistic regression were met.

### **Research Question(s) and Hypotheses**

The research questions (RQs) and hypotheses developed for the current study are as follows:

RQ1: When evaluating individuals on a national level, do income, family structure, education, working situation, maternal overall health, paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions predict individuals' decisions to breastfeed when controlling for maternal age?

*H*<sub>0</sub>1: When controlling for maternal age, individuals on a national level, income, family structure, education, working situation, maternal overall health, paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions do not predict individuals' decisions to breastfeed using binary logistic regression.

*H<sub>a1</sub>*: When controlling for maternal age, individuals on a national level, income, family structure, education, working situation, maternal overall health, paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions predict individuals' decisions to breastfeed using binary logistic regression.

RQ2: When evaluating individuals on a national level, do income, family structure, education, working situation, maternal overall health, paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions predict individuals' breastfeeding duration decisions when controlling for maternal age?

*H<sub>02</sub>*: When controlling for maternal age, individuals on a national level, income, family structure, education, working situation, maternal overall health, paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions do not predict individuals' breastfeeding duration decisions using binary logistic regression.

*H<sub>a2</sub>*: When controlling for maternal age, individuals on a national level, income, family structure, education, working situation, maternal overall health, paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractions predict individuals' breastfeeding duration decisions using binary logistic regression.

### **Data Collection**

Secondary data from the NSCH 2018-2019 combined dataset were used to assess household, community, and environmental predictors' impact on breastfeeding decisions in the United States. This sample was collected from a self-reported survey completed by nearly 60,000 households in the 50 states and the District of Columbia. The data within the dataset were obtained from June 2018 to January 2020 from households with children aged 17 and younger. These households were randomly selected using the Census Bureau MAF (Child and Adolescent Health Measurement Initiative, 2020). Screener questionnaires were sent via U.S. mail and the web to collect more information about the child or children living in the home. Upon completion of the screener, an aged-based NSCH survey was sent to the respondents. Surveys were completed via paper, electronically, and telephone. There were incentive groups implemented to increase participation. These groups were randomly selected into three groups, control group (10%), \$2, and \$5 recipients' groups (90%; Child and Adolescent Health Measurement Initiative, 2020). During collection, no identities were collected. Each household received a unique ID.

To retrieve the NSCH combined dataset, I requested access via the DRC website. DRC sends a link via email to access the dataset. The link contained dataset instructions, the dataset in four formats (SPSS, SAS, STATA, and CSV), links to the methodology reports, and codebooks. For this research, the SPSS format was used. The data from the codebook were used to determine the study's research questions and appropriate data



analysis. Before data review and analysis, Walden University's IRB approved to conduct the research outlined in Chapter 3.

The HRSA MCHB cleaned the data by removing data inconsistent and incomplete data, creating new indicators from responses, and identifying missing data (Child and Adolescent Health Measurement Initiative, 2020). The organization also ensured that duplicate data were eradicated. This issue occurred when two surveys for one household on the same child were submitted on paper and the web (Child and Adolescent Health Measurement Initiative, 2020). The survey selected for reporting was the most complete or the web-based survey.

Upon IRB approval in December 2022 (IRB #: 12-14-22-0515342), the SPSS format of the NSCH 2018-2019 combined dataset was downloaded. This dataset included all household respondents with children ages 0-17. Though data were collected and provided for these ages, questions concerning breastfeeding were only asked to households with children ages 0-5. Therefore, respondents who failed to meet this study's inclusion and exclusion criteria were removed from the SPSS file. The study variables were identified, and all other variables were removed from the SPSS file and saved. The values, missing values, and level of measurements were modified based on the codebook.

## **Data Analysis**

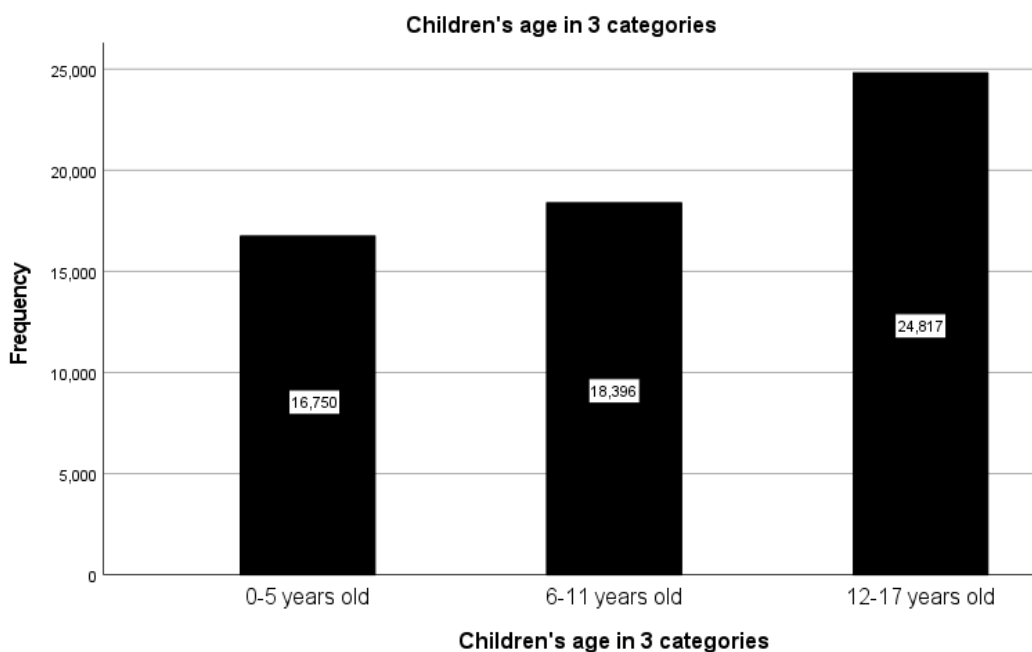
### **Demographics**

The study sample focused on mothers' decisions to breastfeed and sustainment. Therefore, all cases that included data for children ages 6 years and older were deleted.

Figure 2 indicates that more data were collected from households with children ages 6 to 17. The DRC was aware that the older children's households would have higher participation. Hence, they decided to oversample households of children ages 0-5 years old (Child and Adolescent Health Measurement Initiative, 2020). There were 16,750 respondents for children ages 0-5 years old within the data included in this study sample. The response rates within this sample were 99% for RQ1 and 82% for RQ2 (Table 3).

### Figure 2

#### *NSCH 2018 & 2019 Children Age Categories*



**Table 3***Descriptives for Dependent Variables*

Variable	<i>n</i>	%
A0_BrstEver_1819		
Yes - Breastfeeding	13861	82.75
No - Breastfeeding	2655	15.85
Total Responses	16516	98.6
Missing	234	1.40
Total	16750	100.0
A0_BrstStop_1819		
Less than 6 months	5363	32.02
6 months or longer, or still breastfeeding	8364	49.93
Total Responses	13727	82.0
Missing	3023	18.05
Total	16750	100.0

**Descriptive Statistics**

The maternal age of 16, 513 respondents were reported, ranging from ages 18 years old to 45 years old. 3,171 being between 18 years old and 25 years old, 10,541 between 26 years old and 35 years old, and 2,801 between ages of 36 years old and 45 years old (Appendix A). The mean respondents age was  $M = 30.4$  with  $SD = 5.41$  (Table

4). Age kurtosis was  $-.32$  implying that the age distribution is less prone to outliers (see Cain et al., 2017).

**Table 4**

*Statistics for Age of Mother*

Variable	<i>M</i>	<i>SD</i>	<i>n</i>	<i>SE<sub>M</sub></i>	Min	Max	Skewness	Kurtosis
MOMAGE	30.35	5.41	16513	0.04	18.00	45.00	-0.07	-0.32

*Note.* '-' indicates the statistic is undefined due to constant data or an insufficient sample size.

***Breastfed Ever***

To determine if a mother decided to initiate breastfeeding at any point in time, the variable breastfed ever was used. Table 3 indicates that 13,861 mothers initiated breastfeeding and 2,655 did not. Mother's decision to breastfeed  $SD = .367$  (Tables 5).

***Exclusively Breastfed***

Mothers that decided to EBF was identity by the variable stopped breastfeeding. 8,364 mothers breastfed 6 months or longer and 5,363 mothers breastfed for less than 6 months (Table 3). The standard deviation of EBF was  $.488$  (Tables 5).

**Table 5***Statistics for Dependent Variables*

Variable	<i>M</i>	<i>SD</i>	<i>n</i>	<i>SE<sub>M</sub></i>	Min	Max	Skewness	Kurtosis
Indicator 1.3:								
Breastfed ever, age 0-5 years	1.16	.367	16516	.003	1	2	1.847	.038
Age in months of when stopped breastfeeding	1.609	.488	13727	.004	1.00	2.00	-.448	.042

*Note.* '-' indicates the statistic is undefined due to constant data or an insufficient sample size.

***Income***

The NSCH asked respondents specific questions regarding income. To ensure confidentiality of the respondents several parts of questions were combined to derive the family poverty ratio (FPL) for public use. This ratio is reported as a rounded percentage, calculated by the ratio of total family income to the family poverty threshold as determined by the Census Bureau. The FPL values ranged from 50 (total family income is 0% of the family poverty threshold) to 400 (total family income is 400% of the family poverty threshold). However, there were values beyond this range, and they reported respectively. For this study the most respondents (40%) fell into the 400% FPL or greater

range (6,664 responses) and 0-99% FPL was least observed (1,952 responses; see Appendix B).

### ***Family Structure***

To identify the potential support within a mother's household, family structure was observed. The NSCH allowed for the respondents to report two primary caregivers for the child. Nevertheless, respondents did not provide the relationship of the additional caregiver. Therefore, the HRSA MCHB arranged the households into common types to evaluate assumptions of the caregivers' relationships. Of the sample, 72% of respondents reported the child lived with two parents that are married (mother or father). Fifteen percent of the respondents reported the child lived in a single parent home (see Appendix C).

### ***Household Education***

This variable derived from two questions within the survey (highest education of Caregiver 1 and Caregiver 2). The highest education level reported between two caregiver(s) was measured for this variable to represent the household education. Households with college degrees or higher were mostly observed in this study sample (65%). Twenty-two percent of households had some college or technical school, 12% had a high school diploma or GED, and 2% had less than a high school education (see Appendix D).

### ***Working Situation***

A single variable was created to identify if the household was working poor using two items from the NSCH. The items include the FPL variable, and a question related to the number of hours the caregiver(s) worked in the past year. Ninety percent of the sample did not live in a working poor household (see Appendix E).

### ***Maternal and Paternal Overall Health***

These two variables reported the mother's and father's overall health status. The variables were composites of the four NSCH questions that asked about the mother's and father's living in the household physical and mental health. There were three possible responses for these questions (excellent or very good, good, and fair or poor). To condense these measures, to gauge the child's mother's and father's overall health, two indicator values were created (mother's/father's physical and mental health responses were both excellent/very good or mother's/father's physical & mental health responses were one or both NOT excellent/very good). In this study, both the mother's and father's overall health were most frequently observed as excellent or very good. For the mothers 61% of the samples' overall health were excellent/very good and 57% of the father's overall health were excellent/very good (see Appendix F).

### ***Neighborhood Support***

This variable was derived from three items of the NSCH: (a) People in this neighborhood help each other out; (b) We watch out for each other's children in this neighborhood; and (c) When we encounter difficulties, we know where to go for help in

our community (Child and Adolescent Health Measurement Initiative, (2020). These items used a Likert scale (agree, somewhat agree, somewhat disagree, or definitely disagree). The variable neighborhood support consisted of two values (live in supportive neighborhoods or do not live in supportive neighborhoods). Reports of “definitely agree” to at least one of the items and “somewhat agree” or “definitely agree” to the other two items were considered to live in supportive neighborhoods. Fifty-six percent of the study sample lived in a supportive neighborhood whereas 41% lived in an unsupportive neighborhood (see Appendix G).

### ***Neighborhood Safety***

This variable was derived from a single NSCH question that asked respondents if the child lives in a safe neighborhood. This question used a Likert scale (agree, somewhat agree, somewhat disagree, or definitely disagree). Sixty-six percent of the sample reported that the child lived in a safe neighborhood, 28% reported that the child lived in a somewhat safe neighborhood. Only 4% of the respondents reported the child living in an unsafe neighborhood (see Appendix H).

### ***Neighborhood Amenities***

A single variable was created to combine responses for neighborhood amenities. There were four amenities observed, sidewalks or walking paths, parks or playgrounds, recreation centers, community centers, or boys' and girls' clubs and libraries or bookmobiles are present in the children's neighborhoods. This variable counts how many of the amenities are present in the child's neighborhood. Thirty-eight percent of the



sample neighborhoods contained all four amenities, 21% contained three amenities, 17% contained two amenities, 11% contained one amenity, 11% did not contained any neighborhood amenities (see Appendix I).

### ***Neighborhood Detractions***

A single variable was created to combine responses for neighborhood detractions, observing three detractions (litter or garbage on the street or sidewalk; poorly kept or rundown housing; or vandalism such as broken windows or graffiti are present in the children's neighborhoods). This variable counts how many of the detractions are present in the child's neighborhood. Seventy-two percent of the sample did not have any detractions in the neighborhood, 16% had 1 detraction, 6% had two detractions, and 4% had all three detractions (see Appendix J).

## **Study Results**

This quantitative study was conducted to assess whether household, community and physical environment predicts an individual's breastfeeding decision and duration while controlling for maternal age in the United States using binary logistic regression with  $\alpha = 0.05$ . The results support that these environments indeed influence breastfeeding decisions.

### **Research Question 1**

To assess research question 1 (When evaluating individuals on a national level, do income, family structure, education, working situation, maternal and paternal overall health, neighborhood support and neighborhood safety, neighborhood amenities, and

neighborhood detractions predict individuals' decisions to breastfeed when controlling for maternal age?) a binary logistic regression test was performed twice, once without the presence of maternal age and again with maternal age present. Both models resulted in significance and all predictor variables that were significant remained significant in the presence of maternal age (Appendix K & Table 6). However, for this question the analysis with maternal age was used for the results. The Hosmer-Lemeshow goodness-of-fit was not significant ( $p > 0.05$ ). This result indicates a good logistic model fit. The model explained 7.8% (Nagelkerke  $R^2$ ) of the variance in breastfeeding and correctly classified 88.3% of cases (see Appendix L). Sensitivity was 1.4% and specificity was 100%. The overall model was statistically significant,  $\chi^2 = 506.32$ ,  $p < 0.001$  (Table 7), which suggested that income, family structure, education, working situation, maternal and paternal overall health, neighborhood support and neighborhood safety, neighborhood amenities, and neighborhood detractions predicts an individual's decision to breastfeed while controlling for maternal age. Therefore, rejecting null hypothesis.

### **Individual Statistically Significant Predictors**

The regression model determined that maternal age for this sample was not statistically significant ( $B = [-0.005]$ ),  $S.E. = [.006]$ ,  $p = 0.420$ ). The effect of working situation, maternal overall health, paternal overall health, neighborhood safety, and neighborhood detractions, were not significant; therefore, indicating no significant effect on an individual's odds of breastfeeding while controlling for maternal age (Table 6).

When observing income using the FPL, households ranging from 100-199% FPL were not significant,  $B = 0.35$ ,  $OR = 1.42$ ,  $p = 0.141$ , therefore, did not have a significant effect on the odds of an individual deciding to breastfeed. Nevertheless, households ranging FPL from 200-399% and 400% and greater were significant. Households with FPL 200-399% ( $B = 0.48$ ,  $OR = 1.61$ ,  $p = 0.043$ ), increase the odds of an individual breastfeeding by approximately 61% relative to households ranging from 0-99% FPL. The effect of households on 400% FPL or greater ( $B = 0.49$ ,  $OR = 1.63$ ,  $p = 0.041$ ), the results suggested that the odds of an individual breastfeeding increased by 63% relative to households ranging from 0-99% FPL (Table 6).

Based on the binary logistic regression controlling for maternal age, households with two parents, not currently married were significant,  $B = -0.27$ ,  $OR = 0.77$ ,  $p = 0.003$ , which indicates that two parents, not currently married households decrease the odds of an individual initiating breastfeeding by approximately 23% relative to households with two parents that are married. The effect of single parent (mother or father) households was not significant,  $B = 10.45$ ,  $OR = 34,652.51$ ,  $p = 0.958$ . Therefore, indicating that single parent households does not have significant effect on the odds of an individual's decision to breastfeed. However, the results indicated that households lead by other family members was significant,  $B = -3.99$ ,  $OR = 0.02$ ,  $p < 0.001$ , indicating that this family structure decreases the odds of breastfeeding by approximately 98.15% relative to households with two parents, currently married (Table 6).

The results indicated the households with education of a college degree or higher were significant,  $B = 0.83$ ,  $OR = 2.30$  (95% CI (1.46-3.60),  $p < 0.001$ , suggesting that households with education of a college degree or higher increases the odds of an individual deciding to breastfeed by approximately 130% relative to households with less than a high school education while in the presence of maternal age. Households with some college or technical school were significant,  $B = 1.195$ ,  $OR = 3.30$ ,  $p < 0.001$ , suggesting that households with education of some college or technical school increases the odds of an individual deciding to breastfeed by approximately 230% relative to households with less than a high school education while in the presence of maternal age. Households with a high school diploma or GED were significant,  $B = 0.671$ ,  $OR = 1.96$ ,  $p < 0.001$  suggesting that households with education of a high school diploma or GED increases the odds of an individual deciding to breastfeed by approximately 96% relative to a household with less than a high school education while in the presence of maternal age.

Binary logistic regression suggested a statistical significance when observing the effect of living in a supportive neighborhood on breastfeeding decision making ( $B = 0.30$ ,  $OR = 1.35$ ,  $p < 0.001$ ). This result indicated that living in a supportive neighborhood increases the odds of an individual deciding to breastfeed by approximately 35% relative to those that do not live in a supportive neighborhood (Table 6).

Based on the results individuals living in neighborhoods containing 1 amenity did not have a significant effect on the odds of breastfeeding. However, the results suggested

that individuals living in neighborhoods containing 2, 3, and 4 amenities were significant. Individuals living in a neighborhood with 2 amenities ( $B = 0.21$ ,  $OR = 1.23$ ,  $p = 0.039$ ), increased the odds of breastfeeding by 23% relative to the individuals living in neighborhoods with no amenities while controlling for maternal age. The odds of an individual deciding to breastfeed living a neighborhood with 3 amenities increases by approximately 44% relative to living in a neighborhood without any amenities while controlling for maternal age ( $B = 0.36$ ,  $OR = 1.44$ ,  $p < 0.001$ ). Lastly, individuals living in neighborhoods containing all 4 of the amenities increased the odds of breastfeeding by 57% relative to living in a neighborhood with no amenities while controlling for maternal age ( $B = 0.45$ ,  $OR = 1.57$ ,  $p < 0.001$ ) (Table 6).





	95% C.I.for EXP(B)							
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
Indicator 7.5: Presence of detracting neighborhood elements (1)	-.072	.082	.774	1	.379	.930	.792	1.093
Indicator 7.5: Presence of detracting neighborhood elements(2)	-.228	.135	2.850	1	.091	.796	.611	1.037
Indicator 7.5: Presence of detracting neighborhood elements(3)	-.310	.178	3.025	1	.082	.734	.517	1.040
Indicator 7.2: Safe neighborhood			1.343	2	.511			
Indicator 7.2: Safe neighborhood(1)	-.064	.076	.696	1	.404	.938	.808	1.089
Indicator 7.2: Safe neighborhood(2)	.091	.169	.289	1	.591	1.095	.786	1.527



	95% C.I. for EXP(B)							
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
Indicator 7.1:	-.300	.070	18.564	1	<.001	.741	.646	.849
Supportive neighborhood(1)								
Poverty level of this household - Imputed			6.475	3	.091			
Poverty level of this household - Imputed(1)	-.349	.237	2.169	1	.141	.705	.443	1.122
Poverty level of this household - Imputed(2)	-.481	.236	4.167	1	.041	.618	.389	.981
Poverty level of this household - Imputed(3)	-.498	.239	4.342	1	.037	.608	.380	.971
Indicator 6.5:	.277	.245	1.270	1	.260	1.319	.815	2.133
Children living in "working poor" families(1)								
Constant	-.938	.243	14.956	1	<.001	.391		

									95% C.I. for EXP(B)							
									B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
a. Variable(s) entered on step 1: Highest level of education among reported adults, Family structure, Indicator 6.3: Overall health status of father, Indicator 6.3: Overall health status of mother, Count of amenities in children's neighborhoods, Indicator 7.5: Presence of detracting neighborhood elements, Indicator 7.2: Safe neighborhood, Indicator 7.1: Supportive neighborhood, Poverty level of this household - Imputed, Indicator 6.5: Children living in "working poor" families.																

**Table 7***Omnibus Tests of Model Coefficients*

					Chi-		
					square	df	Sig.
Step 1	Step	.652	1	.419			
	Block	.652	1	.419			
	Model	506.321	23	<.001			

**Research Question 2**

To assess research question 2 (When evaluating individuals on a national level, do income, family structure, education, working situation, maternal and paternal overall health, neighborhood support and neighborhood safety, neighborhood amenities, and neighborhood detractors predict individuals' breastfeeding duration decisions when controlling for maternal age?) a binary logistic regression test was performed twice, once

without the presence of maternal age and again with maternal age present. Both models resulted in significance and all predictor variables that were significant remained significant in the presence of maternal age (Appendix M & Table 8). Analysis with maternal age was used for this question. The Hosmer-Lemeshow goodness-of-fit was not significant ( $p > 0.05$ ). This result indicates that a good logistic model fit. The model explained 5.5% (Nagelkerke R<sup>2</sup>) of the variance in EBF and correctly classified 66.1% of cases (see Appendix N). Sensitivity was 93% and specificity was 18%. The overall model was statistically significant,  $\chi^2 = 435.81$   $p < 0.001$  (Table 9), which suggests that income, family structure, education, working situation, maternal and paternal overall health, neighborhood support and neighborhood safety, neighborhood amenities, and neighborhood detractions are predictors of breastfeeding duration decisions when controlling for maternal age. Therefore, rejecting null hypothesis.

### **Individual Statistically Significant Predictors**

The regression model determined that maternal age for this sample was statistically significant ( $B = [0.009]$ ,  $OR = 0[.99]$ ,  $p = 0.042$ ). This result indicates that for every one-year increase in maternal age the odds EBF decreases by 0.91%. The effect of working situation, income, paternal overall health, and neighborhood detractions were not significant; therefore, indicating no significant effect on an individual's odds of breastfeeding while controlling for maternal age (Table 8).

Households with two parents, not currently married were significant,  $B = -0.49$ ,  $OR = 0.61$ ,  $p = <0.001$ , based on binary logistic regression controlling for maternal age.

This indicates that two parents, not currently married decreases an individual's odds of EBF by 39% relative to households with two parents that are married. The effect of single parent (mother or father) households and other family types of households were not significant. Therefore, indicating that single parent and other family type households do not have significant effect on the odds of an individual EBF (Table 8).

The results indicated that households with education less than high school were not significant,  $B = -0.265$ ,  $OR = 0.767$ ,  $p = 0.23$ . Therefore, indicating no significant effect on the odds of EBF. Nevertheless, the households with education of a high school or GED and some college or technical school, were significant. The results suggested households with education of a high school or GED ( $B = -0.774$ ,  $OR = 0.461$ ,  $p < 0.001$ ) decreases the odds of an individual EBF by 54% relative to a household with a college education or higher while controlling for age. The model indicated that households with some college or technical school education ( $B = -0.574$ ,  $OR = 0.563$ ,  $p < 0.001$ ), decreases the odds of an individual EBF by 44% relative to a household with a college education or higher while in the presence of age (Table 8).

When observing maternal overall health, mothers who did not have excellent or very good physical and mental health, were found to be less likely to EBF ( $B = -0.35$ ,  $OR = 0.71$ ,  $p < 0.001$ ). The results indicated that when controlling for maternal age, mothers with moderate to poor overall health decrease the odds of an individual EBF by 29% (Table 8).

The effect of living in a supportive neighborhood was significant,  $B = 0.13$ ,  $OR = 1.14$ ,  $p = 0.008$ , indicating that individuals that live in a supportive neighborhood increases the odds of an individual EBF by 14% relative to those not living in a supportive neighborhood (Table 8).

The logistic regression model did not find individuals who lived in a somewhat safe neighborhood significant,  $B = -0.08$ ,  $OR = 0.93$ ,  $p = 0.154$ , which indicates that somewhat safe neighborhoods did not predict the odds of EBF. There was a significance identified when observing the effect of neighborhoods that were not safe,  $B = -0.34$ ,  $OR = 0.71$ ,  $p = 0.006$ . Individuals living in unsafe neighborhoods decrease their odds of EBF by 29% relative to those that live in safe neighborhoods (Table 8).

The results suggested that individuals living in neighborhoods with 1, 2, and 3 amenities did not predict the odds of EBF (Table 8). However, the effect of living in a neighborhood with all 4 amenities was significant,  $B = 0.17$ ,  $OR = 1.18$ ,  $p = 0.019$ . This model indicated that individuals living in neighborhoods containing all 4 amenities increases the odds of EBF by 18% relative to those living in neighborhoods with no amenities (Table 8).





	B	SE	Wald	df	Sig.	Exp(B)	95% CI for EXP(B)	
							Lower	Upper
Indicator 7.5: Presence of detracting neighborhood elements(1)	-.192	.117	2.698	1	.101	.825	.657	1.038
Indicator 7.5: Presence of detracting neighborhood elements(2)	-.030	.123	.060	1	.807	.970	.762	1.235
Indicator 7.5: Presence of detracting neighborhood elements(3)	-.159	.137	1.340	1	.247	.853	.652	1.116
Indicator 7.2: Safe neighborhood			7.985	2	.018			
Indicator 7.2: Safe neighborhood(1)	-.076	.053	2.033	1	.154	.927	.835	1.029
Indicator 7.2: Safe neighborhood(2)	-.342	.125	7.529	1	.006	.710	.556	.907



	B	SE	Wald	df	Sig.	Exp(B)	95% CI for EXP(B)	
							Lower	Upper
Indicator 7.1:	.131	.049	7.146	1	.008	1.139	1.035	1.254
Supportive neighborhood(1)								
Poverty level of this household - Imputed			13.561	3	.004			
Poverty level of this household - Imputed(1)	.021	.233	.008	1	.927	1.022	.647	1.613
Poverty level of this household - Imputed(2)	-.106	.231	.210	1	.647	.900	.573	1.414
Poverty level of this household - Imputed(3)	-.225	.232	.939	1	.332	.799	.507	1.258
Indicator 6.5:	.255	.241	1.113	1	.291	1.290	.804	2.070
Children living in "working poor" families(1)								
Age of Mother - Years	.009	.005	4.140	1	.042	1.009	1.000	1.018
Constant	.584	.212	7.593	1	.006	1.793		

a. Variable(s) entered on step 1: Age of Mother - Years.

**Table 9***Omnibus Tests of Model Coefficients*

		Chi-square	df	Sig.
Step 1	Step	4.146	1	.042
	Block	4.146	1	.042
	Model	435.809	23	<.001

**Summary**

The primary objective of this quantitative cross-sectional study was to assess household, community, and physical environment situations on breastfeeding initiation and duration nationally. The study used secondary data from the 2018-2019 combined NSCH from households of children ages 0-17. Breastfeeding data collected from households with children ages 0-5 were used for this study, with 16,750 respondents. The response rate for RQ1 was 99%, and for RQ2, 82%. Descriptive statistics were collected for dependent and independent variables.

The results determined that household, community, and environmental situations predict individuals' decisions to breastfeed and breastfeeding duration in the United States. Binary logistic regression was conducted for both research questions. The test was run twice to identify any effect maternal age might have had on the predictor variables. The analyses yield the same statistically significant results while controlling for maternal age. The binary logistic regression analysis with age was used for this study. The

maternal age ranged from 18 years old to 45 years old. The average maternal age was 30 years old.

Research question 1, When evaluating individuals on a national level, do income, family structure, education, working situation, maternal and paternal overall health, neighborhood support and neighborhood safety, neighborhood amenities, and neighborhood detractions predict individuals' decisions to breastfeed when controlling for maternal age?, the regression overall model suggested statistically significant ( $\chi^2 = 506.32$ ,  $p < 0.001$ ). Maternal age, working situation, maternal and paternal overall health, neighborhood detractions, and neighborhood safety were not statistically significant. However, education, income, family structure, neighborhood support, and neighborhood amenities had a significant effect on the odds of an individual's decision to breastfeed. Therefore, the null hypothesis was rejected.

Research question 2, When evaluating individuals on a national level, do income, family structure, education, working situation, maternal and paternal overall health, neighborhood support and neighborhood safety, neighborhood amenities, and neighborhood detractions predict individuals' breastfeeding duration decisions when controlling for maternal age?, the regression overall model suggested statistically significant ( $\chi^2(4) = 435.81$ ,  $p < 0.001$ ). Income, working situation, paternal overall health, and neighborhood detractions were not statistically significant. Nevertheless, the null hypothesis was rejected because education, family structure, maternal overall health,

neighborhood safety, neighborhood support, and neighborhood amenities had a significant effect on the odds of an individual EBF.

An in-depth interpretation of the study finding is presented in Chapter 5. A discussion of the study's limitations, implications for positive social change, and future research will be provided.

## Chapter 5: Discussion, Conclusions, and Recommendations

Childhood obesity is a significant public health concern worldwide. This condition contributes to many chronic diseases. Chronic conditions such as hypertension, diabetes, and heart disease lead to death, increasing mortality risk in American children (Lindberg et al., 2020). Researchers and public health professionals have implemented projects and programs and conducted studies to combat childhood obesity. However, the efforts have not significantly impacted the prevalence of the condition.

Nevertheless, through literature, EFB has been proven to reduce the risk of a child being obese (Modrek, Basu, Harding et al., 2017). Therefore, I focused on reducing the incidence of childhood obesity rather than the prevalence. The purpose of this quantitative cross-sectional study was to assess household, community, and environmental predictors' effects on individuals' decisions to breastfeed and sustainment in the United States. The 2018-2019 NCSH data were used to conduct this study. These data were randomly collected from United States households with children ages 0-17. For this study, only households with children 0-5 years old were used for data analysis. The information from this study ultimately aids in reducing the incidence of childhood obesity.

### **Summary of Key Findings**

The binary logistic regression overall model indicated a significance between breastfeeding initiation and household, community, and environmental predicts ( $p < 0.001$ ). Through individual predictor analysis, working situation ( $p = 0.260$ ), maternal

overall health ( $p = 0.062$ ), paternal overall health ( $p = 0.907$ ), neighborhood detractions ( $p = 0.144$ ), and neighborhood safety ( $p = 0.511$ ) adjusting for maternal age there was no statistical significance. However, there was a statistical significance determined between breastfeeding initiation and income (FPL 200-399%,  $p = 0.043$  & 400% FPL or greater,  $p = 0.041$ ), family structure (households with two parents, not currently married,  $p = 0.003$  & households led by other family members,  $p < 0.001$ ), education (households with a college degree or higher,  $p < 0.001$ , households with some college or technical school,  $p < 0.001$ , & households with a high school diploma or GED,  $p < 0.001$ ), neighborhood support ( $p < 0.001$ ), and neighborhood amenities (neighborhoods with 2 amenities,  $p = 0.039$ , neighborhoods with 3 amenities,  $p < 0.001$ , & neighborhoods with 4 amenities,  $p < 0.001$ ) when controlling for maternal age.

Binary logistic regression was conducted to determine the significance between household, community, and environmental predictors on breastfeeding duration. The overall model indicated a significant between breastfeeding duration and the predictors identified while controlling for maternal age ( $p < 0.001$ ). Through individual predictor analysis, working situation ( $p = 0.291$ ), income (FPL 100-199%,  $p = 0.927$ , FPL 200-399%,  $p = 0.647$  & 400% FPL or greater,  $p = 0.332$ ), paternal overall health ( $p = 0.499$ ), and neighborhood detractions (1 detracting element,  $p = 0.101$ ; 2 detracting elements,  $p = 0.807$  & 3 detracting elements,  $p = 0.247$ ) adjusting for maternal age were not statistically significant. Nevertheless, statistical significance was determined between breastfeeding duration and family structure (households with two parents, not currently married,  $p =$

0.061), education (households with a high school or GED,  $p < 0.001$  and households with some college & technical school education,  $p < 0.001$ ), maternal overall health ( $p < 0.001$ ), neighborhood support ( $p = 0.008$ ), neighborhood safety (lives in an unsafe neighborhood,  $p = 0.006$ ), and neighborhood amenities (neighborhoods with 4 amenities,  $p = 0.019$ ) when controlling for maternal age.

### **Interpretation of Findings**

As stated in Chapter 3, this cross-sectional study provides information about associations and differences among populations during specific periods. This information does not explain the cause of an individual's making certain breastfeeding decisions. However, this study has provided predictors that influence individuals' breastfeeding decisions.

The research questions assessed if income, family structure, education, working situation, maternal overall health, paternal overall health, neighborhood support, neighborhood safety, neighborhood amenities, and neighborhood detractors predict individuals' decisions to breastfeed and breastfeeding duration when controlling for maternal age. The binary logistic regression suggested that household, community, and physical environment influenced individuals' decisions to breastfeed and sustainment while controlling for maternal age (RQ1:  $\chi^2 = 506.32$ ,  $p < 0.001$ ; RQ2:  $\chi^2 = 435.81$ ,  $p < 0.001$ ). These findings are consistent with those presented in Chapter 2.

Research question 1 results suggested that higher-income individuals are more likely to initiate breastfeeding than lower-income individuals. Lower-income mothers

often have more responsibilities, resulting in less time for elective activities than higher-income individuals (Newhook et al., 2017). Also, these individuals are not afforded the same educational resources either; hence, why they do not initiate breastfeeding (Yourkavitch et al., 2018). However, this population is eligible for Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (Committee to Review WIC Food Packages, 2016). This national program supplies nutritional needs to pregnant, postpartum, infants, and children based on income and residence at no cost (Committee to Review WIC Food Packages, 2016). The infant formula is one of the primary items provided by WIC. Lower-income mothers are provided with this information; therefore, believing that receiving formula from this program is their only option (McCann, Baydar, & Williams, 2007). However, WIC provides breastfeeding mothers with trained counselors, a large quantity and variety of foods, breast pumps, and shells (Committee to Review WIC Food Packages, 2016). These resources are not often initially presented to this population of mothers. However, income was not found to be predictive of breastfeeding duration when assessing RQ2.

Family structure was determined predictive of breastfeeding initiation and sustainment, controlling for maternal age. Breastfeeding is a stressful time in a mother's life, especially for first-time mothers (Granberg, Ekström-Bergström, & Bäckström, 2020). The literature expressed that breastfeeding mothers must have support to be successful (Ratnasari et al., 2017). Therefore, support at home is essential since the individual will spend most of their time with the child at home. The results of the current



study proved that any household without a married mother and father reduced the odds of an individual initiating breastfeeding. Having breastfeeding support in the home will encourage mothers to continue to breastfeed. This study proved this notion; households with two unmarried parents were less likely to have EBF than households with married parents.

The current study results concur with the findings discussed in Chapter 2. The literature indicated that mothers with less education have a lower breastfeeding rate than those with higher education (Newhook et al. (2017)). This study used households with less than a high school education as the reference category for RQ1. The results indicated that mothers in a household with a high school diploma/GED or higher chances of initiating breastfeeding were higher than mothers with less of a high school education. Therefore, the more education an individual can access, the odds of breastfeeding increase. I used household education rather than individual education in my study, solidifying that a higher education environment will increase breastfeeding initiation.

RQ2 assessed household education influences on the EBF. The study results suggested that individuals living in households with a high school diploma/GED or some college/technical school education decrease the odds of their EBF compared to those living in a household with a college degree or higher. The literature focused on the amount of education an individual had and its impact on breastfeeding; however, it did not mention that the amount of education one has also has the potential to affect their stress level, job security, and working environments. Data show that the more educated

an individual is, the more money they earn (Torpey, 2021). Therefore, the level of stress surrounding money decreases (Bialowolski et al., 2021).

Conversely, higher-paying careers often consume much time, making it difficult for mothers to EBF. Nevertheless, in the United States, employers must provide suitable areas and flexible for mothers to express milk (Congress.gov, 2019). Hence, allowing more time during working hours to express milk makes mothers more likely to have EBF.

Pregnancy will strain a woman's health due to hormones, physical and mental changes (Granberg, Ekström-Bergström, & Bäckström, 2020). The literature did not explain the effects a mother's overall health plays on breastfeeding initiation. My results suggested that maternal overall health does not impact their decision to breastfeed. However, maternal overall health significantly impacts their decision to EBF based on the study analysis. This result aligns with the literature. Penniston et al. (2021) suggested that mothers who do not breastfeed or stop breastfeeding have higher levels of depression and anxiety. However, the authors did not explain if this outcome came before or after the discontinuation of breastfeeding. This study result implies that mothers with decreased physical and mental health decide not to continue breastfeeding.

As discussed, immediate support has an impact on breastfeeding decision making (Granberg, Ekström-Bergström, & Bäckström, 2020; Ratnasari et al., 2017). Indirect support has also been suggested to increase the odds of individual breastfeeding and sustainment. This study used neighborhood support as the community element for assessment. The results indicated that mothers living in a neighborhood where they can

depend on neighbors for help positively impacted the odds of their initiation into breastfeeding and continuing to breastfeed. These results coincide with the literature presented in Chapter 2. The likelihood of a mother breastfeeding and EBF increases with additional support and encouragement outside the home (Jiang et al., 2021).

The perception of feeling safe in a living environment benefits many health outcomes. Breastfeeding success is no different. Breastfeeding mothers need less amount of added stress to meet the breastfeeding recommendations set by the AAP (Ziomkiewicz, Babiszewska, Apanasewicz, et al., 2021). Therefore, living in a safe neighborhood would decrease the stress put upon a breastfeeding mother (Kummer, 2020). The current study results concur with the literature; there was a negative association between neighborhood safety and EBF. Therefore, mothers who perceive to live in safe neighborhoods are more likely to EBF than those who do not.

To further assess the association between the physical environment and breastfeeding decisions, resources available within the neighborhood, such as sidewalks, parks, recreation centers, and libraries, were evaluated as amenities. The study results indicated that the more amenities available in a neighborhood, the higher the odds of an individual initiating breastfeeding. Individuals with access to all amenities increase the odds of EBF within the study sample. These results are represented in the literature.

The overall result of the current study provides reliability and novelty to the literature, identifying predictors of individuals' decisions to breastfeed and sustainment in the United States. These results provided more knowledge to healthcare professionals,

increasing breastfeeding outcomes and ultimately reducing the incidence of childhood obesity nationwide.

### **Limitations of the Study**

The study had minimal limitations. First, secondary data were used for data analysis from the 2018-2019 combined NSCH survey. Secondary data allows researchers access to large quantities of data and saves time and money; however, we do not have access to original data. Thus, completeness and accuracy could not be assured, resulting in missing data. Since the original data is unavailable, there is no way to determine the cause of the missing data. The study sample experienced missing values. Nevertheless, the occurrences did not affect the results.

Using a cross-sectional study design created a challenge in identifying direct causal relationships between the identified study predictors and breastfeeding decisions. However, the results of this study pinpointed the association between household, community, and physical environmental situations and breastfeeding decisions. Observational case-control and prospective studies can be established from the study data to determine causal relationships between household, community, and physical environment and breastfeeding outcomes.

The survey oversampled households with special needs and children under the age of six. This was a limitation of the current study because oversampling has the potential to introduce bias. However, the HRSA MCHB oversampled for these populations based on previous surveys; the households without children with special

needs and older than five populations were significantly greater. This study was not affected by oversampling because the data used were only from households with children ages 0–5.

The threat of recall bias within the data were increased. Households with children 0-5 years answered survey questions about breastfeeding. Many individuals may have difficulty remembering how long they breastfeed, months or years after initiation. Therefore, resulting in inaccurate information or unanswered questions. Lastly, because of randomization, most of the individuals within the sample favored the more positive outcomes for each variable. Therefore, causing an unequal sample size distribution.

The 2018-2019 NSCH data set contains a massive number of responses nationally. This number greatly represented the United States population; however, it offered a limitation within the study. Large datasets can cause lower p values because p values decrease as sample sizes increase (Kaji, Rademaker, & Hyslop, 2018). Therefore, identifying statistical significance more frequently than smaller sample size and narrowing confidence intervals. Although this study identified statistical significance, it also identified the odds ratio through binary logistic regression, assessing the association between the identified predictor and breastfeeding initiation and duration. Therefore, increasing the reliability of the study results.

### **Recommendations for Research**

Combating childhood obesity involves several interventions, programs, and policies. However, more research is needed to identify the independent impact of the working situation, maternal overall health, paternal overall health, neighborhood detractors, and neighborhood safety on breastfeeding initiation in the United States. In addition, more independent research is suggested to assess the effects working situation, income, paternal overall health, and neighborhood detractors have on EBF nationwide.

Encouraging breastfeeding is an ideal initial point to prevent childhood, decreasing its incidence. The current study has confirmed and provided novel information regarding breastfeeding decisions on a national level in the United States. The study's results have assisted in bridging the gap in the literature in identifying household, community, and physical environmental predictors that impact an individual's decision to breastfeed and sustainment nationwide. Prospective studies should be conducted on intervention implemented in the prenatal population. A controlled study implementing detailed breastfeeding education and physician support at prenatal visits would give healthcare professionals a real-time perspective of the impact education and outside support have on breastfeeding outcomes. Studies following the mothers' behaviors, support, environments, feeding outcomes, etc., from conception, until the child is two years old will give public health professionals insight into how household, community, and physical environment affect breastfeeding outcomes. In addition, observational studies focusing on breastfeeding mothers from initiation until discontinuation should be

established to pinpoint which populations need support and etiologies of discontinuation to provide information to create tailored interventions for these populations and implement policies.

Studies using the post-COVID-19 pandemic NSCH data should be performed to identify changes in the pre-COVID-19 literature. This information will offer insight into how the pandemic affected breastfeeding outcomes to identify possible initiatives, interventions, resources, and support needed that were not identified in the current study.

### **Social Change Implications**

This study has suggested abundant information to educate healthcare professionals and community leaders about the predictors of breastfeeding decisions in the United States. Positive social change implications are numerous within the results. First, the literature is overpopulated with data, interventions, and programs to reduce the prevalence of the childhood obesity. There is a handful of empirical research focusing on the incidence of childhood obesity. The current study identified that household, community, and physical environment predictors significantly affect breastfeeding initiation and duration to ultimately reduce the incidence of the condition. These results provide healthcare professionals and community leaders with immediate, reliable data to implement prospective studies and community policies, establish methods for disseminating breastfeeding education and resources to expected mothers more efficiently, and understand the level of support needed to succeed in breastfeeding. Health care and community engagement will increase breastfeeding initiation and

duration nationwide. Therefore, reducing the occurrence of childhood obesity in the United States.

Using the SEM as the framework for this study, intrapersonal, interpersonal, community, and public policy were used to evaluate the impact household, community, and physical environmental situations have on an individual's decision to breastfeed and duration. The current study assessed the intrapersonal level, household education, income, workload, and mother's overall health were used. Family structure, neighborhood support, and the father's overall health were evaluated at the interpersonal level. The community level was observed by neighborhood amenities, detractions, and safety. Finally, the public policy level was assessed by household education.

### **Intrapersonal Level**

Household education and income had a positive impact on breastfeeding initiation and duration. The more education and income an individual have or has access to, increases the odds of them breastfeeding and EBF. Therefore, health professionals should provide more breastfeeding education to the less educated and lower-income populations to increase breastfeeding outcomes. Although the overall analysis suggested a significance between breastfeeding initiation and the predictors of workload and mothers' overall health, the current study did not identify an independent association with breastfeeding initiation (Table 6).

Nevertheless, mothers' overall health was significantly related to the odds of an individual EBF. Physical and mental health are essential for everyday productivity.



Hence, it is even more critical when sustaining breastfeeding. The study analysis suggested the need for a healthy mother to result in successful breastfeeding outcomes. Therefore, with the information provided, obstetricians, gynecologists, and primary health care physicians can provide additional health resources during the prenatal and postnatal journey to increase the odds of mothers continuing to breastfeed.

### **Interpersonal Level**

Mothers living in households with support, either a spouse or other family member, have higher odds of breastfeeding initiation and sustainment. In addition, having supportive neighbors increases breastfeeding and EBF. These results bring awareness to healthcare professionals of the populations needing additional support during prenatal and postnatal to increase breastfeeding and sustainment. Disparities can be detected during the pregnancy, and more support and encouragement from the health care professionals can be provided throughout the breastfeeding duration.

### **Community Level**

The physical environment in which mothers live will impact the odds of breastfeeding and sustainment. Community leaders and healthcare professionals must work together to improve the availability of resources in deprived communities. Community leaders are the primary stakeholders at this level because they are familiar with the needs of the communities they advocate. This current study has provided the minimal resources needed to increase breastfeeding practices nationally. Public health professionals, healthcare providers, and community leaders can establish plans to

increase resources, submit grants for financial support, and implement pilot programs and research to determine effectiveness. Once results are produced from the research, this information should be shared nationally to encourage others to participate.

### **Public Policy**

The results of this study yielded weak support for public policy. However, the results suggested that the more education one has, the more likely they are to breastfeed and EBF. According to the United States Census Bureau, 37% of Americans aged 25 years and older obtained a high school diploma/GED or less (The United States Census Bureau, 2023). These results indicate that a large population of Americans have low education. Therefore, when establishing policies, population education and literacy must be evaluated. The results of this study have the potential to encourage the AAP to revise the terminology of the breastfeeding recommendations as written to better fit the United States education level.

### **Conclusions**

Nearly 20% of American children between ages 2 and 19 are obese (CDC, 2021b). Hence, childhood obesity is a significant national public health concern, putting children at a higher risk of chronic diseases, depression, sleep apnea, and death. To avoid children growing into adulthood as obese, barriers and challenges nationwide must be identified. Countless variables affect childhood obesity, therefore making it challenging to eradicate. This study aimed to assist in reducing the incidence of childhood obesity rather than its prevalence. Therefore, breastfeeding was the primary focus of the study.

Exclusively breastfeeding is an effective preventive measure that reduces a child's risk of obesity (Yan et al., 2014; Li et al., 2022). However, after six months of EBF, breastfeeding rates drastically decline. Several contributing factors are associated with the fall, such as mothers' daily schedules, the timing of solid foods introduction, reduced milk supply, and perception of infant nutrition. These factors were not of focus in this study. However, future research is needed in these areas to generate more data to assist in bridging the gap in the literature.

This study identified that household, community, and physical environment are predictors of individuals' decision to breastfeed and duration nationally. This study provides public health professionals, healthcare providers, and community leaders with information to establish novel policies, research, and standards to increase breastfeeding and sustainment while reducing the incidence of childhood obesity in the United States. Through this establishment, positive social change will be achieved.

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## Appendix A: Age of Mother

**Table A1***Age of Mother- Years*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18	227	1.4	1.4	1.4
	19	214	1.3	1.3	2.7
	20	278	1.7	1.7	4.4
	21	318	1.9	1.9	6.3
	22	370	2.2	2.2	8.5
	23	522	3.1	3.2	11.7
	24	555	3.3	3.4	15.0
	25	687	4.1	4.2	19.2
	26	753	4.5	4.6	23.8
	27	897	5.4	5.4	29.2
	28	1069	6.4	6.5	35.7
	29	1140	6.8	6.9	42.6
	30	1277	7.6	7.7	50.3
	31	1124	6.7	6.8	57.1

<hr/>	32	1186	7.1	7.2	64.3
	33	1113	6.6	6.7	71.0
	34	1068	6.4	6.5	77.5
	35	914	5.5	5.5	83.0
	36	739	4.4	4.5	87.5
	37	580	3.5	3.5	91.0
	38	432	2.6	2.6	93.6
	39	360	2.1	2.2	95.8
	40	255	1.5	1.5	97.4
	41	142	.8	.9	98.2
	42	133	.8	.8	99.0
	43	66	.4	.4	99.4
	44	42	.3	.3	99.7
	45	52	.3	.3	100.0
	Total	16513	98.6	100.0	
Missing System		237	1.4		
Total		16750	100.0		

---

## Appendix B: Income Descriptive Statistics

**Table B1***Income Descriptive Statistics*

Variable	<i>n</i>	%
Povlev_1819		
0-99% FPL	1952	11.7
100-199% FPL	2815	16.8
200-399% FPL	5319	31.8
400% FPL or greater	6664	39.8
Missing	0	0

*Note.* Due to rounding errors, percentages may not equal 100%.

## Appendix C: Family Structure Descriptive Statistics

**Table C1***Family Structure Descriptive Statistics*

Variable	<i>n</i>	%
A0_famstruct5_1819		
Two parents, currently married	12006	71.68
Two parents, not currently married	1266	7.56
Single parent (mother or father)	2497	14.91
Grandparent household	478	2.85
Other family type	148	0.88
Missing	355	2.12

*Note.* Due to rounding errors, percentages may not equal 100%.

## Appendix D: Household Education Descriptive Statistics

**Table D1***Household Education Descriptive Statistics*

Variable	<i>n</i>	%
A0_AdultEduc_1819		
Less than high school	312	1.86
High school or GED	1927	11.50
Some college or technical school	3656	21.83
College degree or higher	10855	64.81
Missing	0	0.00

*Note.* Due to rounding errors, percentages may not equal 100%.

## Appendix E: Working Situation Descriptive Statistics

**Table E1***Working Situation Descriptive Statistics*

Variable	<i>n</i>	%
A0_WrkngPoor_1819		
Lives in 'working poor' household	1368	8.17
Does not live in 'working poor' household	14994	89.52
Missing	388	2.32

*Note.* Due to rounding errors, percentages may not equal 100%.



## Appendix F: Mother Overall Health Descriptive Statistics

**Table F1***Mother Overall Health Descriptive Statistics*

Variable	<i>n</i>	%
A0_MotherHSt_1819		
Physical & mental health BOTH excellent or very good	10248	61.18
One or both of physical & mental health are NOT excellent/very good	4900	29.25
Missing	1602	9.56
A0_FatherHSt_1819		
Physical & mental health BOTH excellent or very good	9586	57.23
One or both of physical & mental health are NOT excellent/very good	3832	22.88
Missing	3332	19.89

*Note.* Due to rounding errors, percentages may not equal 100%.

## Appendix G: Neighborhood Support Descriptive Statistics

**Table G1***Neighborhood Support Descriptive Statistics*

Variable	<i>n</i>	%
A0_NbhdSupp_1819		
Child lives in supportive neighborhood	9375	55.97
Child does not live in supportive neighborhood	6912	41.27
Missing	463	2.76

*Note.* Due to rounding errors, percentages may not equal 100%.

## Appendix H: Neighborhood Safety Descriptive Statistics

**Table H1***Neighborhood Safety Descriptive Statistics*

Variable	<i>n</i>	%
A0_NbhdSafe_1819		
Definitely agree	11032	65.86
Somewhat agree	4705	28.09
Somewhat or definitely disagree	623	3.72
Missing	390	2.33

*Note.* Due to rounding errors, percentages may not equal 100%.

## Appendix I: Neighborhood Amenities Descriptive Statistics

**Table I1***Neighborhood Amenities Descriptive Statistics*

Variable	<i>n</i>	%
A0_NbhdAmenities_1819		
Neighborhood does not contain any amenities	1824	10.89
Neighborhood contains 1 amenity	1767	10.55
Neighborhood contains 2 amenities	2772	16.55
Neighborhood contains 3 amenities	3583	21.39
Neighborhood contains all 4 amenities	6321	37.74
Missing	483	2.88

*Note.* Due to rounding errors, percentages may not equal 100%.

## Appendix J: Neighborhood Distractions Descriptive Statistics

**Table J1***Neighborhood Distractions Descriptive Statistics*

Variable	<i>n</i>	%
A0_NbhdDetract_1819		
Neighborhood does not have any detracting elements	12088	72.17
Neighborhood has 1 detracting element	2621	15.65
Neighborhood has 2 detracting elements	955	5.70
Neighborhood has all 3 detracting elements	653	3.90
Missing	433	2.59

*Note.* Due to rounding errors, percentages may not equal 100%.

## Appendix K: RQ1 Binary Logistic Regression without Mother's Age

**Table K1***Variable in the Equation*

	B	SE	Wald	df	Sig.	Exp(B)	95% CI for EXP(B)	
							Lower	Upper
Step 1 <sup>a</sup>			186.856	3	<.001			
Highest level of education among reported adults								
Highest level of education among reported adults(1)	.381	.232	2.697	1	.101	1.464	.929	2.307
Highest level of education among reported adults(2)	-.150	.229	.433	1	.511	.860	.550	1.347
Highest level of education among reported adults(3)	-.836	.230	13.226	1	<.001	.434	.276	.680
Family structure			49.411	3	<.001			
Family structure(1)	.272	.090	9.193	1	.002	1.312	1.101	1.564
Family structure(2)	-20.080	40192.970	.000	1	1.000	.000	.000	.
Family structure(3)	4.009	.627	40.836	1	<.001	55.110	16.113	188.485



	B	SE	Wald	df	Sig.	Exp(B)	95% CI for	
							EXP(B)	
							Lower	Upper
Indicator 7.5:			5.409	3	.144			
Presence of detracting neighborhood elements								
Indicator 7.5:	-.072	.082	.774	1	.379	.930	.792	1.093
Presence of detracting neighborhood elements(1)								
Indicator 7.5:	-.228	.135	2.850	1	.091	.796	.611	1.037
Presence of detracting neighborhood elements(2)								
Indicator 7.5:	-.310	.178	3.025	1	.082	.734	.517	1.040
Presence of detracting neighborhood elements(3)								
Indicator 7.2: Safe neighborhood			1.343	2	.511			
Indicator 7.2: Safe neighborhood(1)	-.064	.076	.696	1	.404	.938	.808	1.089
Indicator 7.2: Safe neighborhood(2)	.091	.169	.289	1	.591	1.095	.786	1.527



	B	SE	Wald	df	Sig.	Exp(B)	95% CI for	
							EXP(B)	
							Lower	Upper
Indicator 7.1:	-.300	.070	18.564	1	<.001	.741	.646	.849
Supportive neighborhood(1)								
Poverty level of this household - Imputed			6.475	3	.091			
Poverty level of this household - Imputed(1)	-.349	.237	2.169	1	.141	.705	.443	1.122
Poverty level of this household - Imputed(2)	-.481	.236	4.167	1	.041	.618	.389	.981
Poverty level of this household - Imputed(3)	-.498	.239	4.342	1	.037	.608	.380	.971
Indicator 6.5:	.277	.245	1.270	1	.260	1.319	.815	2.133
Children living in "working poor" families(1)								
Constant	-.938	.243	14.956	1	<.001	.391		

						95% CI for	
						EXP(B)	
B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
a. Variable(s) entered on step 1: Highest level of education among reported adults, Family structure, Indicator 6.3: Overall health status of father, Indicator 6.3: Overall health status of mother, Count of amenities in children's neighborhoods, Indicator 7.5: Presence of detracting neighborhood elements, Indicator 7.2: Safe neighborhood, Indicator 7.1: Supportive neighborhood, Poverty level of this household - Imputed, Indicator 6.5: Children living in "working poor" families.							

## Appendix L: RQ1 Good Model Fit

**Table L1***Model Summary for RQ1*

	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	8429.678 <sup>a</sup>	.040	.078

a. Estimation terminated at iteration number 20

because maximum iterations has been reached. Final solution cannot be found.

**Table L2***Hosmer and Lemeshow Test for RQ1*

	Chi- square	df	Sig.
1	6.472	8	.594

**Table L3***Classification Table for RQ1*

		Predicted			
		Indicator 1.3: Breastfed ever, age 0-5 years			
Observed		Yes -	No -	Percentage	
		Breastfeeding	Breastfeeding Correct		
Step 1	Indicator 1.3: Breastfed ever, age 0-5 years	Yes - Breastfeeding	10800	3	100.0
		No - Breastfeeding	1435	21	1.4
Overall Percentage					88.3

a. The cut value is .500

## Appendix M: RQ2 Binary Logistic Regression without Mother's Age

**Table M1***Variables in the Equation*

	B	SE	Wald	df	Sig.	Exp(B)	95% CI for EXP(B)	
							Lower	Upper
Step Highest level of 1 <sup>a</sup> education among reported adults			151.069	3	<.001			
Highest level of education among reported adults(1)	-.272	.219	1.542	1	.214	.762	.496	1.170
Highest level of education among reported adults(2)	-.802	.086	86.436	1	<.001	.449	.379	.531
Highest level of education among reported adults(3)	-.595	.058	105.098	1	<.001	.552	.492	.618
Family structure			43.988	3	<.001			
Family structure(1)	-.500	.075	43.988	1	<.001	.606	.523	.703
Family structure(2)	21.213	40192.969	.000	1	1.000	1632090945.999	.000	.
Family structure(3)	-21.500	27953.396	.000	1	.999	.000	.000	.

	B	SE	Wald	df	Sig.	Exp(B)	95% CI for	
							EXP(B)	
							Lower	Upper
Indicator 6.3:	-.031	.051	.375	1	.540	.969	.876	1.072
Overall health status of father(1)								
Indicator 6.3:	-.349	.051	47.586	1	<.001	.705	.638	.779
Overall health status of mother(1)								
Count of amenities in children's neighborhoods			17.764	4	.001			
Count of amenities in children's neighborhoods(1)	-.091	.089	1.039	1	.308	.913	.766	1.088
Count of amenities in children's neighborhoods(2)	.050	.081	.375	1	.540	1.051	.896	1.233
Count of amenities in children's neighborhoods(3)	.063	.077	.672	1	.412	1.065	.916	1.239
Count of amenities in children's neighborhoods(4)	.178	.072	6.048	1	.014	1.195	1.037	1.377

	B	SE	Wald	df	Sig.	Exp(B)	95% CI for	
							EXP(B)	
							Lower	Upper
Indicator 7.5: Presence of detracting neighborhood elements			8.628	3	.035			
Indicator 7.5: Presence of detracting neighborhood elements(1)	-.188	.117	2.592	1	.107	.829	.659	1.042
Indicator 7.5: Presence of detracting neighborhood elements(2)	-.031	.123	.063	1	.802	.970	.762	1.234
Indicator 7.5: Presence of detracting neighborhood elements(3)	-.162	.137	1.403	1	.236	.850	.650	1.112
Indicator 7.2: Safe neighborhood			7.571	2	.023			

	B	SE	Wald	df	Sig.	Exp(B)	95% CI for	
							EXP(B)	
							Lower	Upper
Indicator 7.2: Safe neighborhood(1)	-.071	.053	1.779	1	.182	.932	.840	1.034
Indicator 7.2: Safe neighborhood(2)	-.335	.125	7.211	1	.007	.716	.560	.914
Indicator 7.1: Supportive neighborhood(1)	.127	.049	6.801	1	.009	1.136	1.032	1.250
Poverty level of this household - Imputed			11.684	3	.009			
Poverty level of this household - Imputed(1)	.016	.233	.004	1	.947	1.016	.643	1.604
Poverty level of this household - Imputed(2)	-.107	.231	.215	1	.643	.899	.572	1.412
Poverty level of this household - Imputed(3)	-.212	.232	.837	1	.360	.809	.514	1.274
Indicator 6.5: Children living in "working poor" families(1)	.260	.241	1.159	1	.282	1.297	.808	2.080



	B	SE	Wald	df	Sig.	Exp(B)	95% CI for	
							EXP(B)	
							Lower	Upper
Constant	.857	.164	27.277	1	<.001	2.356		

a. Variable(s) entered on step 1: Highest level of education among reported adults, Family structure, Indicator 6.3: Overall health status of father, Indicator 6.3: Overall health status of mother, Count of amenities in children's neighborhoods, Indicator 7.5: Presence of detracting neighborhood elements, Indicator 7.2: Safe neighborhood, Indicator 7.1: Supportive neighborhood, Poverty level of this household - Imputed, Indicator 6.5: Children living in "working poor" families.

## Appendix N: RQ2 Good Model Fit

**Table N1***Model Summary for RQ2*

	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	13546.589 <sup>a</sup>	.040	.055

**Table N2***Hosmer and Lemeshow Test for**RQ2*

Step	Chi-square	df	Sig.
1	10.610	8	.225

**Table N3***Classification Table for RQ2*

Observed	Predicted	
	Age in months of when stopped breastfeeding	Percentage Correct

		Less than 6 months	6 months or longer, or still breastfeeding	
Step 1 Age in months of	Less than 6 months	677	3156	17.7
when stopped	6 months or longer, or still breastfeeding	481	6410	93.0
Overall Percentage				66.1

a. The cut value is .500