

2015

Support of Maternity Care Practices to Increase Breastfeeding Among First-Time Mothers

Jessica Strauch
Walden University

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Walden University

College of Health Sciences

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Jessica Strauch

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Walden University

2015

Abstract

Support of Maternity Care Practices to Increase Breastfeeding Among First-Time
Mothers

by

Jessica Strauch

MS, Colorado State University, 2009

BS, Colorado State University, 2005

Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy
Public Health

Walden University

August 2015

Abstract

Breastfeeding offers numerous health benefits to both the mother and infant, yet it is not routinely practiced due to a number of internal and external factors that influence the mother's decision. Guided by the social ecological model, the purpose of this study was to examine the effect of required reporting to The Joint Commission on perinatal measures, a proxy measure for maternity care practices, and those professional effects on breastfeeding initiation and exclusivity for first-time mothers. The hypotheses were that the mandatory reporting, and thus an increase in maternity care practices, would increase the initiation of breastfeeding and exclusive breastfeeding on discharge in first-time mothers. This study was a quantitative retrospective study design that included data collected from the medical records of 1,000 mothers from Southeast Alabama Medical Center who gave birth between 2013 and 2014. The multiple logistic regression analysis indicated that the odds ratio for initiation of breastfeeding was greater among first-time mothers after implementation of mandatory reporting measures ($OR = 2.07; p = 0.0007$); however, the odds for exclusive breastfeeding on discharge did not show a statistically significant change ($OR = 0.94; p = 0.7507$). These findings may inform the work of healthcare providers at hospitals, community centers, and public health workers, guiding their maternity care practices to increase the number of first-time mothers who will breastfeed for longer periods of time and improving children's health outcomes.

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Dedication

This is dedicated to my husband and best friend, Shaun Strauch. Your patience and encouragement helped me to achieve this milestone. To my son, Landon, thank you for letting mommy work and get things done. To my parents for believing in me and pushing me to realize my dreams.

Acknowledgments

I am appreciative to the faculty at Walden University, especially Dr. Amany Refaat and Dr. James Rohrer. Without Dr. Rohrer's encouragement and motivation, this would not have been possible. I am very thankful to the staff at Southeast Alabama Medical Center, both for support and allowing me to study their population. I am particularly grateful to Teresa Kohnhorst, Donna Murkerson, and all the ladies in the Quality department for their continued support. I appreciate Keitha Madrie for sharing her passion of breastfeeding with me and allowing me to learn from her experience and insight. Finally, thank you to all of my friends and family that believed I could make it this far and helped me to the finish line.

Table of Contents

List of Tables.....	iv
List of Figures	v
Chapter 1: Introduction to the Study	1
Background	3
Problem Statement.....	6
Purpose of the Study.....	7
Nature of the Study.....	7
Research Questions/Hypotheses.....	8
Theoretical Framework.....	9
Definition of Terms	12
Assumptions.....	12
Limitations	13
Delimitations	13
Significance of the Study	13
Summary	14
Chapter 2: Literature Review.....	15
Theoretical/Conceptual Framework.....	16
The Benefits of Breastfeeding.....	19
Current Rates and Recommendations.....	20
Facilitators and Barriers to Breastfeeding.....	21
Maternity Care Practices.....	23

Policy Implementation	26
Hospital Effects on Breastfeeding	27
Effects of Maternity Care Practices on Breastfeeding	31
Critique of Methods	36
Knowledge Gap	40
Summary	40
Chapter 3: Research Method.....	42
Research Design	42
Setting and Sample	43
Inclusion Criteria for Sample Selection	43
Sample Size	44
Materials.....	45
Description of Variables	45
Dependent Variables	46
Independent Variables.....	47
Covariates	48
Research Questions and Hypotheses.....	49
Data Collection and Statistical Analysis.....	51
Data Collection	51
Statistical Analysis	51
Ethical Considerations.....	53
Summary.....	53

Chapter 4: Results.....	55
Introduction	55
Descriptive Statistics.....	57
Univariate Analysis.....	62
Multiple Logistic Regression Analysis	67
Summary	72
Chapter 5: Discussion, Conclusions, and Recommendations	74
Introduction	74
Interpretation of the Findings	75
Limitations of the Study.....	81
Recommendations for Further Study.....	84
Recommendations for Action.....	86
Implications of the Study	87
Conclusions	89
References.....	91

List of Tables

Table 1. Ten Steps to Successful Breastfeeding	24
Table 2. Literature Review Summary.....	39
Table 3. Study Variables.....	46
Table 4. Measurement of Research Questions.....	52
Table 5. Demographic Characteristics of Participants in This Study.....	59
Table 6. Characteristics of Delivery from Participants in This Study.....	61
Table 7. Percentage of All Mothers who Initiated Breastfeeding or Exclusively Breastfed at Discharge	64
Table 8. Percentage of First-Time Mothers Who Initiated Breastfeeding or Exclusively Breastfed at Discharge	67
Table 9. Multiple Logistic Regression Analysis of All Mothers Who Initiated or Exclusively Breastfed.....	69
Table 10. Multiple Logistic Regression Analysis of First-Time Mothers Who Initiated or Exclusively Breastfed.....	71

List of Figures

Figure 1. The Institute of Medicine’s social ecological model for determinants of health.....	10
Figure 2. Social ecological model as applied to breastfeeding	19

Chapter 1: Introduction to the Study

Breast milk is considered the optimal food for an infant and has been recognized for its numerous benefits conferred to both mother and infant. Furthermore, breastfeeding is a cost-effective means of getting the infant all the proper nutrition needed. In the United States, it has generally been accepted, and is currently recommended by the American Academy of Pediatrics and the American College of Obstetricians and Gynecologists, that women breastfeed exclusively for the first 6 months of an infant's life for optimal benefits and continue to breastfeed for the first year while introducing solid foods (Grummer-Strawn et al., 2013; Jenkins & Foster, 2014). The World Health Organization (2014) also recommends exclusive breastfeeding for the first 6 months of an infant's life and recommends continued breastfeeding through 2 years of age. Additionally, initiating breastfeeding within the first 24 hours of birth is strongly recommended and is thought to confer added benefits to the infant, along with encouraging the mother to continue breastfeeding (Debes, Kohli, Walker, Edmond, & Mullany, 2013). In the United States, only 76.5% of infants are ever breastfed, and only 16.4% are breastfed exclusively for the recommended time of 6 months (Centers for Disease Control and Prevention, 2013). Moreover, it is estimated that if 80 to 90% of families would exclusively breastfeed for the recommended time, it would save \$10 to 13 billion per year on medical costs (Brenner & Buescher, 2011).

Support for breastfeeding can take many forms and can include personal, peer, professional, and legislative support. Legislative support primarily aims to support mothers when they return to work and desire to continue breastfeeding. The Fair Labor

Standards Act and the Affordable Care Act require employers to provide a reasonable amount of break time and a private location other than a bathroom to allow the mothers to express their breast milk (Belay, Allen, Williams, Dooyema, & Foltz, 2013). This has helped to increase the number of women who continue breastfeeding for a longer period of time. Personal support will primarily come from families, including spouses and other immediate family members. Women who feel more support from their spouses, including physical support (housework) and emotional support, are more likely to continue breastfeeding (Kervin, Kemp, & Pulver, 2010). Peer support, such as women who have breastfed previously, gives a mother the support that is needed and allow her to feel comfortable in discussing any barriers she encounters. Professional support can start in the prenatal period and include breastfeeding classes as well as support in the hospital during labor and delivery. The U.S. Preventive Services Task Force (2008) stated that breastfeeding education is “the most effective single intervention for increasing breastfeeding initiation and short-term duration” (Para. 1). Further support that is given in the hospital can greatly increase a woman’s decision to initiate breastfeeding and to exclusively breastfeed through discharge and beyond. Hospitals can encourage and provide the support to women through maternity care practices, which is encouraged by the Centers for Disease Control and Prevention (2013) as well as The Joint Commission (2014), a national accrediting body for hospitals. Despite the recommendations, many hospitals and staff may not encourage breastfeeding. Therefore, increasing maternity care practices as a method to increase breastfeeding will be an important step toward helping women meet the recommended goals for breastfeeding.

Background

Breastfeeding has numerous benefits, which for the infant have long been recognized, and more recently, the benefits to the mother have also been exhibited. There has been convincing evidence that breastfeeding protects infants and children against gastrointestinal illnesses, acute otitis media, respiratory tract infections including pneumonia, and necrotizing enterocolitis (Allen & Hector, 2005; Debes et al., 2013; Heinig & Dewey, 1996). The protection from these infectious diseases is thought to occur due to the various components in human milk, such as immunoglobulins, glycoproteins, antioxidants, and a characteristic fecal flora (Brenner & Buescher, 2011). Direct effects from human milk are noted when immunoglobulins and other binding proteins prevent the potential pathogens from binding to the host tissue, while indirect effects from breast milk relates to the intestinal flora passed to the infant that optimizes its environment and offers protection to the infant (Brenner & Buescher, 2011). It is less well understood how breast milk can protect from noninfectious diseases, but there is still strong evidence to support some disease prevention. There is probable evidence that breastfeeding can protect children from developing asthma and allergies (Eigenmann, 2004; Kull, Almqvist, Lilja, Pershagen, & Wickman, 2004); however, some studies have found an opposite effect in which breastfed infants who have a mother with asthma and/or allergies have a higher risk of developing problems (Benn et al., 2004). Nonetheless, it is still currently believed that breastfeeding is protective against asthma and allergies (Allen & Hector, 2005). Furthermore, there has been increasing evidence that breastfeeding can reduce the risk of obesity later in childhood and possibly into adulthood (Dewey, 2003;

Schack-Nielson, Michaelsen, Mortensen, Sorensen, & Reinisch, 2004). This is possibly due to the regulation of self-feeding at an earlier age, particularly those infants who breastfeed on demand.

There has also been considerable evidence that breastfeeding benefits the mother. Of the most discussed benefits, there seems to be strong agreement in the protective effect of breastfeeding on breast and ovarian cancer (Allen & Hector, 2005; Godfrey & Lawrence, 2010). The protective effect of breastfeeding on these cancers seems to be dependent on the duration and exclusivity in a dose-response manner (Allen & Hector, 2005). Breastfeeding is also possibly protective against obesity and type 2 diabetes (Godfrey & Lawrence, 2010). This is potentially due to breastfeeding helping women return to their prepregnancy weight sooner through the additional calorie requirements (Allen & Hector, 2005). Finally, breastfeeding is thought to be protective against postpartum depression through hormone responses and increasing the strength of the maternal-infant bond (Godfrey & Lawrence, 2010).

Breastfeeding is influenced by a variety of factors, including individual components, social components, environmental components, and society level influences. Individual components include the mother's intention to breastfeed, her knowledge and skills regarding breastfeeding, and the health of both mother and infant (Hector, King, Webb, & Heywood, 2005). Society level influences include the social norms related to breastfeeding. Current social norms do not support the breastfeeding recommendations and encourage early supplementation and early cessation of breastfeeding (Hannan, Li, Benton-Davis, & Grummer-Strawn, 2005). Social and environmental factors include

support from the home and peers, support from the community, public policy factors, and professional support from the hospital and/or health facilities (Hector et al., 2005).

Support from the hospital includes physicians, nurses, and lactation specialists. To encourage hospital support, maternity care practices have been outlined as an aid and guideline.

Maternity care practices is a generalized term that is used to describe immediate postpartum care of women and has been shown to have immediate and long-lasting effects on breastfeeding (Grummer-Strawn et al., 2013). Specifically, the Ten Steps to Successful Breastfeeding that were created by the World Health Organization and UNICEF are evidence-based guidelines that are meant to provide best practices in hospital settings for helping mothers to initiate breastfeeding and to continue to breastfeed exclusively (World Health Organization, 1998). Despite the evidence that supports the use of the Ten Steps to Successful Breastfeeding as well as the White House Task Force's (2010) recommendations to improve maternity care practices, many hospitals throughout the United States still fail to comply with the recommendations. In 2007, the Centers for Disease Control and Prevention began a survey directed at hospitals to measure maternity care practices that are related to breastfeeding, asking about the Ten Steps to Successful Breastfeeding in particular (as cited in Perrine et al., 2011). In 2007, the results from the survey gave an overall impression that most hospitals do not use best practices in relation to maternity care practices (Centers for Disease Control and Prevention, 2008). There was slight improvement in 2009; however, six of the 10 steps remained below 50% of hospitals reporting they practiced those maternity care steps (as

cited in Perrine et al., 2011). To increase compliance with the maternity care practices, it may need to become mandatory for accrediting bodies (such as The Joint Commission) to require hospitals to follow these evidence-based practices. While the maternity care steps are not mandatory, reporting outcome measures such as exclusive breastfeeding at discharge is mandatory and can be a good indicator of the implementation of maternity care practices.

Problem Statement

Breastfeeding has been recognized for its numerous benefits conferred to both mother and infant. Current breastfeeding recommendations include exclusive breastfeeding for the first 6 months, with continued breastfeeding through at least 1 year (Grummer-Strawn et al., 2013; Jenkins & Foster, 2014). In addition, initiating breastfeeding within the first 24 hours of birth confers added benefits to the infant, along with giving the mother encouragement (Debes et al., 2013). Since the initiation of breastfeeding will often begin in hospitals, creating guidelines to increase that support has been a goal of the World Health Organization and Centers for Disease Control and Prevention for many years. These maternity care practices have been shown to increase initiation of breastfeeding and exclusive breastfeeding at discharge (Philipp et al., 2001). However, these studies have been conducted primarily in facilities that have earned Baby-Friendly status, and it is not well known how a standard hospital utilizes maternity care practices. Furthermore, few studies have examined the impact of these maternity care practices on breastfeeding initiation in first-time mothers.

Purpose of the Study

The purpose of this quantitative research study was to examine the effect of The Joint Commission requiring the reporting of outcome measures of breastfeeding on the implementation of maternity care practices. Of particular interest was if the changes in required reporting would have an effect on increasing the initiation and exclusive breastfeeding at discharge on first-time mothers. Some studies (Belanoff et al., 2012; Phillips, Brett, & Mendola, 2011) have examined individual factors related to the mother on breastfeeding initiation and duration, yet few have examined the importance of a hospital's influence on a mother's breastfeeding decision. This study was conducted using a sample of women before and after implementation of the requirements at a large hospital in southeastern Alabama. The findings may contribute to the knowledge available in the current literature by examining the importance of the professional support, not only the individual factors in a woman's decision to breastfeed.

Nature of the Study

This quantitative study was conducted using a retrospective design. The data were collected from medical records from a hospital in southeastern Alabama. Data were extracted to examine the association between the independent variables (date of birth as related to the timing of Joint Commission requirements and first birth) and the dependent variables (initiation of breastfeeding and exclusive breastfeeding at discharge). Subjects selected were of any age, race/ethnicity, or education level, and all covariates were adjusted for during the data analysis stage. All personal identification information for the mother and infant was removed prior to data analysis.

Research Questions and Hypotheses

Research Question 1: To what extent is initiation of breastfeeding associated with being a first-time mother after adjusting for age, race/ethnicity, education, mother's health insurance, and type of delivery among mothers in southeast Alabama?

H_01 : There is no association between being a first-time mother and breastfeeding initiation.

H_A1 : There is an association between being a first-time mother and breastfeeding initiation.

Research Question 2: To what extent is exclusive breastfeeding at discharge associated with being a first-time mother after adjusting for age, race/ethnicity, education, mother's health insurance, and type of delivery among mothers in southeast Alabama?

H_02 : There is no association between being a first-time mother and a mother's decision to exclusively breastfeed upon discharge.

H_A2 : There is an association between being a first-time mother and a mother's decision to exclusively breastfeed upon discharge.

Research Question 3: To what extent is the initiation of breastfeeding associated with the presence or absence of a policy change for maternity care practices in first-time mothers after adjusting for age, race/ethnicity, education, mother's health insurance, and type of delivery among women in southeast Alabama?

H_03 : There is no association between the presence or absence of a policy change for maternity care practices and a first-time mother's decision to initiate breastfeeding.

H_{A3}: There is an association between the presence or absence of a policy change for maternity care practices and a first-time mother's decision to initiate breastfeeding.

Research Question 4: To what extent is exclusive breastfeeding at discharge associated with the presence or absence of a policy change for maternity care practices in first-time mothers after adjusting for age, race/ethnicity, education, mother's health insurance, and type of delivery among women in southeast Alabama?

H₀₄: There is no association between the presence or absence of a policy change for maternity care practices and a first-time mother's decision to exclusively breastfeed upon discharge.

H_{A4}: There is an association between the presence or absence of a policy change for maternity care practices and a first-time mother's decision to exclusively breastfeed upon discharge.

Theoretical Framework

The social ecological model provided the framework for this study. Originally described by McLeroy in 1988, the social ecological model is unique in that it incorporates not only individual factors on health promotion but realizes the importance of external factors as well. While other models or frameworks target one area for the intervention (such as individual, social, or organizational), the social ecological model allows for modification of each of the different levels for changing a given health behavior. The social ecological model also realizes that the different levels will have an effect on one another and that influence flows within and between each of the levels (McLeroy, Bibeau, Steckler, & Glanz, 1988).

The social ecological model as described by the Institute of Medicine (2002) is shown in Figure 1 below. Each of the spheres shows the expanding level of influence of external factors in comparison with the individual at the center. The innate traits in the center of the model such as age, race, and gender are factors that cannot be modified. Individual behaviors are characteristics that can influence behavior, such as knowledge, skills, and self-efficacy (McLeroy et al., 1988). The social, family, and community networks include social support from family, friends, and peers as well as social norms (McLeroy et al., 1988). The living and working conditions can include socioeconomic status, health care services, and public health services (Institute of Medicine, 2002). Finally, the broad social, economic, cultural, health and environmental conditions, and policies at the global, national, state, and local levels will include policies and regulations designed to impact the given behavior (Institute of Medicine, 2002).

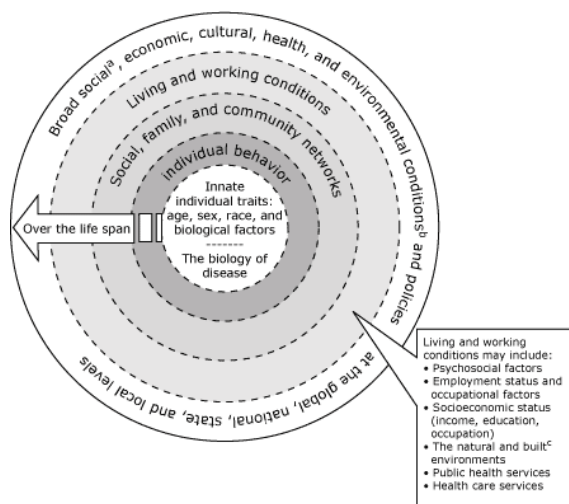


Figure 1. The Institute of Medicine's social ecological model for determinants of health.

(Institute of Medicine. (2002). The future of the public's health in the 21st

century: Implications for public health practice. Retrieved from

<http://www.iom.edu/~media/Files/Report%20Files/2002/The-Future-of-the-Publics-Health-in-the-21st-Century/Flores.pdf>.)

Breastfeeding behaviors fit well into the social ecological model because each of the levels will impact a woman's decision to breastfeed. Most breastfeeding intervention studies have been primarily concerned with factors on the individual level to change a mother's behavior and attitudes toward breastfeeding (Hector et al., 2005). The current study, however, is concerned with the living and working conditions level to include health care services, but it is important to acknowledge that all levels may be working together to influence the mother's final decision to breastfeed or formula feed her infant.

Definition of Terms

Breastfeeding: Giving nutrient rich milk to an infant directly from or express from a mother's breast (World Health Organization, 2014).

Breastfeeding initiation: Provision of mother's breast milk to infant for the first time (World Health Organization, 2014).

Exclusive breastfeeding: Infants who received only breast milk, including expressed milk, and who were allowed to receive drops and syrups, such as vitamins, minerals, and medicines, but not anything else (Pechlivani et al., 2005).

Maternity care practices: A group of steps during the immediate postpartum care that is meant to have long-lasting effects on breastfeeding outcomes (Grummer-Strawn et al., 2013).

Primiparous: A woman who is pregnant for the first time or giving birth for the first time (Fleming, Flett, Ruble, & Shaul, 1988).

Supplementation: Feeding an infant something other than breast milk, including water and water-based drinks, fruit juice, and/or formula (Pechlivani et al., 2005).

Ten Steps to Successful Breastfeeding: A set of evidence-based steps that outline best practices in hospital settings with the goal of helping mothers initiate and continue breastfeeding (Perrine et al., 2011; World Health Organization, 2014).

Assumptions

The primary assumption in this study was that the required reporting of exclusive breastfeeding to The Joint Commission will cause an increase in breastfeeding support and maternity care practices. It was also assumed that this reporting is a direct measure of

the effect of maternity care practices. A second assumption in this study was that the data collected from the medical records were accurate. The demographic data were self-reported by the mother into the medical record and all feedings were recorded by a nurse. Finally, it was assumed that all data were truthful and accurate.

Limitations

There are three main limitations to this study. First, the results of the study may not be universally generalizable to other populations. The sample population in southeastern Alabama may differ from other geographic locations by demographic, social, and cultural norms. Second, other confounding/modifying variables, such as family and peer support, cannot be controlled for and were not accounted for in the current study. Finally, because this is a retrospective study, the accuracy and completeness of the data can be called into question. This may be particularly true for the medical records that were reviewed prior to the required reporting dates.

Delimitations

The study population was pregnant women who reside in and gave birth at Southeast Alabama Medical Center during the period of January 2013 through December 2014. Women were at least 18 years of age at the time of birth. Study data were extracted from medical records of mother and infant during the admission.

Significance of the Study

It is often looked upon to the mother alone to make the decision and to begin breastfeeding. It is hoped that both personal and professional support can also influence the mother's decision to initiate and continue breastfeeding for the recommended time

periods. Requiring reporting on initiation and exclusive breastfeeding may have a positive influence on increasing maternity care practices, and, in turn, breastfeeding, particularly in first-time mothers. By understanding the areas of care provided through the hospital that can have an impact on initiation of breastfeeding and targeting those measures that are reported as weak or lacking, health care workers can begin to tailor care programs that will increase the number of women who initiate breastfeeding. Furthermore, by increasing the number of women who initiate breastfeeding within the first 24 hours of birth, the hospital and health care workers are helping to ensure better health outcomes for both mother and child and promoting positive social change.

Summary

Although breastfeeding has been shown to have many benefits for both infant and mother, many women choose to never breastfeed or stop prematurely. This study may contribute to the knowledge of the hospital and healthcare support's role on a new mother initiating and continuing exclusive breastfeeding. In Chapter 1, I provided a brief summary of the topic and drew light to the importance of the study. Chapter 2 addresses a detailed review of the literature, including factors associated with breastfeeding and maternity care practices as well as providing a theoretical base. In Chapter 3, I discuss the methodology employed in the study, including the sample population, methods of data collection, and how the data were analyzed. Chapter 4 provides a detailed review of the results. In Chapter 5, I discuss the implications of the results, including further recommendations.

Chapter 2: Literature Review

Breastfeeding has been recognized for its numerous benefits conferred to both mother and infant, including decreased risk of ovarian and breast cancer for the mother and decreased risk for gastrointestinal infections, obesity, and sudden infant death syndrome for the infant (Grummer-Strawn et al., 2013). Additionally, the initiation of breastfeeding within the first 24 hours of birth confers added benefits to the infant, along with encouraging the mother to continue breastfeeding (Debes et al., 2013). The World Health Organization (2014) and the Centers for Disease Control and Prevention (as cited in Perrine et al., 2011) recommend the initiation of breastfeeding within 1 hour of birth, along with recommendations of exclusive breastfeeding for the first 6 months of life and continued breastfeeding through 2 years.

Initiation of breastfeeding will often begin in hospitals. Being aware of the importance of breastfeeding, UNICEF and the World Health Organization launched the Baby-Friendly Hospital Initiative, which includes a guideline of ten steps to ensure support for breastfeeding at maternity care facilities (World Health Organization, 1998). Although recent support for the initiative has waned, it does appear that the initiatives have increased exclusive breastfeeding rates in hospitals that applied the techniques (Abrahams & Labbok, 2009). In the United States, many hospitals choose not to be a part of the Baby-Friendly Initiative; however, the Centers for Disease Control and Prevention has recommended a group of six primary maternity care practices to support breastfeeding initiation and continuation (Grummer-Strawn et al., 2013). In support of these maternity care practices, the Joint Commission, a hospital-accreditation firm, has

begun to require their hospitals to track and increase the number of infants who were exclusively breast fed since birth (Joint Commission, 2014). In this literature review, I will provide an overview of maternity care practices, factors associated with a mother's decision to breastfeed, and hospital practices that can encourage or discourage breastfeeding, along with evidence to support the importance of hospital maternity care practices on a mother's initiation of breastfeeding.

This chapter is a review of the literature regarding maternity care practices in hospitals and their influences on breastfeeding initiation and exclusivity. The focus of the review will be on the mother and factors that may influence her decision to initiate and continue breastfeeding throughout the hospital stay. Much of the literature that exists has been since the advent of the Baby-Friendly Initiative that began in 1991, with most of the articles on United States hospitals being within the last 10 years. Walden University's Online Library system for EBSCOHost Academic Search Complete, MEDLINE with Full Text, CINAHL Plus with Full Text, Nursing & Allied Health Source, and Google Scholar were used for the literature search. Key words included *breastfeeding*, *maternity care*, *initiation*, *exclusive*, *hospitals*, and *baby-friendly*. Combinations of key words included *breastfeeding + maternity care + hospitals*; *baby-friendly + hospitals + breastfeeding initiation*; *breastfeeding + initiation + exclusive + hospitals*.

Theoretical/Conceptual Framework

Many breastfeeding studies are lacking in conceptual or theoretical guidance, with no accepted or comprehensive guide to help in planning those studies (Hector et al., 2005). Additionally, Hector et al. (2005) noted that many studies are interested in

focusing only on individual characteristics of the mother, such as sociodemographic characteristics and other self-reported factors, while not taking into consideration other external factors. To apply both internal and external factors that may influence a mother's decision to breastfeed, the social ecological model was applied for this study.

There are a limited number of studies that have employed the social ecological model in breastfeeding studies. Tiedje et al. (2002) used a qualitative study to examine multiple levels of factors that influenced a woman's decision to breastfeed. They discovered that factors such as maternal characteristics, knowledge about breastfeeding, family and spouse, and the healthcare delivery system all played an important role in a mother choosing to breastfeed or to formula feed. In agreement with the previous study, Hector et al. (2005) found that multiple levels and factors are involved in a woman's decision to breastfeeding, starting at the mother and including group and society level factors. In a final study conducted by Bentley, Dee, and Jensen (2003), the authors again concluded that multiple levels affected a woman's decision to breastfeed and that these factors can be used to create specific interventions to increase breastfeeding.

The social ecological model was originally described by McLeroy et al. (1988) in an effort to draw attention to both behavior and individual and environmental determinants. Two key points of the social ecological model are that individual behaviors are shaped by the social environment and that behavior affects and is affected by multiple levels of influence (McLeroy et al., 1988). The Institute of Medicine (2002) uses a four-level model of the social ecological model for public health prevention and intervention design. The four levels include individual behavior; social, family, and community

networks; living and working conditions; and broad conditions to include economic, cultural, social, health, and the environment.

The social ecological model as applied to a mother's decision to breastfeed is illustrated in Figure 2. Innate individual traits such as age and race are at the core of the social ecological model. The next level describes individual behaviors to include education, income, knowledge regarding breastfeeding, and intention to breastfeed. The social, family, and community networks include personal support from their partner and other family members as well as social norms regarding breastfeeding. The living and working conditions that affect breastfeeding focus on support in the workplace and support received through professional health care services, including doctors, nurses, and lactation specialists. The final level includes broad conditions and policies that affect breastfeeding, including global, national, and state policies and recommendations, such as the Baby-Friendly Hospital Initiative created by the World Health Organization and the United Nations Children's Fund in 1991. In this study, I aimed to measure the inner levels of the social ecological model and how they influence a woman's decision to breastfeed, primarily focusing on the level of living and working conditions for the professional health care services.

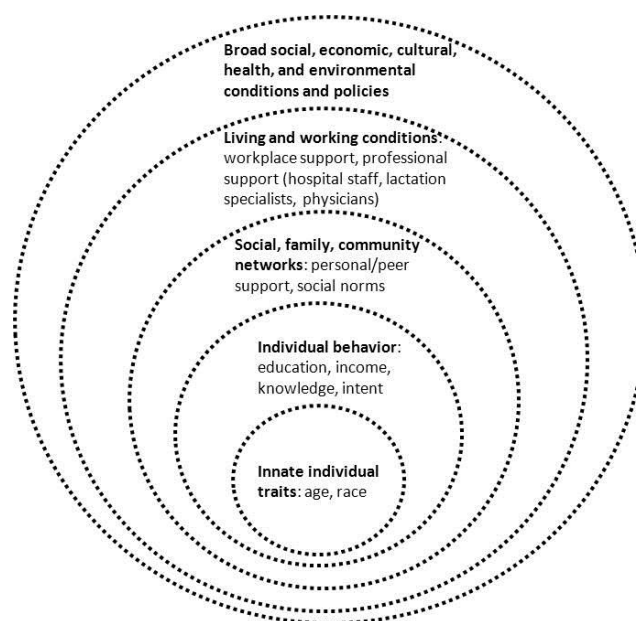


Figure 2. Social ecological model as applied to breastfeeding.

The Benefits of Breastfeeding

Breastfeeding has long been recognized as the ideal method of a mother feeding her infant, but for numerous reasons it does not occur frequently or for long periods of time. Numerous studies have now shown the benefits of breastfeeding, not only on the infant but for the mother as well. Benefits for the mother can include a reduction in the incidence of breast and ovarian cancer as well as decreased incidence of obesity, diabetes mellitus, hypertension, and hyperlipidemia (Brenner & Buescher, 2011). The mechanisms for decreasing the rate of these diseases in women that breastfeed, however, are not fully understood. It also has not been established the duration of breastfeeding that confers these benefits to the mother.

The benefits of breastfeeding an infant are better understood than those for a mother. It has been shown that breastfeeding an infant leads to a decreased incidence of

many infections in children less than 6 months of age, including acute otitis media, gastrointestinal illnesses, and lower respiratory tract infections (Brenner & Buescher, 2011; Jenkins & Foster, 2014). Breastfeeding may provide these benefits against infectious illnesses in particular through the antibodies that the infant receives in the breast milk, helping to build the immune system in the infant (Debes et al., 2013). Breastfeeding may also have an effect on decreasing some chronic diseases in children, such as asthma and diabetes mellitus, yet these mechanisms are not as clear (Brenner & Buescher, 2011). Jenkins and Foster (2014) believed that the breastfeeding duration and exclusivity may influence a child's cognitive functioning; however, their results did not show consistent effects on their hypothesis. While the amount of breastfeeding (e.g., duration, exclusivity) that is necessary remains in debate, it is agreed that breastfeeding in general is beneficial.

Current Rates and Recommendations

Despite the knowledge that breastfeeding is favorable for mother and infant, the number of women who initiate and continue breastfeeding remains below national standards. Healthy People's 2020 objectives include increasing the number of infants who are ever breastfed, the number of infants who are breastfed at 6 months and 1 year, and the number of infants who are breastfed exclusively at 3 months and 6 months (U.S. Department of Health & Human Services, 2014). The Centers for Disease Control and Prevention (2013) reported that the number of infants ever breastfed is high at 77%, but this number decreases to only 49% breastfed at 6 months and only 16.4% being breastfed

exclusively at 6 months. In particular, states in the south seem to be behind other states regarding breastfeeding.

The World Health Organization (2014) recommends that all infants be exclusively breastfed for the first 6 months of life, and breastfeeding should be continued through the first 2 years of life. Additionally, it is recommended that breastfeeding should occur within 1 hour of birth and that feedings should be on demand based on the child's hunger cues. The American Academy of Pediatrics (2012) also recommends breastfeeding exclusively for the first 6 months and continued breastfeeding for at least 1 year.

Facilitators and Barriers to Breastfeeding

Breastfeeding is ultimately a mother's choice and is often a personal one. There are, however, many factors that can encourage or discourage a woman from choosing to begin or to continue breastfeeding for any duration. Some common predictors of whether or not a woman will breastfeed are related to sociodemographic factors such as race/ethnicity, maternal age, level of education, and family income. Scott et al. (2006) conducted two studies to look at such variables and found that such sociodemographic variables are not always good predictors, and factors such as social support is more important in a woman's decision to breastfeed. Other factors that discourage a woman from breastfeeding include a lack of knowledge, problems with lactation, nipple pain and mastitis, and social norms and embarrassment (Brenner & Buescher, 2011; U.S. Department of Health & Human Services, 2011). Breastfeeding is often seen as the alternate form of feeding an infant in comparison to bottle feeding with formula, and many women do not feel comfortable with the idea of breastfeeding, especially in public.

One other large barrier that many women face in regard to the continuation of breastfeeding is employment. It is required by law that if a woman is working, she is allowed breaks and a clean room where she can express breast milk (U.S. Department of Health & Human Services, 2011). It is unknown how well this is enforced, and how many women are aware of this law. Additionally, breast pumps are often expensive and not as efficient as an infant at expressing breast milk. To help improve breastfeeding in one hospital, they installed a program to also encourage breastfeeding among their employees by supporting time and break rooms to express milk (Belay et al., 2013). The hope is that with women who work in the hospital successfully breastfeeding, those women will be able to offer better support to the women who come into the facility for birth.

As mentioned previously, support is the main facilitator of a woman initiating and continuing to breastfeed. The form of support can take many forms and can include personal, professional, and peer support. Personal support can include a spouse and other family members. Peer support can include other women who have breastfed and who are willing to share their experiences and help new mothers to be successful. Professional support can come from nurses, physicians, and lactation consultants. Zimmerman (1999) was able to create an intervention in which a telephone support program was established with lactation consultants and discharged mothers, which helped to increase breastfeeding rates 2 weeks after birth from 35% to 57%. Other facilitators to the initiation of breastfeeding specifically can include skin-to-skin contact within 1 hour of birth and rooming-in throughout the duration of the hospital stay (Centers for Disease

Control and Prevention, 2013). The rooming-in will help to teach the mother infant feeding clues and allow for more privacy when beginning to breastfeed. As can be seen from the facilitating factors, one of the first places that facilitation and support of breastfeeding will begin for most women is in the hospital.

Maternity Care Practices

Maternity care practices is a term used to describe practices that are employed through the hospital and staff that is thought to be supportive of breastfeeding. The majority of maternity care practices in the United States are based off the World Health Organization and United Nations Children’s Fund Baby-Friend Hospital Initiative, and specifically the Ten Steps to Successful Breastfeeding (Perrine et al., 2011). The Ten Steps to Successful Breastfeeding (shown in Table 1) are evidence-based steps that are shown as the best practices for increasing the number of women that initiate and continue to breastfeed (Perrine et al., 2011). Then 10 steps include steps that can be taken by the hospital internally as well as steps that are focused on actions of the mother.

Table 1

Ten Steps to Successful Breastfeeding

-
1. Have a written breastfeeding policy that is routinely communicated to all healthcare staff.
 2. Train all healthcare staff in skills necessary to implement this policy.
 3. Inform all pregnant women about the benefits and management of breastfeeding.
 4. Help mothers initiate breastfeeding within an hour of birth.
 5. Show mothers how to breastfeed and how to maintain lactation even if they should be separated from their infants.
 6. Give breastfeeding newborn infants no food or drink other than breast milk unless medically indicated.
 7. Practice rooming-in, that is, allow mothers and infants to remain together 24 hours per day.
 8. Encourage breastfeeding on demand.
 9. Give no artificial teats or pacifiers to breastfeeding infants.
 10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.
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Note. World Health Organization. (2014). Health topics: Breastfeeding. Retrieved from <http://www.who.int/topics/breastfeeding/en/>.

Two of the steps are related to policy and education in the hospital, six steps are related to the care mothers and infants receive during their hospital stay, and two steps are related to education of the mother (Grummer-Strawn et al., 2013). In a study looking

at the impact of the 10 steps on breastfeeding 2 months after birth, 30% of women stopped breastfeeding if they did not experience any of the 10 steps during their hospitalization, while only 3% stopped if they had experienced 6 steps (DiGirolamo, Grummer-Strawn, & Fein, 2008). The 10 steps typically vary in their compliance rates among hospitals, and some of the 10 steps may be more influential on women initiating and continuing to breastfeed. It is often found that hospitals participate in practices that go against breastfeeding. For example, a study conducted by the Centers for Disease Control and Prevention (2008) found that 65% of facilities would advise the mothers to limit the duration of suckling during each feeding and 45% of facilities would give pacifiers to breastfed infants, both of which go against the evidence-based best practices that have been identified.

Maternity care practices that are shown to best support a mother's decision to breastfeed include: early breastfeeding initiation and early skin-to-skin contact, exclusive breastfeeding during the hospital stay (no formula supplementation), rooming-in, on-demand feedings, no pacifiers, and giving information regarding breastfeeding on discharge (Centers for Disease Control and Prevention, 2008; Grummer-Strawn et al., 2013). Unfortunately, one-quarter of hospitals report supplementing breast milk feedings with formula or glucose as a general practice with the majority of healthy, breastfed infants (Centers for Disease Control and Prevention, 2008). Additionally, further studies conducted through the Centers for Disease Control and Prevention have found that practices related to best practices on the mother are typically the least supported, such as having a model breastfeeding policy and providing breastfeeding support at discharge (as

cited in Perrine et al., 2011). Only one-third of hospitals interviewed supported the practices of rooming-in and not giving pacifiers to breastfed newborns (Perrine et al., 2011). Although increases in maternity care practices have been shown, a substantial and sustained increase has yet to be achieved in the majority of hospitals.

Policy Implementation

Although the Baby-Friendly Hospital Initiative began in the United States in 1996, in 2006, less than 2% of births occurred in hospitals that had received the baby-friendly designation (Grummer-Strawn et al., 2013). Starting in 2010, the Joint Commission began including exclusive breast milk feeding in the hospital as a quality of care measure, and has since starting making the measures mandatory for certain hospitals (Joint Commission, 2014). It is hoped that by requiring exclusive breast milk feeding in hospitals, many will also see an increase in the best practices related to maternity care and breastfeeding. For the requirements of the Joint Commission, any supplementation, including formula, glucose, or water, is considered nonexclusive breastfeeding and a violation of best practice (Joint Commission, 2014).

In a related measure, many hospitals are asked by the Centers for Medicare and Medicaid (CMS) to limit the length of stay for healthy mothers and newborns to an average of 2 nights, depending on the circumstances surrounding the birth and the infant's well-being. This could negatively affect breastfeeding by asking a mother to leave the hospital before she is prepared. Additionally, an infant needs to meet a certain weight prior to discharge. With the pressure to discharge on time, many physicians will supplement with formula to get the newborn's weight up and get the discharge through in

a timely manner (Centers for Disease Control and Prevention, 2008). Madden et al. (2003) conducted a study in a hospital to examine the effects that the length of stay requirements had on breastfeeding initiation and exclusivity. They found that early discharge did not have a negative effect on breastfeeding initiation or continuation after discharge, as long as there was outpatient support provided for those mothers (Madden et al., 2003). The study did not mention if there was any effect on exclusive breastfeeding in the hospital, or if any additional supplementation was given to the early discharges.

Hospital Effects on Breastfeeding

Baby-friendly hospitals. Since the initiation of the Baby-Friendly Hospital Initiative in 1991, more than 20,000 facilities around the world have received the designation (Abrahams & Labbok, 2009). That number is lower in the United States, with 187 hospitals and birthing centers labeled as baby-friendly (Baby-Friendly USA, 2012). Studies have been conducted on both the national and global scale to understand the impact that the Baby-Friendly Initiative has on breastfeeding rates. On a global scale, Abrahams and Labbok (2009) looked to see if there was a relationship among the Baby-Friendly Initiative and exclusive breastfeeding in a set of developing countries. Their results found that there was an upward trend in exclusive breastfeeding at 2 months and 6 months after implementation of the Baby-Friendly Initiative; however, their results were not statistically different from before implementation of the initiative (Abrahams & Labbok, 2009). Although these results may not have been statistically different, it is possible that the additional exclusive breastfeeding in these developing countries could

lead to a decrease in childhood illness and mortality in these areas, thus having a significant impact.

In the United States, childhood mortality is not as great of a concern due to the high level and availability of medicine in the country (Centers for Disease Control and Prevention, 2007). However, that is not a reason for ignoring the importance of breastfeeding on other levels, including both maternal and child health. To examine the impact of the Baby-Friendly Initiative on US hospitals, Merewood et al. (2005) used a cross-sectional study of 28 Baby-Friendly hospitals to look at breastfeeding rates in comparison with the national averages. Using 2001 averages, the authors found that breastfeeding initiation was 14.3% higher in Baby-Friendly hospitals than the national average and that exclusive breastfeeding in the hospital was 32.1% higher (Merewood, Mehta, Chamberlain, Philipp, & Bauchner, 2005). Despite the large increases in breastfeeding rates, becoming designated as a Baby-Friendly hospital often does not happen. One of the primary reasons cited for not receiving this designation is that it requires the hospital to pay for infant formula instead of receiving it at little or no cost through the government (Merewood et al., 2005). It is still possible for hospitals to follow maternity care practices outlined through the Baby-Friendly Initiative without becoming certified.

Hospital experiences by sociodemographic characteristics. Of the factors that influence a mother to initiate and continue to breastfeed, it is estimated that 60% of the variation between hospital breastfeeding rates can be attributed to sociodemographic factors (Kruse, Denk, Feldman-Winter, & Rotondo, 2005). This is in agreement with

what has been found from the Centers for Disease Control and Prevention and the National Immunization Survey (2007) that shows characteristics such as race/ethnicity, maternal education, maternal age, and marital status all influence breastfeeding initiation, exclusivity, and duration. Kruse et al. (2005), upon examination of all hospitals in New Jersey, found that hospitals that were designated as intensive or regional perinatal centers and that served more “breastfeeding-prone” only had slightly higher breastfeeding rates than the other hospitals. This could illustrate the importance of not only maternity care practices, but of also being culturally competent, and tailoring those practices to best fit differing sociodemographic groups. Ahluwalia et al. (2012) conducted a study to look at breastfeeding practices among different racial and ethnic groups and how maternity care practices influenced their choices. They found that a lack of breastfeeding initiation was greatest among black women (35.8%) as compared to white (22.9%) or Hispanic (14.0%) women (Ahluwalia, Morrow, D’Angelo, & Li, 2012). The authors also learned that maternity care practices such as breastfeeding within the first hour, assistance from the hospital staff, and breastfeeding on demand was associated with increased breastfeeding initiation and duration among black women, while other practices had greater influence on white and Hispanic women (Ahluwalia et al., 2012). The importance of educating the hospital staff on both maternity care practices and how to best implement those practices cannot be overlooked.

Education on hospital staff. The importance of health care workers on a mother initiating breastfeeding and choosing to continue breastfeeding has been shown above. To create the culture and illustrate the importance of maternity care practices, facilities have

tried using both policy changes and education on their staff. Shortly after the Ten Steps to Successful Breastfeeding was released, Rice, Wells, and Wright (1996) implemented policy change in their facility to reflect the 10 steps. The policy change was supplemented with education and awareness for all staff during a two year period. After policy implementation, breastfeeding initiation and exclusivity rose, along with breastfeeding education for the mother (Rice, Wells, & Wright, 1996). Because these results were seen in a university teaching hospital where change may occur more often leads to further studies that can be generalized to a greater variety of hospitals.

Two similar studies that aimed to look at education interventions on staff were conducted by Shinwell et al. (2006) and Labarere et al. (2003). Both studies aimed to look at breastfeeding rates before and after the education intervention took place. Shinwell et al. (2006) showed that the breastfeeding education for the staff increased breastfeeding education approximately 10% and breastfeeding duration increased nearly 2 months. Labarere et al. (2003) were interested in different breastfeeding outcomes with a similar intervention and found that the rates of exclusive breastfeeding at discharge rose from 15.8% to 35.2% after the training. The authors also found that the maternity care practices of breastfeeding within 1 hour of birth, rooming-in, and no formula supplementation were implemented more often and had a greater effect on women choosing to breastfeed (Labarere, Castell, Fourny, Durand, & Pons, 2003). Implementation of these practices through education does seem to have a generalizable effect on hospitals increasing their breastfeeding rates. It is important to understand if these results are also generalizable to the mothers that make the decision to breastfeed.

Effects of Maternity Care Practices on Breastfeeding

It has been demonstrated that breastfeeding has important benefits for both mother and infant, yet many women do not initiate breastfeeding or do not breastfeed for the recommended times. The support that women receive at hospitals can be of great importance. A few studies have aimed to understand the benefits of maternity care practices specifically on a woman initiating breastfeeding and/or continuing to breastfeed upon discharge.

DiGirolamo, Grummer-Strawn, and Fein (2001) conducted a longitudinal mail survey in which they targeted women that were pregnant and expressed desire to breastfeed for greater than a 2 month period. The authors were specifically interested in learning which Baby-Friendly practices (out of a preselected list) had the greatest or least impact on a woman breastfeeding for at least 6 weeks. The specific practices DiGirolamo et al. (2001) were interested in learning about were timing of breastfeeding initiation, an introduction of supplements, rooming-in, breastfeeding on demand, and the use of pacifiers. The authors found the strongest predictor of early termination was not initiating breastfeeding early after birth and the introduction of supplements in the hospital (DiGirolamo, Grummer-Strawn, & Fein, 2001). The study also measured the number of the maternity care practices (out of five) that each woman reported experiencing. Only 7% of women reported experiencing all five maternity care practices that were being measured in this study (DiGirolamo, Grummer-Strawn, & Fein, 2001). This low percentage could be due to a lack of education on the hospital staff as to the best methods to increase breastfeeding initiation, as well as a lack of education on the mother as to the

best practices and support that should be available to aid in breastfeeding. As this study was a survey of women that intended to breastfeed, it would have been a good measure to look at the number of these women that did not initiate breastfeeding at all, and what factors they felt influenced their decision. Additionally, examining the hospital policies and practices that are supposed to have been in place where these women gave birth could have given additional insight as to where efforts should be focused.

In an investigation that was designed to learn about the effects of the implementation of the Ten Steps to Successful Breastfeeding, Cattaneo and Buzzetti (2001) conducted their study through telephone interviews of women after discharge, 3 months, and 6 months based on where the women had given birth. The study selected eight hospitals throughout Italy and broken into two groups of four, which were given trainings on the maternity care practices during different phases of the study. The telephone interviews were conducted to learn about breastfeeding practices during those times after birth, and maternity care practices were also recorded from each mother. During each group's implementation phase, it was found that exclusive breastfeeding rates at discharge rose significantly, from 41% to 77% in group 1 and from 23% to 73% in group 2 (Cattaneo & Buzzetti, 2001). Cattaneo and Buzzetti (2001) also saw an increase in breastfeeding rates at 3 and 6 months, which they attributed to the increase in maternity care practices. Both groups saw a large decrease in the number of infants that received formula supplementation or were given pacifiers in the hospital and an increase in rooming-in and maternal education, which included latching techniques and expressing breast milk (Cattaneo & Buzzetti, 2001). The maternal education may have been the most

important component for the increased duration of mothers' breastfeeding after discharge. Cattaneo and Buzzetti (2001) did report an increase of knowledge among health care workers after the intervention, but did not survey the workers during the same time period as to which practices they implemented and those they did not agree with or feel comfortable with. Instead, there was an assumption made that after the training, there was full implementation of the maternity care practices in the hospitals. The authors did show, however, that education of the staff can lead to increased maternity care practices and increased breastfeeding rates among mothers.

Pechlivani et al. (2005) conducted a study in which they aimed to identify factors associated with initiation of exclusive breastfeeding. The authors conducted a cross-sectional study by asking mothers to complete a self-administered questionnaire on the day of discharge and placing the mothers into categories based on their breastfeeding status according to World Health Organization criteria (exclusive, predominant, complementary, or none). The questionnaire asked the mothers sociodemographic information, biomedical information such as type of delivery, and hospital practices that included rooming-in, breastfeeding within 1 hour of birth, feeding on-demand, and breastfeeding education (Pechlivani et al., 2005). Pechlivani et al. (2005) found that the mothers that were exclusively breastfeeding on discharge had more often practiced rooming-in and demand feeding. Breastfeeding within the first hour was not routinely practiced and did not seem to influence a woman's breastfeeding status.

Sociodemographic factors did not play an important role in a woman's decision to breastfeed; however, this study was conducted in Greece, which may have different

sociodemographic stratifications and cultures than the United States. Since this study used self-administered questionnaires, there is the potential for bias and the mothers to over-report their breastfeeding practices. To compensate for this, medical records could have been examined to confirm accuracy of the mother's reported behaviors.

In a cross-sectional study that was conducted to determine the importance of breastfeeding support and maternity care practices on an area that typically reflects low rates of breastfeeding initiation and exclusivity, Kervin, Kemp, and Pulver (2010) interviewed women at a hospital after birth, and again at a 2 week follow-up. The questionnaire was given by a trained interviewer and not self-administered, which may have allowed the women to be more honest about the support they received and their breastfeeding intentions. Of those interviewed, 76% of the new mothers reported the intention to breastfeed, and 45% of women exclusively breastfed within the first 24 hours (Kervin, Kemp, & Pulver, 2010). It was not reported how these statistics compared to other time periods, and this is again where self-administered questionnaires or medical records could have been used, to ensure that the number reported was consistent and there was not any bias introduced by having an interviewer present. Most women reported that they felt a great deal of personal support regarding their decision to breastfeed, yet they did not feel the professional support they thought was necessary (Kervin et al., 2010). Much of what this study attempted to measure focused on breastfeeding support through maternal education, and did not measure other maternity care practices that may have had a positive or negative influence on breastfeeding rates. The authors conclude that professional support for breastfeeding needs to be increased,

and that those women that were breastfeeding when interviewed had a more positive view of the professional support they received (Kervin et al., 2010). Due to the cross-sectional nature of this study, direct causation that the professional support caused those mothers to breastfeed cannot be drawn. However, it could be considered that with positive professional support experienced on all mothers, along with maternity care practices, the breastfeeding rates could rise.

Philipp et al. (2001) conducted a study at a Boston, Massachusetts hospital during the stages of implementation of the facility becoming Baby-Friendly (pre-, mid-, and post-implementation). During each phase of the implementation, the authors examined medical records of 200 newborns to identify infant feeding practices during those times. Feeding was categorized into: exclusive breastfeeding, mostly breastfeeding (>50% breast milk), mostly formula feeding (>50% formula), and exclusive formula feeding (Philipp et al., 2001). During the preimplementation stage, it was assumed that limited breastfeeding education was given to the staff or mothers, and the maternity care practices were not followed consistently. During the postimplementation stage, a lactation consultant and nurse educator were on staff, and all maternity care practices were supposedly implemented (Philipp et al., 2001). Because medical records were used for data collection, it is unknown what the mothers experienced during their hospital stay. Philipp et al. (2001) report that breastfeeding initiation did increase from 58% during preimplementation to 77.5% midimplementation and 86.5% postimplementation. Exclusive breastfeeding in the hospital rose from 5.5% preimplementation to 33.5% postimplementation (Philipp et al., 2001). The time period difference from

preimplementation (1995) to midimplementation (1998) to postimplementation (1999) was not staggered consistently, and there could have been an even greater increase seen postimplementation if the data was collected in 2001. As mentioned above, questionnaires from the mothers would have complemented the medical records so as to ensure the maternity care practices were being implemented and that the medical records were accurate. The study does illustrate the importance of maternity care practices and staff education on a mother initiating and exclusively breastfeeding her infant in the hospital prior to discharge.

Critique of Methods

Table 2 below gives a summary of the literature review studies that were discussed above. The sample size for the studies ranged from 164 women (Kervin et al., 2010) to 2,669 women that were studied by Cattaneo and Buzzetti (2001). The median sample size was 1,085 women in the studies conducted by DiGirolamo, Grummer-Strawn, and Fein (2001). For each of the studies, the outcome variable was a measure of breastfeeding. This did differ by study in that some studies measure initiation or exclusivity, while some studies measured duration. Some of the studies measured breastfeeding only during the hospital stay, while others were interested in breastfeeding outcomes at extended periods. The independent variables from each study were interested in a form of maternity care practices. Both Cattaneo and Buzzetti (2001) and Philipp et al. (2001) were focused on measuring the effects of the Baby-Friendly Hospital Initiative and training. DiGirolamo, Grummer-Strawn, and Fein (2001) and Pechlivani et al. (2005) looked more closely at breastfeeding and baby-friendly practices in general, while Kervin

et al. (2010) focused on the type of support the mother received and its effect on breastfeeding outcomes. Three studies used logistic regression for their statistical analysis to measure the relationship between their independent variables and their breastfeeding outcome of interest. Pechlivani et al. (2005) and Philipp et al. (2001) used Chi-square statistics due to the cross-sectional design of their studies. Kervin et al. (2010) employed Fisher's exact test for their statistical analysis, most likely due to the small sample size that was studied.

The sample size used in the Kervin et al. (2010) was smaller than the others, and may not have been large enough to make any valid claims regarding their variable outcomes. Philipp et al. (2001) employed a sample size of 200 newborn records from three separate time periods. Again, the sample size may not have been large enough to see any outcome variations of statistical significance. While some of the studies aimed to understand which of the maternity care practices were most likely having an impact on the breastfeeding outcome, others were only interested in the total effect of the maternity care practices. This may be important because unless each practice was measured independently of the others, it is likely that they were related and influenced one another. For example, the practices of rooming-in and feeding on-demand are very closely related, and one will often not occur without the other. Cattaneo & Buzzetti (2001) and Philipp et al. (2001) did not measure the individual practices, but instead the effect of their program as a whole. The other studies tried to break down the independent variables without taking into account their interrelatedness. Only the Pechlivani et al. (2005) study seems to also take into account confounding variables, such as sociodemographic factors and

biomedical factors. The hospital is not independent of these factors and they will also need to be considered when examining breastfeeding outcomes.

Table 2

Literature Review Summary

Author/ Date	Research Question(s)/ Hypotheses	Participants	Methodology & Analysis	Independent variables	Dependent variables	Results & Conclusions	Implications for Future research
Cattaneo & Buzzetti (2001)	Does Unicef training for baby-friendly hospitals increase BF rates	8 hospitals throughout Italy composed of 2,669 mother/baby pairs	Telephone interview with mothers post discharge, 3 mo., and 6 mo. Logistic modeling, logistic regression	Phase of training or comparison group; ten steps from baby-friendly initiative	Breastfeeding rates – exclusive at discharge, full at 3 mo, any at 6 mo	Breastfeeding rates increased significantly after training from 41% to 77% in group 1 and 23% to 73% in group 2	Does including BF training in non-baby friendly hospitals lead to increase in best practices and BF rates
DiGirolamo, Grummer-Strawn, & Fein (2001)	Did women experience baby-friendly practices at hospitals around the US? How did that impact BF?	1,085 women that initiated BF and intended to BF for more than 2 mo.	Longitudinal mail survey from prenatal to 12 mo postpartum Odds ratio, logistic regression	5 baby-friendly practices (which influenced BF and total number experienced) – considered predictor variables	BF termination before 6 weeks postpartum	Early termination before 6 weeks ranged from 32.1% in women that reported 0 practices to 5.1% that reported all 5 practices	Measure all 10 baby-friendly practices; measure hospital policies vs. implementation vs. mothers' experiences
Kervin, Kemp & Pulver (2010)	Did professional support increase breastfeeding in mothers?	164 women that gave birth during a 3 month period	Interviews after birth and two weeks postpartum Mean, SD, Fisher's exact test	Breastfeeding support received	Breastfeeding behavior (initiation, exclusive at discharge)	82.9% intended to BF; 77.4% BF in first 24 hours; 69.5% BF leaving hospital	Include types of support that were facilitators or barriers
Pechlivani et al. (2005)	Assess exclusive BF rates during hospital stay; identify factors associated with BF initiation and exclusivity	1603 women that delivered in one of five hospitals	Cross-sectional design. Questionnaire administered on discharge day Chi-square test; OR and Cis; logistic regression	Breastfeeding hospital practices; biomedical and socio-demographic factors	Breastfeeding method	BF occurred in 96.1% of women; exclusive BF in only 19.1%	Compare medical records with questionnaires (potential for bias)
Philipp et al. (2001)	Determine the impact of baby-friendly policies on BF initiation rates	Boston Medical Center – became baby-friendly hospital in 1998. 200 newborn records from each period	Medical records during each stage. Bivariate Chi-square statistics.	Stage of implementation (pre, mid, post)	BF initiation rates and exclusive BF.	BF initiation rates increased from 58% (pre) to 77.5% (mid) and 86.5% (post). Exclusive BF increased from 5.5% (pre) to 28.5% (mid) and 33.5% (post).	Exclusive BF rates. Have the changes been sustained? Compare to other hospitals in area.

Knowledge Gap

Although studies have been conducted on breastfeeding and attempting to understand the reasons why or why not a mother chooses her decision, there are still few studies that aim to understand the role of the hospital and staff on the mother's decision. Furthermore, while studies take into account biological and sociodemographic factors related to the mother's choice, there is not much literature regarding the decisions of first-time mothers specifically. It is thought that first-time mothers have a greater desire to breastfeed, and should for that reason be a target population to help in ensuring all those women have the education and support they need to allow initiation of exclusive breastfeeding. This study aimed to look at first-time mothers before and after implementation of policy changes related to maternity care practices were enforced and to understand if those practices and hospital support can increase exclusive breastfeeding among this specific population.

Summary

Breastfeeding is of great public health importance, with many benefits being conferred to both mother and infant. Unfortunately, many women choose not to breastfeed at all, or only for short periods. Many studies that have focused on reasons why a woman chooses to breastfeed focus on individual factors, such as race, age, and socioeconomic status. Recently, studies have also begun to focus on external factors that may also be influential on a mother's decision to breastfeed (Bentley, Dee, & Jensen, 2003; Hector et al., 2005). More specifically, some studies have aimed to understand the effects of the Baby-Friendly Hospital Initiative on a woman's decision to breastfeed with

positive results (Cattaneo & Buzzetti, 2001; Philipp et al., 2001). In the United States hospitals that are designated as Baby-Friendly are rare due to the demands of requiring those designated hospitals to purchase formula. Maternity care practices that are based off of the 10 Steps to Successful Breastfeeding are also increasingly receiving attention as a target for use to increase breastfeeding initiation in the hospital setting (DiGirolamo, Grummer-Strawn, & Fein, 2001; Pechlivani et al., 2005). To increase support further for these maternity care practices, the Joint Commission (2014) has added core measures for exclusive breastfeeding in the hospital to increase compliance with the practices. This study aimed to understand the change in breastfeeding among women, with a focus on first-time mothers, based on an increase in compliance with the Joint Commission and maternity care practices. By increasing the number of women that initiate breastfeeding within the first 24 hours of birth and specifically targeting the population of first-time mothers, the hospital and health care workers are helping to ensure better health outcomes for both mother and child, while promoting positive social change.

Chapter 3 gives a description of the research design, including the collection method, sample population, and statistical analyses that were utilized. The study guidelines were determined from the research questions and hypotheses that were discussed previously. Chapter 4 summarizes the results from the research study. Chapter 5 discusses those findings and summarizes the important points, while focusing on future research directions and social change implications.

Chapter 3: Research Method

The research methodology used to examine the effect of being a first-time mother as well as the presence or absence of a policy change for maternity care practices on the initiation of breastfeeding and exclusive breastfeeding of infants from first-time mothers is discussed in Chapter 3. This chapter contains information about the research design, setting and sample, instrument and materials, a description of the variables, research questions and hypotheses, data collection and analysis, and ethical considerations.

Research Design

The study was conducted to examine if there is a difference in the initiation of breastfeeding and exclusive breastfeeding due to increased compliance with maternity care practices, focusing on first-time mothers. A quantitative design was chosen to help establish if the independent variables (first-time mother, presence or absence of a policy change for maternity care practices) had an influence on the dependent variables (breastfeeding initiation, exclusive breastfeeding), while accounting for the covariates (race/ethnicity, age, marital status, income, education, type of delivery, and length of gestation). A retrospective design was used to examine the exposures in relation to an established outcome. The data were abstracted from charts prior to and after implementation of Joint Commission standards regarding breastfeeding, which occurred on January 1, 2014. Therefore, records from January 1 to December 31, 2013 were used for prior to implementation of standards and records from January 1 to December 31, 2014 were used for after implementation of standards.

Setting and Sample

The study was conducted at Southeast Alabama Medical Center in Dothan, Alabama, a not-for-profit 420-bed hospital, including a Family Birth Center. The target population in this study was women 18 years of age and older who gave birth for the first time. Southeast Alabama Medical Center is a Joint Commission accredited hospital. Effective January 1, 2014, hospitals with 1,100 or more births per year became required to report on perinatal care measures. Those perinatal care measures include exclusive breast milk feeding and exclusive breast milk feeding considering the mother's choice to take into consideration those women who choose not to breastfeed upon admission to the hospital (The Joint Commission, 2014). Preimplementation records included those that were reviewed and abstracted the year prior to the Joint Commission standards being mandatory. Postimplementation records included those that were reviewed and abstracted the year that the Joint Commission standards became mandatory, beginning on January 1.

Inclusion Criteria for Sample Selection

Women in this study were women giving birth to their first child during the time period between January 1, 2013 and December 31, 2014. They were at least 18 years of age and of any race/ethnicity. The women were selected through an examination of medical records during that time period that alerted the mother was giving birth for the first time during that admission. Types of delivery and gestation length were included in the analysis and were not a reason for omission. Exclusion criteria included mothers who had one of the following conditions: HIV positive, hepatitis C, active tuberculosis, taking antiretroviral medications, using an illicit drug, or taking chemotherapy drugs, as these

are conditions with which a mother should not breastfeed (Centers for Disease Control and Prevention, 2009). Additionally, if the infant was diagnosed with galactosemia, the mother cannot breastfeed; these cases were then excluded as well.

Sample Size

A representative sample size is an important aspect to help to reduce the sampling error. This can be accomplished by choosing a large enough sample size although keeping it within feasible limits for timely data collection. The sample size relies on the level of significance, the statistical power of the study, and the effect size. The level of significance, α , represents the chance of incorrectly rejecting the null hypothesis, a Type I error (McNeil, 1996). For this study, an α level of .05 was used, a standard value (Creswell, 2009). To ensure that all covariates were appropriately included in the sample, a total sample size of $N = 1,000$, or 500 women who gave birth in 2013 (with 250 of those being first-time mothers) and 500 women who gave birth in 2014 (with 250 of those being first-time mothers) was used. The odds ratio (*OR*) is a measure of the association between an exposure and an outcome and represents the odds that an outcome will occur given an exposure in comparison to the odds that the same outcome will occur in the absence of the exposure (Szumilas, 2010). For this study, the *OR* was assumed at 2.0.

McNeil (1996) stated that the most important factor to keep in mind when doing a sample size calculation for a comparative study (in this case, births in 2013 and 2014) is the minimum size of the benefit worth detecting. The statistical power of the study, β , is a measure of detecting a worthwhile benefit that exists (McNeil, 1996). Using a higher

power allows for the statistical test of the null hypothesis with sample data when the null hypothesis is false, a Type II error (Creswell, 2009). The power was calculated for this study using a significance level of 0.05, a sample size of 500, and an *OR* of 2.0. Using the power calculator from openepi.com, the power with a normal approximation is 88.36%.

Materials

The study used two programs for accurate data collection. The first program was CareFusion MedMined® Surveillance Advisor, which was used to access a listing of all newborn births that occurred from January 2013 through December 2014. The second program that was used was McKesson Horizon Patient Folder Webstation v. 15.1.2. This allowed for access to medical records from admissions that had been completed and scanned into the program. These programs were useful so that computerized records could be accessed through Southeast Alabama Medical Center's system, while still maintaining the privacy of the mothers and newborns.

Description of Variables

The variables involved in this study were placed in three categories. The dependent variables included initiation of breastfeeding and exclusive breastfeeding upon discharge. The independent variables were first-time mothers and the presence or absence of a policy change regarding maternity care practices that were experienced during admission. Other included variables have been shown in the literature to be associated with a woman's decision to breastfeed. These variables are listed in Table 3.

Table 3

Study Variables

Dependent variables
Breastfeeding initiation
Exclusive breastfeeding
Independent variables
First-time mother
Policy change of maternity care practices
Covariates
Race/ethnicity
Age
Marital status
Education
Mother's health insurance
Type of delivery
Gestational age

Dependent Variables

The dependent variables that were of interest in this study were the initiation of breastfeeding and exclusive breastfeeding on discharge.

Initiation of breastfeeding. The initiation of breastfeeding is an important first step in a mother learning the techniques of how to breastfeed. It is important to breastfeed early so the infant can receive the nutrient-rich colostrum that is produced after birth. While the World Health Organization (2014) recommends early initiation of breastfeeding within 1 hour of birth, this is not always possible. For this study, the dependent variable of breastfeeding initiation will be categorized as (1) no, breastfeeding was never initiated or (2) yes, the mother attempted breastfeeding at least once in the initial period.

Exclusive breastfeeding. Exclusive breastfeeding can be used to ensure that the infant is getting all necessary nutrients and benefits that are available from breastfeeding. Exclusive breastfeeding, as defined by the World Health Organization (2014), includes infants who receive only breast milk (to include expressed milk) and are allowed to receive vitamins, minerals, and medicines, but nothing else. For this study, the dependent variable of exclusive breastfeeding on discharge will be categorized as (1) no, there was no breastfeeding or there was some breastfeeding during the hospital admission, or (2) yes, all feedings recorded during the hospital admission were breast milk only.

Independent Variables

First-time mothers. A mother that is giving birth for the first time allows for a good opportunity to reach out and encourage breastfeeding to a new population. Being a first-time mother was taken from the admission history and obstetrics records and categorized as (1) no, this is not a first-time mother or (2) yes, this is a woman giving birth to her first child.

Policy change of maternity care practices. The exposure to the policy change for maternity care practices was assumed to be occurring after January 1, 2014 when the perinatal core measure reporting to The Joint Commission became mandatory. The independent variable of experiencing the policy change to maternity care practices was categorized as (1) no, the mother gave birth prior to January 1, 2014 implementation or (2) yes, the mother gave birth January 1, 2014 or later.

Covariates

Each of the covariates that were used in the study has been found in the literature to have an effect on a mother's decision to breastfeed. These variables are race/ethnicity, age, marital status, education, income, type of delivery, and gestational age. The number of previous births were excluded as a variable because I focused on those mothers giving birth for the first time.

Race/ethnicity. No participants were excluded based on their race/ethnicity. The following categories were used, based on the local demographics of the region: (a) Non-Hispanic white, (b) Non-Hispanic black, (c) Hispanic, and (d) other. This information was taken from the admission history reported by the mother.

Age. Women 18 years of age and over were included in the study based on the birth date information the mother provided on the admission history. The age was categorized into the following categories: (a) 18 to 24, (b) 25 to 29, (c) 30 to 34, and (d) ≥ 35 .

Marital status. Marital status was taken from the admission history. It was placed into one of the following: (a) married or (b) unmarried (single, divorced, and widowed). There was no way to assess from the medical record if the mother was in a committed relationship but unmarried.

Education. Level of education was obtained through the self-reported data on the admission history. Education was categorized as (a) less than high school education, (b) high school graduate or GED, (c) some college, or (d) college degree or higher.

Mother's health insurance. The type of health insurance that the mother used was obtained from the inpatient assessment. The insurance categories were (a) no insurance, (b) Medicaid, or (c) private health insurance, such as BlueCross BlueShield.

Type of delivery. The type of delivery was obtained through the obstetrics records and operation report (when necessary). The types of delivery were (a) vaginal or (b) Caesarean section.

Gestational age. The gestational age was obtained through admission records and was categorized as (a) pre-term (36 weeks gestation or less) or (b) full-term (37 weeks gestation or greater).

Research Questions and Hypotheses

Research Question 1: To what extent is initiation of breastfeeding associated with being a first-time mother after adjusting for age, race/ethnicity, education, income, and type of delivery among mothers in southeast Alabama?

H_01 : There is no association between being a first-time mother and breastfeeding initiation.

H_A1 : There is an association between being a first-time mother and breastfeeding initiation.

Research Question 2: To what extent is exclusive breastfeeding at discharge associated with being a first-time mother after adjusting for age, race/ethnicity, education, income, and type of delivery among mothers in southeast Alabama?

H_02 : There is no association between being a first-time mother and a mother's decision to exclusively breastfeed upon discharge.

H_{A2} : There is an association between being a first-time mother and a mother's decision to exclusively breastfeed upon discharge.

Research Question 3: To what extent is the initiation of breastfeeding associated with the presence or absence of a policy change for maternity care practices in first-time mothers after adjusting for age, race/ethnicity, education, income, and type of delivery among women in southeast Alabama?

H_{03} : There is no association between the presence or absence of a policy change for maternity care practices and a first-time mother's decision to initiate breastfeeding.

H_{A3} : There is an association between the presence or absence of a policy change for maternity care practices and a first-time mother's decision to initiate breastfeeding.

Research Question 4: To what extent is exclusive breastfeeding at discharge associated with the presence or absence of a policy change for maternity care practices in first-time mothers after adjusting for age, race/ethnicity, education, income, and type of delivery among women in southeast Alabama?

H_{04} : There is no association between the presence or absence of a policy change for maternity care practices and a first-time mother's decision to exclusively breastfeed upon discharge.

H_{A4} : There is an association between the presence or absence of a policy change for maternity care practices and a first-time mother's decision to exclusively breastfeed upon discharge.

Data Collection and Statistical Analysis

Data Collection

Medical records of the mother and infant were abstracted to look for the relevant data from the charts available. There were 40 to 50 charts selected for each month during the study for a total of 500 charts for 2013 (prior to mandatory reporting of measures) and 500 charts for 2014 (after mandatory reporting of measures). I entered all pertinent data into Microsoft Excel and analyzed them using Epi Info™ 7.1.4.

Statistical Analysis

Statistical analysis was be conducted using IBM SPSS Statistics 21. Descriptive statistics, including the percentages, frequencies, and 95% confidence interval, was be used to describe the characteristics of the sample population. The odds ratios with 95% confidence interval for initiation of breastfeeding and exclusive breastfeeding at discharge was obtained through multiple logistic regression analysis while controlling for all covariates described above. The variables used for measuring each research question, along with statistical test, are shown in Table 4 below.

Table 4.

Measurement of Research Questions

	Independent variable	Dependent variable	Covariates	Statistical test
Research Question 1	First-time mothers	Initiation of breastfeeding	Race/ethnicity, age, marital status, education, mother's health insurance, type of delivery, gestational age	Multiple logistic regression
Research Question 2	First-time mothers	Exclusive breastfeeding at discharge	Race/ethnicity, age, marital status, education, mother's health insurance, type of delivery, gestational age	Multiple logistic regression
Research Question 3	Presence or absence of policy change for maternity care practices	Initiation of breastfeeding	Race/ethnicity, age, marital status, education, mother's health insurance, type of delivery, gestational age	Multiple logistic regression
Research Question 4	Presence or absence of policy change for maternity care practices	Exclusive breastfeeding at discharge	Race/ethnicity, age, marital status, education, mother's health insurance, type of delivery, gestational age	Multiple logistic regression

When the odds ratio is greater than one, breastfeeding initiation and exclusive breastfeeding were more likely to occur. When the odds ratio is less than one, initiation of breastfeeding and exclusive breastfeeding were not occurring. A *p* value of less than 0.05 was set as the significance for the associations.

Ethical Considerations

Institutional Review Board approval was obtained from Walden University and Southeast Alabama Medical Center. The Walden IRB approval number for the study was 11-26-14-0272561. I was the only individual that had access to the information that was extracted from the medical records. All charts were be stored on computerized programs, which required personalized access prior to use. This allowed an additional protective factor for the mothers. As the information was placed into a Microsoft Excel spreadsheet, all personal identifiers were removed from the records, and an arbitrary number was assigned to each record.

Summary

In this chapter, the methodology was reported that was used to identify any relationships between maternity care practices and initiation of breastfeeding and exclusive breastfeeding at discharge. Included in this methodology was a description of the study design, setting and sample size, materials used, a description of the variables, research questions and hypotheses, data collection and statistical analysis, and ethical considerations. Chapter 4 provides the results from the study, including descriptive characteristics and multiple logistic regression analysis. Chapter 5 gives a discussion of

the results, including implications for social change and the possibility of future directions.

Chapter 4: Results

Introduction

The purpose of this study was to examine the association of The Joint Commission requiring the reporting of outcome measures of breastfeeding on the implementation of maternity care practices. Of particular interest is if the changes in required reporting have an association on increasing the initiation and exclusive breastfeeding at discharge on first-time mothers as well as if first-time mothers are more willing to initiate and exclusively breastfeed. Chapter 4 includes the results from the current study, which will be given through sections on descriptive statistics, bivariate statistics, and multiple logistic regression. The dependent variables in the study were initiation of breastfeeding and exclusive breastfeeding at discharge. The primary independent variables were being a first-time mother and the year the mother gave birth, which reflected the inclusion or exclusion of mandatory reporting of perinatal measures and thus a measure of compliance with maternity care practices. Covariates were age, race/ethnicity, marital status, level of education, mother's health insurance, gestational age, and type of delivery. The following research questions and hypotheses were tested:

Research Question 1: To what extent is initiation of breastfeeding associated with being a first-time mother after adjusting for age, race/ethnicity, education, mother's health insurance, and type of delivery among mothers in southeast Alabama?

H_01 : There is no association between being a first-time mother and breastfeeding initiation.

H_{A1} : There is an association between being a first-time mother and breastfeeding initiation.

Research Question 2: To what extent is exclusive breastfeeding at discharge associated with being a first-time mother after adjusting for age, race/ethnicity, education, mother's health insurance, and type of delivery among mothers in southeast Alabama?

H_{02} : There is no association between being a first-time mother and a mother's decision to exclusively breastfeed upon discharge.

H_{A2} : There is an association between being a first-time mother and a mother's decision to exclusively breastfeed upon discharge.

Research Question 3: To what extent is the initiation of breastfeeding associated with the presence or absence of a policy change for maternity care practices in first-time mothers after adjusting for age, race/ethnicity, education, mother's health insurance, and type of delivery among women in southeast Alabama?

H_{03} : There is no association between the presence or absence of a policy change for maternity care practices and a first-time mother's decision to initiate breastfeeding.

H_{A3} : There is an association between the presence or absence of a policy change for maternity care practices and a first-time mother's decision to initiate breastfeeding.

Research Question 4: To what extent is exclusive breastfeeding at discharge associated with the presence or absence of a policy change for maternity care practices in first-time mothers after adjusting for age, race/ethnicity, education, mother's health insurance, and type of delivery among women in southeast Alabama?

H_04 : There is no association between the presence or absence of a policy change for maternity care practices and a first-time mother's decision to exclusively breastfeed upon discharge.

H_A4 : There is an association between the presence or absence of a policy change for maternity care practices and a first-time mother's decision to exclusively breastfeed upon discharge.

Descriptive Statistics

There were 1,000 mothers from which data were abstracted in the 2-year time period, including 500 mothers giving birth to their first child. There were data abstracted from 500 mothers in 2013, including 250 new mothers and 500 mothers in 2014, including 250 new mothers. Tables 5 and 6 show the demographic characteristics and delivery characteristics of all mothers who were included in the study, with a specific focus on first-time mothers.

Regarding all mothers who were used for the study, nearly half (42.7%) fell into the 18 to 24 age group, with another one-third (31.9%) being represented in the 25 to 29 age group. The final one-quarter of mothers (25.4%) fell into the 30 to 34 age range or ≥ 35 group. The majority of women (65.1%) reported themselves as non-Hispanic White (NHW), with 26.8% reporting as non-Hispanic Black (NHB), and 8.1% fitting into the other race/ethnicity category. More than one-half (55.4%) of the women reported being unmarried at the time of their child's birth. Most women reported either having received a high school diploma (35.0%) or completing some college (44.4%). There were 403 mothers who did not answer their highest education level on the admission assessment.

Because of the large number of missing values for education (40.3% missing for all mothers and 58.6% missing from first-time mothers), this covariate was removed from further analyses. More than half of the women in the study had Medicaid for their primary insurance (56.9%), with 42.7% reporting another form of private insurance (Table 5).

Table 5

Demographic Characteristics of Participants in This Study

Demographic characteristics	All mothers <i>N</i> = 1,000	% [95% CI]	First-time mothers <i>N</i> = 500	% [95% CI]
Age:				
18-24	427	42.7% [39.6, 45.8%]	294	58.8% [54.3, 63.1%]
25-29	319	31.9% [29.0, 34.9%]	125	25.0% [21.3, 29.1%]
30-34	183	18.3% [16.0, 20.9%]	61	12.2% [9.5, 15.5%]
≥35	71	7.1% [5.6, 8.9%]	20	4.0% [2.5, 6.2%]
Race/Ethnicity:				
Non-Hispanic	651	65.1% [62.0, 68.0%]	351	70.2% [66.0, 74.1%]
White	268	26.8% [24.1, 29.7%]	117	23.4% [19.8, 27.4%]
Non-Hispanic Black	81	8.1% [6.5, 10.0%]	32	6.4% [4.5, 9.0%]
Other				
Marital status:				
Yes	446	44.6% [41.5, 47.8%]	194	38.8% [34.5, 43.2%]
No	554	55.4% [52.3, 58.5%]	306	61.2% [56.8, 65.5%]
Education:				
Less than HS	77	12.9% [10.4, 15.9%]	30	9.8% [6.8, 13.8%]
HS diploma	209	35.0% [31.2, 39.0%]	117	38.1% [32.7, 43.8%]
Some college	265	44.4% [40.4, 48.5%]	134	43.6% [38.1, 49.4%]
4 year degree or more	46	7.7% [5.8, 10.2%]	26	8.5% [5.7, 12.3%]
Type of insurance:				
Medicaid	569	56.9% [53.8, 60.0%]	262	52.4% [47.9, 56.8%]
Private	417	41.7% [38.6, 44.8%]	233	46.6% [42.2, 51.1%]
None	14	1.4% [0.8, 2.4%]	5	1.0% [0.4, 2.5%]

Note. *N* = 1,000.

Regarding first-time mothers that were used for the study, more than half (58.8%) fell into the 18 to 24 age group. One quarter of the women were in the 25 to 29 year age group (25.0%), and the remaining 16.2% placed in the older age ranges. The majority of women (70.2%) reported themselves as non-Hispanic White, with 23.4% reporting as non-Hispanic Black, and 6.4% fitting into the other race/ethnicity category. The majority of women categorized themselves as nonmarried (61.2%) at the time of their child's birth. As was seen in the all mother groupings, most women reported having either

having received a high school diploma (38.1%) or completing some college (43.6%). Half of the first-time mothers in the study had Medicaid for their primary insurance (52.4%), with 46.6% reporting another form of private insurance (Table 5). Only 1.0% of the first-time mothers reported having no insurance. Because of the very small number of women fitting into this category, further analyses were conducted using only “Medicaid” or “Private” insurance categories.

Most women delivered at full term (93.2%), with only 6.8% of women having their child at 36 weeks gestation or earlier. Slightly more than half of women had a vaginal birth (58.5%) with 41.5% having a C-section, either planned or emergent. In the population of all mothers, 58.7% initiated breastfeeding and 40.3% of those mothers breastfed exclusively during their hospital stay (Table 6).

Table 6

Characteristics of Delivery From Participants in This Study

Demographic characteristics	All mothers <i>N</i> = 1,000	% [95% CI]	First-time mothers <i>N</i> = 500	% [95% CI]
Gestational age:				
Pre-term (≤ 36 weeks)	68	6.8% [5.4, 8.6%]	32	6.4% [4.5, 9.0%]
Full-term (≥ 37 weeks)	932	93.2% [91.4, 94.7%]	468	93.6% [91.0, 95.5%]
Type of delivery:				
Vaginal	585	58.5% [55.4, 61.6%]	289	57.8% [53.3, 62.2%]
C-section	415	41.5% [38.4, 44.6%]	211	42.2% [37.9, 46.7%]
Initiated breastfeeding:				
Yes	587		328	
No	413		172	
Exclusive breastfeeding at discharge:				
Yes	403	58.7% [55.6, 61.8%]	231	65.6% [61.2, 69.7%]
No	597	41.3% [38.2, 44.4%]	269	34.4% [30.3, 38.8%]
Initiated breastfeeding:				
Yes		40.3% [37.3, 43.4%]		46.2% [41.8, 50.7%]
No		59.7% [56.6, 62.8%]		53.8% [49.3, 58.2%]

Note. *N* = 1,000.

First-time mothers followed the same general trends as the all mother population. Most first-time mothers gave birth to full-term babies (93.6%), with only 6.4% having their child preterm. More than half of the first-time mothers had their child through vaginal delivery (57.8%). Sixty-five percent of first-time mothers initiated breastfeeding, and 46.2% of those mothers continued to breastfeed exclusively through the entire hospital stay (Table 6).

Univariate Analysis

Several variables had an effect on the number of mothers who initiated breastfeeding and exclusively breastfed through discharge. The percentage of all mothers ($N = 986$) who initiated breastfeeding and exclusively breastfed through discharge and p value using two-way tests unadjusted for covariates is shown in Table 7. Women who reported no insurance were a very small number of total women in the study ($n = 14$, 0.014%) and therefore were left out of further analyses. This decision was made because it was felt that the uninsured category was very separate from those having private insurance or those covered by Medicaid and could not be accurately represented by combining any categories. The number of women who initiated breastfeeding in 2014 after the requirements of Joint Commission reporting was significantly larger (63.2%; $OR = 1.45$; $p = 0.0039$) as compared with 2013 (54.2%), prior to the required reporting. However, the required reporting did not have a significant association (2013: 40.8%; 2014: 39.8%; $OR = 0.96$; $p = 0.7472$) with women exclusively breastfeeding through discharge. Women who had their first child were significantly (65.6%; $OR = 1.77$; $p = 0.0000$) more likely to initiate breastfeeding as compared with women having another child (51.8%), as well as to exclusively breastfeed upon discharge (46.2%; 34.4%; $OR = 1.63$; $p = 0.0001$). Increasing age was significant (18-24: 52.0%; 25-29: 63.0%; 30-34: 67.2%; ≥ 35 : 57.8%; $p = 0.0012$) for women initiating breastfeeding with the exception of the ≥ 35 age group and was significant (18-24: 31.6%; 25-29: 45.5%; 30-34: 49.2%; ≥ 35 : 46.5%; $p = 0.0000$) for women exclusively breastfeeding upon discharge. Race/ethnicity was significantly associated with both initiation of breastfeeding (NHW: 69.0%; NHB:

30.2%; other: 70.4%; $p = 0.0000$) and exclusive breastfeeding on discharge (NHW: 51.3%; NHB: 15.3%; other: 34.6%; $p = 0.0000$). Being in an unmarried relationship (Yes: 73.5%; No: 46.8%; $OR = 0.32$; $p = 0.0000$) and having private health insurance (Private: 73.4%; Medicaid: 48.2%; $OR = 2.97$; $p = 0.0000$) played a significant role in the initiation of breastfeeding, with being unmarried having a negative effect and private health insurance having a positive effect. Additionally, being unmarried (Yes: 58.5%; No: 25.6%; $OR = 0.24$; $p = 0.0000$) and having private health insurance (Private: 60.2%; Medicaid: 26.2%; $OR = 4.26$; $p = 0.0000$) played a significant role on exclusive breastfeeding on discharge, with similar trends as seen in the initiation of breastfeeding. Having a child delivered preterm also had a significant role (Full-term: 59.8%; Preterm: 44.1%; $OR = 0.53$ $p = 0.0114$) on women initiating breastfeeding as well as exclusively breastfeeding on discharge (Full-term: 41.2%; Preterm: 27.9%; $OR = 0.55$; $p = 0.0314$). The type of delivery did not significantly play a role initiation of breastfeeding (Vaginal: 60.9%; C-section: 55.7%; $OR = 1.24$; $p = 0.1004$) or exclusive breastfeeding on discharge (Vaginal: 42.2%; C-section: 37.6%; $OR = 1.21$; $p = 0.1412$) for all mothers in the study (Table 7).

Table 7

Percentage of All Mothers Who Initiated Breastfeeding or Exclusively Breastfed at Discharge, Including OR and p Value Using Chi-Square Tests.

Independent variable	Percent initiated breastfeeding	OR	P	Percent exclusive breastfeeding at discharge	OR	P
Year of delivery:						
2013	54.2	1.45	<i>P=0.0039</i>	40.8	0.96	<i>P=0.7472</i>
2014	63.2			39.8		
First-time mother:						
Yes	65.6	1.77	<i>P=0.0000</i>	46.2	1.63	<i>P=0.0001</i>
No	51.8			34.4		
Age:						
18-24	52.0	0.80	<i>P=0.0012</i>	31.6	0.52	<i>P=0.0000</i>
25-29	63.0	1.29		45.5	0.97	
30-34	67.2	1.58		49.2	1.11	
≥35	57.8			46.5		
Race/Ethnicity:						
Non-Hispanic White	69.0	5.17	<i>P=0.0000</i>	51.3	5.75	<i>P=0.0000</i>
Non-Hispanic Black	30.2			15.3		
Other	70.4	5.30		34.6	3.00	
Marital status:						
Yes	73.5	0.32	<i>P=0.0000</i>	58.5	0.24	<i>P=0.0000</i>
No	46.8			25.6		
Type of insurance:						
Medicaid	48.2	2.97	<i>P=0.0000</i>	26.2	4.26	<i>P=0.0000</i>
Private	73.4			60.2		
Gestational age:						
Pre-term (≤36 weeks)	44.1	0.53	<i>P=0.0114</i>	27.9	0.55	<i>P=0.0314</i>
Full-term (≥37 weeks)	59.8			41.2		
Type of delivery:						
Vaginal	60.9	1.24	<i>P=0.1004</i>	42.2	1.21	<i>P=0.1412</i>
C-section	55.7			37.6		

Note. *N* = 986.

The percent of first-time mothers ($N = 495$) that initiated breastfeeding and exclusively breastfed through discharge and p value using two-way tests unadjusted for covariates is shown in Table 8. Similar to the insurance variable for all mothers, the insurance variable for first-time mothers removed the no insurance variable due to the very small number of women that fell into that category ($n = 5, 0.01\%$). The number of women that initiated breastfeeding in 2014 (71.2%) after the requirements of Joint Commission reporting was significantly increased ($OR = 1.65; p = 0.0084$) as compared with 2013 (60.0%), prior to the required reporting. Again, the required reporting did not have a significant association (2013: 47.6%; 2014: 44.8%; $OR = 0.89 p = 0.5301$) on first-time mothers exclusively breastfeeding through discharge. Increasing age was significant (18-24: 58.8%; 25-29: 75.2%; 30-34: 80.3%; ≥ 35 : 60.0%; $p = 0.0006$) for women initiating breastfeeding and was significant (18-24: 36.4%; 25-29: 56.8%; 30-34: 68.9%; ≥ 35 : 55.0%; $p = 0.0000$) for women exclusively breastfeeding upon discharge. Race/ethnicity was significantly associated with both initiation of breastfeeding (NHW: 73.2%; NHB: 36.8%; other: 87.5%; $p = 0.0000$) and exclusive breastfeeding on discharge (NHW: 56.1%; NHB: 16.2%; other: 46.9%; $p = 0.0000$). Being in an unmarried relationship (Yes: 83.0%; No: 54.6%; $OR = 0.24; p = 0.0000$) and having private health insurance (Private: 76.4%; Medicaid: 55.7%; $OR = 2.57; p = 0.0000$) played a significant role on initiation of breastfeeding, with being unmarried having a negative effect and private health insurance having a positive effect. Additionally, being unmarried (Yes: 69.1%; No: 31.7%; $OR = 0.20; p = 0.0000$) and having private health insurance (Private: 64.0%; Medicaid: 30.9%; $OR = 3.96; p = 0.0000$) played a significant role on exclusive

breastfeeding on discharge with similar effects as seen in breastfeeding initiation. Having their child delivered full-term did not have a significant role on initiation of breastfeeding (Full-term: 66.7%; Pre-term: 50.0%; $OR = 0.50$; $p = 0.05484$) or exclusive breastfeeding on discharge (Full-term: 47.2%; Pre-term: 31.3%; $OR = 0.51$; $p = 0.0795$) for first-time mothers in the study. The type of delivery also did not significantly play a role initiation of breastfeeding (Vaginal: 68.2%; C-section: 62.1%; $OR = 1.31$; $p = 0.1575$) or exclusive breastfeeding on discharge (Vaginal: 49.1%; C-section: 42.2%; $OR = 1.35$; $p = 0.1234$) for first-time mothers in the study (Table 8).

Table 8

Percentage of First-Time Mothers Who Initiated Breastfeeding or Exclusively Breastfed at Discharge, Including OR and p Value Using Chi-Square Tests.

Independent variable	Percent initiated breastfeeding	OR	P	Percent exclusive breastfeeding at discharge	OR	P
Year of birth:						
2013	60.0	1.65	<i>P=0.0084</i>	47.6	0.89	<i>P=0.5301</i>
2014	71.2			44.8		
Age:						
18-24	58.8	0.94	<i>P=0.0006</i>	36.4	0.47	<i>P=0.0000</i>
25-29	75.2	2.04		56.8	1.14	
30-34	80.3	2.72		68.9	1.81	
≥35	60.0			55.0		
Race/Ethnicity:						
Non-Hispanic White	73.2	4.74	<i>P=0.0000</i>	56.1	6.61	<i>P=0.0000</i>
Non-Hispanic Black	36.8			16.2		
Other	87.5	10.8		46.9	5.53	
Marital status:						
Yes	83.0	0.24	<i>P=0.0000</i>	69.1	0.20	<i>P=0.0000</i>
No	54.6			31.7		
Type of insurance:						
Medicaid	55.7	2.57	<i>P=0.0000</i>	30.9	3.96	<i>P=0.0000</i>
Private	76.4			64.0		
Gestational age:						
Pre-term (≤36 weeks)	50.0	0.50	<i>P=0.05484</i>	31.3	0.51	<i>P=0.0795</i>
Full-term (≥37 weeks)	66.7			47.2		
Type of delivery:						
Vaginal	68.2	1.31	<i>P=0.1575</i>	49.1	1.35	<i>P=0.1234</i>
C-section	62.1			42.2		

Note. $N = 495$.

Multiple Logistic Regression Analysis

A multiple logistic regression analysis was performed using all mothers ($N = 986$) and using first-time mothers ($N = 495$) to estimate independent associations. The cases

that reported having “None” for health insurance were dropped due to being such a small portion of the sample. It was additionally felt that this group was unable to be combined with the other insurance groupings, as it was not a true representation. This was a method to hold the covariates constant, providing more reliable measures of the hypotheses.

Table 9 illustrates the adjusted odds ratios [95% CI] for all mothers who initiated breastfeeding and exclusively breastfed upon discharge, with $p < 0.05$ representing statistically significant associations.

Being a first-time mother significantly increased the odds of initiating breastfeeding ($OR = 2.19; p = 0.0000$) as well as exclusively breastfeeding upon discharge ($OR = 2.09; p = 0.0000$) as compared with women who were not having their first child. Non-Hispanic White mothers ($OR = 3.43, p = 0.0000$) and mothers in the other race/ethnicity category ($OR = 4.21; p = 0.0000$) were more likely to initiate breastfeeding than non-Hispanic Black mothers. Additionally, non-Hispanic White mothers ($OR = 3.27, p = 0.0000$) and mothers in the other race/ethnicity category ($OR = 1.98; p = 0.0308$) were more likely to exclusively breastfeed upon discharge than non-Hispanic Black mothers. Women who were unmarried had a significantly lower odds of initiating breastfeeding ($OR = 0.53; p = 0.0004$) and of exclusively breastfeeding upon discharge ($OR = 0.45; p = 0.0000$) than women who were married. Women who held private insurance had a significantly higher odds of exclusively breastfeeding upon discharge ($OR = 1.88; p = 0.0002$) than women who held Medicaid as their primary insurance (Table 9).

Table 9

Multiple Logistic Regression Analysis of All Mothers Showing Odds Ratios (ORs), 95% CIs and p for Initiated Breastfeeding and Exclusive Breastfeeding at Discharge for All Independent Variables and Covariates.

Independent variable	Initiated breastfeeding			Exclusive breastfeeding at discharge		
	OR	95% CI	P	OR	95% CI	P
First-time mother:						
Yes	2.19	1.60, 3.00	0.0000	2.09	1.52, 2.87	0.0000
No	1.0			1.0		
Age:						
18-24	0.80	0.44, 1.47	0.4784	0.56	0.30, 1.04	0.0661
25-29	1.24	0.69, 2.25	0.4693	0.92	0.51, 1.67	0.7844
30-34	1.30	0.70, 2.44	0.4073	0.85	0.46, 1.60	0.6237
≥35	1.0			1.0		
Race/Ethnicity:						
Non-Hispanic	1.0			1.0		
Black	3.43	2.44, 4.81	0.0000	3.27	2.20, 4.87	0.0000
Non-Hispanic	4.21	2.35, 7.55	0.0000	1.98	1.06, 3.68	0.0308
White						
Other	1.0			1.0		
Marital status:						
Yes	0.53	0.37, 0.76	0.0004	0.45	0.32, 0.64	0.0000
No	1.0			1.0		
Type of insurance:						
Medicaid	1.37	0.97, 1.93	0.0745	1.88	1.34, 2.62	0.0002
Private	0.74	0.42, 1.30	0.2943	0.76	0.41, 1.41	0.3798
Gestational age:						
Pre-term	1.0			1.0		
Full-term	1.23	0.92, 1.64	0.1566	1.28	0.96, 1.73	0.0973
Type of delivery:						
Vaginal	1.0			1.0		
C-section						

Note. $N = 986$.

Table 10 illustrates the unadjusted odds ratios [95% CI] for first-time mothers who initiated breastfeeding and exclusively breastfed upon discharge, with $p < 0.05$

representing statistically significant associations. Giving birth in 2014 as compared to 2013 was associated with a significantly higher odds of initiating breastfeeding ($OR = 2.07; p = 0.0007$). Non-Hispanic White mothers ($OR = 3.48, p = 0.0000$) and mothers in the other race/ethnicity category ($OR = 6.87; p = 0.0013$) were more likely to initiate breastfeeding than non-Hispanic Black mothers. Additionally, non-Hispanic White mothers ($OR = 4.16, p = 0.0000$) and mothers in the other race/ethnicity category ($OR = 2.89; p = 0.0280$) were more likely to exclusively breastfeed upon discharge than non-Hispanic Black mothers. First-time mothers who were unmarried had a significantly lower odds of initiating breastfeeding ($OR = 0.42; p = 0.0033$) and of exclusively breastfeeding upon discharge ($OR = 0.46; p = 0.0027$) than women that were married. First-time mothers who held private insurance had a significantly higher odds of exclusively breastfeeding upon discharge ($OR = 1.82; p = 0.0102$) than first-time mothers who held Medicaid as their primary insurance (Table 10).

Table 10

Multiple Logistic Regression Analysis of First-Time Mothers Showing Odds Ratios (ORs), 95% CIs and p for Initiated Breastfeeding and Exclusive Breastfeeding at Discharge for All Independent Variables and Covariates.

Independent variable	Initiated breastfeeding			Exclusive breastfeeding at discharge		
	OR	95% CI	P	OR	95% CI	P
Year of birth:						
2013	1.0			1.0		
2014	2.07	1.36, 3.17	0.0007	0.94	0.63, 1.40	0.7507
Age:						
18-24	1.53	0.53, 4.42	0.4324	0.59	0.19, 1.79	0.3491
25-29	2.05	0.69, 6.13	0.1976	0.81	0.26, 2.51	0.7156
30-34	2.52	0.75, 8.45	0.1343	1.19	0.36, 4.00	0.7729
≥35	1.0			1.0		
Race/Ethnicity:						
Non-Hispanic	1.0			1.0		
Black	3.48	2.13, 5.68	0.0000	4.16	2.34, 7.41	0.0000
Non-Hispanic	6.87	2.13, 22.16	0.0013	2.89	1.12, 7.43	0.0280
White						
Other	1.0			1.0		
Marital status:						
Yes	0.42	0.24, 0.75	0.0033	0.46	0.28, 0.77	0.0027
No	1.0			1.0		
Type of insurance:						
Medicaid	1.21	0.74, 1.96	0.4454	1.82	1.15, 2.88	0.0102
Private	0.57	0.25, 1.27	0.1700	0.58	0.24, 1.39	0.2204
Gestational age:						
Pre-term	1.0			1.0		
Full-term	1.27	0.83, 1.94	0.2705	1.51	0.99, 2.29	0.0534
Type of delivery:						
Vaginal	1.0			1.0		
C-section						

Note. N = 495.

Summary

This study was based on four research questions and their corresponding hypotheses. The first research question was “To what extent is initiation of breastfeeding associated with being a first-time mother after adjusting for age, race/ethnicity, education, mother’s health insurance, and type of delivery among mothers in southeast Alabama?” Based on the above results, the null hypothesis can be rejected ($OR = 2.19$). Also significantly associated with higher rates of initiating breastfeeding were other race/ethnicity in comparison to non-Hispanic Black ($OR = 3.43$) and non-Hispanic White ($OR = 4.21$). Unmarried women had significantly lower odds of initiating breastfeeding than married women ($OR = 0.53$).

The second research question was “To what extent is exclusive breastfeeding at discharge associated with being a first-time mother after adjusting for age, race/ethnicity, education, mother’s health insurance, and type of delivery among mothers in southeast Alabama?” Again, based on the above results, the null hypothesis can be rejected ($OR = 2.09$). Women in the non-Hispanic White race category had the highest elevated odds of exclusive breastfeeding on discharge vs non-Hispanic Black ($OR = 3.27$; other race/ethnicity $OR = 2.0$). Also significant were being unmarried rather than married ($OR = 1.88$) and having private health insurance rather than Medicaid ($OR = 1.9$).

The third research question was “To what extent is the initiation of breastfeeding associated with the presence or absence of a policy change for maternity care practices in first-time mothers after adjusting for age, race/ethnicity, education, mother’s health insurance, and type of delivery among women in southeast Alabama?” The above

findings suggest that the null hypothesis can be rejected ($OR = 2.07$). Other race/ethnicity was the strongest predictor of initiating breastfeeding in the population of first-time mothers, compared to non-Hispanic Black ($OR = 6.9$). Also significant were non-Hispanic White race/ethnicity compared to non-Hispanic Black race/ethnicity ($OR = 3.5$) and unmarried compared to married ($OR = 0.42$).

The final research question was “To what extent is exclusive breastfeeding at discharge associated with the presence or absence of a policy change for maternity care practices in first-time mothers after adjusting for age, race/ethnicity, education, mother’s health insurance, and type of delivery among women in southeast Alabama?” The policy was not associated with exclusive breastfeeding at discharge. Significant variables were the non-Hispanic White race/ethnicity category compared to non-Hispanic Black ($OR = 4.2$), other race/ethnicity vs Non-Hispanic Black ($OR = 2.9$), being unmarried rather than married ($OR = 0.46$), and having private health insurance rather than Medicaid ($OR = 1.8$) as their primary insurance coverage. The final chapter will provide an overview of the research, an interpretation of the above findings, and limitations of the current study. Implications for social change as well as recommendations for further studies will also be addressed.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

This was a research study that used retrospective data from women who gave birth at Southeast Alabama Medical Center in Dothan, Alabama from 2013 to 2014. Medical records of mothers were reviewed and pertinent data were abstracted. A total of 1,000 medical records were used for the study, with 500 records from women who gave birth in 2013 and 500 records from women who gave birth in 2014. Additionally, a subgroup of 250 women from each year was included for first-time mothers. All personal health identifiers were removed and data were transcribed into an Excel spreadsheet. This study was based on the social ecological model and different levels of support each affecting a given outcome, in this case, breastfeeding. Age, race/ethnicity, marital status, education, type of insurance, type of delivery, and gestational age were included as covariates since each factor has been independently shown to play a role on a mother making the decision to breastfeed.

Once all of the data were collected, the analysis included descriptive statistics for each variable, bivariate analysis, and multiple logistic regression focusing on the dependent variables of initiation of breastfeeding and exclusive breastfeeding upon discharge. The results were presented to allow for confirmation or rejection of the research questions and hypotheses.

I found an association between first-time mothers and the initiation of breast feeding and exclusive breastfeeding upon discharge. Also significant in the first-time mother population for the initiation of breastfeeding and exclusive breastfeeding on

discharge was identification in the non-Hispanic White or other race/ethnicity categories, being married, and having private health insurance (for exclusive breastfeeding only). Additionally, I found an association between implementation of maternity care practices based on mandatory reporting requirements for the initiation of breastfeeding but no association for exclusive breastfeeding on discharge. Other covariates were not statistically significant for this study.

Interpretation of Findings

The original intent of this research was to identify if there was an association between the implementation of maternity care practices due to mandatory reporting requirements set forth by The Joint Commission on the initiation of breastfeeding and exclusive breastfeeding on discharge. The null hypotheses regarding these research questions stated that there is no difference between breastfeeding outcomes and the process measure of implementing maternity care practices. A second goal of this study was to identify if first-time mothers were more likely to initiate breastfeeding and exclusively breastfeed on discharge. The null hypotheses regarding these research questions stated that there is no difference between breastfeeding outcomes and being a first-time mother. Covariates for each research question included age, race/ethnicity, education, marital status, type of health insurance, type of delivery, and gestational age. Each of these covariates was included in the final logistic regression models with the exception of education, which was missing from too many medical records.

Women who initiated breastfeeding in 2013 was 54.2% and 63.2% in 2014, which is comparable to that of the Alabama average of 60.4% from the Breastfeeding Report

Card in 2013 (Centers for Disease Control and Prevention, 2013). Following the trend for the state of Alabama, women at Southeast Alabama Medical Center were below the national average of 76.5% for 2013 (Centers for Disease Control and Prevention, 2013). The percentage of breastfed infants who were fed formula prior to discharge was 13.4% in 2013 and 23.4% in 2014, which is again comparable to the average seen in Alabama at 21.0% and also comparable to the national average at 24.2% according to the Breastfeeding Report Card (Centers for Disease Control and Prevention, 2013). Kervin et al. (2010) reported values for the initiation of breastfeeding and exclusive breastfeeding on discharge at a large hospital in Australia. These authors found that 77.4% of women initiated breastfeeding, but only 30.6% were exclusively breastfeeding upon discharge (Kervin et al., 2010). While many of the women who were breastfeeding reported a large amount of personal support from their spouse and/or family, less than half of the women in the study reported getting the necessary professional support that would have encouraged breastfeeding (Kervin et al., 2010). This included being spoken to about breastfeeding and practical support within the first 24 hours (Kervin et al., 2010). This could explain the large number of women who initiated breastfeeding in their facility but did not feel the support or encouragement necessary to help them continue breastfeeding through the hospital stay and on discharge. The initiation of breastfeeding was higher in their study than in mine, which could signify a different culture of breastfeeding with greater acceptance in a country other than the United States.

In contrast to the large number of infants who were never breastfed or were fed formula prior to leaving the hospital, DiGirolamo et al. (2001) reported that many of their

sample population (83%) continued to breastfeed for more than 6 weeks, although they do not specify exclusivity. Their study had aimed to identify which hospital practices may lead to early breastfeeding termination. Of the risk factors identified, no rooming-in seemed to have the least effect on early breastfeeding termination, with an adjusted *OR* of 1.0 (DiGirolamo et al., 2001). This is the one practice that Southeast Alabama Medical Center did try to implement to aid in increasing breastfeeding rates for mandatory reporting to The Joint Commission. It is unknown if this did play a role in the increase in the initiation of breastfeeding that was seen between the 2 years, or if other factors were of greater importance.

Exclusive breastfeeding at discharge is thought to influence mothers to continue breastfeeding once they are home. My findings suggest that exclusive breastfeeding at discharge was not influenced by any maternity care practices that may have been implemented starting in 2014, with approximately 40% exclusively breastfeeding on discharge in each year. In contrast, Cattaneo and Buzzetti (2001) implemented an education plan for their healthcare workers and saw dramatic increases in exclusive breastfeeding at discharge from 41% prior to intervention to 79% postintervention in one study and 30% prior to intervention to 72% postintervention. Additionally, the authors found that only 1% of the mothers left the hospital without ever breastfeeding after the implementation of their training for healthcare personnel (Cattaneo and Buzzetti, 2001). This suggests that educating the staff on the importance of breastfeeding will be necessary to increase professional support that can be offered to mothers. Philipp et al. (2001) saw a similar positive trend with exclusive breastfeeding, from 5.5% in 1995 prior

to implementation with an increase to 33.5% in 1999, after making the transition fully to a Baby-Friendly hospital. They also showed an increase in breastfeeding initiation from 58.0% to 86.5% (Philipp et al., 2001). This was another dramatic increase in contrast to the results that I had seen. One factor could be the timing between data measures to allow for greater implementation of maternity care practices. An additional factor that was identified in the Cattaneo and Buzzetti study and the Philipp et al. study was the education of healthcare personnel regarding maternity care practices and the importance of professional support on breastfeeding for mothers.

The social ecological model turned out to be a good fit for understanding breastfeeding in mothers. From my results, it can be seen that different levels of the model did have an association with the initiation of breastfeeding and/or exclusive breastfeeding. I found that internal factors (race/ethnicity, first-time mother), personal factors (marital status), and external factors (professional support) were all associated with the initiation of breastfeeding and exclusive breastfeeding on discharge. Pechlivani et al. (2005) conducted a cross-sectional study in Greece and looked for factors that influenced breastfeeding similar to those that I was interested in studying. One difference in their study is that they broke breastfeeding into three separate categories: exclusive, predominant, and complementary (Pechlivani et al., 2005). To make their information more straightforward, the authors conducted a final analysis in which the mothers exclusively breastfed or did not (Pechlivani et al., 2005), similar to my category of exclusive breastfeeding. Pechlivani et al. found a significant association with maternal age related to exclusive breastfeeding, with the 25 to 34 age group most likely to

exclusively breastfeed, which complements my data showing the 25 to 29 and 30 to 34 age groups most likely to exclusively breastfeed on discharge. Interestingly, in their study, Pechlivani et al. found a significantly decreased association with first-time mothers exclusively breastfeeding on discharge ($OR = 0.66$; 95% CI = 0.51-0.84), which is in disagreement with the information I found ($OR = 2.09$; 95% CI = 1.52, 2.87). This difference could be due to the different countries and different cultures related to breastfeeding. Pechlivani et al. did not report on any personal support factors such as marital status, so it is unknown from their study if personal factors may also have influenced a woman's decision. Finally, Pechlivani et al. measured two maternity care practices that women reported having experienced and found a significant association with rooming-in ($OR = 5.51$) and demand feeding ($OR = 4.60$). This is in disagreement with the earlier data reported from DiGirolamo et al. (2001) that rooming-in did not have any effect on breastfeeding ($OR = 1.0$). Southeast Alabama Medical Center does encourage rooming-in for mothers, but this process was already in place prior to the 2014 mandatory reporting to Joint Commission.

In another study related to the social ecological model and which factors influence breastfeeding, Kruse et al. (2005) found similar results for factors that were associated with exclusive breastfeeding on discharge compared with my study. Kruse et al. found that Asian mothers had the greatest odds of exclusively breastfeeding ($OR = 1.22$ compared with non-Hispanic Whites) and non-Hispanic Blacks were less likely to exclusively breastfeed ($OR = 0.48$ compared with non-Hispanic Whites). These trends were similar to mine, although the group I found most likely to exclusively breastfeed

was non-Hispanic White. This could be due to the necessity in my study to combine several race/ethnicities into an “Other” category due to the small number in the sample population. Additionally, Kruse et al. found that women having their first child were more likely to exclusively breastfeed upon discharge (*OR* for not being a first-time mother was 0.76 as compared with the first child). I found a two-fold increase in exclusive breastfeeding on discharge, in agreement with what these authors had found. Finally, Kruse et al. asserted that the association of exclusive breastfeeding on discharge was cut nearly in half (*OR* = 0.55) when the mother was not married, very similar to the decreased likelihood of exclusive breastfeeding that I found for unmarried women (*OR* = 0.45). The nature of the study conducted by Kruse et al. did not seek to identify if professional factors had any involvement on breastfeeding.

Based on the information discussed above, it does seem that the social ecological model can be used to support a model for understanding breastfeeding initiation and exclusive breastfeeding for first-time mothers. Internal factors (race/ethnicity), personal support factors (marital status), and professional support factors (process of implementing maternity care practices) were all shown to be associated with a first-time mother initiating breastfeeding. Professional support factors were not shown to be associated with a first-time mother exclusively breastfeeding on discharge, and this may be due more to the lack of implementation of maternity care practices in comparison with a lack of effect of professional support on breastfeeding.

Limitations of the Study

This study was designed to look at whether or not the requirement of mandatory reporting to The Joint Commission on perinatal measures for exclusive breastfeeding on discharge (a proxy measure for implementation of maternity care practices) was associated with the initiation of breastfeeding and/or exclusive breastfeeding on discharge in a population of new mothers, with a focus on first-time mothers. Being that the two years that were compared were continuous, it is possible that there was no time for an increase in the implementation of maternity care practices prior to the start of mandatory reporting in 2014. However, there were some differences noted related to breastfeeding initiation, showing that there may have still been some effect.

The retrospective data were an efficient way to compare data between two years. The intention of this study was to compare the initiation of breastfeeding and exclusive breastfeeding on discharge from the 2 different years, while also factoring in first-time mothers as a subsample of the study. While there were positive features attributed to the study design, there were also limitations that existed. Some of the limitations that were expected were initially discussed in Chapter 1 and new limitations were also identified.

From prior to the study, the first expected limitation of the study was the inability to generalize the results to other populations. Since each geographic area has populations with characteristics unique to and within the area, this limitation will still hold true. It can be seen from the above section that even when comparing similar measures, there are large variances in results that may be credited to the demographic, social, and cultural differences. While the results found here are valuable for Southeast Alabama Medical

Center, they may not be applicable to another facility. A second expected limitation of the study was the inability to control other confounding/modifying factors such as the support of family and friends. While marital status was used as a proxy for personal support, it does not encompass the large support system that some women may have experienced. There was not a measure that could be extracted from the mother's medical record that would have allowed me to capture this information. There is a possibility that the personal support did not differ much between the 2 years of measure, and thus would not have caused any confounding in the data. A final expected limitation of the study was the accuracy and completeness of the data. The completeness of the data was lacking for some variables, such as education level; however, most variables were properly documented for each mother. Accuracy of the data may be called into question since the mother's medical record was the only information used for whether or not breastfeeding took place. Whether or not the mother breastfed was dependent on either the nurse seeing her breastfeed or the mother reporting to the nurse that she breastfed and whether or not it was successful. There were also areas in the chart in which the nurse was able to document the mother's feeding preference; this area was often incomplete. This may have led to the possibility of misclassification of whether or not the mother initiated breastfeeding at least once and/or was breastfeeding and gave her infant supplemental formula. Charting in other areas of how the mother fed her infant should have helped in minimizing the misclassification bias.

Another limitation of the study that was identified upon data collection was the expectation that when the reporting of perinatal measures was implemented, the

healthcare workers were to change their behaviors toward maternity care practices. It is likely that the nurses and other staff who took care of the mothers and infants did not change their practices between the years and may have felt the care provided in the earlier year was adequate. This would have led to data being shifted toward the null, which is what was seen with regard to exclusive breastfeeding on discharge. However, there was an increase seen with regard to initiation of breastfeeding, showing that there may have been maternity care practices that were put in place earlier after the birth to aid in the mother attempting breastfeeding.

A second limitation of the study was the inability to capture the mother's education data consistently for use in the analyses. Education has been shown to be a strong predictor related to maternal and child health, and has been demonstrated to be specifically correlated to breastfeeding initiation in a study conducted by Heck et al. (2006). Education level may have been an important covariate in my study and population, but due to the lack of ability to collect the data and for concern that use of the available data would skew results, a decision was made to remove the education variable from the multivariate analysis.

Another limitation of the study was only following the mother's breastfeeding data through discharge, which in most cases was only 2 days. Two days may not be enough time for a mother to make a decision if she is going to continue breastfeeding long enough to confer the benefits on the infant. It would also be beneficial to know whether or not maternity care practices can influence the mother post-discharge, which will be important for the health outcomes.

A final limitation of the study was not knowing what types of maternity care practices, other than rooming in, were experienced by the mothers. Additionally, nurses may have had different opinions regarding breastfeeding and projected those thoughts to the mother based on personal beliefs. While it is the goal of the lactation specialists to be consulted to see all patients regardless of their feeding preference prior to birth, there is a chance that they were unable to see all new mothers. These variables within the facility were unable to be controlled for and may have affected the mother's decision to breastfeed, in either a positive or negative manner. However, these facility variables should have remained steady over the 2 year period, minimizing any differences on the final results.

Recommendations for Further Study

Future research studies will need to focus on the subpopulation of first-time mothers as a particularly influential target for the benefit of maternity care practices. First-time mothers are unsure about many factors related to motherhood. Support, not only through education and emotional support, but also through practical experience of breastfeeding in the hospital, will be important for these mothers. Prospective studies could be designed using first-time mothers recruited from their prenatal visits, and professional support could be measured prior to the child's birth through discharge from the hospital and beyond. Specific application of maternity care practices will need to be measured through observations and interviews with mothers. This will ensure that specific maternity care practices are being measured, and not assumed to be implemented through a proxy measure, as was done in my research study. Additionally, extending the

study postdischarge will allow for researchers to understand if professional support offered during the labor and delivery admission can influence the new mother once she is home and less sure what to do. This extended and prospective research would allow for more convincing data as to which maternity care practices can have the greatest influence on a first-time mother breastfeeding for the recommended periods of time.

Along with professional support from the hospital, there are also other areas that can influence the new mother's decision to breastfeed and may have better outcomes, through personal and professional support. Government agencies such as Women, Infants, and Children (WIC) will be beneficial in offering professional support. Mothers that do not have private insurance, but are Medicaid dependent, automatically qualify for WIC for herself and the infant. WIC offers breastfeeding peer counseling, which gives support from mothers with similar backgrounds that have successfully breastfed in the past. This personal support can help women once they are home with any problems they may be having breastfeeding, as well as offering aid and encouragement to continue with breastfeeding. WIC may also be able to influence a mother's decision to breastfeed through providing the mothers with breast pumps free of charge instead of giving free formula. This would make it easier and more financially acceptable for mothers to continue breastfeeding. To ensure that the pump gets used as needed, particularly once the mother returns to work (if she is working), there will need to be increased support for breastfeeding in the workplace. While there are laws to ensure that a breastfeeding mother has a private place to pump her milk and store it, many workplaces make minimal concessions, making it difficult for the mother to continue breastfeeding. Organizational

support and legislative support on the local, state, and federal levels will be needed to give the mother the support she needs for breastfeeding.

Recommendations for Action

Breastfeeding rates remain below recommendations around the country. Both internal and external factors will play a role in a mother's decision to breastfeed. Hospitals can help to guide mothers toward breastfeeding through maternity care practices, which are evidence-based practices that are designed to encourage mothers to initiate breastfeeding and to exclusively breastfeed. First-time mothers are particularly susceptible to the influential guidance and that hospitals can offer them. Increasing the number of maternity care practices that a new mother experiences during her hospital stay can help her understand the importance of breastfeeding as well as being shown the right way to breastfeed. Targeting new mothers for breastfeeding will be beneficial not only to the infant, but also to other children that she may have in the future, as long as she has successfully breastfed the first time.

Educating the mother on breastfeeding is important, but education of the healthcare workers that are with the mother and infant is equally important. In my study, it is unknown whether or not there was additional education following the inception of the mandatory reporting period for the healthcare workers. Education could include, but is not limited to, the importance of breastfeeding, techniques for breastfeeding, and emotional support for breastfeeding. If the healthcare workers are educated on breastfeeding, they should be more willing to support the new mothers in their efforts to breastfeed and not allow them to be easily discouraged. The study by Pechlivani et al.

(2005) showed dramatic increases in exclusive breastfeeding on discharge after a healthcare worker education intervention. An intervention for successfully education healthcare workers needs to include those workers in the design phase, so that the intervention will be readily accepted. This education should have a positive impact on the implementation of maternity care practices and on breastfeeding.

My study did show improvement on the initiation of breastfeeding after implementation of the mandatory reporting. These findings can be used in practice as a good start for breastfeeding among first-time mothers. Future mothers can initially be treated in the same manner so that initiation of breastfeeding is possible, preferably prior to the infant being given any other type of feeding. Following initiation, more aggressive implementation of other maternity care practices needs to be used to encourage new mothers to continue exclusive breastfeeding. Challenges faced with frustration and a lack of experience related to breastfeeding by the new mothers can hopefully be overcome through education of mother and staff and working together toward better outcomes for the infant.

Implications of the Study

The implications and results of my study highlight the importance of professional support offered in the form of maternity care practices on mothers, with a specific focus on first-time mothers. While the literature review showed improvements on breastfeeding exclusivity and duration, most of the studies were related to hospitals that were in the process of or were designated as “Baby-Friendly” hospitals. It is relatively unknown how the implementation of maternity care practices at a standard hospital can influence

breastfeeding. As noted in Chapter 2, there is a gap in the literature regarding the implementation of maternity care practices, as well as other internal and external factors on breastfeeding in first-time mothers. Many hospitals around the country are accredited through The Joint Commission and are being held to the requirement of mandatory reporting of perinatal measures. These facilities need to increase their implementation of maternity care practices as well as education for the healthcare workers to help first-time mothers' breastfeed, resulting in better outcomes for the mother and infant.

The positive social change from this study would be increasing health outcomes for the mother and infant through increasing breastfeeding initiation and exclusivity for greater durations. Supporting new mothers regarding breastfeeding education and practice will require education of the hospitals and healthcare workers that are responsible for the patients. While it is unreasonable to expect that all new mothers will exclusively breastfeed, or even initiate breastfeeding, increasing the number of women will help not only the mothers/infants, but also to help in changing the culture of breastfeeding around the United States to one of greater acceptance.

The clinical positive change for the future is a lower chance of different health related issues that are more often experienced by infants that are not breastfed. If a greater number of infants are breastfed for longer periods, infections such as lower respiratory infections and acute otitis media will see a decrease. Different approaches will be needed to target different populations of mothers, knowing that internal and personal factors will also influence her decision to breastfeed. While healthcare workers and public health officials can only influence the professional aspect of support through

maternity care practices, the messages they give during the critical time of delivery and the first two days after birth that those new mothers will spend in the hospital.

Conclusions

Research has shown that implementation of maternity care practices, primarily at facilities that are designated as “Baby-Friendly,” can increase initiation of breastfeeding and exclusive breastfeeding on discharge (Cattaneo & Buzzetti, 2001; Philipp et al., 2001). My research demonstrated that the implementation of maternity care practices, measured through a proxy of mandatory reporting of perinatal measures to The Joint Commission, can influence a mother’s decision to initiate breastfeeding at a standard hospital, but the effects on exclusive breastfeeding on discharge are not related. The *OR* for initiation of breastfeeding after implementation of mandatory reporting was 2.07 (1.36, 3.17; $p = 0.0007$), a significant association, but the *OR* was 0.94 (0.63, 1.40; $p = 0.7507$) for exclusive breastfeeding on discharge in 2014 compared with 2013. Other factors that were positively associated with breastfeeding included non-Hispanic White or other first-time mothers compared with non-Hispanic Black first-time mothers, and being married compared with not married. This illustrates the importance of multiple factors in influencing a new mother’s decision to breastfeed, one of which can be professional support.

The use of a retrospective data study was an efficient measure for understanding whether or not implementation of maternity care practices in consecutive years could be associated with breastfeeding measures, using multiple logistic regression to allow for controlling of numerous covariates that are known to be associated with breastfeeding.

The nature of the study allowed for multiple factors to be studied simultaneously, while aiming to identify which of those factors were the most strongly associated with first-time mothers initiating breastfeeding and exclusively breastfeeding upon discharge. Unfortunately, due to the restrictive nature of the study population, my study cannot readily be generalized to other facilities or first-time mothers in different locations.

The results of this research are in agreement with prior research studies that professional support in the form of maternity care practices can have a positive effect on a mother's decision to initiate breastfeeding and exclusively breastfeed on discharge. From this study, further studies on prolonged effects of maternity care practices on first-time mothers, i.e. exclusively breastfeeding at 3 months and 6 months, may help to provide a better understanding on the full impact of maternity care practices on first-time mothers. Additional studies can also help to elucidate which practices are viewed as the most beneficial on a population of first-time mothers. The results from this study are a good beginning to a better understanding on the implementation of maternity care practices in standard hospitals on first-time mothers.

References

- Abrahams, S.W., & Labbok, M.H. (2009). Exploring the impact of the Baby-Friendly Hospital Initiative on trends in exclusive breastfeeding. *International Breastfeeding Journal*, 4, 11. doi:10.1186/17464358411
- Ahluwalia, I.B., Morrow, B., D'Angelo, D., & Li, R. (2012). Maternity care practices and breastfeeding experiences of women in different racial and ethnic groups: Pregnancy risk assessment and monitoring system (PRAMS). *Maternal & Child Health Journal*, 16, 1672-1678. doi:10.1007/s1099501108710
- Allen, J., & Hector, D. (2005). Benefits of breastfeeding. *NSW Public Health Bulletin*, 16 (3-4), 42-46. <http://www.health.nsw.gov.au>
- American Academy of Pediatrics. (2012). Policy statement: Breastfeeding and the use of human milk. *Pediatrics*, 129(3), e827. <https://www.aap.org>
- Baby-Friendly USA. (2012). Find facilities. Retrieved from <https://www.babyfriendlyusa.org/find-facilities>.
- Belanoff, C.M., McManus, B.M., Carle, A.C., McCormick, M.C., & Subramanian, S.V. (2012). Racial/ethnic variation in breastfeeding across the US: A multilevel analysis from the National Survey of Children's Health, 2007. *Maternal and Child Health Journal*, 16, S14-S26. doi: 10.1007/s1099501209911
- Belay, B., Allen, J., Williams, N., Dooyema, C., & Foltz, J. (2013). Promoting women's health in hospitals: A focus on breastfeeding and lactation support for employees and patients. *Journal of Women's Health*, 22(1), 1-4. doi:10.1089/jwh20124040

- Benn, C.S., Wohlfahrt, J., Aaby, P., Westergaard, T., Benfeldt, E., Michaelsen, K.F., ...
Melbye, M. (2004). Breastfeeding and risk of atopic dermatitis, by parental history of allergy, during the first 18 months of life. *American Journal of Epidemiology*, *160*(3), 217-223. doi: 10.1093/aje/kwh208
- Bentley, M.E., Dee, D.L., & Jensen, J.L. (2003). Breastfeeding among low income, African-American women: Power, beliefs and decision making. *Journal of Nutrition*, *133*, 305S-309S. <http://jn.nutrition.org/>
- Brenner, M.G., & Buescher, E.S. (2011). Breastfeeding: A clinical imperative. *Journal of Women's Health*, *20*(12), 1767-1773. doi:10.1089/jwh20102616
- Cattaneo, A., & Buzzetti, R. (2001). Effect on rates of breast feeding of training for the Baby Friendly Hospital Initiative. *BMJ*, *323*, 1358-1362. <http://journals.bmj.com/>
- Centers for Disease Control and Prevention. (2007). Breastfeeding: NIS data: Provisional breastfeeding rates by sociodemographic factors, among children born in 2007. Retrieved from http://www.cdc.gov/breastfeeding/data/NIS_data/2007/socio-demographic_any.htm.
- Centers for Disease Control and Prevention. (2008). Breastfeeding-related maternity practices at hospitals and birth centers – United States, 2007. *Morbidity and Mortality Weekly Report*, *57*(23), 621-625. <http://www.cdc.gov/mmwr>
- Centers for Disease Control and Prevention. (2009). Breastfeeding: Diseases and conditions. Retrieved from <http://www.cdc.gov/breastfeeding/disease/>.

Centers for Disease Control and Prevention. (2013). Breastfeeding report card 2013.

Retrieved from

<http://www.cdc.gov/breastfeeding/pdf/2013breastfeedingreportcard.pdf>.

Creswell, J.W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.), Thousand Oaks, CA: Sage Publications.

Debes, A.K., Kohli, A., Walker, N., Edmond, K., & Mullany, L.C. (2013). Time to initiation of breastfeeding and neonatal mortality and morbidity: A systematic review. *BMC Public Health*, *13*(Supp 3), S19. doi:10.1186/1471245813S3S19

Dewey, K.G. (2003). Is breastfeeding protective against childhood obesity? *Journal of Human Lactation*, *19*(1), 9-18. doi: 10.1177/0890334402239730

DiGirolamo, A.M., Grummer-Strawn, L.M., & Fein, S. (2001). Maternity care practices: Implications for breastfeeding. *Birth*, *28*(2), 94-100. doi: 10.1046/j.1523-536X.2001.00094.x

Eigenmann, P.A. (2004). Breast-feeding and atopic eczema dermatitis syndrome: Protective or harmful? *Allergy*, *59*(S78), 42-44.
doi: 10.1111/j.13989995200400564

Fleming, A.S., Flett, G.L., Ruble, D.N., & Shaul, D.L. (1988). Postpartum adjustment in first-time mothers: Relations between mood, maternal attitudes, and mother-infant interactions. *Developmental Psychology*, *24*(1), 71-81.
doi:10.1037/0012164924171

- Godfrey, J.R., & Lawrence, R.A. (2010). Toward optimal health: The maternal benefits of breastfeeding. *Journal of Women's Health, 19*(9), 1597-1602.
doi:10.1089/jwh20102290
- Grummer-Strawn, L., Shealy, K.R., Perrine, C.G., MacGowan, C., Grossniklaus, D.A., Scanlon, K.S., & Murphy, P.E. (2013). Maternity care practices that support breastfeeding: CDC efforts to encourage quality improvement. *Journal of Women's Health, 22*(2), 107-112. doi:10.1089/jwh20124158
- Hannan, A., Li, R., Benton-Davis, S., & Grummer-Strawn, L. (2005). Regional variation in public opinion about breastfeeding in the United States. *Journal of Human Lactation, 21*(3), 284-288. doi:10.1177/0890334405278490
- Heck, K.E., Braveman, P., Cubbin, C., Chavez, G.F., & Kiely, J.L. (2006). Socioeconomic status and breastfeeding initiation among California mothers. *Public Health Reports, 121*(1), 51-59. www.publichealthreports.org
- Hector, D., King, L., Webb, K., & Heywood, P. (2005). Factors affecting breastfeeding practices applying a conceptual framework. *New South Wales Public Health Bulletin, 16*(3-4), 52-55. <http://www.health.nsw.gov.au>
- Heinig, M.J., & Dewey, K.G. (1996). Health advantages of breast feeding for infants: A critical review. *Nutrition Research Reviews, 9*, 89-110.
doi:10.1079/NRR19960007
- Institute of Medicine. (2002). The future of the public's health in the 21st century: Implications for public health practice. Retrieved from

<http://www.iom.edu/~media/Files/Report%20Files/2002/The-Future-of-the-Publics-Health-in-the-21st-Century/Flores.pdf>.

- Jenkins, J.M., & Foster, E.M. (2014). The effects of breastfeeding exclusivity on early childhood outcomes. *American Journal of Public Health, 104*(S1), S128-S135. doi:10.2105/AJPH2013301713
- Joint Commission. (2014). Specifications manual for Joint Commission National Quality Measures (v2014A1). Retrieved from <https://manual.jointcommission.org/releases/TJC2014A1/>.
- Kervin, B.E., Kemp, L., & Pulver, L.J. (2010). Types and timing of breastfeeding support and its impact on mothers' behaviours. *Journal of Paediatrics and Child Health, 46*, 85-91. doi:10.1111/j14401754200901643.x
- Kruse, L., Denk, C.E., Feldman-Winter, L., & Rotondo, F.M. (2005). Comparing sociodemographic and hospital influences on breastfeeding initiation. *Birth, 32*(2), 81-85. doi: 10.1111/j.07307659200500349x
- Kull, I., Almqvist, C., Lilja, G., Pershagen, G., & Wickman, M. (2004). Breast-feeding reduces the risk of asthma during the first 4 years of life. *Journal of Allergy and Clinical Immunology, 114*(4), 755-760. doi:10.1016/j.jaci.2004.07.036
- Labarere, J., Castell, M., Fourny, M., Durand, M., & Pons, J.C. (2003). A training program on exclusive breastfeeding in maternity wards. *International Journal of Gynecology and Obstetrics, 83*, 77-84. doi:10.1016/S00207292(03)001607
- Madden, J.M., Soumerai, S.B., Lieu, T.A., Mandl, K.D., Zhang, F., & Ross-Dengan, D. (2003). Effects on breastfeeding of changes in maternity length-of-stay policy in a

- large health maintenance organization. *Pediatrics*, *111*(3), 519-524. doi: 10.1542/peds1113519
- McLeroy, K.R., Bibeau, D., Steckler, A., & Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education Quarterly*, *15*(4), 351-377. doi: 10.1177/109019818801500401
- McNeil, D. (1996). *Epidemiological research methods*. New York, NY: John Wiley & Sons Ltd.
- Merewood, A., Mehta, S.D., Chamberlain, L.B., Philipp, B.L., & Bauchner, H. (2005). Breastfeeding rates in US baby-friendly hospitals: Results of a national survey. *Pediatrics*, *116*(3), 628-634. doi:10.1542/peds20041636
- Pechlivani, F., Vassilakou, T., Sarafidou, J., Zachou, T., Anastasiou, C.A., & Sidossis, L.S. (2005). Prevalence and determinants of exclusive breastfeeding during hospital stay in the area of Athens, Greece. *Acta Paediatrica*, *94*, 928-934. doi:10.1080/08035250410023746
- Perrine, C.A., Shealy, K.R., Scanlon, K.S., Grummer-Strawn, L.M., Galuska, D.A., Dee, D.L., & Cohen, J.H. (2011). Vital signs: Hospital practices to support breastfeeding – United States, 2007 and 2009. *Morbidity and Mortality Weekly Report*, *60*(30), 1020-1025. <http://www.cdc.gov/mmwr>
- Philipp, B.L., Merewood, A., Miller, L.W., Chawla, N., Murphy-Smith, M.M., Gomes, J.S., ...Cook, J.T. (2001). Baby-Friendly Hospital Initiative improves breastfeeding initiation rates in a US hospital setting. *Pediatrics*, *108* (3), 677-681. doi: 10.1542/peds1083677

- Phillips, G., Brett, K., & Mendola, P. (2011). Previous breastfeeding practices and duration of exclusive breastfeeding in the United States. *Maternal and Child Health Journal, 15*, 1210-1216. doi:10.1007/s1099501006944
- Rice, S., Wells, S., & Wright, A. (1996). Changing hospital practices to increase the duration of breastfeeding. *Pediatrics, 97*(5), 669-675.
<http://pediatrics.aappublications.org>
- Schack-Nielsen, L., Michaelsen, K.F., Mortensen, E.L., Sorensen, T.I., & Reinisch, J.M. (2004). Is duration of breastfeeding influencing the risk of obesity in adult males? *Advances in Experimental Medicine and Biology, 554*, 383-385.
<http://link.springer.com/bookseries/5584>
- Scott, J.A., Binns, C.W., Graham, K.I., & Oddy, W.H. (2006). Temporal changes in the determinants of breastfeeding initiation. *Birth 33*(1), 37-45.
doi: 10.1111/j.07307659200600072.x
- Shinwell, E.S., Churgin, Y., Shlomo, M., Shani, M., & Flidel-Rimon, O. (2006). The effect of training nursery staff in breastfeeding guidance on the duration of breastfeeding in healthy term infants. *Breastfeeding Medicine, 1*(4), 247-252.
<http://www.liebertpub.com/overview/breastfeeding-medicine/173/>
- Szumilas, M. (2010). Explaining odds ratios. *Journal of the Canadian Academy of Child and Adolescent Psychiatry, 19*(3), 227-229. www.cacap-acpea.org/
- Tiedje, L.B., Schiffman, R., Omar, M., Wright, J., Buzzitta, C., McCann, A., & Metzger, S. (2002). An ecological approach to breastfeeding. *The American Journal of*

Maternal Child Nursing, 27(3), 154-161.

<http://journals.lww.com/mcnjournal/pages/default.aspx>

U.S. Department of Health and Human Services. (2011). Executive summary: The surgeon general's call to action to support breastfeeding. Retrieved from <http://www.surgeongeneral.gov/library/calls/breastfeeding/executivesummary.pdf>

U.S. Department of Health and Human Services. (2014). Healthy People 2020. Retrieved from <http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=26>.

U.S. Preventive Services Task Force. (2008). Primary care interventions to promote breastfeeding: U.S. preventive services task force recommendation statement. *Annals of Internal Medicine*, 149(8), 560-564. <http://www.uspreventiveservicestaskforce.org/>

White House Task Force. (2010). White House Task Force on Childhood Obesity report to the President: Solving the problem of childhood obesity within a generation. Retrieved from <http://www.letsmove.gov/white-house-task-force-childhood-obesity-report-president>.

World Health Organization. (1998). Evidence for the ten steps to successful breastfeeding. Retrieved from http://www.who.int/nutrition/publications/evidence_ten_step_eng.pdf.

World Health Organization. (2014). Health topics: Breastfeeding. Retrieved from <http://www.who.int/topics/breastfeeding/en/>.

Zimmerman, D.R. (1999). You can make a difference: Increasing breastfeeding rates in an inner-city clinic. *Journal of Human Lactation*, 15(3), 217-220. doi: 10.1177/089033449901500311