Employed Mothers’ Satisfaction with the Breastfeeding Provisions in the Patient Protection and Affordable Care Act

Rebecca A. Penders

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EMPLOYED MOTHERS’ SATISFACTION WITH THE BREASTFEEDING PROVISIONS IN THE PATIENT PROTECTION AND AFFORDABLE CARE ACT

A Dissertation Presented
by
REBECCA A. PENDERS

Submitted to the Office of Graduate Studies,
University of Massachusetts Boston
in partial fulfillment of the requirements for the degree of

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PhD in Nursing Program
EMPLOYED MOTHERS’ SATISFACTION WITH THE BREASTFEEDING PROVISIONS IN THE PATIENT PROTECTION AND AFFORDABLE CARE ACT

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ABSTRACT

EMPLOYED MOTHERS’ SATISFACTION WITH THE BREASTFEEDING PROVISIONS IN THE PATIENT PROTECTION AND AFFORDABLE CARE ACT

August 2020

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Objective: Guided by the Conceptual Model for Nursing and Health Policy (CMNHP), the purpose of this study was to determine the extent to which employed mothers perceived satisfaction in their breastfeeding experiences after enactment of the Patient Protection and Affordable Care Act (PPACA) breastfeeding provisions. Methods: The participants (N=507) were employed mothers who returned to work after the birth of their infants and reported hourly pay. Convenience sampling was used to recruit women via La Leche USA Facebook account (LLL USA). Participants completed the Penders Breastfeeding Survey in Research Electronic Data Capture (REDCap). The survey consisted of 39-items; including five satisfaction-related and seven qualitative open-ended questions. Results: Sixty-one percent (312/507) had a 4-year college degree or higher, 66% (339/507) had $50,000-$99,999 annual incomes, and 82% (420/507) identified as white/Caucasian. The majority indicated agreement: relating to satisfaction in the Breastfeeding Provisions in the PPACA (392/507) 77% agreed; relating to satisfaction in the area that is a place to pump
64% agreed; relating to satisfaction in break time for milk expression (316/507) 62% agreed; relating to satisfaction in the duration of their breastfeeding (446/507) 88% agreed; and relating to satisfaction with their exclusive use of human milk (400/507) 79% agreed. However, qualitative data demonstrated a narrative of physical pain, lack of privacy, interrupted break time or no breaks due to work or job demands, and co-workers and employers who were demeaning and disrespectful. Viewed in context of both Accommodation and Resistance, as ways of viewing relationships and power structures, eight emerging themes developed to the open-ended responses, they were: Break Time, Area for Pumping, Job Specific, Formula or Supplements Utilized, Continuation or Cessation of Breastfeeding, Positions of Power, Emotional Components, and Reactions to the PPACA Law. Conclusions: This select sample of women varied in experiences indicating the need for more research among employed mothers, employers and policy evaluation. Other considerations include improving workplace areas to include on-site daycares, offering paid maternity leave, enhancing existing workplace lactation support; supporting legislation including the PUMP for Nursing Mothers Act (S. 3170, H.R.5592) and Support for Working Mothers Act (S. 2155, H.R. 3255).
DEDICATION

I would like to dedicate this dissertation to mothers in every time and place and to my children, thank you for giving me the gift of motherhood. I love you with all my heart.
ACKNOWLEDGMENTS

I am very fortunate to have so many people that I would like to thank. I start by thanking La Leche League USA! My own mother told me their help to her when I was young was invaluable. I would like to formally thank La Leche League’s leaders for their assistance with this survey by sharing it on Facebook, especially Debbi Herern. I think you were as excited as I was to see all the Likes and Shares. Thank you to the employed mothers who took the time to fill out the survey and share it among your contacts. You are the reason I have spent this time on my dissertation to make it the best possible to represent your voices and experiences.

I would like to thank the Kansas Breastfeeding Association, the Maine State Breastfeeding Coalition, the Pennsylvania Breastfeeding Resource Center, the Alabama Breastfeeding Committee, the Connecticut Breastfeeding Coalition, the San Diego Breastfeeding Coalition, the New York Statewide Breastfeeding Coalition, the Arizona Breastfeeding Coalition, the Tarrant County Breastfeeding Coalition and others for sharing the study.

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For my dissertation best buddies, Maryum and Julianne having you there meant I wasn’t alone in the struggle, you kept me on track, helped push me forward and kept me accountable. For Mercy, Hermine, and Manu, I am so glad you were in my classes, you are terrific colleagues.

For my family, my parents and sister and her family, my children and husband, his sister and family and my father-in-law, all your support has made this possible. I am sorry
my mother-in-law passed before she could see the completion of the dissertation, I know she would have been pleased.
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CHAPTER 1

INTRODUCTION

On March 23, 2010, the Patient Protection and Affordable Care Act (PPACA) with Breastfeeding Provisions was signed into law by then President Barack Obama. The Breastfeeding Provisions were designed to offer protection for employed breastfeeding mothers. Specifically, it outlined to employers that breastfeeding mothers must be allowed an appropriate space and break time to pump human milk in effort to increase breastfeeding among employed women. The purpose of this study was to determine the extent to which employed mothers perceive satisfaction in their breastfeeding experiences after enactment of the PPACA provisions for breastfeeding. A major aim was to determine (from self-reported breastfeeding initiation, duration, and pumping experiences) the extent to which the health policy allows employed women to combine breastfeeding and employment.

Significance to Nursing and Health Policy

Ellenbecker, Fawcett, and Glazer (2005) observed that the nursing discipline’s focus on health policy and evaluation of existing policies was beginning to emerge and are important areas of emphasis for nurse scientists and scholars. This study was designed to assess the satisfaction with the provisions in a sample of women who birthed and breastfed an infant and were employed post-PPACA. It is important as it informs policy makers in future public policies addressing maternal and child health.
Breastfeeding Positions and Policy Statements

Numerous health organizations support breastfeeding in their policy and position statements. The current infant feeding recommendation is for infants to receive human milk for 6 months exclusively, followed by complementary foods up to one year or for as long as mutually desired by mother and infant (American Academy of Pediatrics [AAP], 2012; National Association of Neonatal Nurses [NANN], 2015). The World Health Organization (WHO) also recommends exclusive breastfeeding for the first six months of life, followed by continued breastfeeding with appropriate complementary foods, for up to two years or beyond (UNICEF, 2015). Interventions found to be helpful for the new mother and children are often referred to as the Ten Steps, which have been recently updated to be 15 steps. Supported as a joint statement from the WHO/UNICEF (WHO, 2017); it indicates that maternity care should include among other things, the initiation of breastfeeding within the first hour of life, exclusive breastfeeding, breastfeeding on demand during the night and day for at least 6 months in addition to creating an enabling environment (Spatz, 2018).

In addition, Healthy People 2020 (Office of Disease Prevention and Health Promotion, 2014), a health promotion policy from the United States (U.S.) Department of Health and Human Services (HHS) has offered Maternal, Infant and Child Health (MICH) goals 21.1 through 21.5 with the stated intention of increasing the proportion of mothers who breastfeed their babies and includes the term ‘exclusively’ through 6 months. This supports the AAP policy recommendations on breastfeeding, as mentioned above. As a change from the Healthy People 2010 guidelines, the Healthy People 2020 guidelines, has an additional, worksite goal, MICH goal 22, which is to increase worksite lactation programs, showing the additional desire to track and measure workplace lactation programs.
To measure these health goals, as outlined by Healthy People 2020, the Centers for Disease Control and Prevention (CDC) tracks breastfeeding rates in several categories. The latest data from the 2018 Breastfeeding Report Card shows that initiation rates for ‘Ever Breastfeeding’ were high, 83.8 percent of newborn infants started breastfeeding. Over half of infants in the U.S. (57.3%) were breastfed along with additional supplemental foods or liquids for 6 months, but only 1 in 4 babies are exclusively breastfed at 6 months (CDC, 2018). Barriers for women wishing to exclusively breastfeed include hospital and maternity care contrary to best known practices and lack of breastfeeding workplace policies. Currently, only 47.5 percent of infants are exclusively breastfeeding at 3 months and drops further to 25.4 percent at 6 months (CDC, 2018). Data from the U.S. Census Bureau report show more women than ever before are employed within a year of giving birth; 64 percent in 2005–2007 compared with 39 percent in 1976–1980 and 17 percent in 1961–1965 (Laughlin, 2011). Many women face work related barriers to exclusive breastfeeding when returning to work (Pitonyak et al., 2016). The research demonstrates employed women breastfeed less frequently than their non-employed counterparts (Fein & Roe, 1998; Murtagh & Moulton, 2011; Nguyen & Hawkins, 2013) with work related barriers often present when women did not initiate breastfeeding (Brodribb, Fallon, Hegney & O’Brien, 2007; Radzyminski & Callister, 2016).

**Benefits of Breastfeeding**

Breastfeeding is the gold standard for infant nutrition (Academy of Nutrition and Dietetics, 2015; American Academy of Nursing [AAN], 2020; American Academy of Pediatrics [AAP], 2012; Association of Women's Health, Obstetric and Neonatal Nurses [AWHONN], 2015; Grummer-Strawn & Rollins, 2015; WHO, 2018) and is considered a
high impact intervention for improving the lives of infants, women and societies with scaling-up known health practices (Rollins et al., 2016; Victora et al., 2016). The health benefits for both women and infants have been well-established. Biologically, human milk feeding at the breast is the norm for both women and their infants. However, historically, in the U.S. a cultural shift occurred in infant feeding practices. Over time, women of childbearing age entered the U.S. workforce and breastfeeding rates dramatically decreased as infant formula use increased and became a commodity. For many reasons the societal norm of infant feeding changed. The gold standard for infant feeding remains but the health impacts for both women and infants could be greatly improved if breastfeeding goals could be achieved (Anstey et al. 2017; Stevens, Patrick & Pickler, 2009).

**Short-Term Health Benefits (Women)**

The short term health benefits for women breastfeeding their infants are numerous. During the postpartum period, women who breastfeed have decreased rates of postpartum hemorrhage (Saxton, Fahy, Skinner, & Hastie, 2013), a quicker return to pre-pregnant weight (Berger, Peragallo-Urrutia, & Nicholson, 2014; Simpson, 2015), lower rates of postpartum depression (Badr & Zauszniewski, 2017; Borra, Iacovou & Sevilla, 2015; Steube, Grewen, & Meltzer-Brody, 2013) and an increased bonding with the infant through the hormone oxytocin released in bursts while breastfeeding (Rossoni et al., 2008). Some mechanisms underlying the physical and psychological benefits of breastfeeding have been identified. Hormones such as oxytocin and prolactin released during breastfeeding have been associated with positive mood and relaxation. Steube, Grewen, and Meltzer-Brody (2013) examined maternal mood symptoms, depression and anxiety and its association with shorter breastfeeding periods and the effect on the neuroendocrine response to infant feeding. Their
results showed as oxytocin levels increased, maternal depression and anxiety symptoms decreased. Badr and Zauszniewski (2017) found kangaroo care (the placement of the infant against the mother’s bare skin while the infant is only wearing a diaper) along with continuous breastfeeding decreased the risk for postpartum depression in mothers. During kangaroo care, oxytocin is believed to block the circulation of catecholamines and stress response which stimulates the maternal calmness and positive mood (Badr & Zauszniewski, 2017).

**Long-Term Health Benefits (Women)**

In addition to the immediate benefits breastfeeding has for women there is also significant health protection against chronic illnesses in later years. Women who breastfeed have decreased rates of Type 2 diabetes (Gunderson, 2008; Gunderson, et al., 2018; Schwarz et al., 2009), lower rates of hyperlipidemia (Nguyen, 2017; Schwarz et al., 2009), lower rates of breast cancer and ovarian cancer (Islami et al., 2015; Stuebe & Schwarz, 2010; Titus-Ernstoff, Rees, Terry & Cramer, 2010), lower rates of osteoporosis (Blincoe, 2005) and lower rates of rheumatoid arthritis (Pikwer, Bergstrom, Nilsson, Jacobsson, Berglund & Turesson, 2009) than women who birthed an infant but did not breastfeed. Findings have been shown to be dose-dependent as well; women who exclusively breastfeed have the most health benefits (DeSilva, Senarath, Gunatilake & Lokuhetty, 2010; Kim et al., 2007; Pikwer, Bergstrom, Nilsson, Jacobsson, Berglund & Turesson, 2009). While there has been research to support breastfeeding in the short term, long term benefits for women are numerous and continue to emerge.
**Short-Term Health Benefits (Infants)**

The short term benefits for the infants include fewer gastrointestinal problems (i.e., less vomiting, diarrhea), respiratory symptoms (i.e., cough and wheezing), fewer health care visits for acute conditions (Raisler, Alexander & O’Campo, 1999), increased attachment to their mothers (Uvnas-Moberg & Prime, 2013), a more stable heart rate and body temperature, less fussiness, and an increased ability to fight infection compared to their non-breastfeeding counterparts (Lawrence, 2000). One short term benefit that may overlap for both infant and mother is that exclusively breastfed infants spend more time with their mothers including being cuddled, held, and soothed (Smith & Forrester, 2017). In addition, infants can regulate the supply and demand of their feeds by sucking, which also helps the infant’s mother understand feeding cues. This is in contrast to an infant with a bottle of formula who can be overfed because of the infant’s need for non-nutritive sucking; these infants more often emptied the cup or bottle than breastfed infants because they lacked the ability to self-regulate (Li, Fein, & Grummer-Strawn, 2010).

Pediatric obesity is a potentially preventable condition; health professionals and breastfeeding advocates strongly recommend this method of infant feeding and milk source as a preventive early life intervention. Obesity that presents in early life is positively associated with obesity later in the life course; the population prevalence of obesity has increased substantially over the past few decades (Lakshman, Elks & Ong, 2012). The most cost effective treatment for pediatric obesity is prevention, and, whereas breastfeeding can decrease pediatric obesity (Anderson, Hayes & Chock, 2014; Reynolds, Hennessey & Polek, 2014; WHO, 2016), it is a preventative measure that should not be ignored. In addition, the Lancet series on breastfeeding concludes that, it has significant preventative benefits for our
global society. For infants, 800,000 lives per year could be saved if breastfeeding was at optimal levels; for mothers, 20,000 lives per year could be saved from breast cancer deaths alone given the protective effects of breastfeeding. Breastfeeding is protective for infant health related to respiratory and gastrointestinal illnesses, and put in dollar terms, not breastfeeding is associated with $302 billion dollars in economic losses per year globally (Rollins et al., 2016).

**Long-Term Life Course Health Benefits (Infants-into-Adulthood)**

There are numerous benefits of breastfeeding during infancy as well as later in the life course. Infants who are exclusively breastfed have a protection against asthma and allergies (Bener, Ehlayel, Alsowaidi & Sabbah, 2007; Lodge et al., 2015; WHO, 2013). In addition, breastfed infants have been observed to have lower incidence of childhood leukemia compared to non-breastfed infants (Amitay & Keinan-Boker, 2015). A systematic review conducted by the WHO (2013) indicated that breastfed infants compared to their non-breastfed counterparts demonstrated modest reduction in systolic blood pressure, a substantial protection against diabetes, a reduction in overweight and obesity and an increase in intelligence tests for infants who were tracked over time (WHO, 2013). Given the substantial benefits of breastfeeding for mothers and infants, this study was designed to assess the satisfaction of the provisions in a sample of women who birthed and breastfed an infant and were employed post-PPACA and to better understand employed mothers’ experiences.

**Societal Benefits**

While there are numerous documented benefits to breastfeeding for infants and their mothers, there is also evidence that increased breastfeeding exclusivity rates and duration
would benefit society at large. Breastfeeding is correlated with decreased employee absenteeism, less pollution (waste in the production of formula: bottles, nipples and cans in landfills) and fewer sick health care visits overall (AWHONN, 2005; McCarter-Spaulding, 2005; NIH, 2017). In addition to childhood obesity which may lead to adult obesity, there are many other negative health outcomes associated with not breastfeeding including an increased rate of stomach viruses, ear infections, juvenile diabetes (due to obesity), asthma, Sudden Infant Death Syndrome and even childhood leukemia (Bartick & Reinhold, 2010). Bartick and Reinhold (2010) concluded that there were more than 900 deaths per year in the U.S. and associated losses of over thirteen billion dollars that could be prevented if ninety percent of mothers breastfed exclusively for the first six months of life. These unnecessary deaths and health care dollars spent are likely underestimated, as it was calculated with a limited number of variables built into the model such as known neonatal conditions associated with not breastfeeding such as necrotizing enteritis. In actuality, the number of lives saved and dollars spent could be far greater than the estimate. In addition, in building on the previous research in 2017, Bartick and colleagues expanded our knowledge of the broader scope of health care impacts by demonstrating the economic costs saved from the prevention of disease and premature death that could potentially save the U.S. $4.5 billion in health care costs (Bartick et al., 2017).

**Conceptual-Theoretical-Empirical (CTE) Structure and Conceptual Model for Nursing and Health Policy**

The Conceptual Model for Nursing and Health Policy (CMNHP; Fawcett & Russell, 2001; Russell & Fawcett, 2005) was used to guide this dissertation. The CMNHP was chosen as it provides a framework that allows for a comprehensive understanding of policy analysis,
policy or program evaluation, and discipline-specific or health services research (Fawcett & Russell, 2001, 2005). Policy sources include public policies, organizational policies, and professional policies and may take into account and examine the policy components of health care services, health care personnel, and health care expenditures (Russell & Fawcett, 2005). The CMNHP includes four interacting levels of focus along with corresponding outcomes. Level 1, includes individuals, families, groups, and communities and the outcome is efficacy of nursing practice processes with an emphasis on quality. Level 2 is a specific nursing practice or delivery subsystem, and the outcome is the effectiveness of the nursing practice process and effectiveness and efficiency of the health care delivery subsystems with an emphasis on quality and cost. Level 3 is health care systems of geopolitical communities, states, and nations, and the outcome is equity of access to effective nursing practice process and efficient nursing practice delivery systems and equity in the distribution of the costs and burdens of care delivery with an emphasis on access. Level 4 encompasses humankind, and the outcome is justice, specifically social changes and market interventions that address equity with an emphasis on quality, cost, and access (Russell & Fawcett, 2005). As can be seen in Figure 1, the Conceptual-Theoretical-Empirical (CTE) structure indicates that the policy source is a public policy, represented by the breastfeeding provisions of the PPACA, as stipulated in the breastfeeding provisions of the PPACA legislation (see PPACA Breastfeeding Provisions below). The policy component of personnel is represented by employers of breastfeeding mothers, as indicated by an item on the Penders Breastfeeding Survey. Level 3 of the CMNHP is the most relevant for this study; access is represented by access to the employer providing breastfeeding accommodations, as measured by items on the Penders Breastfeeding Survey (time and place to pump). Equity of access is represented
by women’s breastfeeding experience, as measured by the Penders Breastfeeding Survey that was administered to women who participate in the La Leche League USA Facebook account.

Figure 1

*Conceptual Model for Nursing and Health Policy*

![Diagram of Conceptual Model for Nursing and Health Policy](image)
The PPACA’s, Breastfeeding Provisions Section states,

Section 7(r) of the Fair Labor Standards Act – Break Time for Nursing Mothers

Provision[s] Effective March 23, 2010, the Patient Protection and Affordable Care Act amended the FLSA to require employers to provide a nursing mother reasonable break time to express breast milk after the birth of her child. The amendment also requires that employers provide a place for an employee to express breast milk.

Section 7 of the Fair Labor Standards Act of 1938 (29 U.S.C. 207) is amended by adding at the end the following:

(r)(1) An employer shall provide—

A. a reasonable break time for an employee to express breast milk for her nursing child for 1 year after the child’s birth each time such employee has need to express the milk; and

B. a place, other than a bathroom, that is shielded from view and free from intrusion from coworkers and the public, which may be used by an employee to express breast milk.

(2) An employer shall not be required to compensate an employee receiving reasonable break time under paragraph (1) for any work time spent for such purpose.

(3) An employer that employs less than 50 employees shall not be subject to the requirements of this subsection, if such requirements would impose an undue
hardship by causing the employer significant difficulty or expense when considered in relation to the size, financial resources, nature, or structure of the employer’s business.

(4) Nothing in this subsection shall preempt a State law that provides greater protections to employees than the protections provided for under this subsection.

(U.S. Department of Labor, 2010)

These data collected for this study were examined to determine if having time and place to pump facilitates the actual doing or being able to breastfeed. This research may help inform the recommendations for future policies within the health care context, the institutional level such as hospitals, or employers and greater policy protections at the federal level.
CHAPTER 2
LITERATURE REVIEW

This literature review is divided into three parts. Part 1 presents the Sociological, Political, Economic, and Historical intersections with Breastfeeding and Breastfeeding Health Policy in the U.S. Part 2 is the Systematic Review with defined search terms below, and Part 3 is the CMNHP framework, along with the Problem, Solution and Implementation Evaluations.

**Part 1: Sociological, Political, Economic and History of Breastfeeding in the U.S.**

Many governments believe the health of its citizens is of major importance. However, increasing breastfeeding rates in the U.S. has not always been a governmental concern. Central to this dissertation study is a discussion centered on employed mothers’ ability to combine breastfeeding and employment. Therefore, it is essential to address the sociological, political and economic background and history of breastfeeding.

**Health Disparities**

U.S. breastfeeding rates are quite varied among women of different ethnicities (Chapman & Perez-Escamilla, 2012) and by ethnicity and neighborhood (Yourkavitch, Kane & Miles, 2018). In addition, data suggest there are socioeconomic differences by race/ethnicity (Jones, Power, Queenan & Schulkin, 2015; Kogan et al., 2008). Within the dominant ethnic identity in the U.S., non-Hispanic whites have breastfeeding rates that vary widely by socioeconomic status. The CDC analyzed the trend data from 2011 to 2015 of the National Immunization Survey (NIS) and reported for all races/ethnicities, an initiation rate
of 79.2%, exclusive breastfeeding at 6 months of 20.0% and breastfeeding duration of 12 months of 27.8% (Anstey et al., 2017). However, when analyzed by race, among whites, rates were 81.5%, 22.5% and 30.8%, respectively; among blacks, rates were 64.3%, 14.0%, and 17.1%; and among non-black Hispanics, rates were 81.9%, 18.2% and 26.3% for the same time points (Anstey et al., 2017). Aligning this data to the Healthy People 2020 goals (Office of Disease Prevention and Health Promotion, 2014) indicates that the U.S. is below target in every category. These targets are set as follows: infants ever breastfed at 81.9%, breastfeeding 6 months at 60.6%, and breastfeeding 12 months at 34.1%. While there is room for improvement in terms of increasing the breastfeeding duration rates, the exclusivity rates of breastfeeding also need to increase. Currently set at 46.2% for exclusive breastfeeding through 3 months, and 25.5% for exclusive breastfeeding through 6 months, these rates will be more difficult to change; as mixed feeding, the practice of using both formula and human milk, is common in the U.S. (O’Sullivan et al., 2015; Office of Disease and Health Promotion, 2014).

The disparities in the breastfeeding statistics are supported by several authors. Hurst (2007) suggests the framework of social justice and through social work and advocacy to increase breastfeeding among marginalized populations. Kogan and colleagues (2008) examined state variation in breastfeeding rates and found that sociodemographic and maternal variables did not account for the breastfeeding variation as once supported, but linked the state variation in breastfeeding legislation with breastfeeding rates. McGinnis et al.’s (2018) research examined a state-wide home visitation program by paraprofessionals for at-risk populations including families using Medicaid insurance, teen mothers and low birth weight infants. They found breastfeeding initiation and continuation rates improved with the
program, a 1.5% increase for each 1-point increase in the percentage of prenatal home visits with breastfeeding discussions, 95% CI (McGinnis, Lee, Kirkland, Miranda-Julian, & Greene, 2018). In addition, McCarter-Spaulding and colleagues (2011) described statistically significant disparities in breastfeeding rates among the poor and minority populations in her research. Variations in state breastfeeding rates exist for blacks and whites; however, the rates are lower among blacks in most states. From the CDC, National Immunization Survey data, breastfeeding rates were significantly lower for blacks in all categories measured. Whites’ initiation breastfeeding rates were 81.5% (80.9-82.1%) and non-Hispanic blacks’ rates were 64.3% (62.7-65.9%). Whites’ exclusive breastfeeding rates were 22.5% (21.9-23.1%), and non-Hispanic blacks’ exclusive breastfeeding rates were 14.0% (12.7-15.3%). Whites’ 12-month breastfeeding rates were 30.8% (30.1-31.5%) and non-Hispanic blacks’ 12-month breastfeeding rates were 17.1% (15.8-18.4%) (all data reported with CI 95%) (Anstey et al., 2017). These differences reflect more than simply the rates at which women from different ethnic backgrounds choose to breastfeed. First, recognizing the role of U.S. history in black mothers’ breastfeeding rates includes economic decisions, the use of communal caregiving and within the context of the medicalization of birth, all which contributed to supplementing with formula (Louis-Jacques et al., 2020). These variations reflect differences in socioeconomic standards, employment requirements, levels of education—as well as geographic differences. Again, some disparities arise from political differences and legislative differences within the U.S. States with the highest levels of initiation rates were also those residing in states with multiple pieces of legislation in support of breastfeeding. (Kogan et al., 2008). Whereas, legislation may not account for all of these differences, as Louisiana and Mississippi still had a marked geographical difference in
breastfeeding rates at 6 months even after adding covariates to the model, (Kogan et al., 2008) meaning there may not be a one-size-fits-all approach to raise breastfeeding rates and many efforts or strategies should be utilized to increase breastfeeding rates.

There is wide variance in state laws regarding promotion and protection of breastfeeding. Currently all fifty states, the District of Columbia, Puerto Rico and the Virgin Islands allow for women to breastfeed in any public or private location. Thirty states, the District of Columbia Puerto Rico and the Virgin Islands exempt breastfeeding from public indecency laws; however, there are states that still consider it a misdemeanor; meaning through law loopholes, if someone is offended by a mother breastfeeding her child in public, the mother could face a criminal offense (National Conference of State Legislators, 2020). Thirty-two states have laws related to breastfeeding and the workplace (National Conference of State Legislators, 2020). Only seventeen states and Puerto Rico exempt breastfeeding mothers from jury duty or allow jury service to be postponed (National Conference of State Legislators, 2020). In addition, Froh et al. (2018) sampled the U.S. by choosing the three largest cities from each state, along with Washington D.C. (N=151) and collected data on city-level legislation that would give legal protection for all women to breastfeed or express milk at work. Whereas some U.S. cities provide greater expansion to the Breastfeeding Provisions in the PPACA, many do not. They found 1.3% (2/151) allowed this protection for women. Such variation in policies makes it difficult to generalize about regions of the country.

One of the most serious hurdles is not geographical, but class based. The least advantaged socioeconomic groups are most often also less educated and more frequently
working class women who must resume work within a shorter time period after birth, and frequently employed in jobs that do not allow them to continue breastfeeding.

**Earlier History of Breastfeeding**

Central to understanding this background of lower breastfeeding rates among different populations and communities involves stepping back to review the history of breastfeeding in the U.S. The low rate of breastfeeding can be attributed (in part) to several historical factors. Breastfeeding rates have fluctuated during American history and continue to do so. Prior to the colonial era and white settlers, the North American continent was inhabited by indigenous people. Many Native Americans breastfed as evidenced by oral history (Goldhammer, 2018) and artwork and more recently carbon-dating studies such as Eerkens et al., 2010. Eerkens and colleagues show through some calculations that prehistoric Native Americans from the Marsh Creek burial ground in California began weaning toddlers around 2 years of age and completed full weaning around 3-5 years of age. Present-day however, Native Americans have lower ever breastfeeding rates, lower exclusivity rates and lower duration rates than their white counterparts (Jones et al., 2015). Many factors are involved but not to be minimized are the effects of acculturation, marginalization, and racism. Lindberg and colleagues (2012) found that, among Native Americans, breastfeeding rates were low (59%) and supplementation of formula was high (97%).

During the colonial era in America, breastfeeding was assumed as the method of infant feeding, though difficulties with breastfeeding led to some alternatives being explored. Some women were unable to feed their babies due to lack of sufficient milk supply or oral malformations like tongue-tie or cleft palate in the infant. Alternative feedings were ‘dry nursing’ (food like bread mixed in water or milk), or from wet nurses (other mothers who
were breastfeeding). Thorley & Sioda (2016) found historical documents and publications that had criteria for the occupation of being a wet nurse in Europe. Some requirements such as having a good color/complexion possibly meant the woman was not anemic and may have been of sound advice; other stipulations had guidelines for the perfect breast size and may not have had any merit in the quality or production of human milk. Nevertheless if no wet nurse was available, some women in Europe latched their infants directly to an animal (such as a goat); this practice was more successful and safer than some of the other methods of dry nursing as there was less risk for contamination and bacterial growth (Thulier, 2009).

Additional anthropological studies show humans have used animal milk for centuries and its use is dated back to at least 2000 BCE (Stevens et al., 2009). Even the use of bottles were used in ancient times, however breastfeeding has been a recommended source of nutrition for infants in the past and present. (Nguyen, 2016).

The Puritan’s view on breastfeeding was that it was a maternal duty (Thulier, 2009). Calvinist tradition removed women’s choices from their consciousness as a relatively insular society dictated the behavior of its members. This ideology dominated throughout the majority of the American colonies and then U.S. In Europe, breastfeeding began to be seen as a burden and a chore— and better left to the lower classes. In France, at one time in the nineteenth century, ninety percent of upper class women utilized wet nurses. In the American South, during the antebellum period, many upper class women also were provided wet nurses from the plantation slaves, sometimes with fatal consequences for the wet nurses’ actual children due to milk being unavailable (Freeman, 2018). There are many historical examples of this disparity; wet nurses particularly have a long history of being underprivileged mothers.
Either from wet nurses or biological mothers, until the mid-nineteenth century virtually all babies in the U.S. received human milk. The development of formula in Europe in the mid-nineteenth century led to an increase in formula usage and eventually in the U.S. (Nathoo & Ostry, 2009). The popularization of science, with the belief that improvement would be found in better technology, led to an increase in the use of formula in the hospital setting. By the 1930s, advertisements available in magazines and newspapers promoted infant formula as ‘efficient, modern and scientific.’ This led to women beginning to doubt their own bodies, with another increase in reliance on formula feeding (Walker, 2007). In addition, women began to rely on feeding schedules (as part of the scientific method) which tended to cause disruptions in the normal flow of human milk; the result was the increasing reliance of women on physicians, many of whom advised the use of formula. For many cultural reasons, then, breastfeeding began to be seen as antiquated and “lack of faith in the efficacy of breastfeeding had become the cultural rule” (Wolf, 2006).

**Women in the Workplace**

Two series of ongoing events, subsequent to the 1930s also occurred which tended to decrease breastfeeding and increase reliance on scientific formula feeding. First, the increasing numbers of women in the workforce meant a resulting increase in daycare centers (Michel, 2011). This meant that women began to make a choice between formula and expressing human milk. Very few employers were willing to accommodate a woman’s needs to express milk, and so even more women and infants became reliant on formula. Second, and closely related, was the development of feminism as a political movement and strategy for equalizing men and women. After obtaining the right to vote in 1920, women’s rights groups began to press for more inclusion of women in the workforce, with the result that
breastfeeding was sacrificed in the name of greater access to employment and career opportunities.

The first two generations of women in the workplace had very little protection and support for breastfeeding. The culturally prevalent conflation of breasts with sexuality and the socially inferior position of women made the topic difficult to broach (Wolf, 2008). Many women turned to formula feeding as a way of dealing with socially repressive methods of controlling employees who were becoming a larger part of the workforce. This conflation of sexuality with breastfeeding is one of the singular problems in getting public protection of breastfeeding laws passed in many states. Finally, in 2018, breastfeeding became legal in all 50 states but it was not without hostile responses and fear. The last two states were Idaho and Utah. In Utah, Representative Curt Webb (R) was reported as saying “This [proposed wording of the law] seems to say you don’t have to cover up at all…I’m not comfortable with that, I’m just not. It’s really in your face.” While, in Idaho, lawmakers admitted it was about time. However, the last time this was visited it was fifteen years prior and comments from male legislators were “women would whip it out, and do it anywhere” (Haller, 2018).

Sociological, Political, Economic, and History of Breastfeeding Health Policy

Currently, the increase in women in the workplace has become commonplace with attempts to increase the number of workplace protections for breastfeeding mothers. The Patient Protection and Affordable Care Act (PPACA) Breastfeeding Provisions have some protections; however, it is limited to employers with more than fifty employees and so excludes over 100 million American workers. It does, however, mark the first federal action designed to protect the rights of breastfeeding women, (U.S. Census, 2012, Statistics of U.S. Businesses). On state levels, some laws are more expansive. In cases where state law is more
expansive, the law with greater provisions will be implemented. In Colorado, employees can use the pumping accommodation at work for two years, with Maine and Vermont longer, even up to three years (U.S. Department of Labor, 2019). Now there is a recognized desire, particularly by mothers, to promote and support breastfeeding for its many health benefits. Workplace policies are slowly changing to make those accommodations in alignment with the federal law but variations in states still exist in promotion and support for breastfeeding (Murtagh & Moulton, 2011; National Conference of State Legislators, 2020).

It is difficult to overstate the importance of the changing agendas for different women at different times made by feminist theorists. The so-called second wave of feminists in the 1960s began to promote women, not as the same as men, but uniquely and powerfully different (Freedman, 2003). Feminists began to recognize that protection of a woman meant a holistic approach that supported the entire woman’s experience, and particularly pregnancy and maternal care, including breastfeeding, as integral to social justice. Interestingly, this was in conflict with La Leche League, which did not promote the compatibility of work and breastfeeding for women until 1987, favoring stay-at-home mothers (Wolf, 2006). Today’s La Leche League USA and Canada supports, informs and educates all who want to breastfeed or chestfeed\(^1\), or those who offer human milk in families; whether they work or stay-at-home with their babies (La Leche League, 2019).

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\(^1\) **Chestfeeding** is a term used by LLL and others. LLL USA and Canada issued a statement in 2018 which states they are committed to diversity and inclusion; terms and language may evolve over time to describe how many trans-masculine and non-binary parents describe how they feed and nurture their children from their bodies (Joint Statement from LLL USA and LLL Canada, 2018).
However, it was during these transitioning times that feminism’s social impact had discernible effects; women became less willing to blindly follow the dictates of (mostly male) physicians and began to listen to the needs and rhythms of their own bodies (Thulier, 2009). There began to be a swing away from the reliance on scientific methods that denigrated human milk and also from conservative social theories that limited women’s roles. This has been consistent with the increase in public acceptance of protections for public breastfeeding. Women, themselves, became key stakeholders in the discussion of breastfeeding and employment.

**Development of the Research that Led to the PPACA**

The greater public role of women has prepared larger segments of society to be more potentially accepting of women’s and infants’ differing needs. Feminist movements led to greater understanding of women’s rights and greater understanding of the scientific process and conclusions led many women back to breastfeeding with many individual state protections and now, post-PPACA which marked the first policy at the federal level. However, the current variation in state protection is a reminder that change is slow and incremental.

When stakeholders propose a policy they only put forth what can essentially be accomplished at the time (Dye, 2004). While proponents of breastfeeding may have wanted to increase breastfeeding through paid maternity leave this did not seem feasible due to the political and social climate during the drafts of the Breastfeeding Provisions in the PPACA. Currently the U.S and Papua New Guinea are the only two countries worldwide (2 countries out of 185 countries; Ryder, 2014) that do not guarantee paid Maternity Leave (BBC News,
2018; Rubin, 2016), and the International Labour Organization of the United Nations (UN) states at least 18 weeks of maternity leave is recommended (Rubin, 2016).

These social norms have been reflected in the historical and political climates of the time. As mentioned previously, state legislation for breastfeeding has been quite varied. In terms of breastfeeding and employment cases in the courts this variation has also been apparent. Initially courts have been reluctant to view lactation as a result of pregnancy. In 1988, the 4th Circuit court found a workplace discrimination discharge lawful in favor of the employer; in 1999 (Jacobson vs. Regent Assisted Living) also refused to rule in favor of a mother wishing to pump human milk at work. However, in 2009, the Allen vs. Totes/Isotoner Corporation created outrage among proponents of breastfeeding when they failed to address workplace breastfeeding, ruling in favor of the employer claiming, the dismissal was justified because she took “unauthorized breaks.” As a result, this decision may have helped put forward the language in the health reform bill (Rubin, 2016). The Department of Labor announced that as of 2012 there were 15 employers cited for violations of the PPACA Breastfeeding Provisions (LaPlante, 2012).

While change seems to be slow from a societal and cultural stance, the proponents of breastfeeding also complicate the issue. The reason for this is due to the many individuals, organizations, interest groups and corporations with direct and vested interests. Their opposing ideas in the debate over breastfeeding as public policy rarely come to agreement. These different stakeholders include women’s advocacy groups, lactation consultants, physicians, nurses, hospitals, formula companies, workplaces and of course, the mothers and infants themselves. A biased assumption is to purport that Break time, and Place to Pump will allow more women to breastfeed. What if they do not want to? As there is a cultural shift
in infant feeding norms, there needs to be a multi-faceted approach, steadily making improvements towards health, including all of these unique and specific interests.

These unique and specific interests are the reason that the legal push to protect women’s rights to breastfeed at work is so slow and halting. The health care sector, the formula companies, and lactating mothers’ employers all have different reasons for opposing the commitment to more social resources to the campaign to expand breastfeeding. Even the Breastfeeding Provisions in the PPACA expanded law that passed, did not include provisions for tax credits for pumping equipment at the worksite, and the families’ tax credit for lactation services and for pumping equipment, as the proposed Breastfeeding Promotion Act had in its document. Nor does it protect salaried employees (U.S. Department of Labor, 2010), and, as the literature shows there are already disparities in the level of occupation when women try to combine breastfeeding and employment. Proponents of increased breastfeeding were encouraged by the recent inclusion of increased protections for breastfeeding mothers in medium and large sized businesses—but the measure’s lack of substantial scope was a perfect example of incremental change.
Part 2: Systematic Review of Literature

Table 1

Search Terms and Process

<table>
<thead>
<tr>
<th>Search Terms</th>
<th>PubMed</th>
<th>CINAHL</th>
<th>Total Titles/Abstracts Reviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Return to work and breastfeeding’</td>
<td>248</td>
<td>147</td>
<td>395</td>
</tr>
<tr>
<td>‘Breastfeeding and employment’</td>
<td>823</td>
<td>442</td>
<td>1265</td>
</tr>
<tr>
<td>‘Breastfeeding and Affordable Care Act’</td>
<td>35</td>
<td>43</td>
<td>78</td>
</tr>
<tr>
<td>Total</td>
<td>1106</td>
<td>632</td>
<td>1738</td>
</tr>
</tbody>
</table>

This section includes the results of the systematic review of literature that provides content central to this dissertation. A review of literature was conducted using the Cumulative Index of Nursing and Allied Health Literature (CINAHL) and PubMed databases, as they are the most comprehensive nursing and medical databases available and includes allied health professions. Search terms were “return to work and breastfeeding,” “breastfeeding and employment” and “breastfeeding and Affordable Care Act.” Three-hundred ninety-five; one-thousand two-hundred sixty-five, and seventy-eight article titles and abstracts were examined in each search, respectively. After substantial review of the issues, measurements and data, an additional criterion was used. The timeframe was limited to (2003-2020) as this is most relevant and articles were selected if they met all other criteria. Inclusion criteria emphasized studies conducted in the U.S. and empirical research. Literature reviews were not included. Inclusion criteria required that the study focused on breastfeeding and employment or had a work/employment variable, and that breastfeeding duration or exclusivity was measured. Once articles were accepted for this literature review, thematic
analysis was conducted to identify emerging themes from the literature. They are categorized as *Sociodemographic Factors* (this includes descriptions of women who breastfeed and those who do not), *Individual Factors* (focusing on Personality Traits, Knowledge, Attitudes and Beliefs), *Mitigating Factors* (anything that increased breastfeeding despite known risk factors to not breastfeeding), *Philosophy* (an overarching philosophy rooted in Feminism was touched upon in some studies), and *Breastfeeding and the Affordable Care Act* (the most recent studies post-PPACA), see Diagram 1.

Diagram 1

*Schematic diagram of literature review with an overarching theme of Feminist Philosophy and placed within the CMNHP Framework*
Table 2

*Systematic Review Themes*

<table>
<thead>
<tr>
<th>Themes from the Literature</th>
<th>Number of Articles (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sociodemographic Factors</td>
<td>43</td>
</tr>
<tr>
<td>Individual Factors</td>
<td>4</td>
</tr>
<tr>
<td>Mitigating Factors</td>
<td>24</td>
</tr>
<tr>
<td>Breastfeeding and Affordable Care Act</td>
<td>7</td>
</tr>
<tr>
<td>Philosophy: Feminism</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>82</strong></td>
</tr>
</tbody>
</table>

**Sociodemographic Factors**

Examples of sociodemographic factors included self-reported age, work status, race, ethnicity, language, geographic area, income, and education and others. Many of the articles from the Sociodemographic factors theme used data from large datasets. The information gleaned is useful in that it described who breastfeeds and possible moments when women stopped breastfeeding or weaned their infants. Some articles combined this data with qualitative interviews to enrich the causal factors explanations associated with weaning and returning to work. Others were of small sample sizes in order to pilot test questions or variables associated with breastfeeding and returning to work.

**Sociodemographic Factors: From Large Datasets**

When using a large dataset many researchers used multiple regression analyses (i.e., Infant Feeding Practices Study II (IFSP II), N=1470 [Mandal et al., 2010]; Listening to Mothers Survey II, N=1573 [Attanasio et al., 2013]) to identify which variables were more predictive of explaining the relationships between the variables of interest. Some of these datasets are nationally representative (i.e., Listening to Mothers Survey II & III), others are
not (i.e., Hawaii’s Vital Records Survey, N=2011, Minnesota’s Well Baby Care, N=414 [Hanson et al., 2003]; Southern California’s Effects on Maternity Leave on Breastfeeding, N= 770 [Guendelman et al., 2009]) and may focus on a particular state’s data or a specific population of low-income women, such as data from the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) (Minnesota’s Well-Baby Care, N=414, Hanson et al., 2003).

**Sociodemographic Factors: From Personal Interviews**

Some researchers designed personal interviews (Perceptions of Breastfeeding and Return to Work/School among WIC pregnant women located in a U.S. Midwest city, N= 17, Rojjanasrirat & Sousa, 2010). The study designs employed were guided by and designed to address the research questions posed. Some of the results are not consistent across studies in identifying predictors of breastfeeding initiation and duration however some general themes emerged. This systematic review summarizes the research and poses additional research questions designed to guide and inform policy.

**Sociodemographic Factors: Employment Status Variables**

Articles with this theme examined the employment status variables; usual delineations were full-time, part-time and not employed. Self-employed mothers were excluded from some studies, since the work accommodation was the main area of interest and self-employed mothers would not have conditions that inhibited breastfeeding. The outcome variables were breastfeeding initiation rates or breastfeeding duration rates. Some authors were interested in a particular point in time. For instance women were queried their ‘intent to breastfeed’ and their plans for ‘breastfeeding duration’ during pregnancy, after delivery, or after returning to work; and to see if mothers could meet their own goals for
breastfeeding. Overall findings from these studies indicate that as work increases, breastfeeding decreases.

**Sociodemographic Factors: Return to Work and Intention to Initiate Breastfeeding**

Mirkovic et al. (2014a) were interested in the relationship of intentionality and breastfeeding and employment. They used the Infant Feeding Practices Study II (IFPS II); a consumer opinion mail panel that followed mothers for the first 12 months after birth. The IFPS II was conducted by the Food and Drug Administration (FDA) and the Centers for Disease Control and Prevention (CDC) during the years 2005–2007 and its longitudinal study design followed about 2,000 mother-infant pairs from the third trimester of pregnancy throughout the first year of life to study a variety of infant feeding practices. IFPS II mothers were older, married, more educated and had higher rates of employment than a nationally representative sample. The outcome variables of interest were breastfeeding, formula feeding or both. Two questions were related to work. ‘Did you work in the past year and do you plan to work (and how many hours) after the baby is born?’ From the initial N=4902 women, N=2361 met the inclusion criteria and were included in the study. Chi-square analysis was used to determine significant relationships between variables such as age, race/ethnicity, marital status, education, poverty income ratio, pre-pregnant weight, first time mother status and WIC participant status and bivariate analysis was used to examine if a mother’s feeding plan was associated with her plans for maternity leave and her return to work status. Logistic regression analysis was used to determine if prenatally anticipated maternity leave duration and return status were associated with a mother’s intention to breastfeed in the first few weeks postpartum. Results indicated that pre-planning to return to work at earlier times (within 6 weeks) had 0.60 times the odds (95% CI, (0.46–0.77) yet pre-planning to return to
work at later times (7 to 12 weeks) had 0.72 times the odds (95% CI, 0.56-0.92) of intending to exclusively breastfeed compared with mothers pre-planning to return much later (after 12 weeks). Planning to work full-time was independently associated with lower odds of planning to exclusively breastfeed (adjusted odds ratio = 0.61; 95% CI (0.51-0.73) in comparison with women who were planning to work part time after giving birth. This research is significant in that it shows a window of when mothers make their decisions to breastfeed; it is often in the 3rd trimester of pregnancy. The authors succeeded in building on previous research and further compared and contrasted their work to Attanasio et al. (2013) who retrospectively asked postpartum mothers their prenatal plans for feeding; whereas in this research, recall bias is eliminated. However, the question still remains: did women return to work earlier if they did not plan to breastfeed or did the limited maternity leave influence the decision to not breastfeed? This critical question can be answered with a more direct question to women in future research. Hospital and clinical practices may help to strengthen necessary supports for new mothers returning to work, as the 3rd trimester of pregnancy has been shown to be of a critical time period. If women would like to breastfeed but need to return to work then continued support and adoption for policy on paid maternity leave in the U.S. might be a beneficial policy to explore.

Building on the intentionality and timing of returning to work article from Mirkovic (2014a), Mirkovic (2014b) studied maternal leave duration and return status (full-time or part-time work). They used the IFPS II dataset with multivariate logistic regression and this time analysis was limited to N=1172 women who were employed prenatally and said they planned to breastfeed 3 months or longer. Whereas other research notes maternal employment as a barrier to breastfeeding, this article builds on that knowledge by nuancing
employment status along with the intention to breastfeed. The full-time and part-time job statuses were associated with not meeting a mother’s intention to breastfeed at least 3 months. Over a quarter of the mothers (28.8%) did not meet their intention to breastfeed at least 3 months; with full time work status showing even higher odds of failure (<6 weeks/FT: adjusted odds ratio = 2.25, 95%CI (1.23-4.12), 6 weeks -3months/FT: adjusted odds ratio =1.82, 95% CI (1.30-2.56) compared to mothers not working at 3 months. The study design is of particular importance in that it eliminates the possibility of reverse causality; capturing the intention first, along with the actual results second. For women who plan to breastfeed but fail to meet their intentions, policies in place may help women achieve their goals.

**Sociodemographic Factors: Paid Maternity Leave**

Mirkovic et al. (2016) added to the evidence base focused on paid maternity leave and breastfeeding outcomes. Using the 2006-2010, U.S. National Survey of Family Growth and a sample of N=2635 mother/infant dyads they examined an employed mothers most recent birth in the past 5 years. Statistical methods used were \( \chi^2 \) analysis and multivariate logistic regression. Over one quarter of prenatally employed mothers (28%) received no paid leave. Among mothers who received over 12 weeks of paid leave, these mothers were more likely to initiate breastfeeding compared to mothers with no paid leave (87.3% vs 66.7% adjusted odds ratio 2.83 95% CI (1.23-6.48). In addition the women with 12 weeks or more of paid leave were more likely to breastfeed for longer durations (breastfeeding at 6 months) 24.9% vs 50.1% \( \alpha \)OR 95% CI (1.20-4.26, compared to women with no paid leave. Mirkovic and colleagues continue to show the importance of paid leave positively influencing breastfeeding outcomes for employed mothers.
Dagher et al. (2016) asked the question: does having a family leave policy affect the rate of breastfeeding on initiation or cessation? Authors examined N=817 Minnesota mothers who gave birth in a hospital setting. Using descriptive statistics, t-tests, \(x^2\), and Cox proportional hazard ratios they found for women who held professional jobs, were first time mothers, held graduate degrees, did not smoke prenatally, had no breastfeeding problems, and had known family or friends who breastfed, the odds of breastfeeding initiation were higher than if they did not have these characteristics. In contrast, women who returned to work within 6 months of birth, were single or had no friends or family who breastfed, had higher rates of breastfeeding cessation. If a woman worked for an employer with a family leave policy this did not affect breastfeeding initiation or cessation; however, they did find that women who took a shorter leave were more likely to cease breastfeeding in the first six months after giving birth.

While many researchers suggest federal paid leave is the answer for increasing breastfeeding rates, new state policies are grappling with more robust paid leave options. Policies such as the Washington Family Leave Act (WFLA) which took effect January 1, 2020 and expanded the scope on the FMLA as it can be transferable from employer to employer. In addition when considering the political climate of the U.S. in terms of repealing or replacing the PPACA, better state protections may serve larger groups of beneficiaries.

**Sociodemographic Factors: Return to Work and Intention of Breastfeeding Duration**

Thomas-Jackson et al. (2016) surveyed N=160 new mothers from a southwestern U.S. hospital to examine a mother’s perception of the effect of returning to work on intended breastfeeding duration. Using path analysis, they found breastfeeding in the hospital setting within the first 2 days of birth and the intention to return to work affects how long a mother
intends to breastfeed. In other words, breastfeeding intentions were predicted by exclusive breastfeeding in the hospital ($\beta =0.21$, P <.01) and were negatively predicted by return to work ($\beta = -0.18$, P < .05). In addition, socioeconomic status (SES) and marital status were predictive of exclusive breastfeeding (SES, $\beta =0.29$, P< .001; and marital status, ($\beta =0.21$, P<.01). Marital status was a negative predictor of return to work, meaning the intention to return to work was greater in mothers who were unmarried, RW ($\beta =-0.19$, P <.05). While this research focuses on timing and intention to breastfeed it also accounts for the breastfeeding that occurs in the immediate postpartum period as an indicator predictive of breastfeeding duration. Two important conclusions can be drawn from this research. One, the in-hospital experience is shown as a critical window for support of new mothers, and two, since marital status was a negative predictor of return to work, more focus can be placed on this vulnerable group. Finally the family policy or even more specifically single mother leave policies should be explored.

Attanasio, Kozhimannil, McGovern, Gjerdingen, and Johnson (2013) found that women working full-time during pregnancy were not able to fulfill their intention to breastfeed exclusively compared to women not employed. Using a nationally representative sample from the Listening to Mothers Survey II, N=1573, Attanasio and colleagues examined employment status (full-time, part-time, and not employed) and questions related to the Baby Friendly Hospital Initiative (BFHI) status based on the mother’s impression which was scored based on a number of questions; a higher score indicated a more supportive breastfeeding experience in the hospital setting. Findings indicated that employed mothers intended to exclusively breastfeed; however, they had lower odds of exclusively breastfeeding after one week compared to mothers not working, (adjusted odds ratio (AOR)=
Findings also indicated that higher BFHI scores were associated with higher odds of breastfeeding at one week but did not differ according to employment status. Thus, having a breastfeeding supportive hospital environment did help to encourage breastfeeding at one week but made no difference based upon a mother’s full-time, part-time or not working status.

Similarly, Declercq, Sakala, Corry, Applebaum, and Herrlich (2014) used the Listening to Mothers Survey (wave III) with a nationally representative sample of women aged 18 to 45 years (N=1072). The purpose of this study was to gain insight on postpartum women’s experiences about maternity care and childbirth. Employment and infant feeding variables were collected as part of the study. Results indicated that the majority of women were employed full or part-time. Thirty-one percent of the mothers in the follow-up survey indicated they were currently employed on a full-time basis with another 22% employed on a part-time basis. Other participants were full-time students (3%), still on paid leave (3%), and the remainder (41%) were neither employed, nor students, nor on leave. In addition, when they asked the mothers who intended to breastfeed but who did not breastfeed their reasons for their behavior and, the most common were, baby had difficulty nursing (31%), it was too hard to get breastfeeding going (23%), formula was more convenient (23%), and the mother said she didn't get enough support to get breastfeeding going (17%) (Declercq, 2014). Many of these reasons point to lack of support, either directly or indirectly.

Gregory et al. (2015) used the IFPS II and followed women from late pregnancy to 1 year postpartum, during which time the researchers assessed expected breastfeeding duration at five time points. Results of logistical regression analyses indicated that return to work was negatively associated with met expectations (return by 6 weeks postpartum OR 0.48; 95% CI
(1.18-2.07); however, later return yielded OR 0.73; 95% CI (0.56-0.95). Overall, most participants did not meet prenatal or postnatal expectations for breastfeeding duration and were unsatisfied with the duration of breastfeeding. Nonetheless, many participants felt they had met their expectations and were mostly satisfied with their breastfeeding duration than were actually breastfeeding at 12 months. Based on these findings, the authors concluded that many women may perceive greater breastfeeding progress even if the Healthy People 2020 benchmarks are not met.

**Sociodemographic Factors: Descriptions of Who Breastfeeds, Who Does Not**

These employment variables are of interest in that they impact how many hours a week a mother works in the postpartum period. Ryan, Zhou, and Arensberg (2006) using data from Ross Mother’s Laboratory Survey (national sample of new mothers) N= 228,000, also looked at part-time, full-time and not employed variables and breastfeeding duration and initiation rates. Responses were weighted by national race/ethnicity statistics (to analyze national trends) and analysis included stepwise multiple regression statistics. Results indicated that mothers working part-time or not employed were more likely to continue breastfeeding compared to those working full-time (Ryan, Zhou & Arensberg, 2006), a finding that is supported by Fein and Roe (1998; and later discussed in more detail) as part-time work allowed mothers to continue to breastfeed.

Taken together, results suggest that as maternal employment increases, breastfeeding decreases. This research requires follow up because WIC is seen as protective towards early weaning and also encourages early weaning. A question that emerges is how mothers are counseled by WIC. When women indicate their preference for either mixed feeding or exclusive breastfeeding this seems like it would be an opportune time for teaching. The
variation in staff’s responses or the staff’s training programs throughout the U.S. remains to be researched and clarified; WIC is a federal assistance program that is implemented at the state level; thus, many variables must be considered. Another question raised is: through what mechanism does cup feeding protect against early weaning? Perhaps mothers are given an alternative to bottle feeding (possibly using a cup of water instead) and do not need to give any formula when human milk is not available. Many studies have noted friends and family that are supportive of breastfeeding have better breastfeeding rates of initiation and duration compared to unsupportive friends and family. What remains to be clarified is how health professionals, WIC workers, daycare workers and those in the community can be supportive to the support persons or those closest to the mother-infant dyad. Responses to these questions will likely indicate that one approach will not work for a vast array of ethnicities and cultures nationwide.

The data rich IFPS I and IFPS II have been helpful to researchers studying breastfeeding and infant feeding practices. Mandal and Lee (2010) discussed the breastfeeding changes between 1992 (the first study of the IFPS I) and 2007 (the second data collected of the IFPS II) in this U.S. sample which was distributed nationally however respondents were not nationally representative. They noted rates increased in initiation and duration, yet were still below the HP2010 goals. Earlier work of researchers Fein, Mandal, and Roe (2008) used the large national dataset, IFPSII with variables on work and breastfeeding noting breastfeeding rates of initiation and duration were particularly sensitive to the hours worked; mothers working part-time more easily integrated breastfeeding with their work schedules. They initiated breastfeeding and breastfed longer than mothers who worked full-time. This was not surprising as previous work from Fein and Roe (1998), also
found that part-time work helped mothers combine breastfeeding and employment successfully.

Mandal, Roe, and Fein (2010) conducted a more detailed analysis of mothers’ employment status and its impact on breastfeeding than done previously in the research and they examined planning to work a number of hours against the actual number of hours worked. Mandal, Roe, and Fein (2010) IFPS II, N= over 1400 mothers, examined initiation (intention), number of hours worked, duration (actual) number of hours worked. Planning to work less than 35 hours/week did not change initiation, but planning to work full-time did change initiation. Breastfeeding decreased if a mother returned to work within 12 weeks (whether she worked full-time or part-time) and it also decreased if she returned to work after 12 weeks but worked more than 34 hours. They recommended part-time work and an increased amount of leave time, in order to promote the breastfeeding rates of initiation and duration. Stated in other terms, women who work breastfeed less, but it is also noted that women who have paid leave, breastfeed more.

Guendelman, Kosa, Pearl, Graham, Goodman, and Kharrazl (2009) examined the extent to which maternity leave and other employment characteristics are associated with breastfeeding establishment in the first 30 days postpartum and with breastfeeding durations. They used data from the California’s Prenatal Screening Program (which was selected from a larger study “Juggling Work and Life During Pregnancy” which examined maternity leave and pregnancy outcomes. They used multiple regression and Cox proportional survival analysis and included a sample size of N=770. Results indicated that having maternal leave had a positive effect on breastfeeding rates. Consistent with other research, mothers who returned to work within 12 weeks after delivery and especially within 6 weeks were less
likely to establish breastfeeding than those who took longer leaves or had not returned to
work at the time of the interviews.

Overall, in this category of articles, the employment status focused on the number of
hours an employee worked (full-time, part-time, or not employed); whether mothers initiated
breastfeeding, their duration of breastfeeding; and if they breastfed exclusively. Articles also
discussed critical time points and decision making processes related to breastfeeding. For
women who intended to breastfeed, some made these decisions in pregnancy while others
waited until postpartum to decide. For women who returned to work, some resumed work
shortly after delivery, while others waited 6 months or more. In addition, some researchers
collected data on maternity leave. Collectively, results of these studies suggest employed
mothers breastfeed below the targets and recommendations or never even begin
breastfeeding and point to the need for workplace support and multiple other solutions, such
as increasing WIC support, and helping health care professionals by boosting support to
those closest to the employed mothers to reach their breastfeeding goals.

**Sociodemographic Factors: Occupation and Education**

Education variables related to return to work and breastfeeding show that the
prevalence of breastfeeding in educated women exceeds that of their less well-educated
counterparts. Ogbuanu, Glover, Probst, Hussey, and Liu (2011), used data from the dataset
Early Childhood Longitudinal Study Birth Cohort. Data from this nationally representative
sample consisted of N=10,700 children born in 2001. The study had 5 waves, birth through
kindergarten and for this research analysis, two waves, were examined; one at 9 months
(N=8750) and one at 2 years (N=4500). This (N=4500) selection was based upon a specific
question at the 9 month interview regarding work status; mothers were selected if currently
working. Results of multiple regression analysis indicated that full-time status was associated with a 10% lower likelihood of breastfeeding initiation, Risk Ratio (RR) 0.90; 95% CI, 0.82-0.97. In addition, full-time workers had a 19% lower likelihood of breastfeeding past 6 months RR 0.81; 95% CI 0.65-0.99 compared to mothers not employed. Whereas, authors note, part-time status was not statistically different than mothers not employed. These findings are supported by other research (Ryan, Zhou, & Arensberg, 2006; Ryan, Wenjun, & Acosta, 2002). In addition, occupational type postpartum was examined. Having a position classified as management, professional, service, sales, administrative and other and collecting data on full-time, part-time and not employed variables within the model gave researchers information on what particular jobs allowed women to combine breastfeeding and employment. Professional women had a 20% greater likelihood of initiating breastfeeding than administrative workers, while full-time workers had a 10% lower likelihood of initiating breastfeeding than those not employed (Ogbuganu et al., 2011). Snyder et al. (2018) examined informal and direct support factors for women upon returning to work. They found that women’s support varied by type of employment. Women in professional/management categories had the most support and those in the service, production/transportation categories to have the least levels of support for breastfeeding. While occupation can be a proxy for income, or related to socioeconomic status, or having a supportive partner or spouse, it is its own stand-alone variable and may provide additional insight regarding breastfeeding initiation and duration. As Hinson and colleagues (2018) noted in their focus groups with U.S.-born African American mothers many complex factors shaped breastfeeding initiation rates including communities, healthcare providers, and even the roles of partners and grandmothers influenced decision making. Taken together as
categories of Employment, Occupation, Education, along with the history of breastfeeding in the U.S., it is clear why there are higher rates of breastfeeding among women of higher education, employment status and occupation. The recent resurgence in breastfeeding has been a cultural change and women of higher socioeconomic position have multiple options that women in lower socioeconomic categories who are still breastfeeding at lower rates do not have.

One of the many challenges emerging in examining the data on occupation, work status and education is classifying positions and defining work characteristics. Full-time, part-time, and not employed variables can more easily be defined based on number of hours; however, job types are sometimes not clear. In addition, when researchers are seeking to select which variables are most predictive of breastfeeding status among employed women, it is difficult to know through which mechanisms a certain variable has a protective or detrimental effect in breastfeeding rates statistics.

**Sociodemographic Factors: Rural Women**

Hanson, Hellerstedt, Desvarieux, and Duval (2003) conducted a study of education, employment status and breastfeeding in N=414 rural women residing in Minnesota. Data were stratified and examined in two categories, college educated and those without college. They used the work categories, *working full-time* and *not working full-time* and examined breastfeeding rates initiation and duration. Those who were college educated and not employed had higher rates of both breastfeeding initiation and duration. One of the limitations of this study was that the sample was not representative of all rural women in the U.S. The U.S. is the 4th largest country in terms of land area and has many rural areas with diverse populations. According to the U.S. Census (2010), about 19.3% of the population
lives in rural areas, amounting to approximately 60 million people, so this preliminary research may guide and inform future studies in rural areas. The authors speculated that there were many issues concerning worksite breastfeeding accommodations and programs in rural areas and they could possibly vary from those in urban areas, making this an area of potential research.

**Sociodemographic Factors: Low Income Women and WIC**

Gurka et al. (2014) examined data from N=520 low-income women interviewed between 24-31 weeks of gestation. As other research has noted by Mirkovic et al. (2014a), many women had already chosen their feeding plan. For this study 95% of women had a plan at this time. Using logistic regression controlling for demographic variables, the only statistically significant variables were education and race/ethnicity. Hispanic women were 81% (CI 95%, OR 0.29 (0.10, 0.87) less likely to intend to give formula to their infants compared to non–Hispanic white women. For women with less than high school diploma or General Education Development equivalent test (GED) 84% (CI 95%, OR 1.84 (1.14, 2.97), they were more likely to intend to give formula to their infants compared to their more educated counterparts. Authors made a number of suggestions for increasing breastfeeding including, targeting at-risk women, timing education, using a breastfeeding assessment tool such as BPAL from the University of Virginia (Burns et al., 2014) (which includes questions like, how many times have you attempted to breastfeed and how long total, to help identify teaching points) and using technology especially for younger women such as Text for Baby programs.

Christopher (2011) offers many comments about the critical need to captivate the attention of women. Whereas formula companies and pharmaceutical companies have
already found their way; from a public health perspective she urges us to not see each other as enemies but as allies. By reframing the discussion around breastfeeding as First Food it acknowledges breastfeeding as part of a life course perspective especially for vulnerable women and children. In addition, she challenges the free formula given out by WIC and raises larger public / social policy issues that could shake the status quo to reframe the issues of equality and public health.

There is a plethora of research collected using WIC data. The population is already pre-selected as being low income (it is a requirement in order to receive WIC services) and data are available for government use and independent researchers. The population of low-income women and those utilizing WIC services are particularly sensitive to work-related variables regarding breastfeeding. Economic theory points out that people are rational beings; therefore, they are behaving rationally and they have utility from the choice they are making (Folland, Goodman, & Stano, 2012). In this case, low income women may want to breastfeed exclusively but may need to return to work within a short time frame of giving birth and therefore do not breastfeed at all, or wean earlier than they would have liked.

Haider et al. (2003) used Ross Lab data which is a large national survey questionnaire on milk feeding patterns and examined the effect of three work policies that affect mothers. Policies included 1) whether any work is required for mothers of six-month old infants, 2) the minimum number of hours of work that is required and 3) sanctions. Two relevant laws during the 1990s were discussed. The first law reinforces mothers can breastfeed in public areas, the second law attempts to accommodate breastfeeding in the workplace. They found the most restrictive work requirements were associated with mothers decreased breastfeeding. In their analysis, they concluded, in the absence of welfare reform, the
national breastfeeding rate six months postpartum would have been 5.5% higher in 2000. In addition, for these vulnerable populations, the most stringent laws reduced breastfeeding by 22% relative to imposing no work requirements on new mothers. They concluded that while politically encouraging a work component to welfare may have popular public support, it may not be in the best interests for the recipients themselves or society as a whole.

Hurley and colleagues (2008) used WIC data from Maryland N=767 white, black, and Hispanic mothers enrolled in WIC. They used Cox proportional hazard ratios to determine who breastfeeds and when they stop. The most common reasons reported for breastfeeding cessation was insufficient milk supply (23.4%). Some racial/ethnicity differences were documented; Hispanic mothers were more likely than black and white mothers to cite perceptions of milk insufficiency and infant breast refusal than concerns regarding breast discomfort or pain. Black mothers were more likely than white mothers to report cessation to return to work. Hispanic mothers (91%) were more likely to initiate breastfeeding than black mothers (65%) or white mothers (61%). Some educational differences occurred as well; mothers with a high school diploma or less were half as likely to initiate breastfeeding as mothers with any college education.

Johnson and colleagues (2013) surveyed (N=188) WIC enrollees over a 2-month period who recently gave birth in the Hartford area. The participants identified as 76.4% Hispanic, 9.6% black and 8.4% white. While 95.3% of the women felt human milk had adequate nutrition, their intention of using exclusive human milk was low (35.3%). Many issues were identified including fear or pain with breastfeeding, the need to return to work or school, and having a supportive partner or spouse. When queried about possible solutions to
increasing breastfeeding the most common answer was lactation support, even among mothers who had previously breastfed children (78.9%).

Langellier et al. (2012) studied WIC participants in Los Angeles County (N=4725). Many social and institutional factors affected breastfeeding rates among the WIC mothers. The majority of mothers (N=4032; 87.3%) received a formula discharge pack in the hospital. Mothers who received a discharge pack of formula were half as likely to not exclusively breastfeed, compared to mothers who did not receive a formula discharge pack (P < .01). In addition only 6.9% exclusively breastfed for 6 months as the recommendation, and by 12 months it dropped to just one-third of any breastfeeding. Consistent with earlier research the authors concluded that providers should encourage and support breastfeeding especially upon return to work and stop the practice of providing free formula in the hospital at discharge.

Whaley and colleagues (2002) studied the WIC employees among 6 of 7 local WIC agencies in Los Angeles County. WIC employees were of professional class such as physicians, as well as administrative assistants, such as office workers. They received breastfeeding education through job training but also were surrounded by a culture of formula feeding. It was unclear in the article if any mothers in the study received the WIC benefits package personally. Having this information would have greatly enhanced the data in that WIC participants in previous studies had lower breastfeeding rates but this unique group of employees of WIC may have had different outcomes. The initiation rate was extremely high, 99%, and WIC employees continued to breastfeed to one year at a rate of 68%, both well above national averages. In fact, even the exclusive breastfeeding rates were high; more than 48% of the mothers never introduced infant formula. Results were analyzed using logistic regression and ten predictor variables found to be predictive in previous
studies; mother’s age, education, ethnicity, maternal leave time, partner support of breastfeeding, intent to exclusively breastfeed, introduction of formula, breastfeeding training experience, breastfeeding support group attendance and worksite breast pump availability were included as potential predictors of breastfeeding duration. Some variables were predictive of breastfeeding duration. Among paraprofessionals the intent to exclusively breastfeed (P <.001), the introduction of infant formula (P <.01), the attendance at breastfeeding support groups (P <.01) and the availability of worksite breast pumps (P <.05) were significant factors for breastfeeding success and these four variables accounted for 30% of the variance in duration of breastfeeding (F=4.52, P <.001). The variables found as not significant predictors were maternal age, education, ethnicity, leave time and partner support. The intent to exclusively breastfeed was the strongest predictor of breastfeeding duration, (which will be discussed later in the Personality Traits (Knowledge, Attitudes and Beliefs) section of the Systematic Review).

Rojjanasrirat and Sousa (2010) also used WIC data to examine how low income pregnant women (from a mid-western city in the U.S., from 3 WIC clinics) made plans for infant feeding as they contemplated going back to work or school. After analysis of the N=17 women’s responses, five themes emerged from the data. They were 1) perceived benefits of breastfeeding, 2) general perceptions of breastfeeding, 3) maternal concerns, 4) having the right support, and 5) anticipated challenges of combining breastfeeding and work. The researchers discussed that while most participants in this study were well aware of the benefits of breastfeeding, there were few women who anticipated the multiple challenges following the decision to continue breastfeeding after returning to work (Rojjanasrirat & Sousa, 2010). Employment was perceived as a breastfeeding barrier. This observation of
employment as a barrier to breastfeeding is further reflected in Bagwell, Kendrick, Stitt, Leeper, Espy, and Gedel’s (1992) work. They examined responses of N=498 WIC women who reported during the study time frame until they completely weaned their infants. Women participants were from the Alabama WIC Program 1986-1988; from data collected during the summer months. A major purpose of the study was to examine factors associated with breastfeeding duration in order to improve WIC services. They found older women (women over 30) breastfed longer (6.9 months +/-4.2; compared to women aged 20-29 (5.4 months +/-4.1, or under 20 years (4.3 months +/-3.6. Younger women (N=24, 29%) tended to stop breastfeeding citing insufficient milk. Those who cited returning to work or school as a reason to wean were less than or equal to 19 years, (N=13, 16%). This indicated that returning to work or school was the hardest for the youngest mothers. Knowing which populations have increased or decreased breastfeeding based on returning to work may help encourage or develop policy to help women reach their breastfeeding goals. One of the variables that would have enriched the data would have been to collect an exclusive breastfeeding measure, although during the 1990s, there was not a good method of measuring exclusive breastfeeding at the time.

Reifsnider et al. (2018) sought to determine if an educational program prenatally and in the home might help low-income, obese Hispanic women’s children avoid obesity. This study was a randomized control trial with N=174 who were consented and randomized, the final analysis was conducted with N=119 participants. The control group received no education and the intervention group had Spanish-fluent community health workers who provided in home education. Overall the education did not improve overweight or obesity rates in infants. The only variable associated with having a normal weight infant was
breastfeeding. At 6 months 52% (29/55) of formula fed infants were overweight/obese whereas 40% (25/62) of breastfed infants were overweight/obese at 6 months, \( P < .06 \). By 12 months the formula fed group remained the same at 52% (29/52) were overweight/obese and decreased for the breastfed infant group to 27% (17/63) were overweight/obese, \( P = .005 \).

Infants were formula fed from birth or less than 2 months of age when mothers reported employment at the 6-month visit (\( P < .02 \)). Authors encouraged WIC efforts to support breastfeeding.

Two other studies focused on low-income women. Kimbro (2006) used data from the Fragile Families and Child Wellbeing Study, using twenty U.S. cities, from a birth cohort born 1998-2000 and the children and (mostly) unwed parents were followed for 5 years, and were examined on their timing of returning to work and when the infant was weaned. For occupation category, they listed *Professional, Administrative, Manual, and Service* for analysis. Both descriptive statistics and a survival model were used to determine when mothers stopped breastfeeding. Results of the study noted that mothers with *Professional* jobs (OR 1.01; 95% CI 0.77-1.33; \( P = 0.931 \)) did not differ significantly in breastfeeding duration from *Stay-at-Home moms* (reference group). Compared to women in *Administrative* jobs (OR 1.34; 95% CI 1.12-1.60; \( P = 0.001 \)) or *Manual* jobs (OR 1.35; 95% CI; 1.04-1.75; \( P = 0.024 \)); these women had much higher odds of quitting, 34 and 35% higher odds of quitting respectively.

Flower et al. (2008) used mixed methods in their research designed to examine factors associated with continuation versus discontinuation of breastfeeding. They used Quantitative data from the Family Life Project, a longitudinal cohort study of infants born September 2003 to 2004 \( n = 1292 \) (from rural counties in Pennsylvania and North Carolina).
and qualitative data collected from (N=30) ethnographic interviews. Data were analyzed using logistic and Cox regression models. The results demonstrated that women who discontinued breastfeeding were working at 2 months, adjusted HR 1.99; 95% CI 1.32–2.99 and WIC adjusted HR 1.36; 95% CI 1.07–1.75. In addition, several themes emerged from the ethnographic data such as women discussing discomfort, or embarrassment and had a lack of assistance in breastfeeding. In this systematic review, all of the themes identified as Sociodemographic Factors, (low income women, women who are ethnic/racial minorities, women with less education, or have manual jobs or work more hours) were correlated with lower rates of breastfeeding than their higher socioeconomic, or dominant white majority counterparts. These themes emerge from the data and reflect the history of low socioeconomic status women in the U.S. as well.

**Sociodemographic Factors: Family Characteristics and Stress**

Sullivan, Leathers, and Kelley’s (2004) study examined the relationship of family characteristics and the duration of breastfeeding. They found as maternal responsibilities in the home tasks increased, breastfeeding decreased; the odds of early breastfeeding cessation increased by about 45%. However the opposite was true for as maternal time increased on infant care, spending more time with infant meant the odds of early breastfeeding cessation decreased by 44%. In addition, not surprisingly, increased maternal relationship distress also decreased breastfeeding; odds of early breastfeeding cessation increased by 75%, within the N= 115, cohort study. The researchers first met with pregnant women and followed the group through 4 months postpartum. The intention to breastfeed and maternal employment were also measured.
In similar research regarding maternal and infant stress, Purdy, Singh, Le, Bell, Whiteside, and Collins (2012) examined data from the Neonatal Intensive Care Unit (NICU) population (N=129; within two academic affiliated NICUs between December 2005 and January 2007). They sought to determine which women continued to breastfeed with a sample that included infants with a variety of conditions. The Neurobiologic Risk Score (NBRS) was used to determine the severity of illnesses (e.g., intraventricular hemorrhage, ventilation, hypoxia, hypoglycemia and sepsis) during the NICU stay. Results indicated increased breastfeeding if there was family support (P=.025) and decreased breastfeeding if they had issues with infant weight (infant weight <1500 grams (P<.035)), had heart surgery (P=.014), mother was a teen (P=.022), or if the mother had to return to work (P=.002). While it is not surprising that stressful situations decrease breastfeeding, these findings may help identify and target groups of women who may need additional support.

Sisk et al. (2010) studied mothers of very low birth weight infants (VLBW) in the NICU (N=32). Of the participants, half of the mothers were not married. They had two types of barriers that were identified. One was a barrier that occurred at the initiation of human milk expression for the VLBW infant and mothers lacked privacy and breast pump access. Another type of barrier was the access to support for maintenance for human milk production. Many mothers cited distance, long travel and separation from their infants as barriers. Overall, the median days spent in the NICU was 60 (range was 9-197). Infants received human milk on 68% of the total number of fed days and did not use donor milk. A majority of women cited work was a barrier to human milk expression. In addition, mothers reported exhaustion, lacked maternity leave and did not have workplace breaks. Authors
supported future research on maternity leave and workplace accommodations in effort to increase breastfeeding rates.

Sociodemographic Factors: Inequalities and Disparities

According to the National Institutes of Health, “Health status disparities refer to the variation in rates of disease occurrence and disabilities between socioeconomic and/or geographically defined population groups,” (NIH, 2014). Therefore, when applying this to the disparities in breastfeeding rates, there are two kinds of disparities, one is simply that breastfeeding did not occur, and two, the health consequences for mothers and infants for not breastfeeding. Several themes developed from the research.

Non-Hispanic black women breastfeed less than their non-Hispanic white counterparts. Only 74.0% of black infants born in the U.S. in 2016 started breastfeeding, compared to 86.6% of white infants. At six months, 48.6% of black infants had some breastfeeding, compared to 61.5% of white infants (CDC, 2018).

In this systematic review, several articles were identified related to racial disparities in breastfeeding rates for black women. Researchers, McCarter-Spaulding, Lucas, and Gore (2011) examined black women and their timeframe of returning to work and their breastfeeding duration in a Northeastern metropolitan city. They included data on a self-reported self-efficacy scale, the type of job and the timing of when they returned to work. They found that the timing of when a woman returned to work had a significant impact on breastfeeding duration using Cox proportional hazards. When a woman returned to work less than 12 weeks after the birth of her infant they had an increased risk for weaning; (HR 4.68, 95% CI, (1.81-12.08)); and when it was greater than or equal to 12 weeks the risk for weaning fell (HR 1.63, 95% CI, (0.60-4.39)). In addition when a higher self-efficacy level
was entered into the model, it had a protective effect against weaning. Authors recommended policies such as paid maternal leave and promoting Breastfeeding-Friendly workplaces as strategies to increase breastfeeding.

Johnson et al. (2015) studied workplace barriers for black mothers. Using focus groups they explored black mothers’ needs for workplace breastfeeding support. They included pregnant black mothers (N=8) black mothers of infants (N=21) and lactation support providers (N=9) in the focus groups in the greater Detroit area. The sessions were audiotaped and transcribed. Thematic analysis subsequently was used to analyze focus groups discussions. The focus groups explored thoughts, perceptions and behavior on interventions to support black mothers’ breastfeeding. Themes that emerged were lack of support for breastfeeding, domestic violence, homelessness, excessive work, not having time off from work, having many life stressors, having transportation issues (such as taking the bus which is longer than a personal car) and having a lack of lactation consultants available to them.

McKinney et al. (2016) examined racial and ethnic differences in breastfeeding. Using hierarchical linear modeling they described the race variable in more detail than in previous studies. Their results were in general agreement with previous work on black mothers’ low rates of breastfeeding initiation and duration compared to other racial ethnic groups. The group with the highest rates to initiate, intend and maintain breastfeeding duration was Spanish-speaking Hispanic mothers (initiate 91%), (intend 92%) and (maintain 17.1 weeks), followed by English-speaking Hispanic mothers (initiate 90%), (intend 88%) and (maintain 10.4 weeks), followed by non-Hispanic white mothers (initiate 78%), (intend 77%) and (maintain 16.5 weeks). However, when controlling for demographic variables the
disparities between black and white mothers fully mediated the duration of breastfeeding. Researchers were able to demonstrate through their analysis that demographic characteristics and in-hospital formula feeding explain breastfeeding gaps between black and white mothers. In addition, demographic characteristics and family history of breastfeeding can clarify the higher rates of breastfeeding in Hispanic mothers compared with other groups. For hospital and policy-makers hospital formula should be limited, along with attention to family history of breastfeeding to tailor care for vulnerable populations.

Reno et al. (2018) proposes that when attempting to address racial inequities stemming from poverty, community group model building from grounded theory research should be used. Researchers found that there were 82 factors that made breastfeeding easier and 86 factors that made breastfeeding harder for women. From this dynamic research model the participants themselves can help identify areas for support or change.

**Sociodemographic Factors: Single Mothers**

Single mothers have been found to have many life stressors. Using a life course perspective called the Life Course Health Development Framework, Pitonyak et al. (2016) used the IFPS II dataset as previously described. Life course factors were associated with initiation and continuation of exclusive breastfeeding for these single mothers. College education [odds ratio (OR) 2.14, 95% confidence interval (CI) 1.58-2.89] and marriage (OR 2.19, 95% 1.43-3.37) were associated with greater odds of exclusive breastfeeding lasting greater than or equal to 4 months. Other factors such as the planning to return to work after birth (OR 0.57, 95% CI 0.43-0.74), living in the south (OR 0.67, 95% CI 0.47-0.95) and having postpartum depression (OR 0.43, 95% CI 0.28-0.66) were associated with lower odds of exclusive breastfeeding lasting greater than or equal to 4 months. Single mothers have
disparities in access (hospitals, lactation services, prenatal care, limited or no childcare and limited or no transportation for appointments). They also have disparities in education and income and may have to return work sooner after giving birth and less ability to increase seniority and income from changing jobs or needing job flexibility for child care. Results were analyzed using a multivariate logistic regression analysis. White women had the highest levels of initiation (89.7%), aged 25-29 years (37.6%) and those with at least some college (40.4%) or college graduates (43.8%). The majority of participants reported zero weeks of paid leave (66.3%). College education is a variable that can explain much of the variance in breastfeeding rates since it is related to social context and can also tend to afford access to employment supportive of breastfeeding. Mirkovic (2016) suggests social policies such as paid leave should be utilized and Jacknowitz and colleagues (2008) found that each additional 8 hours women worked at home the probability for continued breastfeeding at 6 months increased by 16.8% and they also encouraged support for social policies for health for low wage job earners. Again using the life course perspective knowing that within the postpartum period is a sensitive period in women’s health development can be crucial to avoid/minimize or manage stress during which time can exacerbate chronic health conditions and contribute to poorer life course health development. In addition new research on child development shows stress or adversity in early life is also related to poorer health outcomes for children (Suglia et al., 2017). There are many benefits of the LCHD framework. It helps describe exposure to stress in early childhood and the relationship within the life course and health development and it may guide us to work policy and family leave policies. Overall this study had several strengths but has a methodological limitation; that is women often report maternity leave together along with vacation and sick time, disability benefits and other
sources. When trying to accurately capture the amount of paid or unpaid maternity leave the results are difficult to interpret. Future research should attempt to collect more precise paid and unpaid leave terms.

The effects of poverty pose a number of challenges for women’s breastfeeding rates. Ogbuanu and colleagues (2009) observed women who did not breastfeed and used their self-reported reasons and included race variables in their study. Results of their research indicated that approximately 38% of the women did not initiate breastfeeding with data that came from the 2000-2003 Arkansas Pregnancy Risk Assessment Monitoring System (PRAMS) dataset, a surveillance project instituted by the CDC and state health departments. Analysis included $x^2$ tests and multiple regression. A greater proportion of the women who did not initiate breastfeeding were black (32% (black women who didn’t breastfeed) versus 9.9% (black women who did initiate breastfeeding); $P<.0001$), were not married (50.1% (not married didn’t breastfeed) versus 27.8% (not married did initiate breastfeeding); $P<.0001$), and were earning less than $18,001 annually (55.9% (earning less than $18,001 and didn’t breastfeed) versus 39.7% (earning less than $18,001 and did breastfeed); $P <.001$) (Ogbuanu, et al., 2009). There was significant group variation among the N=2917, non-breastfeeding initiators for their reasons and their interpretation of public attitudes. However nearly half (48%) of all women cited they did not like breastfeeding. Almost 1/3 (30%) of all women said they did not breastfeed because they had to return to work or school. Results also suggest that culturally appropriate messages should be used when addressing women and their unique circumstances.

Few studies to date mention Asian women and breastfeeding. Soni, Gupta, and Jacobs (2011) collected data on (N=100) mothers within a multi-ethnic community. The Asian
population had the highest rates of exclusive breastfeeding. Consistent with other research, they found exclusive breastfeeding was not popular among other ethnicities, and family support was important. Ninety percent of the Asians planned to exclusively breastfeed and 50% (N=12) persisted at 6 weeks. Among the other racial groups, were Hispanics, of which 71% planned to exclusively breastfeed, but only 14% (N=15) continued to breastfeed at 6 weeks. Exclusive breastfeeding was only statistically associated with educational status (OR 2.1 (P=0.038)) in the multiple regression model. Results of this study would have been enriched if compared with national data available. One article on Korean American immigrants identified some similar themes in the research from other immigrants such as mothers wanting to listen to their family for advice, and to begin to acculturate to the U.S. by listening to American doctors and doing both formula and breastfeeding. One new theme that emerged was the reliance of listening to their own mother or mother-in-law as most of those in the study did not pay much attention or ask for advice from their husbands regarding infant feeding (Lee, 2018).

Substantial research has been conducted on Hispanic women’s infant feeding choices. Of note, Hispanic women breastfeed only slightly less than their non-Hispanic white counterparts, 82.9%, compared to 86.6% respectively (CDC, 2018). However at 6 months between group differences emerge. Sixty-one and a half percent of non-Hispanic white women are still breastfeeding at 6 months whereas only 51.5% of Hispanic women continue to do so (CDC, 2018).

Hayes et al. (2014) used the Hawaiian PRAMS 2004-2008 data to examine exclusive breastfeeding for 8 weeks. They analyzed data collected from N=8508 mothers with a recent live birth and computed risk ratios to determine specific racial differences. Factors that were
included in the model were maternal age, pre-pregnancy weight, cesarean delivery, return to work/school, and self-reported postpartum depressive symptoms. After adjusting for these variables, prevalence ratios for exclusive breastfeeding for each ethnic group compared to whites were: Samoan (aPR = 0.54; 95% CI 0.43-0.63), Filipino (aPR = 0.58; 95% CI 0.53-0.63), Japanese (aPR=0.58; 95% CI 0.52-0.65), Chinese (aPR=0.64; 95% CI 0.58-0.70), Native Hawaiian (aPR= 0.67; 95% CI 0.61-0.72), Korean (aPR= 0.72; 95% CI 0.64-0.82) and black (aPR = 0.79; 95% CI 0.65-0.96). In Hawaii, the two largest groups represented in the sample of breastfeeding mothers were Native Hawaiian and white mothers, with each comprising approximately a quarter of the population.

Haughton, Gregorio, and Perez-Escamilla (2010) performed a retrospective study of WIC clients (N=155) from Hartford, Connecticut and identified barriers to breastfeeding. Observations suggested that significant barriers to breastfeeding for these women were returning to work, having sore nipples, lacking access to breast pumps and having free formula provided by WIC. Results of regression analyses indicated that older age of women (one additional year of maternal age increased the likelihood of breastfeeding for more than 6 months (OR 1.09, 95% CI, (1.02-1.17)), planned pregnancies (were twice as likely than those unplanned to breastfeed for 6 months (OR 2.15, 95% CI (1.00-4.64)) and less time in U.S. (for example newly immigrated, OR .96, 95% CI (.92-.99)) were associated with longer breastfeeding durations of greater than 6 months. When participants were asked about breastfeeding given WIC provided free formula, some participants recognized the benefits of breastfeeding, others reported formula was better and easier to use, and still “one person did not want to breastfeed because she thought if she breastfed she would not have received formula when she needed it” (Haughton et al., 2010). Many participants identified having a
breastfeeding class or breast pump would be helpful for WIC to provide. The disparity research in this review examined women in low socioeconomic status, black, Hispanic, and Asian women. Current data show for black women, exclusivity rates at 3 months were 39.1%, and 20% at 6 months. Hispanic women’s exclusive breastfeeding rates at 3 months were 42%, and at 6 months it was 20.7%. For Asian women, exclusivity rates at 3 months were 48.1%, and 31.8% at 6 months. For non-Hispanic white women the exclusive breastfeeding rates at 3 months were 52.9%, and at 6 months it was 29.1%. These data show substantial room for improvement for all women, but particularly for women of color or those in a lower socioeconomic status (CDC, 2018).

Overall, researchers should be careful about implementing policy without sufficient evidence because given resource restraints and knowing what is effective for one group of women may not be effective for others. Multiple studies demonstrate the relationship between employment and initiation and duration rates of breastfeeding. These studies further reflect that the relationship of economic status and breastfeeding can further be delineated to demonstrate ethnic and educational relationships to both employment and continued breastfeeding.

*Sociodemographic Factors: Physicians*

Sattari et al. (2013) studied and identified work-related predictors of breastfeeding duration among female physicians. Data from N=238 children from two areas (Maryland and Florida) were obtained from 50 female physicians. While controlling for maternal demographics they found that although female physicians intended to breastfeed 56% of the infants for at least 12 months and 97% of infants were breastfed at birth; only 34% continued to receive human milk at 12 months. The survey response burden was approximately 15-30
minutes for a 49-item questionnaire in 2008; a 53-item in 2009 was developed to take approximately 20-30 minutes to complete. Interviews followed the questionnaires and eventually they had 130 interviews completed. One hundred percent of the interviewees reported intention to breastfeed. Factors associated with increased breastfeeding included maternity leave (paid or unpaid) and it was associated with a 0.14-month increase in breastfeeding duration. \( r=0.16, P=.022 \). Also having a supportive environment increased duration; each unit increase in reported collegial support (eg, “always supportive” compared with “usually supportive”) was associated with a 1.3 month increase in breastfeeding duration \( r=0.19, P=.011 \). In addition, having a supportive chief program director increased breastfeeding 1.1 months duration \( P=.010 \) in the multivariate analysis.

Building on the Sattari et al. (2013), Sattari et al. (2016) examined the infant feeding intentions and practices of internal medicine (IM) physicians. This group was selected from a larger sample and N=72 were included. From their breastfeeding among physicians database they identified 72 mothers current or previous internal medicine training and had 196 infants (mothers reported having 1-4 children). For the internal medicine cohort intention to breastfeed was 100%. The actual mean duration of exclusive breastfeeding for the IM cohort was 3.36 months (standard deviation [SD] 2.27, range 0-9 and mean duration of any breastfeeding was 9.73 months (SD 6.054, range 0-36). Internal medicine physicians used sick leave, short term disability, and vacation for their maternity leave and returned to work after 138 deliveries and did so on a full-time basis in 113 cases. The discrepancy between intention and actual breastfeeding was explained by work related factors. Having the Breastfeeding Provisions in the PPACA does not protect this group of mothers. These women are salaried employees as residents, fellows and practicing physicians. Additionally,
the majority did not receive breastfeeding education in medical school or training and were found to have high levels of depression (32%) after births, compared to (13%) which is the national average.

Stack et al. (2019) examined the experience of female residents in 78 programs in 25 unique specialties and in 6 institutions. They had N=804 participants who completed a REDCap survey. Most took approximately 6 weeks time off maternity leave. While this sample had high rates of breastfeeding initiation, those that had greater than 6 weeks of maternity leave had statistically significant longer breastfeeding durations (P = .01).

**Sociodemographic Factors: Registered Nurses (RNs)**

Wambach et al. (2018) studied (N=78) RNs in a children’s hospital health system in the Midwest U.S. and identified how their breastfeeding experience differed by unit. Participants were selected if they were breastfeeding and working at the same time or had done so in the past year. Levels of support were based on responses to the Workplace Breastfeeding Support Scale (α.87). Overall support was generally high and they did not find significant levels of support that differed among units and this included both inpatient and outpatient settings.

**Individual Factors**

**Individual Factors: Knowledge, Attitudes, and Beliefs**

This section focuses on Individual Factors, some of which are Personality Traits, or a mother’s knowledge, attitudes, or beliefs about breastfeeding that are central to decision making about initiating breastfeeding in the first place. Knowledge, attitudes and beliefs are closely related to health behaviors. Taveras, Capra, Braveman, Jensvold, Escobar, and Lieu (2003) used data from N=1163 mother-infant pairs. Data collected were from patients
enrolled in Health Maintenance Organization (HMO) and interviewed 2 weeks postpartum. Variables included age, race, ethnicity, prenatal care, parity, education, income, and marital status. Results of a retrospective cohort study and logistic regression analysis indicated that psychosocial and work/school related characteristics were associated with breastfeeding discontinuation. Similar to other research, results indicated that the lack of the infant’s father’s support decreased breastfeeding (OR 1.7, 95% CI, (.99-2.91) odds of breastfeeding discontinuation at 2 weeks). They examined clinical support such as having a physician, nurse or breastfeeding consultant who encouraged women about breastfeeding. Clinical support was associated with increased rates of breastfeeding (OR 0.56, 95%CI, 0.37-.84) and women less likely to discontinue breastfeeding at 12 weeks. In addition, they used a depressive symptom score, the Center for Epidemiologic Studies Depression Scale (CES-D) and reported that mothers with higher depression symptom scores at 2 weeks were more likely to discontinue breastfeeding at 2 weeks (OR 1.07, 95% CI (.88-1.3) and 12 weeks (OR 1.18, 95% CI (1.01-1.37) (Taveras et al., 2003). The proportion of mothers who cited return to work or school as the main reason for breastfeeding discontinuation was 58% at 10 to 12 weeks postpartum and the main problems reported were restricted schedules and breaks (51%) and insufficient privacy (20%) (Taveras et al., 2003). In addition, they reported they were the only study to their knowledge to document higher breastfeeding discontinuation rates among mothers of Asian race/ethnicity, thus suggesting the need for further research.

Scott et al. (2016) studied Marshallese women residing in northwest Arkansas. Many of the Marshallese women viewed human milk as superior to formula. Researchers used the Pender’s Health Promotion Model (HPM) as it guided the qualitative inquiry of the study. It was also part of community based participatory research project that was started in 2012;
N=31 mothers completed the surveys. Almost all (30/31) reported they had breastfed their last child with an average duration of 4.1 months. Acculturation status into the U.S. seemed to affect their perception of breastfeeding practices. This is similar to other communities such as research conducted with women born in Mexico and living in the U.S. Group characteristics indicated that some participated in WIC, many needed to return to work shortly after birth and many had specific concerns related to diet. Many Marshallese women in the study believed certain foods were good for milk supply and many wanted fresh fruit and breadfruit (which is rich in vitamins, minerals and is high in carbohydrates) in order to breastfeed or have good milk. Inability to access to these foods was seen as a barrier to breastfeeding. The results of this study can be compared to Gill (2004) who identified access to traditional foods was important for breastfeeding success in the population of low-income Mexican women in the U.S.

**Individual Factors: Women's Personality Traits**

There were a variety of conceptual and methodological approaches to research focused on individual factors and breastfeeding initiation and duration. Women’s personality traits have emerged in research as having a protective effect on breastfeeding initiation, duration or exclusivity rates. Specifically, these individual factors (i.e., maternal confidence, self-efficacy) were operationalized through questionnaires on personality traits or feelings. Bandura’s concept of self-efficacy is a belief in one’s ability to perform a task (Bandura, 1977a; Bandura, 1977b, Bandura, 1986). Several studies used this concept as it is well-applied to behavioral and breastfeeding research and having a higher self-efficacy has shown a positive correlation with increased breastfeeding. Aquilina (2011), conducted telephone interviews with N=77 women delivering birth to an infant at a suburban Western New York
hospital over a 6-month period. This researcher sought to answer the questions; is there a relationship between sociodemographic variables and self-efficacy, and is there a relationship between sociodemographic variables and breastfeeding duration? The Breastfeeding Self-Efficacy Scale (BSES-SF) was chosen to measure self-efficacy and descriptive statistics. ANOVA and construct validity were used to report the results. Both employment and intention to breastfeed were related to breastfeeding self-efficacy. The association between prenatal education class attendance and a woman’s self-efficacy was marginally significant ($P= .055$); women’s self-efficacy score without the class (55.39) was higher than women with the class (51.03), possibly due to a woman’s confidence or being in multiparous status group. In-hospital formula supplementation was related to shorter breastfeeding duration. Testing for differences in breastfeeding duration using one-way ANOVA, duration differed significantly between infants who received formula supplementation and those who did not ($F (1, 66) = 4.969, P=.020$) indicating formula supplementation hindered breastfeeding duration rates.

Pollard and Guill (2009) used descriptive, correlational analysis with data collected from N=70 mothers enrolled in WIC in southeastern North Carolina. Factors associated with breastfeeding rates at 6 months were; being enrolled in WIC ($t$=-4.072, $P=.000$) and marital status ($t$=-2.359, $P=.021$). The duration of breastfeeding for mothers enrolled in WIC was 6.7 weeks, in contrast with mothers not enrolled in WIC which was 15.95 weeks. For mothers who were married the mean duration of breastfeeding was 14.8 weeks +/- 3.5 compared to single mothers which were 8.9 weeks. Researchers also used the Breastfeeding Self-Efficacy Scale (BSES-SF), 14-item questionnaire as an assessment tool and it was predictive of breastfeeding success ($r=.264, P=.049$).
Authors (Pollard & Guill, 2009) suggested that health care professionals could use the assessment tool in the delivery setting to help increase a mother’s knowledge, and increase her confidence consistent with Bandura’s Social Learning Theory. For example, health care professionals could use personal accomplishments, vicarious experiences, and verbal persuasion for enhancing self-efficacy. In addition, they made suggestions to continue staff education because formula supplementation is still being used in hospitals. While using Social Learning Theory to support new mothers’ confidence and breastfeeding abilities is possible, it is unlikely this could be universally feasible. To date, many hospitals do not follow the best known practices for breastfeeding. Of note, many contraindicated practices, such as providing free formula discharge bags, giving infants sugar-water, or giving formula supplementation without a medical reason are common procedures throughout the U.S. In order to implement their research it would require more staff education at the basic levels, before these other interventions could possibly be a viable option.

Wallenborn et al. (2019) used the IFPS II and conducted analysis to see if workplace support influences employed mothers breastfeeding intention, self-efficacy and duration or if workplace support indirectly influences breastfeeding duration through the effect of breastfeeding intention and self-efficacy. Perception of workplace support works on a mother’s own self-efficacy. They adjusted for cofounders and used structural equations. At a statistically significant level there was a direct effect between self-efficacy, breastfeeding intention, and breastfeeding duration, including a statistically significant indirect effect of workplace support on breastfeeding duration through self-efficacy in attaining breastfeeding goals. Their mediation ratios of the indirect effects showed that self-efficacy in attaining breastfeeding goals accounted for 40.8% (P-value=0.032) of the total effect. Meaning, the
simple measures for self-efficacy do not account for the perception of the workplace support, as this is also part of the model.

Personality traits can be viewed through the contextual view of culture. Women with the most success for combining breastfeeding and work had higher levels of self-efficacy but simply knowing this will not change the health policy. Using the information to tailor specific health policy messages and accounting for multiple variables will be more useful.

**Mitigating Factors**

This category describes a mitigating factor, or something that has increased breastfeeding despite a group’s known lower breastfeeding rates. Several researchers tested the effectiveness of breastfeeding classes or phone calls on breastfeeding success.

**Mitigating Factors: Provider Classes**

Volpe Holmes et al. (2012) studied the use of patient education as an intervention for increasing breastfeeding. Classes that addressed common breastfeeding problems such as mastitis, insufficient milk, poor infant weight gain along with returning to work were examined along with assistance in the hospital and/or follow up after baby’s birth. They studied 24 residents and 15 faculty members at the intervention site, compared to 12 residents and nine faculty members in a similar control program. Attendance to the education series improved breastfeeding knowledge (P<0.01) and attitudes/beliefs (P=0.03). Improvements of any breastfeeding at 4 and 6 months and of full breastfeeding at 4 months were observed in participation in the education series. In other words when attitudes/beliefs changed and they were willing to implement changes in practice to increase breastfeeding and physicians were also more likely to look up medications to see if there were any
interactions with human milk and even considered lactation consults when needed, breastfeeding increased.

**Mitigating Factors: Phone Call, 8 weeks Postpartum**

Lewallen et al. (2006) studied the types of help women received for breastfeeding support and determined reasons for early cessation. Researchers used a descriptive study design with open-ended questions on N=379 women who were called by phone 8 weeks after delivery. Along with other breastfeeding problems with issues some had personal reasons along with returning to work or school and mothers said they had stopped breastfeeding due to illness or drug medications. Fifty-five percent (N=219) of these women received help with breastfeeding after hospital discharge, however the majority (92%) had help within the hospital; mostly from nurses and lactation consultants. The majority (68%) of women were still breastfeeding at 8 weeks; however, over 1/3 (37%) were supplementing with formula. When queried the main reason for breastfeeding cessation, insufficient milk was the most common reply.

**Mitigating Factors: WIC Intervention**

Petrova et al. (2009) studied lactation consultants who worked with low income Hispanic women using WIC. This is placed here in the literature review theme Mitigating Factors because having this intervention helped breastfeeding rates. The effectiveness of exclusive breastfeeding promotion in low-income mothers was evaluated using a randomized controlled study design, with N=52 women in the intervention group, while N=42 were assigned to standard breastfeeding care. Survey data assessed knowledge, attitudes and beliefs. Approximately 87% (N=91) were Hispanic; which included 82.4% of the women of being of Mexican descent. The rest were from Honduras, Puerto Rico, Santa Domingo,
Salvador and the Dominican Republic. Of those intending to breastfeed almost all discussed breastfeeding with those close to them (telling their husbands/boyfriends and mothers). However, the exclusive breastfeeding in the first 7 days were 45.6% in the intervention group and 28.9% in the control group. After 3 months exclusive breastfeeding dropped to 13.9% in the intervention group and 10.5% in the control group. There was an insignificant increase in breastfeeding rates. Intervention and control groups were similar; the randomized control trial shows slightly higher breastfeeding rates in the intervention group. However, exclusive breastfeeding rates remain difficult to change.

**Mitigating Factors: Institution of BFI and Provider Class**

Using the Breastfeeding Friendly Initiative as a guide, Rosen Carole et al. (2016) conducted a survey on pre/post breastfeeding rates of women in New York City. Data were collected on N=136 primary care providers and staff. Their intervention of implementing a Breastfeeding Friendly Initiative into their primary care network was found to improve breastfeeding initiation and duration up to 1 year. They also had additional increases in breastfeeding duration of 1 month following a 45-minute staff education module. They measured baseline and pretest attitude scores and after the training there was an overall improvement in knowledge and attitude scores. Prior to the Breastfeeding Friendly Initiative, they had only 38% of newborns reported as being breastfed at the initial newborn visit, but after the training the assessment revealed an increase to 57%. In addition, the authors explained that it was possible to be creative in hiring practices or using existing staff. They were unable to hire a lactation consultant but were able to use an educational staff member to fill this role.
**Mitigating Factors: State Laws**

Smith-Gagen et al. (2014) analyzed breastfeeding practices using the 2003-2010 NHANES data using a National and Nutrition Examination Survey. Authors categorized and measured three measures of breastfeeding practices. A mother’s reported breastfeeding initiation, duration which measured breastfeeding at 6 months, and the state law(s) related to breastfeeding applicable in that state. Having a law for breastfeeding was a mitigating factor in that those that had more robust laws were associated with increased infant breastfeeding at 6 months. When the law with an enforcement provision for workplace pumping laws was in place breastfeeding at 6 months was higher than for those who did not have a similar law [OR (95% CI) 2.0 (1.6, 2.6)] and when the jury duty exemption for breastfeeding mothers was in place there were similar increases [OR (95% CI) 1.7 (1.3, 2.1)]. When the law required a private area in the workplace to express human milk [OR (95% CI) 1.3 (1.1, 1.7)] or having break time to breastfeed or pump [OR (95% CI) 1.2 (1.0, 1.5)] were also observed to be important for infant breastfeeding at 6 months. Infants who were ever breastfed in those states had greater proportions of laws that protect the ability to breastfeed in any public or private location, exempting mothers from jury duty, implementing or encouraging breastfeeding awareness education campaigns, enforcing pumping laws, allowing break time from work, and laws regarding private areas to pump at work. Laws that allow for exemptions from jury duty and enforcement of pumping laws had greater proportions of infants who were breastfed for at least 6 months, showing that the different laws may affect the rates differently, some increasing an initiation rate and some sustaining breastfeeding seen in a duration rate increase.
Mitigating Factors: Careful Communication

Taveras et al.’s (2004) prospective study focused on what is said by the clinician and what is heard by the patient. Specifically, the purpose of the study was to see each of their perspectives of conversations and to identify gaps in communication. The clinicians taught their patients about breastfeeding and later asked them what they taught. In addition, data were collected and compared to what the patient’s heard in the visits. The research showed differing perspectives on breastfeeding counseling. Overall, response rates were 63% for mothers (N=429) and 82% for clinicians (obstetric clinicians: N=54; pediatric clinicians N=67) with telephone interviews at 4 weeks and 12 weeks and collected with a mailed survey. A few mothers reported discussions of breastfeeding duration with their obstetric clinicians during their prenatal visits (15%) and only slightly higher reports with their pediatric clinicians during their infants’ 2 week preventative visit (24%). Among 164 mothers whose obstetric providers said they usually or always discuss breastfeeding duration during prenatal visits, only 26 (16%) of the mothers reported breastfeeding duration was discussed (22% agreement; $k= -.0004$). Among those mothers whose pediatric clinicians said they usually or always discuss breastfeeding duration during the 2-week preventive visit, only 25% of the mothers reported that the topic was discussed (32% agreement; $k= .05$). Many of the mothers had either returned to work by 12 weeks (29%) or planned to return to work within the next few months (43%). While nearly all the obstetric (91%) and pediatric (97%) clinicians reported that they discussed breastfeeding after returning to work; only 55% of the mothers said the topic was discussed. Of course some limitations of the study may have been an issue, such as recall-bias and social desirability (either on the patient or
clinician’s perspective). Authors point out neither side represents the ‘truth.’ What is said and what is heard is an important part of health and human communication.

Similarly, Price and colleagues (2012) N=60, used phone calls to mothers after the birth of an infant to help both mothers and infants achieve healthy weights and body nutrition. However, mothers who returned to work stressed that going back to work was a barrier to breastfeeding in their qualitative data analysis. Whether a breastfeeding class, support meeting or phone called was used, no option increased breastfeeding significantly among women returning to work. Although these gains are minimal, these efforts do point to a mitigating factor to the known effects of returning to work and breastfeeding.

**Mitigating Factors: Milk Pumping Options**

Some researchers were able to get more information about how pumping breaks actually occur. Slusser, Lange, Dickson, Hawkes, and Cohen (2004) measured the timeframe of expressed milk (in minutes) during the workday and the number of breaks, with a goal of measuring breastfeeding duration in months. Work and human milk expression variables were collected. Women with younger infants expressed milk more often per day, about twice ($\bar{x} = 2.2 \pm 0.8$) than older infants, about once a day ($\bar{x} = 1.9 \pm 0.6$); still total pumped time was less than one hour for both groups, at the 95% CI (Slusser et al., 2004). In a similar study, Labiner-Wolfe, Fein, Shealy, and Wang (2008) used the IFPSII, to examine types of milk expression (regular, occasional, none scheduled) at work and discussed who was able to express milk and collected milk pumping details. Other pumping variables included the type of pump (manual or electric breast pump). Knowledge about how long it takes is useful for policy makers (as in the mandated the Breastfeeding Provisions, ‘Break Time’), and knowing that increased pumping breaks per day, mimics the feeding patterns of infants (helps the
mother keep up her milk supply, until she is ready to wean) can help educate breastfeeding mothers and advocates. This mitigating factor of pumping milk is supported to be beneficial in breastfeeding duration.

Kim et al. (2019) found that women who had lactation services in the workplace had higher rates of breastfeeding initiation, exclusive breastfeeding, and duration of breastfeeding. They searched over 13,000 articles to review and selected N=10 to evaluate the effectiveness of workplace lactation programs in the U.S. on breastfeeding practices. They recommended randomized controlled trials, research on low-income settings and a cost-benefit analysis for employers on program operation. They also asked to measure the effect on bringing the infant to work (for direct latch).

**Mitigating Factors: Hospital Practices**

The 15 Steps (revised in 2017), a joint statement by WHO/UNICEF and briefly mentioned in Chapter 1, outline best practices to increase breastfeeding initiation and duration. Conducted in 2010-2012 Kaikini and Hyrkas (2014) focused on hospital factors associated with breastfeeding and used a convenience sample of N=921. Data were collected through chart reviews and follow up phone calls at 6 months. Overall, hospital factors that increased breastfeeding (using logistic regression) were if infants were skin-to-skin with mothers ($x^2= 11.24, P=.024$), infants were not given pacifiers ($x^2 = 7.25, P=.027$), and avoided supplements ($x^2 = 13.87, P=.001$). At 6 months, the odds of not breastfeeding were higher if a provider suggested to supplement with formula while in the hospital (OR 7.2, 95% CI, (1.34-3.02), if the infant used pacifier (OR = 1.65, 95% CI, (1.14-2.39)), and if supplements were used, (OR =2.01, 95% CI, (1.34-3.02)). A return to work variable was used and it was noted that a low milk supply (N=78/181, 43%) and returning to work
(N=60/181, 33%) were cited as the most common reasons for no longer exclusively breastfeeding.

**Mitigating Factors: Military Women**

Military women who return to work after having an infant are in a unique category, as they are working within a government agency, are highly structured (in terms of job rank), have a pay structure based on years of service, and are in a historically male-centered culture. Researchers Stevens and Janke (2003) performed interviews of military women (N=9) and their work and breastfeeding practices to explore breastfeeding experiences. They found the military women had similar breastfeeding issues to civilian women (having difficulty securing a pumping location while at work and having mixed coworker support). The four main issues that developed from the interviews were, 1) pumping issues, 2) temporary duty issues (i.e., fear of being deployed at 6 weeks postpartum), 3) common breastfeeding issues (i.e., commitment to breastfeeding, having a bonding experience that is unique with baby) and 4) military/civilian issues.

In a similar study, Uriell, Perry, Kee, and Burress (2009), examined 2005 Navy’s Bureau of Medicine and Surgery (BUMED) data and 2005 web-based survey, Navy Pregnancy and Parenthood Survey and examined servicewomen’s breastfeeding experiences. The sample included N=1,388 enlisted and N=807 officers, who reported they had been pregnant while in the Navy. Responses were weighted by paygrade to reflect the overall Navy population at the time. An attempt was made to examine the differences in breastfeeding rates based on military rank. Half of enlisted personnel and over one third of officers reported they were not given a comfortable secluded location but most were given ‘time’ to pump milk. Almost two-thirds of enlisted and half of the officers reported
indicating they stopped breastfeeding due to a work related reason. The most common reasons for stopping due to a work related reason were lack of a place to pump (13% [1,259]) of the enlisted and (10% [222]) of the officers; or because their time was devoted to something else (such as lunch or working out), (8% [782]) of the enlisted and (12% [271]) of the officers. In both of these studies, women reported difficulty combining breastfeeding and returning to work; Uriell and colleagues observed, similar to civilian populations (as skilled labor versus professional occupations); having a higher ranking occupation may have a positive effect on breastfeeding. Being in the military has many similar issues as civilian populations; however, the military can be a mitigating factor for breastfeeding and returning to work. In addition, in some instances lessons from the military women may be translated into policies for civilian women, such as paid time leave, and/or insurance benefits.

Lundquist, Xu, Barfield, and Elo (2015) examined the breastfeeding differences in race compared to civilian and military-affiliated mothers and used the PRAMS dataset. Civilian women comprised (N=306,808) and military-affiliated women comprised (N=6,601). They noted in the literature a large black/white racial disparity in breastfeeding in the civilian population. White mothers have higher initiation rates of breastfeeding and breastfeed for longer duration than their black mothers’ counterparts. However, in this study the authors found that women in the military community did not experience a large racial disparity in breastfeeding rates and perhaps that being in the military community (having insurance and stable employment/income) offered some protection because of the military community’s homogenous sample. Military-affiliated mothers breastfed more; breastfeeding initiation rates for black military affiliates were 14% higher, and 8% higher for white military affiliates than their same-race civilian counterparts. In addition, duration rates were higher
for military affiliates, (both black and white) for as long as the duration rates were measured (up to 16 weeks). Not all women in the military community were in the military themselves; being in a military community could also have meant that her spouse was employed in the military. The military can serve as an organizational structure role model for public health, and the messages to promote breastfeeding have been shown at least in these limited studies to have protective effect and benefit for mothers wishing to breastfeed.

**Mitigating Factors: Employers/Workplace**

Having a Breastfeeding Friendly Workplace is helpful in increasing breastfeeding among working mothers. Bai and Wunderlich (2013) studied working women’s breastfeeding duration rates and specific dimensions of a Breastfeeding Friendly Workplace. A Breastfeeding Friendly Workplace is a designation for workplaces that show promotion and support for breastfeeding mothers in the workplace. From Bai and Wunderlich’s (2013) analysis, four dimensions of breastfeeding accommodation were identified: break time, workplace environment, technical support, and workplace policy. Two dimensions were significant at the 95% CI related to the duration of exclusive breastfeeding: technical support (r=0.71, P=.01) and workplace environment (r=0.26, P=.01). The researchers also identified three problems women reported related to the workplace 1) breastfeeding was not common, 2) breast pumps were not available and 3) onsite daycare was not always an option.

In other research, Spatz, Kim, and Froh (2014) examined the breastfeeding rates of the Children’s Hospital of Philadelphia’s employees after a lactation program was implemented. Data were collected from N=545 women who completed surveys and filed for maternity leave from 2007 to 2011. Descriptive statistics and breastfeeding rates were compared to the CDC baseline and Healthy People 2020 target goals. Some of the supportive
measures implemented included access to breast pumps, having a pump purchase program and having a lactation policy. Women reported a 94.5% breastfeeding initiation rate, compared to 76.9% from the national CDC data; P<.0001. Slightly over 78% of women in the survey continued to breastfeed at 6 months, compared to 47.2% of women nationally; P<.0001. While at 12 months, 32.4% of the women in the survey continued to breastfeed, compared to 25.5% of women nationally; P=.0003. In addition, the 20% of the women in the survey continued to breastfeed past one year, however there is no comparison rate available at the national level.

Froh and Spatz (2016) followed up with qualitative data from the N=545 participants. They asked participants why breastfeeding ceased and allowed for comments on the employee lactation program in order to better understand why employees choose to stop breastfeeding and to see if there was anything the hospital could do to improve the breastfeeding rates or culture. Five themes emerged: positive reflections, non-supportive work/environment culture, supportive work/environment culture, accessibility of resources and internal barriers. For many employees returning to work after having a baby using the hospital lactation program helped ease the transition.

Jacknowitz et al. (2008) studied workplace characteristics and breastfeeding practices using a sample of 1506 births from the National Longitudinal Survey of Youth 1979 and the Children of the National Longitudinal Survey of Youth 1979. When an employer-sponsored childcare was available it increased the likelihood of breastfeeding six months after birth by 47%. In addition, flexible scheduling was studied. For those working an additional eight hours at home per week, breastfeeding initiation increased 8 percent and breastfeeding at six months by 16.8 percent. Breastfeeding and work often have competing factors and can be
thought of in economic terms such as rational behavior. When mothers are able to find time at work to pump/express milk they can overcome breastfeeding obstacles. There were 4 workplace characteristics examined. Consistent with previous results multivariate analysis results indicated that women who breastfed longer were from more advantaged backgrounds. Initiation was associated with a college degree, not smoking, and having an infant of average weight, (compared to low-birth weight). When examining breastfeeding outcomes and workplace characteristics and controlling for demographic variables there was a largely positive and statistically significant marginal effect of the employment breastfeeding law on breastfeeding initiation but was not in the breastfeeding at six months model. Authors suggest that the laws were not effective; however, they suggest results are interpreted with caution reminding those interested in policy identifying what comes first is crucial. In other words, do states with low breastfeeding rates implement new laws or do states with a high priority and support for breastfeeding implement new laws? Perhaps both so results would be mixed.

Similarly, researchers Ortiz, McGilligan, and Kelly (2004) studied a sample of employed women in five different corporations (N= 462) and examined lactation records and conducted retrospective interviews. Several different components of breastfeeding support were evaluated. Different employee sponsored options were offered to women returning to work 1) a class on the benefits of breastfeeding, 2) services of a lactation consultant (CLC) and 3) a private room in the workplace with equipment for pumping. These services allowed many women to reach their own goals for breastfeeding and also align them with the Healthy People 2010 goals as well. The majority of women (97.5%) in the study initiated breastfeeding and over half (57.8%) continued for 6 months. Seventy-eight percent (N=343)
of women attempted to pump at work and 98% (N=336) were successful. Mothers stopped pumping at work at a mean of 9.1 months (SD 4.1; (1.9 -24 months). Many of the women who reported pumping were full-time (84.2%), and the mean of maternity leave was 2.8 months. In addition, consistent with other research, the proportion of women who pumped at work was higher among salaried women than for hourly workers (P<0.01). Authors concluded that employer-sponsored lactation programs were successful in enabling working mothers reach their goals of breastfeeding as well as reaching the Healthy People target goals.

Balkham, Cadwell, and Fein (2011) analyzed N=128 completed surveys from women who used a least one component of an employer lactation program. Women in the surveys were primarily older (over 30 years), white, married, college-educated and had incomes over $100,000 per year. Four programs of an employer lactation included: Prenatal classes on breastfeeding and returning to work, Telephone support staffed by nurses, a Return-to-work Consultation (either in-person or telephone) and Access to Lactation Rooms. Women received a mean of 2.4 services. Women that utilized three programs had the longest breastfeeding duration (11 months) F(3, 124)=.270, P=.847.

Fein, Mandal, and Roe (2008a), research was related to a workplace or employment issues using the dataset IFPSII dataset; they studied N= 810 mothers who worked and breastfed. Mothers answered questions about how they combined breastfeeding and work, for instance, 1) did they directly feed from the breast, 2) both pump and feed directly, 3) pump only or 4) neither pump nor breastfeed during work hours. The mothers that were able to ‘breastfeed at the breast only' were able to successfully breastfeed and work, $\chi^2(1)=1.05$; P=0.31. Results indicate that policies that are directed at allowing women to pump at work
may only be slightly effective whereas onsite childcare or time with infant during the workday would allow more women to breastfeed longer.

Felice et al. (2016) studied the feeding at the breast variable using the IFPS II. In general the concept was when mothers pump more; they will overall breastfeed less (in shorter durations.) They categorized non-elective pumping. The found that non-elective pumping reasons and the highest use of breast pumping was associated with shorter human milk feeding durations. For women who reported breast pumping for reasons related to either employment or feeding at the breast difficulty they had shorter human milk -feeding duration.

**Mitigating Factors: Electric Pump**

Chamberlain, McMahon, Philipp, and Merewood (2006) examined the NICU population and noted that mothers breastfed more when given a double-electric breast pump. Cost was a significant barrier to breastfeeding mothers among the NICU population in inner-city Boston, Massachusetts and when access was controlled for, breastfeeding increased. Authors discussed a breast pump program that they started in 1999. Many low-income women could not navigate the insurance company’s reimbursement process for durable medical equipment (such as breast pumps), many insurance companies did not offer coverage but later began to cover breast pumps (after they could see a cost-benefit) and still another source of funding was utilized for women without monetary resources and without insurance. Eventually from their efforts, all NICU mothers were given access to breast pumps. In 1999, the breastfeeding initiation rate increased to 81% from 27% in 1995 (among non-U.S. born black women); these women in particular benefited from the program due to their new immigration and low socioeconomic statuses and lack of health insurance. Currently the
PPACA does allow for some reimbursement of breast pumps (as of August 2012) and it can be argued that data like this was beneficial for policy makers to include rental equipment or single use pumps. For women wishing to continue breastfeeding while returning to work, success can hinge on the type of pump supported financially. A single manual pump is much less effective than a double electric hospital grade pump.

Similarly, Meehan, Harrison, Afifi, Nickel, Jenks, and Ramirez (2008), showed that giving a mother an electric breast pump as soon as it was requested allowed WIC mothers in Los Angeles, California to breastfeed longer than those who did not receive the pump immediately after request. The electric breast pump was a mitigating factor in longer breastfeeding duration for WIC women. This study was simply gathered from data collected and pumps were not withheld, but not always available in the WIC offices. Women were selected to participate in the program when they met requirements including wanting to exclusively breastfeed and planned to return to work full-time. There were N=214 women; N=83 (38%) that received a breast pump as soon as it was requested; N=92 (42%) received a breast pump but after a delay and N=33 (15%) that never got a breast pump before breastfeeding ceased or formula was introduced. So for the women who were able to get a pump without delay this greatly impacted their breastfeeding duration. For the women in the immediate category, they breastfed on average, 8.8 (SD +/-3.3) months, compared to women who never received a breast pump, who breastfed on average 4.5 (SD +/-4) months (P<.001).

**Philosophy: Feminism Concepts**

From the systematic literature review there are several articles that fell under the framework of Feminism. McCarter-Spaulding (2008) identified a feminist perspective in her work. She placed breastfeeding within the context of the family unit, and breastfeeding as an
interaction between mother and infant. She discussed the role of the father or significant other as having had a supportive role. She compared and contrasted feminist perspectives. In one way, “breastfeeding is seen as a gender difference that stands in the way of liberating women. Bottle-feeding in this perspective would be seen as liberating” (McCarter-Spaulding, 2008, p.208). This shatters the social expectation that women are stay-at-home mothers who are only there to be nurturing in a motherhood role. Whereas, another perspective sees feminism as the oppression of women in a patriarchal world, so that in cultural feminism, “breastfeeding is more likely to be embraced as a uniquely female role that should be offered special protection” (McCarter-Spaulding, 2008). This feministic perspective view holds women uniquely different and with their own sex-specific needs. Another consistent theme still socially and historically present is the conflation of breasts with sexuality. Many women note that public breastfeeding is not accepted or considered embarrassing. “Van Esterik (1994), [cited in McCarter-Spaulding, 2008] claims that when women choose to bottle feed because of fear of public exposure of their breasts, they are being treated as sex objects.” McCarter-Spaulding further discussed the change in culture to when milk has been viewed as a product and breastfeeding as a process. While on the surface these feminist perspectives seem to clash and appear to have no common ground, McCarter-Spaulding sees a unifying perspective for the various feministic perspectives. Through feminist health activism, all perspectives could work towards a choice to breastfeed. However feminist health activism can only come after the choice is made equal for all women, and whereas, women of color, or women in low-income jobs do not have the same choices as other parts of society, then this allows for the conflicting tensions in feminism towards breastfeeding some common ground.
Stewart-Glenn (2012) studied employed full-time mothers (N = 13) using a phenomenological approach. Data collected were on women who breastfed and worked full-time, using qualitative research with developed themes. Data were analyzed using a hermeneutic approach from Pollio (1997) and applied in nursing research by Thomas (2002). One of the main themes was, “I’ve accomplished something here;” meaning, it was difficult, there were struggles but I continued and I am proud. The author discussed the concept of promotion of breastfeeding as being completely ineffective as a way to increase breastfeeding and that there was more going on, within the social and cultural contexts. In addition she went on to discuss the role of good mother/ good employee and there was constant conflict for some, as women often feel pressure in both roles. These areas of conflict are places were new realities can be established within the status quo. Although this process is difficult for women, they are not silent in the discussion and continue to empower and support other women wishing to breastfeed and work.

Similar to Stewart-Glenn (2012), Chezem, Montgomery, and Fortman (1997) discussed the good mother / good employee concepts, data from completed interviews of women who breastfed and returned to work. Authors aimed to describe post-weaning feelings in women’s planning employment after the birth of their infant. There were variables on age, income, race, education, prenatal confidence, and employment and duration. Many women identified mixed feelings about breastfeeding cessation in the sample of N = 53. Authors discussed their results by asking 1) Are these feelings (of guilt, sadness, depression) a natural response to weaning process or a consequence of premature cessation?; 2) are these feelings more common in women working outside the home?; and 3) can nurses influence these feelings by providing high levels of education and support during the perinatal period?
The first question is supported by a biological evolutionary perspective by Gallup, Pipotone, Carrone, and Leadholm (2010). They ask, does weaning mimic child loss/death and offer mechanisms of action by which weaning increases depression and behaviors in mothers that are similar to primate mothers losing her young? In a feministic perspective offering the concept, women are unique and different than men; how much evidence is needed to answer the question? Does it make sense on face value that women would feel sad if they had to wean prematurely due to going back to work? What in particular in the physiological process of milk-drying up, makes mothers have feelings of guilt, sadness or depression?

**The Breastfeeding Provisions in the PPACA**

The PPACA Breastfeeding Provisions had several start dates. For the mandate regarding insurance coverage of lactation support services and equipment for new health insurance policies this began on August 1, 2012. Gurley-Calvez (2018) studied the National Immunization Survey (NIS) from 2008 to 2014 analyzing children aged 19-23 months at the time of the survey so that children would be born before the PPACA mandate for individual health insurance coverage of January 1, 2014. They estimated the policy effect by those covered by private health insurance and examined ever-breastfeeding rates, duration and exclusivity against the control group made up of Medicaid mothers who did not see a policy change during the years studied. They used difference in difference breastfeeding rates and probit models. The purpose of a difference in difference model is to show the treatment group and the control group over the same time while keeping other factors the same for the same time points. Both groups saw increases in initiation breastfeeding rates with an increase for those with private insurance. In addition, for those with private insurance they had statistically significant changes in breastfeeding duration; children were breastfed an
additional 0.83 month (P=.001) versus a non significant 0.26 months with Medicaid. Both groups had an increase in exclusivity. For the private insurance group an additional 1.44 months (P<.001) was gained and for the Medicaid group an additional 0.70 month (P<.001) was gained.

Hawkins et al. (2017) studied the breastfeeding provisions in the PPACA specific to the breast pump equipment and reimbursement and tested whether the coverage was important to the rates of breastfeeding for women with different health insurances. They used the All-Payer claims database from Maine (2012-2014) and compared health insurance claims for lactation classes and breast pump equipment among those with private insurance and those with Medicaid within 3 separate time periods: 1) before the PPACA provision 2) after the provision was implemented and 3) after the Marketplace expansion. Results indicated that lactation classes had limited changes over the study time period. However, for women with private insurance the number of claims for breast pumps went from 70 claims in Q3 of 2012 to 629 claims one year later, to 803 claims in Q3 of 2014; whereas for women with Medicaid insurance the claim rate was 11 total claims for the entire study period. While authors were hopeful to see breastfeeding rates in initiation, duration and exclusivity increase overall, the rates for claims for Medicaid women remained low due to lack of knowledge on the patient and provider perspectives and loopholes for insurance such as the variation in the supplies and services offered. They recommended education for the health care providers to explain coverage options and patient rights under the PPACA to their patients. In addition they asked for transparency on the internet for what is covered by Medicaid for breastfeeding in each state so advocates can help facilitate coverage for the intended population.
Similarly Wouk et al. (2017) continues the lack of scope comparisons. Wouk et al. (2017) studied the individual Medicaid reimbursement policies, the availability, effectiveness and cost-benefit of lactation services for low-income women. They studied the PPACA’s Breastfeeding Provisions among North Carolina’s low income mothers because they did not have an expansion of Medicaid. They used data from the IBCLC’s of North Carolina by county and low-income infants and examined distribution patterns along with breastfeeding rates while providing a cost-benefit analysis of Medicaid coverage of IBCLCs. They found for areas with higher levels of IBCLCs care for low-income women, they had higher levels of a 6-week breastfeeding duration rate 1.20 (CI 95%, (1.12, 1.28)) and along with the Medicaid reimbursement of IBCLCs showed a potential for a cost savings of $2.33 million. Authors contended that reimbursement of IBCLCs in states without Medicaid expansion could improve equity in access for lactation support.

Majee et al. (2016) studied employed rural mothers and employers after the PPACA Breastfeeding Provisions was implemented in 2010. Researchers wanted to describe the workplace barriers and facilitators to breastfeeding post-PPACA. They used semi-structured interviews with the employers and low-income breastfeeding mothers and an additional focus-group of employed and unemployed low-income mothers who were breastfeeding. From these interviews and the focus group, some businesses did accommodate breastfeeding; however, few were actively promoting breastfeeding. Barriers included lack of compliance with the Breastfeeding Provisions, lack of information for breastfeeding mothers and lack of support in the workplace setting from co-workers and supervisors. Researchers recommended more collaboration between health agencies and businesses to facilitate more breastfeeding tolerant and flexible work environments.
Kozhimannil et al. (2016) studied the Listening to Mothers III National survey to determine if a mother’s access to the PPACA Breastfeeding Provisions helped a mother breastfeed exclusively for 6 months and to achieve longer durations. Employed mothers from (with a birth in 2011 and 2012) were included from the survey and categorized as full or part time employment statuses. They used two-way tabulation, logistic regression and survival analysis for examining their data. Of all the women in the survey, only 40% (N=222) had both break time and a place to pump; however, when women did have both of these accommodations they were substantially more likely (2.4 times more likely (CI 95% (1.03-4.95)) to be breastfeeding exclusively at 6 months and more likely to breastfeed for longer periods (1.5 times as likely to continue breastfeeding each month (CI 95%, (1.08-2.06)) than without the accommodations. Authors concluded that an expansion of efforts could prove effective in increasing both exclusivity and duration rates of breastfeeding among employed mothers.

Herold and Bonuck (2016) studied the Medicaid IBCLC coverage following the PPACA updates in the January 2014 rollout. They used IBCLC reimbursement data from July 2014 and December 2014 in 20 states and categorized groups as either part of the Medicaid expansion or not. They gathered the 3-month breastfeeding exclusivity rates and used survey data on the Medicaid Maternal Health Directors, breastfeeding coordinators and WIC coordinators. Their response rate was 15/20 states (75%), of which 9/15 (60%) had Medicaid expansion. Direct billing of IBCLC for services was not allowed in any states. However, nine states allowed billing under a physician under certain circumstances. Not surprisingly, states with IBCLC coverage also had higher rates of exclusive breastfeeding.
Thomas (2018) encourages the discussion of reducing breastfeeding disparities through the use of a diverse IBCLC population. Using semi-structured interviews (N=36) of IBCLCs and using a critical race theory framework she identified several barriers for women of color obtaining IBCLC certification. Social networks, places of employment and cost were identified as barriers to the certification process and Thomas argues that one way to increase low-income and women of color’s breastfeeding will be to have more women of color who are IBCLCs.

Table 3

<table>
<thead>
<tr>
<th>National Policies and Laws</th>
<th>Description</th>
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<tbody>
<tr>
<td>Hendricks (2010) Lists sections in the PPACA that are related to breastfeeding</td>
<td>Reasonable Break Times (Sec 4207 of the ACA). Training for Mid-Career and Allied Health Professionals (Sec 5206). National Prevention/Health Promotion Strategy (Sec 4001). Grants (Sec 4201) breastfeeding grants. Education and Outreach (Sec 4004). Coverage of Preventive Health Services of a Grade A or B (evidence-based item or service) (Sec 2713). National Labeling of Standard Menu Items (Sec 4205). Young Women’s Breast Health Awareness and Support of Young Women Diagnosed with Breast Cancer (Sec 10413). Grants to Promote Community Health Workforce (Sec 5313).</td>
</tr>
<tr>
<td>Merkley (2010) Background information on the PPACA</td>
<td>2005- Oregon Breastfeeding Coalition met with Merkley and they tried to pass a bill, but it failed (democrats were not in the majority) in Oregon. The</td>
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and what led up to the PPACA Breastfeeding Provisions following year they held hearings and kept the discussion going. Then in Oregon the bill did pass, and there was some business backlash, but no Oregon businesses applied for hardship exemption. Years later, Carolyn Maloney worked with Merkley for the amendment within the ACA, Merkley was prepared for opposition, but instead got Senator Coburn’s support (which made it a huge bipartisan effort) and there is now a transformation in the culture (breastfeeding promotion is more common) and while the Provisions do not affect all workers, it is a step in the right direction because it applies to wage and hourly workers.

<table>
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<tr>
<th>Hawkins et al. (2018) PPACA Breastfeeding Provisions Implementation: Amendment of Fair Labor Standards Act (FLSA)</th>
<th>March 2010- Requires certain employers to provide break time and a private space to employees to express milk during the infant’s first year.</th>
</tr>
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<tbody>
<tr>
<td>Hawkins et al. (2018) PPACA Breastfeeding Provisions Implementation: Requirements for new insurance plans (all non-grandfathered private insurance plans) and Madden &amp; Curtis (2013).</td>
<td>August 2012-New insurance plans must provide lactation support, counseling, and equipment rental for breastfeeding mothers.</td>
</tr>
</tbody>
</table>

- Thirty-three state organizations, thirty-six state public universities, and thirteen private universities issued the administrative notice and aligned their organizational policies with the federal requirements.
- Twenty-four states enacted worksite breastfeeding law prior to the 2010 federal law.
- Nineteen states with enacted worksite breastfeeding state laws also have lactation policies for state employees.
- States and universities vary in the presence of a formal, written lactation support policy for state employees.
- There was significant correlation between State law and 6 months exclusive breastfeeding rates.
<table>
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<tr>
<th>Implementation: Breastfeeding coverage by federal and state insurance marketplace plans became effective</th>
<th>became entitled to lactation support, counseling and equipment rental.</th>
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</table>
| Haight & Ortiz (2014) studied airports in the U.S. post-PPACA’s Breastfeeding Provisions. Current statistics on U.S. Airports as of Haight & Ortiz’s (2014) publication | - Results show only eight out of 100 airports surveyed in the United States provide a private lactation room that meets the minimum requirements of a lactation room.  
  - Only six of the eight offer a room inside the secure area  
  - Thirty-seven percent reported having designated lactation rooms,  
  - Twenty-five percent of those airports offered a restroom as an ‘appropriate place’ for a mother to either breastfeed her infant or express milk |
| Hawkins et al. (2015) Current at the time of publication an update on Medicaid Breastfeeding Items and Services | - Fourteen states cover breastfeeding education  
  - Twelve states cover lactation consultation  
  - Thirty-nine states include the provision of a breast pump  
    - Twenty-four states provide or reimburse a manual pump  
    - Twenty-five states provide or reimburse a single user electric pump  
      - Of those, 17 states provide a single user pump for medical necessity or because of separation of the breastfeeding dyad and require documentation  
    - Twenty-eight states cover rental costs for a multi-user/hospital grade pump  
      - Of those, 23 states provide a multi-user/hospital grade pump for medical necessity or because of separation of the breastfeeding dyad and require documentation  
    - Eight states indicate Medicaid did not cover breast pumps, and 7 states did not include breast pumps as durable medical equipment  
  - Sixteen states cover breast pump supplies and 3 states for hospital-grade pumps only. |
| Hawkins et al. (2015) Current at the time of publication an update on WIC Breastfeeding Items and Services | ▪ All states cover breastfeeding education  
▪ All states cover lactation consultation  
▪ All states include the provision of a breast pump  
  ▪ Forty-six states provide a manual pump  
  ▪ Thirty-nine states provide a single-user electric pump  
    ▪ Of those, 15 states provide a single-user pump for medical necessity or because of separation of the breastfeeding dyad following breastfeeding assessment and based on availability  
  ▪ Forty-two states loan a multi-user/hospital grade pump  
    ▪ Of those, 21 states provide a single-user pump for medical necessity or because of separation of the breastfeeding dyad following breastfeeding assessment and based on availability  
▪ All states cover some breast pump supplies, although the type of supplies may vary. |

Adapted from Chertok (2009), Haight & Ortiz (2014), Hawkins et al. (2013, 2015, 2018), Hendriks (2010), Madden & Curtis (2013), and Merkley (2010).

**Summary**

The sociodemographic factors were a category developed after the review of literature that covered groupings including race, education, income, employment status, paid maternity leave, the intent to return to work, occupation, WIC status, living in rural areas, family dynamics, maternal stress, and single mother status to name a few. Being of higher income status did not necessarily mean an employed mother was more likely to breastfeed, just as being of low income did not mean an employed mother would not. The next grouping of Individual Personality traits also had influence on breastfeeding decisions, length of breastfeeding, and use of formula. Employed mothers with positive knowledge, attitudes and
beliefs of breastfeeding, generally showed higher levels of breastfeeding. In addition the background of breastfeeding in the U.S. strongly influences personal decisions. The social and political and economic contexts bear weight either directly or indirectly on all women in the U.S. In an attempt to control some of the negative influences on breastfeeding, the Mitigating category groups used interventions such as a phone call or class on known low-breastfeeding groups. This grouping also included help after discharge, a provider class, pumping options, hospital practices, military women, Breastfeeding Friendly Workplaces, and state laws. From a feminist standpoint, in terms of equality for a society, breastfeeding is the gold standard for the health of infants, mothers and society, and eliminating barriers to breastfeeding allows an equal choice for all. The Breastfeeding Provisions in the PPACA, representing an incremental change is one policy to address the disparities and inequalities in the workplace.

Part 3: CMNHP Framework

Policy Discussion

As the articles focusing on the post-PPACA breast pump accessibility or Medicaid expansion implied, perhaps awareness is an issue. Another concept is centered around the individual and certain personality traits lean towards breastfeeding in general or being more open to having conversations with employers knowing that the law can offer protection. Still too, geographic areas can influence the culture of breastfeeding and available support. The main point is like many things, breastfeeding is multifaceted, and so do the Breastfeeding Provisions in the PPACA influence mothers’ reported satisfaction with breastfeeding? This was the background and impetus for the current study.
**Problem Evaluation**

The problem addressed in this dissertation, and as outlined in the CTE diagram, is the below target levels of breastfeeding (initiation and exclusive breastfeeding duration rates) among employed women. The PPACA Breastfeeding Provisions were an attempt to increase access to workplace accommodations to increase breastfeeding rates among employed women. Currently, there is a disproportionate number of employed women who do not breastfeed compared to women who are not employed. This is documented in the review of research presented in the background section, Part 1, and the Systematic review, Part 2.

**Solution Evaluation**

Through incremental political change, the Breastfeeding Provisions were added into the PPACA, as a workplace change, see Table 3. This solution is not likely to be a panacea, but may begin to address the below standard rates of breastfeeding in the U.S.

**Implementation Evaluation**

Senator Jeff Merkley and Congresswoman Carolyn Maloney were key supporters for passing the Breastfeeding Provisions in the PPACA. Once it was enacted into law, the implementation burden was on the workplace sites. To-date, limited research and minimal data on the Breastfeeding Provisions of the PPACA has been conducted. This project will be among the first to address the satisfaction of women affected by the Breastfeeding Provisions of the PPACA.

**Conclusion**

Overall, this chapter shows race and ethnicity data, with non-Hispanic white women breastfeeding at higher rates than non-Hispanic black women and Hispanic women. Programs designed to increase breastfeeding usually had marginal impacts on breastfeeding
rates. State legislation or other policies had increases in breastfeeding rates; however since other factors remained; such as, the deep-seated U.S. historical past in racism with wet nurses, and the view of conflating breastfeeding with sexuality, and the medicalized infant nutrition with strict breastfeeding schedules and scientifically engineering, formula, these increases were not substantial. As shown from the plethora of data, as paid work increases, breastfeeding decreases, with full-time status more detrimental than part-time status. Many mitigating factors were seen beneficial for known low breastfeeding groups of women. These included classes, phone calls, and a culture of breastfeeding; either seen as through the military, or through specific lactation support in the workplace. Maternal leave was also protective, in that, this maternal leave time could be used to establish breastfeeding and a good milk supply. On the other hand, having to return to work within a short period of time decreased breastfeeding. Education was seen to be a variable that increased breastfeeding, as well as having a professional or managerial class profession as opposed to a production or transportation profession. Having received hospital support with breastfeeding increased breastfeeding, however having received a discharge pack with formula from the hospital was seen to decrease breastfeeding. Levels of maternal stress decreased breastfeeding, as well as not having social support. Collectively, the available evidence shows that specific workplace changes have potential to increase breastfeeding rates among employed women. The Breastfeeding Provisions in the PPACA could be a great equalizer for U.S. women, as it is the first federal law to protect breastfeeding. This health policy is a protection for all in the U.S., but it is unclear (and perhaps unlikely) if it will protect all groups (ethnicity, races) equally. However, even from the start it is limited. It does not include paid breaks, salaried workers, and nor does not apply to all businesses. For some groups, the cultural norms may
still hold constant with previous knowledge, attitudes and beliefs. Having this health policy may not change rates among women with certain personality traits, such as anxiety and low self-efficacy because although women do not have to inform their employers of the mandated PPACA Breastfeeding Provisions, women still bear the burden of asking for the changes (something which this group may be too uncomfortable to do). For some women, the confrontation is too much, but for others, having the law on their side means they will be able to combine breastfeeding and employment. From a feminist perspective the Breastfeeding Provisions did not go far enough. Because women are still “hidden” and women should not have to choose between “the good mother”/ “good employee” concepts, this does not embrace the differences among women. For feminists, pumping at their desks or out in the open for all to view is different than a “separate place to pump.” In addition, bringing a baby to work begins to normalize breastfeeding—and from the research the direct latch is better (for breastfeeding duration rates, and to maintain milk supply). Still, it can be argued that the PPACA, Breastfeeding Provisions are steps in the right direction, and these workplace changes can make the way for other changes and move breastfeeding rates toward goals.
CHAPTER 3

METHODS

The purpose of this chapter is to outline the methods that were used within this study. The study design, the sample and setting, and the methods used to collect and analyze the data, as well as treatment of missing data are also described here in the chapter.

**Study Design**

This study design was exploratory and descriptive, which is the first stage of research (Polit & Beck, 2017) and which often employs convenience sampling. This study was to determine the extent to which employed mothers’ perceived satisfaction in their breastfeeding experiences after enactment of the PPACA provisions for breastfeeding. A major aim was to determine (from self-reported breastfeeding initiation, duration, and pumping experiences) the extent to which the health policy allowed employed women to combine breastfeeding and employment since the law was enacted.

Both quantitative and qualitative data were collected. Exploratory and descriptive studies are types of assessment methodologies that are used to explore situations with no clear outcomes or to describe an intervention within the real life context in which it occurred (Yin as cited in Baxter & Jack, 2008).

**Sample and Setting**

The target population was employed women who birthed an infant following enactment of the PPACA in 2010. The convenience sample consisted of volunteer
participants recruited from the La Leche League USA Facebook respondents. Survey data were collected from the La Leche League Facebook respondents.

La Leche League was established during the 1950s and has numerous local chapters throughout the United States. Although there are several Facebook accounts for local chapters throughout the United States, the main Facebook account is La Leche League USA, which was used to recruit participants for this study. The sample for La Leche League was estimated to be similar to that for a previous study, which had a sample in the thousands (Tchaconas et al., 2018).

**Human Subjects Protection**

Institutional Review Board (IRB) approval was obtained from the University of Massachusetts Boston and La Leche League USA. When the participants agreed to participate in the study, they proceeded to click the link to the study. The risks and benefits to them were outlined (Appendix A). The consent to the study was placed at the beginning of the online survey and their participation indicated their consent. All participation was voluntary, and participants were able to stop at any time prior to completion of the survey; in addition, a question could have been skipped if a participant preferred not to answer a question. Identifiable data was not collected, and confidentiality was maintained so that individual responses could not be traced back to the individual participants. All data were encrypted and stored on the researcher’s password protected computer, which was kept in a locked file cabinet in the researcher’s home office. This researcher has completed CITI training prior to conducting research with human subjects.
Recruitment and Study Criteria

The inclusion criteria for this convenience sample were: Women who completed 37 weeks gestation, delivered a single, live infant following PPACA implementation (on March 23, 2010) and who went back to work at least 20 hours or more per week following the birth of that infant. Although salaried employees do not fall under the PPACA, data were collected from both hourly and salaried employees to explore possible differences in findings. Although no research findings to date indicate any differences it is assumed that salaried employees have more control over their schedules and, therefore, should be able to pump as needed (Hawkins, 2015).

Two other circumstances were considered. Participants were asked to only take the survey once. In addition, whereas it was possible for women to report their experiences for more than one infant, respondents were asked to report about their most recent birth. Since length of breastfeeding can be variable an additional question asked the infant’s age so that the breastfeeding duration for the young infant was not artificially truncated. Exclusion criteria were women who delivered multiple infants, stillborns, or those who experienced an infant death or delivery prior to 37 completed weeks; as well as women whose infants who had oral or facial abnormalities that may have interfered with breastfeeding.

Instrument

The Penders Breastfeeding Survey included 39 items, see Appendix C. The demographic items included age at delivery, race, ethnicity, marital status, year of delivery, time since delivery, type of delivery (vaginal or cesarean), occupation, hours worked, level of education, household number, salaried or hourly, the number of hours worked, and city and state of residence. Employer items included the existence of an employer sponsored lactation
program and amount of time off work (if any) and whether it was full pay, partially paid or unpaid, as well as having had provisions for pumping at work, time and place to pump, access to employer provided pump, and place to store human milk. Women were also able to state whether a direct latch occurred at work, meaning baby was brought in to breastfeed directly at the breast.

The Breastfeeding Provisions in the PPACA were displayed prior to five satisfaction questions related to the breastfeeding experience so that participants could refer to the actual language of the law. Respondents were asked to rate these five items on a 6 point-Likert scale where they chose between Strongly Disagree to Strongly Agree. Questions were related to the Breastfeeding Provisions overall, if the respondent was satisfied with a place to pump at the worksite, the break time allowed for milk expression, and the duration and exclusivity of breastfeeding. Each item was scored separately, with no total score for these five items. All items other than demographic items included a qualitative portion that allowed the participant to explain the answer.

Content Validity

Content validity was estimated by a panel of 3 experts in breastfeeding research and/or human lactation. There are several ways to measure breastfeeding duration and exclusivity. For example, researchers can measure exclusive breastfeeding by measuring trace amounts of nutrients that have been absorbed, utilized, or synthesized. This process utilizes stable isotopes and exclusive breastfeeding can be determined as well as how much human milk the baby consumes (Owino, 2017). Another way to measure exclusive breastfeeding is by using a maternal 24-hour recall of infant feeding practices in the last 24 hours (Owino, 2017). Although, that design would be the most accurate, it was not feasible
for this study. For this study, maternal recall was used and was potentially nine years later (time since the enactment of the PPACA). Natland et al. (2012) measured maternal recall bias with a sample of N=374, twenty years later and found that women were able to accurately recall age of weaning. Researchers asked mothers to recall the age of weaning and they compared this with a recorded duration of breastfeeding. Natland et al.’s (2012) results indicated a high level of agreement (85% accuracy, 95%CI, 0.82-0.88). The expert panel was asked to use a 3-point Likert-scale to determine if an item was relevant. The scoring was: I think this item is important to the survey (+1). I cannot decide if this item is important to the survey (0). I think this item is not important to the survey (-1), see Appendix, D.

**Cognitive Interviews**

This researcher conducted 4 cognitive interviews with employed mothers who have breastfed their infants for feedback regarding clarity of questions. Cognitive interviews help the researcher determine if each item has the intended meaning (Peterson, 2017). The survey was read to the participant and asked whether the statement is clear and how the participant might respond to the item. Changes were made before the next participant until no changes were necessary (DeVellis, 2012; Izumi, 2013; Willis, 2005). After this step, the data collection began.

**Data Collection**

Study participants were recruited via an announcement in the La Leche League USA Facebook account (see Appendix A). The La Leche League USA Facebook account announcement of the study included a link to take the study. La Leche League used a similar method for a study in the past to examine extended breastfeeding using a link from their
La Leche League posted a reminder message one week later after the initial posting. The projected time to complete the survey was approximately 15 minutes or less. Data were collected online using Research Electronic Data Capture (REDCap). REDCap was chosen as it can capture online data and allows for full-privacy and has data analysis capabilities (Patridge, 2018). In addition, REDCap was able to process hundreds of responses for La Leche League USA (see Appendix B). Data collection occurred over 6 weeks.

This survey was created through REDCap. La Leche League (LLL) cooperated with this study by posting a link to this survey on the LLL USA Facebook account. LLL USA Facebook account has a large audience. This posting reached a viewership of 68.9K; 7.8K clicked on the post, and 1.2K reacted, commented or shared. The survey was launched November 8th, 2019 at 9:00pm, Eastern. One week later, Facebook was reporting 884 engagements, with 968 completed surveys. The additional surveys completed are believed to be through other social media efforts including breastfeeding coalitions, Twitter and email listservs. The Facebook engagement grew to 1,000 by Sunday, November 17th, 2019 when it was reposted and sent again as a reminder to complete the survey. The survey closed after 6 weeks, on December 20th, 2019 at 12:00 midnight, Eastern. From past experiences, LLL USA predicted that the initial engagement would be the bulk of responses. It was true in this case as well; 1,429 surveys were collected in 6 weeks. After the first two weeks, 90% of the surveys were collected. The remaining 10% trickled in over the next four weeks.
Sample and Missing Data

The number of surveys collected and initially reviewed were N=1,429. Missing data and answer choices were treated as described below. The specific language of the PPACA is clear on the breastfeeding protections for more than 50 employers, so respondents could answer ‘yes’, ‘no’ and ‘unsure’ to the question; does your workplace have more than 50 employees? This researcher removed the records for the 150 Nos, and 18 Unsures; this left N=1,261 surveys. In addition, as the protections only covers one year after the birth of the infant, when a respondent answered they had time off work greater than 52 weeks; this researcher removed these surveys, leaving 1,257 surveys. Finally, the data was split for the question: How are you paid? ‘hourly’ or ‘salaried’, and there were 2 missing for this question, which were removed, leaving N=507 hourly, and N=748 salaried. The missing data or unsure responses were reviewed, and no significant trends were noted. For the purpose of this dissertation research the remaining analysis focused on the N=507, those directly affected by the breastfeeding provisions in the PPACA.
Figure 2

Sample and Missing Data

Selected demographic items (#24-39) were analyzed using measures of frequency (n, %), central tendency (mean, median, mode) and variability (SD, range) depending on the type of data. Subsequently, the five satisfaction items (#9-13) were analyzed using measures of frequency (n, %), no total score was calculated. These data were displayed in bar charts using Polit and Beck (2018) and Braun and Clarke (2013) as reference guides. Items (#14-18 allowed explanation after the satisfaction questions and #19 collected qualitative data and allowed for space to respond to; why did you stop breastfeeding or pumping? Item#20 allowed for free text: please share anything else about your breastfeeding or pumping at work experience in this space. Associations between an employer support variable coded from 4 questions (did you bring your infant to work so you could directly latch your infant during break time, did your employer provide a breast pump for your use on-site, did your employer provide refrigeration or cold packs for pumped milk, and were you aware of any lactation
support programs through your employer) and each of the satisfaction variables were examined using correlational analysis (Pearson correlation coefficients). Satisfaction was coded as a continuous variable. Associations between the selected demographic variables (i.e., age, income, education) and the satisfaction variables were also examined using correlational analyses. City and state data were collected as some cities and states have greater protections than the PPACA. This allowed for more in-depth analysis. States were coded to be states with greater protection or having more robust state law and states without greater protection, states without more robust state laws and the 5-Satisfaction questions were compared using t-tests.

**Qualitative Analysis**

This survey was enhanced by the space provided for women to explain or comment on their satisfaction questions and the option for anything else they wanted to share. The qualitative data were generated from the request with each of the five satisfaction items to please explain the answer and the free text prompts, Why did you stop? and Please share anything else. These data were analyzed using thematic content analysis (Vaismoradi, 2013), which occurred in steps. First, this researcher read through all the free text responses individually and made first-impression notes. Then, this researcher highlighted key words or phrases, creating a coding index of repeated themes. This coded index was then combined to make categories. Thematic analysis is an approach that identifies and reports patterns (themes) within the data (Braun & Clarke, as cited in Vaismoradi, 2013).

This researcher read through all the responses several times, recorded notes and highlighted key words and phrases and was verified in steps by a second, PhD qualitative researcher. The qualitative data were viewed within the context of the data and as a final step
was evaluated to note any alternatives to the interpretations (Vaismoradi, 2013). The themes that emerged are more nuanced than the survey’s summary of the results.
CHAPTER 4

RESULTS

The purpose of this study was to determine the extent to which employed mothers perceive satisfaction in their breastfeeding experiences after enactment of the PPACA provisions for breastfeeding. A major aim was to determine (from self-reported breastfeeding initiation, duration and pumping experiences) the extent to which the health policy allows employed women to combine breastfeeding and employment since the law was enacted. The design of the study was exploratory and descriptive and included a survey incorporating both quantitative and qualitative data and utilized convenience sampling. As outlined in Chapter 3, the final sample of this survey was N=507.

Quantitative, Descriptive Statistics

Race and ethnicity data were collected and the majority of the sample selected the single race category of white/Caucasian at (420/507) 82%, followed by the single ethnicity category of Hispanic American at (37/507) 7% (it is of note, that some may have selected the ethnicity Hispanic American along with a race selection as the survey allowed multiple selections). The sample identified as a single race category for Black/ African American at (8/507) 2%, Asian/ Pacific Islander at (6/507) 1%, and less than (3/507) 1%, American Indian/ Alaskan Native. Six percent (33/507) of the sample identified as 2 or more race/ ethnicities, see Table 4.
Table 4

*Race/Ethnicity*

<table>
<thead>
<tr>
<th>Race</th>
<th>Sample (N)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian/ Alaskan Native</td>
<td>3</td>
<td>0.59</td>
</tr>
<tr>
<td>Asian/ Pacific Islander</td>
<td>6</td>
<td>1.18</td>
</tr>
<tr>
<td>Black/ African American</td>
<td>8</td>
<td>1.57</td>
</tr>
<tr>
<td>Hispanic American</td>
<td>37</td>
<td>7.29</td>
</tr>
<tr>
<td>White/ Caucasian</td>
<td>420</td>
<td>82.84</td>
</tr>
<tr>
<td>Hispanic American, White/Caucasian</td>
<td>14</td>
<td>2.76</td>
</tr>
<tr>
<td>American Indian/Alaskan Native, Hispanic American, White/Caucasian</td>
<td>1</td>
<td>0.19</td>
</tr>
<tr>
<td>American Indian/ Alaskan Native, Black/ African American, White/Caucasian</td>
<td>1</td>
<td>0.19</td>
</tr>
<tr>
<td>Black/ African American, White/ Caucasian</td>
<td>3</td>
<td>0.59</td>
</tr>
<tr>
<td>American Indian/ Alaskan Native, Asian/ Pacific Islander, Black/ African American, Hispanic American, White/ Caucasian</td>
<td>1</td>
<td>0.19</td>
</tr>
<tr>
<td>Asian/Pacific Islander, White/ Caucasian</td>
<td>6</td>
<td>1.18</td>
</tr>
<tr>
<td>American Indian/ Alaskan Native, White/Caucasian</td>
<td>1</td>
<td>0.19</td>
</tr>
<tr>
<td>Black/ African American, Hispanic American, White/ Caucasian</td>
<td>1</td>
<td>0.19</td>
</tr>
<tr>
<td>Black/ African American, Hispanic American</td>
<td>2</td>
<td>0.39</td>
</tr>
<tr>
<td>missing</td>
<td>3</td>
<td>0.59</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>507</strong></td>
<td><strong>99.93</strong></td>
</tr>
</tbody>
</table>

Overall, the majority of the women were married, (435/507) 85%, with being never married as the next highest category at (64/507) 12%. Divorced and separated women accounted for less than (8/507) 2% of the sample, see Figure 3.
Participants could choose to select within an age range within the closest 5 years at the time of delivery for the survey question. The sample had a slightly older group of women, (453/507) 89% of the total sample was within 25-39 years with (208/507) 41% of the total sample within 30-34 years, see Figure 4.
This sample was highly educated. Sixty-one percent (312/507) of the sample had a four-year degree or higher. With another (175/507) 34% stating they had education beyond high school, including some college, no degree, technical/certificate training and Associate’s degrees, see Figure 5.
This sample included both full time and part time employees. The majority of the sample worked full time (412/507) 81%, and (94/507) 18% stated they worked part time, see Table 5.

Table 5

<table>
<thead>
<tr>
<th>Job Status</th>
<th>Sample (N)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>412</td>
<td>81.26%</td>
</tr>
<tr>
<td>Part-time</td>
<td>94</td>
<td>18.54%</td>
</tr>
<tr>
<td>missing</td>
<td>1</td>
<td>0.19%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>507</strong></td>
<td><strong>99.99%</strong></td>
</tr>
</tbody>
</table>

Multiple job categories featuring a variety of careers represented and reflected a diversity of respondents, see Table 6 for Occupation. The most common job types in this
sample were, Healthcare Practitioners and Technical (191/507), Office and Administrative Support (63/507), Business and Finance Operations (34/507), Community and Social Support Services (35/507) and Healthcare Support (53/507) and these categories combined account for (376/507) 74% of the sample. Other job categories with fewer participants are displayed in Table 6.
Table 6

*Occupation*

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Sample (N)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management Occupations</td>
<td>19</td>
<td>3.74</td>
</tr>
<tr>
<td>Business and Financial Operations Occupations</td>
<td>34</td>
<td>6.7</td>
</tr>
<tr>
<td>Computer and Mathematical Occupations</td>
<td>2</td>
<td>0.39</td>
</tr>
<tr>
<td>Architecture and Engineering Occupations</td>
<td>4</td>
<td>0.78</td>
</tr>
<tr>
<td>Life, Physical, and Social Science Occupations</td>
<td>3</td>
<td>0.59</td>
</tr>
<tr>
<td>Community and Social Services Occupations</td>
<td>35</td>
<td>6.9</td>
</tr>
<tr>
<td>Legal Occupations</td>
<td>2</td>
<td>0.39</td>
</tr>
<tr>
<td>Education, Training, and Library Occupations</td>
<td>29</td>
<td>5.72</td>
</tr>
<tr>
<td>Arts, Design, Entertainment, Sports, and Media Occupations</td>
<td>6</td>
<td>1.18</td>
</tr>
<tr>
<td>Healthcare Practitioners and Technical Occupations</td>
<td>191</td>
<td>37.67</td>
</tr>
<tr>
<td>Healthcare Support Occupations</td>
<td>53</td>
<td>10.45</td>
</tr>
<tr>
<td>Protective Service Occupations</td>
<td>2</td>
<td>0.39</td>
</tr>
<tr>
<td>Food Preparation and Serving Related Occupations</td>
<td>19</td>
<td>3.74</td>
</tr>
<tr>
<td>Building and Grounds Cleaning and Maintenance Occupations</td>
<td>1</td>
<td>0.19</td>
</tr>
<tr>
<td>Personal Care and Service Occupations</td>
<td>2</td>
<td>0.39</td>
</tr>
<tr>
<td>Sales and Related Occupations</td>
<td>26</td>
<td>5.12</td>
</tr>
<tr>
<td>Office and Administrative Support Occupations</td>
<td>63</td>
<td>12.42</td>
</tr>
<tr>
<td>Farming, Fishing, and Forestry Occupations</td>
<td>1</td>
<td>0.19</td>
</tr>
<tr>
<td>Construction and Extraction Occupations</td>
<td>1</td>
<td>0.19</td>
</tr>
<tr>
<td>Installation, Maintenance, and Repair Occupations</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Production Occupations</td>
<td>8</td>
<td>1.57</td>
</tr>
<tr>
<td>Transportation and Material Moving Occupations</td>
<td>4</td>
<td>0.78</td>
</tr>
<tr>
<td>Military Specific Occupations</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>missing</td>
<td>2</td>
<td>0.39</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>507</strong></td>
<td><strong>99.88</strong></td>
</tr>
</tbody>
</table>

The majority (339/507) 66% of the sample lived in households of 3-4 persons.

Twenty-one percent (104/507) self-reported annual income of $49,999 or less. Forty-seven percent (235/507) reported $50,000-99,999 as annual income. Twenty-two percent (109/507)
reported $100,000-149,999, and ten percent (51/507) reported over $150,000 total income annually. Therefore, the sample is considered to be middle-class to affluent economic backgrounds (Fry & Kochhar, 2018); see Figures 6 and 7.

Figure 6

*Household Size*
Participants could enter any year for birthing infant post-2010, after the provisions were enacted. Most respondents reported a birth in the more recent years as their particular life state has them continuing to interact with breastfeeding support groups. The mean year of delivery was 2017, with the range 2015-2019, with a standard deviation of 1.93 years, and the mode was 2019, see Figure 8.
Nearly one hundred percent of the sample (502/507) stated they took some time off work following the birth of their children, see Table 7. The time of work varied and is detailed in another variable regarding pay for time off work.

Table 7

<table>
<thead>
<tr>
<th>Time Off Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes/No</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Missing</td>
</tr>
<tr>
<td>total</td>
</tr>
</tbody>
</table>
In this sample, time off work was measured in weeks. Respondents were asked how much time they took off work following the birth of their infant, see Figure 9. Twelve weeks was the most common response (186/507) 37% and corresponds to the FMLA policy in the U.S. for 12 weeks following the birth of a child or adoption.

Figure 9

*Time Off in Weeks*

A significant economic aspect to time off work is whether or not the time off work is paid or unpaid. In this sample, (325/507) over 60 percent stated they received partial or full pay during the time off work, see Figure 10.
Most breastfeeding research includes a question about delivery type; this sample had a 24% cesarean section rate (125/507), see Figure 11. This number is below average for the national rates in the U.S. The cesarean rate in the U.S. is currently 32% (CDC, 2019).
The overwhelming majority (457/507) over 90% of the respondents did not have a baby in the NICU, see Table 8.

Table 8

*Time in NICU*

<table>
<thead>
<tr>
<th>Yes/No</th>
<th>Sample (N)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>48</td>
<td>9.47</td>
</tr>
<tr>
<td>No</td>
<td>457</td>
<td>90.13</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
<td>0.39</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>507</strong></td>
<td><strong>99.99</strong></td>
</tr>
</tbody>
</table>

The NICU variable was compared with the satisfaction questions. Data were normally distributed, therefore two-sample t-tests were performed. For mothers who had infants in the NICU, they rated their perceived satisfaction as Strongly Agree to Strongly Disagree with the Breastfeeding Provisions in the PPACA. The average response was an Agree to a Strongly-Agree for both Time in the NICU (r=2.54) and No Time in the NICU (r=2.63), P<.05, see Tables 9 and 10. For Time in the NICU (r=3.10) and No Time in the NICU (r=2.99) for a Place to Pump, they rated their perceived satisfaction as Slightly Agree, see Tables 11 and 12. For Time in the NICU (r=3.02) and No Time in the NICU r=(3.01) and Break Time, they rated their perceived satisfaction as Slightly Agree, see Tables 13 and 14. For Time in the NICU (r=2.13) and No Time in the NICU (r=1.82) and Satisfaction with Breastfeeding Duration, they rated their perceived satisfaction as Agree to Strongly Agree, see Tables 15 and 16. For Time in the NICU (r=2.36) and No Time in the NICU (r=2.08) and Satisfaction with Breastfeeding Exclusivity, they rated their perceived satisfaction as Slightly Agree to Agree, see Tables 17 and 18.
Table 9

*t-Test NICU Time & Satisfaction with the BP in the PPACA, Group Statistics*

<table>
<thead>
<tr>
<th>Time in NICU</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes/No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>457</td>
<td>2.63</td>
<td>1.348</td>
<td>0.063</td>
</tr>
<tr>
<td>Yes</td>
<td>48</td>
<td>2.54</td>
<td>1.237</td>
<td>0.179</td>
</tr>
</tbody>
</table>

Table 10

*t-Test NICU Time & Satisfaction with the BP in the PPACA, Independent Samples Test*

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances</th>
<th>Levene's Test for Equality of Means</th>
<th>95% CI of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
<td>df</td>
</tr>
<tr>
<td>V2, Equal variances assumed</td>
<td>0.225</td>
<td>0.635</td>
</tr>
<tr>
<td>V2, Equal variances not assumed</td>
<td>0.468</td>
<td>59.359</td>
</tr>
</tbody>
</table>

A single-sample t-test was conducted to compare the satisfaction with the Breastfeeding Provisions in the PPACA for employed mothers who had babies who spent time in the NICU and for employed mothers who did not have babies who spent time in the NICU. There were no significant between group differences: NICU time (M=2.54, SD=1.237) and no NICU time (M=2.63, SD=1.348) groups; t(503) = 0.436, p=0.663.
A single-sample t-test was conducted to compare the satisfaction with the Place to Pump for employed mothers who had babies who spent time in the NICU and for employed mothers who did not have babies who spent time in the NICU. There were no significant between group differences: NICU time (M=3.10, SD=1.848); no NICU time (M=2.99, SD=1.779) t(503) = -0.417, p=0.677.
Table 13

_t-Test: NICU Time & Satisfaction with Break Time, Group Statistics_

<table>
<thead>
<tr>
<th>Time in NICU</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes/No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V1 No</td>
<td>456</td>
<td>3.01</td>
<td>1.802</td>
<td>0.084</td>
</tr>
<tr>
<td>V2 Yes</td>
<td>48</td>
<td>3.02</td>
<td>2.047</td>
<td>0.295</td>
</tr>
</tbody>
</table>

Table 14

_t-Test: NICU Time & Satisfaction with Break Time, Independent Samples Test_

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% CI of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>V2, Equal variances assumed</td>
<td>6.452</td>
<td>0.011</td>
</tr>
<tr>
<td>V2, Equal variances not assumed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A single-sample t-test was conducted to compare the satisfaction with the Break Time for employed mothers who had babies who spent time in the NICU and for employed mothers who did not have babies who spent time in the NICU. There were no significant between group differences: NICU time (M=3.02, SD=2.047); no NICU time (M=3.01, SD=2.047); t(502) = -0.036, p=0.972.
Table 15

_t-Test: NICU Time & Satisfaction with Breastfeeding Duration, Group Statistics_

<table>
<thead>
<tr>
<th>Time in NICU</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes/No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V1 No</td>
<td>456</td>
<td>1.82</td>
<td>1.297</td>
<td>0.061</td>
</tr>
<tr>
<td>V2 Yes</td>
<td>48</td>
<td>2.13</td>
<td>1.684</td>
<td>0.243</td>
</tr>
</tbody>
</table>

Table 16

_t-Test: NICU Time & Satisfaction with Breastfeeding Duration, Independent Samples Test_

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% CI of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>V2, Equal variances assumed</td>
<td>5.644</td>
<td>0.018</td>
</tr>
<tr>
<td>V2, Equal variances not assumed</td>
<td>-1.226</td>
<td>0.226</td>
</tr>
</tbody>
</table>

A single-sample t-test was conducted to compare the satisfaction with the Breastfeeding Duration for employed mothers who had babies who spent time in the NICU and for employed mothers who did not have babies who spent time in the NICU. There were no significant between group differences: NICU time (M=2.13, SD=1.684); no NICU time (M=1.82, SD=1.297) t(502) = -1.512, p=0.131.
Table 17

*t-Test: NICU Time and Satisfaction with Exclusive Use of Human Milk, Group Statistics*

<table>
<thead>
<tr>
<th>Time in NICU</th>
<th>Yes/No</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>No</td>
<td>457</td>
<td>2.08</td>
<td>1.628</td>
<td>0.076</td>
</tr>
<tr>
<td>V2</td>
<td>Yes</td>
<td>47</td>
<td>2.36</td>
<td>1.893</td>
<td>0.276</td>
</tr>
</tbody>
</table>

Table 18

*t-Test: NICU Time and Satisfaction with Exclusive Use of Human Milk, Independent Samples*

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% CI of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
<td>df</td>
</tr>
<tr>
<td>V2, Equal variances assumed</td>
<td>5.512</td>
<td>0.019</td>
</tr>
<tr>
<td>V2, Equal variances not assumed</td>
<td>-0.980</td>
<td>0.331</td>
</tr>
</tbody>
</table>

A single-samples t-test was conducted to compare the satisfaction with the Exclusive Use of Human Milk for employed mothers who had babies who spent time in the NICU and for employed mothers who did not have babies who spent time in the NICU. There were no significant between group differences: NICU time (M=2.36, SD=1.893): no NICU time (M=2.08, SD=1.628) t(502) = -1.1082, p=0.268.

City and state data were collected from the respondents and then categorized by region of country. Thirty-two states have laws related to breastfeeding and the workplace
States such as Vermont and Maine can pump up to 3 years after the birth of an infant and Colorado allows for 2 years which allow for longer protections than what is stated in the breastfeeding provisions in the PPACA. Hawaii and Indiana’s state laws are more expansive than the federal law. Hawaii’s laws apply to all employees and Indiana’s law states businesses with more than 25 employees must comply. Louisiana has language that covers public school boards, and Minnesota specifics an electrical outlet must be provided. Many states prohibit discrimination and will describe the formal complaint process in the document. In addition, several states outline that businesses can use the Mother-Infant Friendly Workplace Designation (MIFWD) but must follow specific guidelines to promote breastfeeding to be allowed this designation. Hilliard and Schneidermann (2020) studied state level policies and found that 8 states had this MIFWD and that approximately 4580 businesses were using the designation. Still they noted difficulty in the implementation of education and regulation the policy and as well as a formal policy evaluation. Oregon specifies break time in minutes, stating 30 minutes of unpaid break time is to be allowed every 4 hours of work (National Conference of State Legislators, 2020). In this study, there were (176/507) 34% of the sample from the Midwest, (108/507) 21% from the Northeast, (120/507) 23% from the South, and (92/507) 18% from the West, see Figure 12.
Thirty-two states have greater workplace protections, that is, more robust state laws than what is included in the PPACA. Examining responses for year of birth, 2019 only, surveys were separated. States with additional protections/robust laws (n=104) were compared with states without extra protection/no robust state laws (n=86). The Robust State Law(s) variable was compared with the satisfaction questions. Data were normally distributed, therefore two-sample t-tests were performed. For mothers who lived in a state with a robust law that exceeded the federal breastfeeding law, they rated their perceived satisfaction as Strongly Agree to Strongly Disagree with the Breastfeeding Provisions in the PPACA. The average response was Slightly Agree to Agree for both having a robust state law (r=2.58) and having no additional state laws (r=2.49), P<.05, see Tables 19 and 20. For having a robust state law (r=2.94) and having no additional state laws (r=3.13) for a Place to Pump, they rated their perceived satisfaction as Slightly Agree, see Tables 21 and 22. For
having a robust state law \((r=3.14)\) and having no additional state laws \((r=2.96)\) and Break Time, they rated their satisfaction as Slightly Agree, see Tables 23 and 24. For having a robust state law \((r=1.89)\) and having no additional state laws \((r=1.88)\) and Satisfaction with Breastfeeding Duration, they rated their perceived satisfaction as Agree to Strongly Agree, see Tables 25 and 26. For having a robust state law \((r=2.06)\) and having no additional state laws \((r=2.27)\) and Satisfaction with Breastfeeding Exclusivity, they rated their perceived satisfaction as Agree, see Tables 27 and 28.

Table 19

**t-Test: Robust State Law(s) & Satisfied with the BP in the PPACA, Group Statistics**

<table>
<thead>
<tr>
<th>Robust State Law</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>No</td>
<td>86</td>
<td>2.49</td>
<td>1.290</td>
</tr>
<tr>
<td>V2</td>
<td>Yes</td>
<td>104</td>
<td>2.58</td>
<td>1.327</td>
</tr>
</tbody>
</table>

Table 20

**t-Test: Robust State Law(s) & Satisfied with the BP in the PPACA, Independent Samples Test**

<table>
<thead>
<tr>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% CI of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>V2, Equal variances assumed</td>
<td>0.082</td>
<td>0.775</td>
</tr>
<tr>
<td>V2, Equal variances not assumed</td>
<td>-0.465</td>
<td>183.119</td>
</tr>
</tbody>
</table>
A single-sample t-test was conducted to compare the satisfaction with the Breastfeeding Provisions in the PPACA for employed mothers who had babies who lived in a state with robust state laws and for employed mothers who did not live in a state with more robust state laws. There were no significant between group differences: robust state law (M=2.58, SD=1.327); those without a robust state law (M=2.49, SD=1.290); t(188)= -0.464, p=0.643.

Table 21

**t-Test: Robust State Law(s) & Satisfied with Place to Pump, Group Statistics**

<table>
<thead>
<tr>
<th>Robust State Law</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes/No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>86</td>
<td>3.13</td>
<td>1.884</td>
<td>0.203</td>
</tr>
<tr>
<td>Yes</td>
<td>104</td>
<td>2.94</td>
<td>1.739</td>
<td>0.171</td>
</tr>
</tbody>
</table>

Table 22

**t-Test: Robust State Law(s) & Satisfied with Place to Pump, Independent Samples Test**

<table>
<thead>
<tr>
<th>Levene's Test for Equality of Variances</th>
<th>Sig.</th>
<th>t-test for Equality of Means</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>95% CI of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>V2, Equal variances assumed</td>
<td>1.637</td>
<td>0.202</td>
<td>0.705</td>
<td>188</td>
<td>0.482</td>
<td>0.186</td>
<td>-0.334 0.705</td>
</tr>
<tr>
<td>V2, Equal variances not assumed</td>
<td>9700</td>
<td>175.236</td>
<td>0.485</td>
<td>0.186</td>
<td>0.265</td>
<td>-0.338</td>
<td>0.709</td>
</tr>
</tbody>
</table>
A single-sample t-test was conducted to compare the satisfaction with the Place to Pump for employed mothers who had babies who lived in a state with robust state laws and for employed mothers who did not live in a state with more robust state laws. There were no significant between group differences: robust state law ($M=2.94$, $SD=1.739$); those without a robust state law ($M=3.13$, $SD=1.884$); $t(188)=0.705$, $p=0.482$.

Table 23

$t$-Test: Robust State Law(s) & Satisfied with Break Time, Group Statistics

<table>
<thead>
<tr>
<th>Robust State Law</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1 No</td>
<td>85</td>
<td>2.96</td>
<td>1.874</td>
<td>0.203</td>
</tr>
<tr>
<td>V2 Yes</td>
<td>104</td>
<td>3.14</td>
<td>1.846</td>
<td>0.181</td>
</tr>
</tbody>
</table>

Table 24

$t$-Test: Robust State Law(s) & Satisfied with Break Time, Independent Samples Test

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% CI of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>---</td>
<td>------</td>
<td>---</td>
</tr>
<tr>
<td>V2, Equal variances assumed</td>
<td>0.009</td>
<td>0.923</td>
</tr>
<tr>
<td>V2, Equal variances not assumed</td>
<td>-0.660</td>
<td>178.502</td>
</tr>
</tbody>
</table>

A single-samples t-test was conducted to compare the satisfaction with the Break Time for employed mothers who had babies who lived in a state with robust state laws and
for employed mothers who did not live in a state with more robust state laws. There were no significant between group differences: robust state law (M=3.14, SD=1.846); those without a robust state law (M=2.96, SD=1.874); t(187)=-0.661, p=0.510.

Table 25

*t-Test: Robust State Law(s) & Satisfied with Breastfeeding Duration, Group Statistics*

<table>
<thead>
<tr>
<th>Robust State Law</th>
<th>Yes/No</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>No</td>
<td>86</td>
<td>1.88</td>
<td>1.323</td>
<td>0.143</td>
</tr>
<tr>
<td>V2</td>
<td>Yes</td>
<td>104</td>
<td>1.89</td>
<td>1.329</td>
<td>0.130</td>
</tr>
</tbody>
</table>

Table 26

*t-Test: Robust State Law(s) & Satisfied with Breastfeeding Duration, Independent Samples*

Test

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% CI of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>------------------</td>
<td>--------</td>
<td>-----</td>
</tr>
<tr>
<td>V2, Equal variances assumed</td>
<td>0.031</td>
<td>0.861</td>
</tr>
<tr>
<td>V2, Equal variances not assumed</td>
<td>-0.054</td>
<td>181.629</td>
</tr>
</tbody>
</table>

A single-samples t-test was conducted to compare the satisfaction with the Breastfeeding Duration for employed mothers who had babies who lived in a state with robust state laws and for employed mothers who did not live in a state with more robust state
laws. There were no significant between group differences: robust state law (M=1.89, SD=1.329); those without a robust state law (M=1.88, SD=1.323); t(188)=-0.054, p=0.957.

Table 27

**t-Test: Robust State Law(s) & Satisfied with Exclusive Use of Human Milk, Group Statistics**

<table>
<thead>
<tr>
<th>Robust State Law</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes/No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V1 No</td>
<td>86</td>
<td>2.27</td>
<td>1.792</td>
<td>0.193</td>
<td></td>
</tr>
<tr>
<td>V2 Yes</td>
<td>104</td>
<td>2.06</td>
<td>1.588</td>
<td>0.156</td>
<td></td>
</tr>
</tbody>
</table>

Table 28

**t-Test: Robust State Law(s) & Satisfied with Exclusive Use of Human Milk, Independent Samples Test**

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test for Equality of Variances F</th>
<th>Sig.</th>
<th>t-test for Equality of Means df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>95% CI of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>V2, Equal variances assumed</td>
<td>2.111</td>
<td>0.148</td>
<td>0.855</td>
<td>188</td>
<td>0.394</td>
<td>0.210</td>
<td>0.245</td>
</tr>
<tr>
<td>V2, Equal variances not assumed</td>
<td>0.845</td>
<td>171.544</td>
<td>0.399</td>
<td>0.210</td>
<td>0.248</td>
<td>-0.280</td>
<td>0.700</td>
</tr>
</tbody>
</table>

A single-samples t-test was conducted to compare the satisfaction with the Exclusive Use of Human Milk for employed mothers who had babies who lived in a state with robust state laws and for employed mothers who did not live in a state with more robust state laws.
There were no significant between group differences: robust state law (M=2.06, SD=1.588); those without a robust state law (M=2.27, SD=1.792); t(188)=0.855, p=0.394.

Many of the participants stated they received a free breast pump through their insurance company. Eight-six percent (437/507) said this was the case. Only 13 % (68/507) said they did not receive a free breast pump through insurance, see Figure 13.

Figure 13

*Insurance Company Provided Breast Pump*

![Bar chart showing the distribution of participants who received a free breast pump through their insurance company.](chart)

The majority (407/507) over 80% of the participants stated they did not have an employer provided breast pump for their use on site. However, when provided with a pump, the most common response was the double electric breast pump which is also the most efficient option. This pump was available (91/507) for just over 17% of the participants, see Figure 14.
The majority (353/507) over 69% of the participants stated they had an option for a refrigerator or cold packs from their employer to store human milk. However (153/507) just over 30 percent stated this was not an option, see Figure 15.
Almost 30% (150/507) of participants stated they were unsure of lactation programs provided by the employer and an additional 53% (271/507) stated they did not have a program at the time of the birth or now. However participants could also choose to select **we did not have program then but yes we do now** (6/507) a little over 1 percent, **yes we had a program then and we still do now** (78/507) 15 percent or even **yes we had a program then and not now** (2/507) less than 1 percent, see Figure 16.
Figure 16

*Employer Lactation Program, Then and Now*

![Bar chart showing responses to satisfaction questions.](image)

The raw data for the satisfaction questions are below. The participants had the opportunity to explain their answers for the satisfaction questions within the survey and data were reported in the next section of Chapter 4, under Emerging Themes. For the question relating to satisfaction in the Breastfeeding Provisions in the PPACA (392/507) 77% agreed and (97/507) 23% disagreed. For the question relating to satisfaction in the area that is a place to pump (324/507) 64% agreed, and (183/507) 36% disagreed. For the question relating to satisfaction in break time for milk expression (316/507) 62% agreed, and (190/507) 37% disagreed, with (1/507) less than 1% missing data. For the question relating to satisfaction in the duration of breastfeeding (446/507) 88% agreed and (60/507) 11% disagreed, with less than (1/507) 1% missing data. For the question relating to satisfaction with exclusive use of human milk (400/507) 79% agreed, (106/507) 20% disagreed and less than (1/507) 1% missing data, see Figures 17–21.
Figure 17

*Satisfied with the Breastfeeding Provisions in the PPACA*

![Bar chart showing responses to satisfaction with breastfeeding provisions in the PPACA.]

Figure 18

*Satisfied with Place to Pump*

![Bar chart showing responses to satisfaction with place to pump.]

132
Figure 19

*Satisfied with Break Time*

![Bar chart showing responses to satisfaction with Break Time.]

Figure 20

*Satisfied with Duration of Breastfeeding*

![Bar chart showing responses to satisfaction with Duration of Breastfeeding.]

133
The length of time participants reported exclusively breastfeeding varied, however (72/507) 14% indicated they were still exclusively breastfeeding and the baby was less than six months of age. In addition, (329/507) 64% indicated exclusive breastfeeding for 6 months or longer, see Figure 22 below.
Associations between Satisfaction and Employer Breastfeeding Support

Several satisfaction variables were examined for associations with aspects of employer breastfeeding support. Satisfaction was coded as a continuous variable as Strongly Agree to Strongly Disagree, and the employer breastfeeding support was coded from 4 questions (did you bring your infant to work so you could directly latch your infant during break time, did your employer provide a breast pump for your use on-site, did your employer provide refrigeration or cold packs for pumped milk, and were you aware of any lactation support programs through your employer). The only significant association/correlation between satisfaction items/variables and employer breastfeeding support noted was the satisfaction for a place to pump, a moderate positive correlation of $r=0.37$. The other variables had low order correlations (satisfaction with the PPACA $r=0.11$, satisfaction with...
break time $r=0.21$, satisfaction with breastfeeding duration $r=0.19$, and satisfaction with exclusive use of human milk $r=0.15$). Associations such as demographic variables and satisfaction variables were also examined with correlational analyses. Paid time off, age, income and education were tested using Pearson correlation coefficient. Since this researcher initially expected a stronger correlation with demographic variables the best explanation would be within the sample itself. The group that responded to the LLL USA Facebook account and may have already been highly motivated for breastfeeding. Therefore, despite variations in demographic variables, other measures found in the literature, such as knowledge, attitudes or beliefs could have captured satisfaction better than the demographic variables. Or even perhaps the peer support that LLL USA provides is the main reason for this finding.

**Summary of the Quantitative Results**

The sample consisted of $N=507$ women who responded to LLL USA’s Facebook announcement to take this survey. The majority of the participants were white/ Caucasian, between 30-34 years, gave birth in 2015-2019, and went back to work full time after 12 weeks of partial or full pay after the birth of their infants. The majority reported vaginal deliveries without NICU time. The majority lived in households of 3-4 persons, had at least 4 year college degrees and were married. The majority were employed in occupations such as Healthcare Practitioners and Technical, Office and Administrative Support, Business and Finance Operations, Community and Social Support Services and Healthcare Support. For the majority their income reflected a middle-class to affluent lifestyle (Fry & Kochhar, 2018). Their insurance companies provided breast pumps free of charge; however, their employers did not provide breast pumps. Their employers often had a refrigerator or cold
pack for human milk storage; however, the majority did not have a lactation program by the employer. This group of women described satisfaction with all the questions asked. They were satisfied with the PPACA provisions: they were satisfied with the place to pump, the break time for milk expression, the duration of their own breastfeeding, and their exclusive use of human milk.

**Emerging Themes**

Each of the satisfaction questions allowed for room to comment as well as two other questions which were: Why did you stop breastfeeding or pumping? and Do you have anything else you would like to share? From these response there were 17- original categories that were noted. They were as follows: Coworkers and Employers; Law is good; Law, I don’t know about it; Type of job; I gave formula or supplemented; I like the area for pumping; I stopped breastfeeding or pumping; I am still breastfeeding or pumping; I did not use formula or supplements; I had enough break time; Emotional; Irony; Positions of power; Law, it is still new; It was a bad area for pumping; and I did not have enough break time. These were at first viewed as separate categories under the headings, Accommodation and Resistance, and later as these responses were more split and nuanced it was apparent that many of the responses were more under the both-and categories.

The final version is Emerging Themes, both Accommodation and Resistance: A Continuum of Responses (see below). This version allows for either-or Accommodation and Resistance but the more inclusive both Accommodation and Resistance which encompasses all of the responses. Further detail and discussion are outlined next.
Accommodation and Resistance

Accommodation and resistance are terms found in social and political science and are useful in this research in terms of viewing relationships and power structures. Accommodation can be seen in competing interest groups when attempts are made through cooperation and adjusting oneself to the new environment. During accommodation, the status of individuals or groups are not necessarily harmonious, however it is a process of adjusting to conflict or competing interests. In this study, employed mothers are accommodating to the business or coworkers or work environment. To pump is to cause a disruption in the workplace, and employed mothers are adhering closely to the break time and place to cause the least disruption. This accommodation had two extremes in this study. On one side, one employed mother felt the work conflict too great, stopped pumping at work and supplemented with formula. On the other extreme of the accommodation, another employed
mother quit her job so that she could continue to breastfeed. Both women resolved their conflict by accommodating the workplace.

Resistance can be defined so loosely or so narrow that examples become meaningless, therefore Weitz (2001) argues in *Gender and Society* that resistance should be actions that reject subordination by challenging the ideologies that support subordination. Resistance is seen when employed mothers speak out against the unfairness of the law, when they challenge the workplace structures that do not support breastfeeding and when they challenge each other; their co-workers or managers, as seen throughout the narratives in this study.

Accommodation and resistance are not an either-or experience for employed mothers and often occurs under both categories; rather they should be considered, both-and. Both-and thinking is discussed in many disciplines (philosophy, psychology, theology) and in nursing literature as well (Bent, 1999). For clarity and for ease of wording choice, both-and will be referred to as both accommodation and resistance but it will not be limited to only when they can occur together. There are at least three permutations this allows for 1) it is just accommodation, 2) it is just resistance and it also allows for 3) when there are elements of accommodation and resistance together (and perhaps more nuanced possibilities). As a few participants point out, the law is a start and many are trying to make-do or get the best out of the situation, however it does not stop them from wanting or expecting more. They are simultaneously doing both accommodating and resisting. In telling their story, their participation in this survey itself could be seen as act of resistance, challenging subordination. Refer to the Box, Emerging Themes.
Reactions to the PPACA Law: Accommodation Leaning

Some saw the law as very positive. They highlighted their favorite parts of the law in their responses. These responses are accommodation leaning as they attempt to conform their pumping to the workplace.

“It protects mothers and offers them a safe a protected space to either breastfeed or pump.” Participant, 476.

“I believe there are a good amount of accommodations made for nursing mothers who have to return to work.” Participant, 1186.

Reactions to the PPACA Law: Both Accommodation and Resistance Leaning

The entire law was available within the survey, however some felt unable to make an informed comment stating they did not know about it. This might be an insight on the personality traits of women, being too shy to speak out about the topic or perhaps the face value of the comment should be considered. Perhaps this is the first time they are aware of the law, despite the usual method of finding the survey which was made available from the LLL USA Facebook account which provides a plethora of breastfeeding support and education.

“Don't really know about [the law].” Participant, 241.

“I don't know much about the act.” Participant, 671.

“I am not familiar enough.” Participant, 928.

Others expressed since the law was so new still, they felt they had to pave the way. They challenged the status quo and asked for education for their employers and asked for clearer steps on non-adherence of the law.
“I'm one of the first to take advantage of this Act in my workplace and am still paving the way for other mothers in many ways to ensure that our break times are protected.”

Participant, 18.

“There truly needs to be more education for employers on the importance of time to pump/breastfeed. It is the source of nutrition to keep a child alive. More importance needs to be placed on this, and better conditions need to be made for pumping/nursing mothers.”

Participant, 89.

“My employer did not provide break time and ultimately I was fired for taking too many breaks...Need[s to be] clearer steps to take when an employer does not adhere to the law.”

Participant, 747.

“I am one of the few who chooses to do this. Lots of people are uneducated about it and I often get targeted about getting "extra breaks.” Participant, 104.

Reactions to the PPACA Law: Resistance Leaning

One of the common responses to the PPACA is that many participants noted the law should be longer than one year. Some asked for longer time in general, others provided biologic reasons in their replies. Still others, backed their response with WHO recommendations.

“The provision should not only cover women pumping/breastfeeding for a year. Many women continue to nurse longer than one year.” Participant, 17.

“Breastfeeding protection should extend beyond the first year... the need to express milk does not simply stop because an infant has turned 1.” Participant, 53.

“[The law] should allow pumping breaks for 2 years after birth of child.” Participant, 19.
“Women should be protected by law to be able to breast feed for at least 2 years. That is the current recommendation by the WHO. One year is not a long enough time to protect women choosing to breastfeed.” Participant, 47.

Other critical suggestions (resistance leaning) to the PPACA came from participants noting who is left out of the provisions. They said the law should expand to employers with less than 50 employees and asked for salaried workers to be covered as well. They considered pumping as a medical necessity and asked for it to be treated as such. In addition, they thought these breaks should be paid. A few even noted the striking hypocrisy of paid smoke breaks but not paid pumping breaks.

“Moms still need break time even under 50 employees.” Participant, 46.

“Employers with under 50 should still have some protections required.” Participant, 1091

“I like the protections provided, but I feel like it needs to go further. Many salaried employees are not covered well and have trouble with their employers allowing them to pump.” Participant, 342.

“For hourly workers who don't receive break time, the time spent pumping takes away from the time that could be spent at home latching baby. (Example: before baby I worked a 9 hr day with an hour unpaid lunch break. After baby I had to split that unpaid one hour lunch break into 3-20min breaks to pump and work through lunch. If I pumped any longer than that or took lunch I had to stay and work later.” Participant, 821.

“There are ambiguous portions "reasonable amount of time" that allow employers to bully moms into not being able to pump effectively. Not compensating moms for their pumping time is forcing moms to choose between feeding their children or providing financially for their families.” Participant, 69.
“[The law] does not go far enough. Not being able to pump when needed lead to leaking through shirt, pain, loss of milk, and plugged duct. I had to supplement with formula and stop producing milk before my goal. IT HURTS TO NOT BE ABLE TO EXPRESS MILK! It should be considered a medical need. Employers act like breastfeeding is a cool new trend, when in fact it is how humanity has existed for millions of years.” Participant, 108.

“I believe I should be paid for my pumping breaks. Employees do not have to clock out for smoke breaks, why should I have to clock out to pump?” Participant, 111.

“I think that there shouldn't be a provision that the employer does not have to compensate the employee for this provided break. If legally companies have to allow a paid smoke break then they should allow this break to be paid as well.” Participant, 122.

Whether or not this existing law should be expanded to include salaried workers or settings with fewer employees, women explored alternatives to increasing breastfeeding rates. These women noted a longer maternity leave would have been beneficial.

“There is nothing better than a longer maternity leave for a breastfeeding relationship.” Participant, 91.

“I believe mothers need more time home with their babies. We are a wealthy developed country and are only given 12 weeks job protection after having a child. This is unacceptable and disgraceful in my opinion. By the end of month 3 if you are lucky you have just figured out how to breastfeed then you and your child are uprooted and forced back to work.” Participant, 732.

**Break Time: Accommodation Leaning**

For some women the break time was adequate, and they stated they had as long as they needed. They are accommodation leaning, in that they are accommodating their
employer by working in breastfeeding or pumping into the work day but in these instances it was not in opposition to the employer, the employer did not have strict or rigid rules surrounding break times. These examples are illustrated in the following quotes.

“I don’t feel rushed. I’m allowed to take my break at the time I need to and take as long as needed.” Participant, 213.

“I was given a private office with a lock and a sink whenever I needed it. If it wasn’t available I had several backups to choose from. I was given [break time] whenever I needed for however long I needed without having to clock out. He [my baby] was at onsite daycare and I would go BF [breastfeed] on my lunch. [I met my breastfeeding goal], absolutely, worked full time and he still breastfeeds, just less. Never had to supplement, easily reached a year. I only stopped pumping because it’s annoying and I personally had enough. Still feed from the breast...My all male department was very supportive and never gave me any crap.”  
Participant, 52.

**Break Time: Resistance Leaning**

For some women they simply did not get a break. This inadequate break time is resistance leaning, as women are clearly upset about the lack of break time and speak to it. One participant even described getting time as a battle. A few women even go through elaborate means and personal expense to continue to try and pump at work while a break is not allowed.

“I work in a stat lab. My employer told me my 2-15 min[sic] pump breaks were going to be a problem so I had to buy $500 portable pumps which I put on in the bathroom and return to the lab to work then return to the bathroom. To pour the milk into bags and wash my pumps. I do this twice every day Monday to Friday.” Participant, 732.
“I had to purchase the Elvie wearable breast pump because I do not get sufficient breaks as I work in critical care and have no one to relieve me during my shift. Thankfully with the Elvie pump I am able to meet my goals and my supply remains adequate for my baby. I did have an oversupply prior to returning to work but I am happy with meeting her demand...Truly feel as though large employers such as a large medical center I work at should cover nursing mothers like myself a wearable breast pump. Many of my coworkers have quit breastfeeding due to lack of being able to go pump and meeting the needs of their baby.” Participant, 621.

“It is rushed at my workplace, and it was a battle to get to go pump when needed during my 12/13 hour shifts.” Participant, 89.

**Area for Pumping: Accommodation Leaning**

For some having the PPACA allowed for an area or place to pump that was never there before and it is an improvement for them. Several employed mothers stated they were happy with the workplace area for pumping. It is accommodation leaning as the employee is using the space to pump and headed back to work, creating little conflict in the workspace.

“We have a room with 2 rocking chairs, 2 tables and outlets separated by privacy curtains with a sink in the room to wash the parts afterwards.” Participant, 118.

“I have an office. When my office mate is present, I have an empty office across the way.” Participant, 573.

“My space is an empty office with a desk, chair and outlet plug. It's not fancy but it's my private space and it works for me.” Participant, 1347.

“Spaces for pumping are key card access, and include 2-3 hospital grade pumps, table space, a sink and a fridge.” Participant, 1249.
“I have a private room labeled lactation room that is almost always available to me.”

Participant, 261.

Area for Pumping: Resistance Leaning

For others, the area to pump was a cause for concern. Many issues were brought up by employed mothers about how an area lacked privacy. The areas were dirty, offensive, or the locations were too far to be useful. Some still used bathrooms, and others had ‘closets,’ with temperature control being an issue (either too hot or cold). These experiences are illustrated in the following quotes.

“I have to pump in a janitor’s closet in the middle of the break room. It locks from the inside, but I constantly hear people walking by and talking loudly outside of the door.” Participant, 16.

“I pump in a break room. I wish I could lock the door and it was not a public area. I can shut the door and blinds during my sessions, but I still feel a lack of privacy and security.”

Participant, 1275.

“There were nice lactation rooms that were not convenient to my location in the hospital. But I was lucky because no one cared where I pumped including the break room while I ate.”

Participant, 220

“I work as a med tech in a lab in a busy hospital on 2nd shift. We are very busy and can hardly find time to eat let alone pump. I try to eat within 10 to 15 minutes to give myself long enough to pump without being gone from my department for too long. On weekends and holidays there are only 2 techs working so my coworker is alone when I pump. I have to use a director’s office who isn't in. On weekends to pump because there must always be two people in the lab. It is a noisy busy space and housekeeping frequently wants to clean while
I’m in there and I’m always afraid a male housekeeper will unlock the door and barge in.”

Participant, 102.

“There is one tiny dirty room that was a closet that was made into the "lactation room" at [my] Hospital. There are thousands of employees at [my hospital] and most do not have time to sign up and get the key for this room, nor do they want to squeeze into a small dingy dirty closet space. I have pumped for both my children in the break room, it is not relaxing or fun and often others are trying to eat so either come in and sit or wait and are hungry.”

Participant, 100.

[The door did not fully latch or lock, a problem which I brought to my employer's attention several times without fixing. They also had a sign with a picture of a cow on it that said "pumping in progress" I was to hang on the outside to let people know not to come in, which I didn't really appreciate the imagery.]

Participant, 890.

“We have a few employees that are pumping, and we only have one room to pump. It is sometimes a challenge because I don’t have time to wait for the other person to finish. Sometimes I rather go somewhere else to pump and not waste time.” Participant, 124.

“I had to drive to a room at a different building so that wasn't great. That said, it was a nice room.” Participant, 487.

“[The pumping room was] too far away, limited space. Your break time is up by the time you get there. There is no guarantee the room won’t be full and you will have to come back later. Meanwhile, you are full [of breastmilk] and uncomfortable and supply drops from not being able to pump. Break times are a joke. Employer did not provide adequate coverage for breaks. You can’t even make it to pumping room in under 10 minutes. Let alone pump, store, and clean supplies… I did not meet my goal, I wanted to pump until 1 year but not able to
produce after 10 months. I had to supplement with formula and had difficulty finding something that my baby could tolerate. [I had a] loss of supply from not pumping as often and as long as needed. I pumped twice for about 10 mins [sic] during a 12 hour shift...

Employers need to realize breastfeeding is not a trend. It is the norm and should be treated as such. Women have a medical need to empty breasts to prevent pain, plugged ducts, mastitis, and ensure supply.” Participant, 108.

“I have to ask for keys to the room every time I need to pump. There have been times where, despite a "do not disturb" sign, people have knocked at the door. I've had to go to a different Room because that one was in use for meetings. I've had to wait because the person with the keys was unavailable.” Participant, 23.

“Our dedicated lactation is very cold and far from the direct workspaces for most of the employees. “Participant, 27.

“Employer was very pro breastfeeding, but I still took my breaks and pumped my milk in a small "guest" bathroom. It was supposedly a little nicer because I could pull up a chair to the sink, and most employees were not supposed to use that bathroom. I didn't know that I could have asked for a room that was not a bathroom until AFTER I had left my job. “Participant, 42.

“My work says I can use my office (no lock) or the conference room (locks but is unavailable several times a week and has ground level windows) but we physically don’t have any other room in the building. “Participant, 46.

“The room was nice (I worked at a hospital at the time), but it was often already occupied when I would go to pump.” Participant, 47.
“I wish that the provision made mention of a sink. Hygiene is important when pumping... My designated space was an empty office. The office had one glass wall and door that had been frosted. It was mostly private but did not lock.” Participant, 89.

“My "Lactation Room" is a closet that my employer installed a lock on and put a chair in there. No table and if the room is not occupied by myself, others use the small space for storage.” Participant, 336.

**Job Specific: Both Accommodation and Resistance**

Many employed mothers wanted to express the area or describe their own personal experience and in doing so explained their type of job or employment. The nature of the job seemed quite relevant to whether an employed mother could take a break or where she was able to take this break.

**Nurse**

“I work as a floor nurse in the post partum unit of a large hospital. I work twelve hour shifts and need to pump three times a shift. It is a struggle to find time to pump some shifts because there is nobody to cover my work for me. There are other nurses on the floor but it’s difficult to ask people to cover for you for 20 minutes three times a night, so I have to make sure my patients are all set before I can go and if they need something I have to wait. I don’t take a lunch, instead I go and pump and try to chart while I pump. Most shifts I end up staying a little late because I was pumping when I could have been wrapping my end of shift charting up.” Participant, 32.

**Office Worker**

“I am allowed time but only if business allows. For instance I pumped for 2 minutes at a time today for 5 times because I had to keep stopping for work.” Participant, 46.
**Paramedic**

“There's a clause about minimal disruption to the workplace / undue stress on coworkers. My employer (I worked as a paramedic) used this clause to not provide me with anything. I was "allowed" to use the bathroom - no working lock. The restock room - people constantly knocking at the door. The supervisor’s office - I had to ask the supervisor to leave their office. Or the kitchen - no lock on multiple doors...I could only pump between calls and if I was assigned a call, I had to stop - didn't matter if I was finished or not. (Paramedic in a 911 system). Even if other crews were available, I would still have to stop pumping. I had to supplement with formula. [I supplemented] some prior to returning to work. Once I was working because of the lack of consistency of being able to pump, and regularly not being able to finish pumping, my supply dropped a lot. I stopped pumping because it became too much stress at work” Participant, 48.

When asked if there was anything else she wanted to add, Participant 48, just wrote five words. “It was horrible. Absolutely horrible.”

**Restaurant Server**

“I'm dissatisfied with my pumping space because initially my employer offered a one stall restroom for pumping. I now use a private dining area (I work in a restaurant) which is constantly being used as a makeshift employee break room. I use a nursing cover so my breasts aren't exposed. I get plenty of awkward comments but I'd rather deal with that than clogs or mastitis.... There are many times I go without pumping or am only able to pump for 5 minutes for one let down because I have several tables to wait on at any given time. There usually isn't a manager around to watch my section and the other servers are too busy/selfish to. The hosts will continue to seat me tables until the end of my shift.” Participant, 1139.
Fast Food Worker

“My place of work [fast food] didn't have a specific room with a door but offered to hang a curtain in the back. I declined because I don't mind pumping where people can see. I just use the two shirt method.” Participant, 323.

Construction Worker

“It's hard in the construction field. Although it's not often I am given a proper place to pump outside of my vehicle, my employer has currently had two shacks built with locking doorknobs so that my coworkers can take break in one and I am able to pump in the other.” Participant, 725.

Flight Attendant

“I am a flight attendant and was told the FLSA did not apply to us. I had no pumping room, no breaks, no access to water, etc. I had to pump in public, sometimes sitting on a very dirty floor... I cannot possibly Express the horror and disgust that my experience was. Pumping while sitting on a nasty dirty floor in front of hundreds of people at times. Having to expose my breasts to the general public in my workplace. Working flights that were often 8 or 9 hours long as no access to refrigeration or clean running water.” Participant, 915.

Supermarket Cashier

“My work makes me pump in the bathroom but if it's busy I'm not allowed to pump at all...

My job does not have a place for women to pump or nurse, despite me working at a supermarket that should have one. I would honestly get them in legal trouble if I could afford it.” Participant, 946.
Emotional Components: Shame, Guilt, or Luck: Resistance leaning

Employed mothers commonly reported that they were made to feel badly. Others stated the embarrassment from their pumping experiences at work made them feel shame. One, even uses strong I-statements, emphasizing her own personhood is attacked. Still others use the word luck, in a way that is anything but lucky, but perhaps more of a rare circumstance. These examples are highlighted below.

“I was made to feel like I was an issue because of my pumping.” Participant, 1039.

“Luckily I have a large supply that can handle this but others are not so lucky.” Participant, 1421.

“I created my own space... it was an isolation room in the hospital that luckily we hardly ever used. But who wants to pump milk in a room that has housed patients with c-diff!?” Participant, 510.

“I think despite my general good experiences there are others in my field (nursing) who do not have as good of support systems for pumping at work as I do. I'm lucky that I had easy access to pumping equipment and supportive coworkers who also have children and have been where I was. If it's not built into the culture, pumping moms face a lot more difficulty and scrutiny in stepping away from work to pump.” Participant, 1249.

Emotional Component: Indignation, Resistance Leaning

Many participants noted their particular place of employment should have known better or provided more support due to the nature of their work however the pumping at work experience was not encouraged by these employers. These employers were often in government, health care or education. The resistance leaning is heard in their tone, which is anger and indignation over what is unfair or unjust.
**Skilled Nursing Facility**

“I work in a skilled nursing facility and there was only one other nurse who pumped there in the whole ten years I’ve been employed there. I work in healthcare and no one else chose to breastfeed their children?!” Participant, 33.

**Women’s Healthcare**

“I happen to work in a hospital, so I can go to the women’s health dept and use the consult room… I have been afforded a great deal of support in my pursuit of exclusively breastfeeding my child. However I was surprised that my director was not familiar with this law. She thought the company I work for was doing this as a "favor" to me, and not as a right.” Participant, 41.

**Baby-Friendly Hospital**

“I work as a labor and delivery RN at a baby-friendly hospital and wish that the Baby-Friendly initiative extended to how the hospital treated its own breastfeeding employee. Pumping breaks have been refused [due] to unit acuity and lack of adequate staffing.” Participant, 53.

**County Government**

“I got the time I needed but not without comments from my boss because she said it only took her 10 minutes to pump… Women should have more protection at work when pumping. My HR department didn't know how to handle the way my boss acted towards me and I worked for county government.” Participant, 552.

**Federally Funded Classroom**

“[M]y supervisor suggested that I could place a chair in the bathroom next to the toilet to pump; I told her that's not acceptable at all. I had to ask people to leave their office in order
to pump. Had them knocking to ask when they could get back to work, how long am I planning on doing this for, getting frustrated with the fact that I needed to use their space…

It really was terrible! I work in a well-known nationally accredited and federally funded preschool that supports students mothers coming into the classrooms to feed their children but doesn't support their employees pumping for their children! There are no set rules about coverage, breaks/schedules, nor a private room dedicated to pump. You're pretty much on your own to figure it all out and the comments made by multiple coworkers is harassment. Next child I will be more firm with the HR dept [sic] knowing my rights, but in my agency if you make waves they are quick to show you the door. Not okay.” Participant, 230.

**Formula or Supplement Utilized: Accommodation Leaning**

Some participants stated they used formula but that using formula was not something to be upset about it. Some had an abundance of milk so never had no need to supplement. Another employed mother hung on the word ‘yet’ describing her uncertainty in meeting her goal.

“I had to supplement for the first couple of months, but it had nothing to do with pumping at work.” Participant, 27.

“I don't need to supplement with formula if I don't want too. In fact I produce enough to donate.” Participant, 1037.

“I have never needed to supplement yet. Exclusively pumping and breastfeeding when with my baby.” Participant, 1023 (baby is 6 months old).

**Formula or Supplement Utilized: Resistance Leaning**

Other participants stated they labored with milk production and directly attributed inadequate milk supply due to lack of pumping at work. One employed mother noted her
mental health was poorly affected. Another participant tied in the lack of maternity leave and unhelpful breastfeeding support to poor breastfeeding and her need to supplement with formula. These examples best show the resistance leaning aspects.

“I have struggled to maintain supply due to inability to pump regularly at work.”

Participant, 44.

“I had to supplement with formula. Some prior to returning to work. Once I was working because of the lack of consistency of being able to pump, and regularly not being able to finish pumping, my supply dropped a lot.” Participant, 48.

“It was [a] miserable [experience]. I was already frustrated because I wanted to be able to produce for my child, undergoing postpartum depression which was exacerbated by my lack of production and being stressed about where I was going to pump or if I'd be allowed to take a break to be able to pump just added to everything else… We had to supplement with donated breast milk and formula.” Participant, 425.

“I had to come back to work before I was ready and ended up exclusively pumping for a year, plus the 3 months I initially nursed my son. We didn't have adequate Lactation services at our hospital when my son was born and were given misinformation… I had to supplement with formula due to my inability to nurse my son, and having to exclusively pump.

Participant, 206.

Continuation or Cessation of Breastfeeding: Accommodation Leaning

Mother-led weaning was described a reason for breastfeeding cessation or pumping. Some employed mothers described just knowing the breastfeeding relationship was over, either for themselves, their child or both. Others had a desire to wean due to the physiological changes due to pregnancy.
“I stopped pumping after about a year because my child was no longer taking bottles. I stopped breastfeeding later when I decided to wean.” Participant, 267.

“[I] only weaned due to pregnancy and loss of milk supply.” Participant, 216.

**Continuation or Cessation of Breastfeeding: Resistance Leaning**

Some employed mothers stated their milk supply dropped due to work conditions which led to weaning. Some employed mothers had to wean due to the physical pain and infection of mastitis which was a direct result from the lack of pumping. These statements reflect their dissatisfaction with the end of the breastfeeding relationship.

“I was given the bare minimum time to pump and was told I take too long: 5 mins [sic] to get the key to the room and set up, 20 mins [sic] to pump, 5 mins[sic] to break down and clean up- including sanitizing the room, 5 minutes to pee and refill my water and return the key- since I was only allowed to pump on my breaks. I had to condense that down to my 15 minute breaks. Anything more was deducted from my hourly pay and I was not allowed to make up my time. My supply dried up from not pumping enough and not directly latching my son during the day.” Participant, 123.

“It was one room split into 2 spots for a 11 floor building of a mostly female workforce. It was frequently dirty and often locked. I had to remind my boss of the law and was given a women’s gynecology exam room (which is disgusting since there are pelvic exams in there!) to pump in but was told I could get kicked out any time if it was needed. I was told by employers I could not go, I was taking too long, or it would have to wait. I never had help covering [my workload] so I could go pump either. I was told my pumping is my lunch break. Due to the time constraints at work I was not able to make at least a year, my supply
dropped. I wanted to make a full year but at 10 months had to stop which meant supplementing.” Participant, 1405.

“The amount of time provided was not enough for me (and many women). I take awhile to let down with a pump. Plus I had to walk to my car. I got mastitis from inadequate pumping. I had to start supplementing almost right away as I was not provided time or place.”

Participant, 1281.

Continuation or Cessation of Breastfeeding: Both Accommodation and Resistance

Many employed mothers taking the survey said they were still breastfeeding. One mother was very clear to state the PPACA helped her meet her breastfeeding goal. This is accommodation leaning as these women were able to meet the demands with their workplace, along with their own breastfeeding goals without much conflict. However, Participant 160, tells a different narrative. She said she quit her job in order to breastfeed. She is accommodating the workplace in that she is no longer a disturbance to normal workday practices by her pumping at work but she is resisting by choosing to continue to breastfeed and she is continuing to resist by telling her personal reflections in this survey, she is the exemplary example of both Accommodation and Resistance, and leaves the reader with hope, as she surpassed her breastfeeding goal.

“We have made it to 11 months strong and are still going, my goal is 2+ years.” Participant, 941.

“I intended to breastfeed for at least 12 months and met that goal. The lactation room provided to me at work was a huge help in reaching that goal.” Participant, 131.
“My employer at the time I was breastfeeding told me my only option was to pump in my car. I was not given any breaks between clients to pump or feed my child. I ended up having to quit my job to stay home so I could continue breast feeding. [I met my goal but it was] because I chose breastfeeding over working [and] I was able to surpass my one year goal and reach 18 months. Participant, 160.

Positions of Power—Coworkers and Employers: Accommodation Leaning

Some of the employed mothers’ coworkers have been exemplary and one employed mother noted a true team oriented, Most Valuable Player (MVP) in the office. Others pointed out to the workplace’s supportive environment. These coworkers often made pumping at work possible. Women were able to accommodate the workplace for a win-win situation.

“My coworker was also pumping at the same time as me, so the HR lady whose office we used is the real MVP. She was kicked out of her office workspace so often and never once complained. Always so nice. I don’t think she knows just how much I appreciate her understanding with an issue that can be awkward to discuss with coworkers.” Participant, 113.

“My employer provides a comfortable environment for me to pump at our workplace... My employer is above and beyond in accommodating breastfeeding moms. I cannot say enough about the mommy support I have through my company.” Participant, 28.

Positions of Power—Coworkers and Employers: Resistance Leaning

However, on the other side, a particular person or group can make the experience awful. One employed mother even states she was terminated. These mothers speak against the injustices and resist these positions of power over themselves and their bodies.
“I often felt pressured to cut my time short pumping, or rude comments were made when I needed to pump at work.” Participant, 47.

“Even if management follows the laws, they can still have negative views that pressure employees.” Participant, 109.

“My employer knew I was pregnant and planned to pump since January. When I was to take only 2 weeks off for the birth of my son in August, and ended up being doctor ordered home for 8 weeks- they were not happy. The company did put a[n] electrical outlet in the bathroom for me the day before I returned. I explained I would pump 2-3 times a day. 2 weeks after being back to work I was brought in the office and told I was abusing the “pumping excuse” because I was going to the bathroom more than 3 times total a day and my sessions were over 10 mins.!! I left work in tears! Already battling PCOS [polycystic ovarian syndrome] it is a daily fight to pump/nurse enough to keep supply and not dry up. I was only pumping 3 times during the 8 hr. work day and only 10-15 mins total. Including clean up. Normally at home I was pumping every 2-3 hrs and up to 25 mins for full expression. To appease my employer I cut back pumping to once/ twice a day max for the last week. Which has meant being in pain at my desk and wearing pads to cover leaks. I am still under the FMLA umbrella for time off and this week I had to take 2 days off. One for a sick 4yr old and the other for a sick 2 month old. Upon returning to work Thursday- I was terminated. For a supposed job performance failure 2 weeks ago. Funny how it just came up after missing work for my sick kids and being told I "abused the pumping excuse" too much.. The good news is I am home with my tiny man now and he can nurse all day long!” Participant, 339.
Positions of Power—Coworkers and Employers: Both Accommodation and Resistance

Leaning

One employed mother recognized her own position of power. Another participant recognized and spoke about her own powerlessness. Another not only recognized her own position of power but felt it important to make use of it. These employed mothers amplify the daily struggle and experience of pumping during the workday, while simultaneously asking the questions, does it have to be this way?

“If I didn't have my own private office, it would have been hard to find a place to pump. I was lucky and it has nothing to do with my employer providing a designated place.”

Participant, 92.

“My manager was extremely strict on break time which is why the space accommodations were not appropriate. I was allowed no more than 45min [sic] of break total (2-3 pumping sessions, including lunch). [My hospital] has a breastfeeding/pumping program, as well as a designated room to pump. I was not able to use this space, because the time it would take me to walk across the hospital campus to get there and back was most of the 15min break, leaving me no time to pump. I explained this to my manager and she said I must pump somewhere in the office, so I could remain within the allotted break time. She would not bend on this. I was a brand new employee and I did not feel I had the power to negotiate any further.” Participant, 593.

“When I was still coming back to work part time I sometimes brought my baby to work for meetings I didn't want to miss, and I fed him during the meetings. This was a difficult thing to be brave enough to do, but I felt it was important to do to normalize breastfeeding. I am in a
more senior position than many women in my company and this involved less risk for me than it might for others, so I felt I must do it for them.” Participant, 423.

Summary

The experiences of employed mothers cannot be summed up succinctly; however, when viewed as relationships of power and control within the workplace over female bodies, the larger categories of accommodation and resistance are threaded through every response. Employed mothers accommodated their workplaces and employers and coworkers for as much as they were able, and for some they were able to satisfy the requirements placed on them and meet their desired goals for breastfeeding, however some did not and chose to quit—either the job or breastfeeding. Resistance was seen as subtle in the telling of their stories to suggesting workplace changes, law changes, or asking for more education for their supervisors or coworkers. Participant 423, looks to the future, as she sought to position herself as normalizing breastfeeding for women who could not make those decisions for themselves, she epitomizes hope and optimism.

“[T]he body is a site for struggles over power should not surprise us. As Michel Foucault (1979, 1980) described, to carry out the tasks of modern economic and social life, societies require “docile bodies,” such as regimented soldiers, factory workers who perform their tasks mechanically, and students who sit quietly. To create such bodies, “disciplinary practices” have evolved through which individuals both internalize and act on the ideologies that underlie their own subordination. In turn, these disciplinary practices have made the body a site for power struggles and, potentially, for resistance, as individual choices about the body become laden with political meanings.” Rose Weitz, 2001
CHAPTER 5

DISCUSSION

The U.S. is falling short in breastfeeding goals for the health of mothers, infants and society, and employed mothers breastfeed far less than non-employed mothers. The Breastfeeding Provisions in the PPACA aimed to address the breastfeeding disparities by placing workplace changes within the law, the first federal level breastfeeding law. This study aimed to determine the extent to which the health policy allows employed women to combine breastfeeding and employment. It offered the stakeholders, the employed mothers, an opportunity to discuss their satisfaction with the workplace changes and share their experiences after the birth of their infants in the Penders Breastfeeding Study. The sample of N=507 participants were mostly married, white/Caucasian, between 30-34 years, had approximately 12 weeks of partial or full pay after the birth of their infants, and were at least middle-class and college educated. This group of women, agreed with all of the satisfaction statements they were asked; they were satisfied with the PPACA provisions, they were satisfied with the place to pump, the break time for milk expression, the duration of their own breastfeeding, and their exclusive use of human milk. However, within the additional space provided, the participants shared an even broader work experience. Not all were satisfied. Some stories are of concern and underscore the work that remains to be done. They wrote in vivid detail about pain, lack of privacy, interrupted break time, and lack of breaks due to work or job demands and co-workers and employers who were rude, challenging and
demeaning. Their qualitative responses were coded into themes and later categorized into Accommodation and Resistance, as ways of viewing relationships and power structures.

To what extent does the PPACA allow women to combine breastfeeding and employment? \textit{it depends on who you are}. Or rather how much power you have within your workday, your schedule, your workload, how your coworkers treat you, or just autonomy. The degree of power an employed mother felt in her work environment allowed autonomy over break time. If she felt comfortable with her coworkers she was more likely to get or take a break and if she was newly hired she felt the most powerlessness. Power, itself, was not measured but the voices of employed mothers clearly state it mattered a great deal whether break time was possible.

**Conceptual Model**

When viewed from the perspective of the CMNHP framework, referring back to Figure 1, the Conceptual – Theoretical – Empirical (CTE) structure, under Policy Components is Personnel; these are the employers of breastfeeding women. The Penders Breastfeeding Survey focused on the satisfaction variables relevant to the Breastfeeding Provisions in the PPACA. Whereas, some said it was good or enough, others were quick to point out it does not go far enough in terms of who it covers, or for the recommended time frame according to health experts. In addition, the lack of punitive charges towards employers made it difficult to see real changes in the workplace. Other women noted, the law does not cover employers who have under 50 employees, nor does it include salaried workers.

Following along in Figure 1, Level 3, Access, is noted by the employer breastfeeding accommodations. The Penders Breastfeeding Survey is the empirical research focused on
satisfaction questions for break time and a place to pump. These responses were varied and heavily depended on the type of work; some women had complete autonomy, while others had none. The other component to Level 3, is Equity of access, and is represented by the breastfeeding experience questions for satisfaction with exclusive use of human milk and satisfaction with duration of breastfeeding or pumping in the Penders Breastfeeding Survey. These responses were also varied but those who were satisfied in meeting their exclusivity and duration goals, were most often quick to point out how lucky they were or indicated difficult journeys.

**Implications**

The results of this study are significant in several ways. Currently under the Trump Administration, maternal child health has low priority. As the President’s Fiscal Year 2021 was just released, the budget proposed to eliminate the CDC Hospitals Promoting Breastfeeding program funding and the Racial and Ethnic Approaches to Community Health (REACH) program (Office of Management and Budget, 2020). While efforts need to focus on many aspects of breastfeeding support, having the PPACA breastfeeding provisions may be critically important to combat this and other concerns. The Penders Breastfeeding Study was the first to address employed mothers’ satisfaction with the PPACA Breastfeeding Provisions and the results show a large variety of responses to satisfaction. As a healthcare issue, this policy affects health in both the short and long term; it is an access issue; a health disparities issue; and has an economic impact to the U.S. First, as a health issue, infants are not afforded access to the best nutrition, since breastfeeding is associated with lower rates of obesity and diabetes later in life. Mothers who do not breastfeed (or breastfeed for short duration) have higher risks of postpartum depression and diabetes, obesity, and heart disease.
later in life as compared to their breastfeeding counterparts. Second, those in disadvantaged economic backgrounds or marginalized in society have the least opportunities to utilize the PPACA Breastfeeding Provisions. Finally, as an economic issue, the U.S. is not utilizing healthcare dollars spent through prevention of such illnesses and diseases. Nor are employers taking advantage to save on costly employee absenteeism and turn-over. Whereas, there are increased numbers of women in the workforce, particularly those returning to work shortly after the birth of an infant, the costs associated with low breastfeeding rates in the U.S. is enormous on multiple layers.

The Penders Breastfeeding Study tells us that the PPACA Breastfeeding Provisions are a start; however there is still substantial variation in how well the law has been implemented. One of the striking findings is that while the law specifies break time and place to pump, many women said they had neither. In order to measure the satisfaction with the law, employers must be compliant with the law, and it is clear, from the results of this study and other data sources and anecdotal observations many are not compliant and some remain unaware of the PPACA provisions. Success with a policy change is totally dependent on its implementation. For example, in the hospital setting, evidence-based breastfeeding research states that a baby should attempt to breastfeed within the first hour of birth. However, in many hospitals, babies are taken by health care personnel for their first medications, weights/measurements and footprints before given to the mother for skin-to-skin time and getting the first latch, missing important first moments for successful breastfeeding. In addition, as Perez-Escamillia (2020) states part of the policy agenda in the U.S. needs to be the enforcement of the WHO Code for Marketing of Breastmilk Substitutes. Similarly, just having the law or best practice is not enough. The law states that mothers should have break
time and a place to pump based on best practice evidence, yet many employers do not comply with either components of the law. Pumping at work has been shown to be a mitigating factor for increasing breastfeeding despite other factors, as Slusser et al. (2004) noted. Pumping time may vary and women with younger infants need to express more often per day. Labiner-Wolfe, Fein, Shealy, and Wang (2008) noted that women who had regularly scheduled breaks (rather than occasional breaks or had none) breastfeed for longer durations. Whether or not pumping at work is optimal can be debated, but as Kim et al., (2019) state pumping in the workplace is effective in increasing breastfeeding.

Accommodation

In Petchesky and Judd’s (1998) book, Negotiating Reproductive Rights, in-depth group and individual interviews with women in seven countries (Brazil, Egypt, Malaysia, Mexico, Nigeria, the Philippines, and the U.S.) are synthesized. They discussed gender justice and how women negotiate with their world around them; with their husbands and partners, to health providers and the larger communities in which they live.

While breastfeeding is a reproductive right, pumping at work to maintain supply for offspring has been seen as detrimental to work by some employers. Some employers would argue (either overtly or covertly) that is a woman’s issue and interferes in the commerce of work. Yet, employed mothers in this study were accommodating to the work requests, they kept their breaks down to 15 minutes or less, they pumped quickly and went back to work, and at times denied their own bodily rhythms for their workplaces. They were in essence, the docile bodies of Michel Foucault.
Resistance

It is not easy to resist, in fact to resist is to refuse to accept or comply with something, or in better terms, the ability not to be affected by something, especially adversely (Oxford, 2020). The challenges U.S. women in the workplace face are seen only in the context of the society as a whole. Women in the U.S. make $0.79 for every dollar a man earns and four in ten women report gender discrimination at work (Graf et al., 2019). While compared to fathers, mothers experience more career gaps in their work history (Graf et al., 2019), compounding their already low wages over a lifetime. The right or bodily entitlement to pump in the workplace is not guaranteed, even for the women who reported in the survey they were covered by the PPACA legislation.

Action Items

There are many action items. Compliance with the law will remain difficult if the process of enforcement is not easy to navigate nor the consequences have transparency. As the current law is well established there are many businesses that are not following portions of it. For instance, break time is not supposed to be clocked out/in, however, employers are making employees do this even when breaks are within the allotted break times. Coworkers and employers should be aware, informed and fully educated on the PPACA provisions and law and be compliant with what has been enacted to date. In addition, women are still being offered less than optimal places to pump including bathrooms for pumping space, despite the wording in the PPACA which states, “a place must be other than a bathroom.” Regarding the place to pump, many employed mothers mentioned the location was too far from work site to be useful, there were not enough spaces for lactating mothers, and spaces lacked outlets, privacy (particularly a door-lock or window coverings) and the temperatures were too
hot/cold. Finally, the last consideration is while the law is already in place; more wide-scale education is needed on navigating the complaint process about the work conditions. Human Resources in organizations need to be compliant at a minimum but can perhaps go further. For example, as one employed mother noted, these rights should be posted on appropriate sites and venues such as wage notices in the workplace for all to see.

The CMNHP Guidelines for Policy Evaluation

The CMNHP guidelines for Policy Evaluation (Fawcett & Russell, 2001) was considered for the implications of the study. Stakeholders, women’s groups, such as LLL USA, breastfeeding coalitions and the United States Breastfeeding Committee (USBC) Task Force are supportive of the PPACA Breastfeeding Provisions, as they have been enacted since 2010. However, since 2010, new state legislation has expanded some state workplace protections. Having the law helped bring more attention to the issue and now its flaws are being recognized. Discussion of stronger federal level legislation is taking place. The Providing Urgent Maternal Protections (PUMP) for Nursing Mothers Act, has been introduced as S. 3170 and H.R.5592. They seek to rectify some unintentional 9 million workers, those who are salaried and exempt workers, such as teachers. They also attempt to clarify the paid/unpaid break time, and have a remedy for violations under the FLSA (USBC, 2020). In addition, the Support for Working Mother’s Act was introduced as S. 2155 and H.R. 3255 to expand existing coverage and to cover many subgroups not covered by the PPACA Breastfeeding Provisions. Some workplaces have opposed the legislation by stating they have undue hardships; a position not affirmed by the research. Some employed mothers as exemplified by this study, are opposed to the new legislation, seeking alternatives such as paid maternity leave.
The costs have not been transparent; the workplaces that have adopted accommodations have not revealed their expenses. The break time when it is taken from the employed mother’s breaks, comes directly from the employed mother. Breaks are necessary to rejuvenate, rest and relax, and often times this break looks like a rushed session to eat, go to the bathroom and to pump. A few participants stated they needed longer break time to pump efficiently and this was either deducted from their paychecks, or they ended up staying later at work to cover the additional break time. The benefits were supposed to be that mothers could breastfeed longer in duration and that pumping at work would allow this breastfeeding relationship. Results of this study suggest that the federal policy allowed this for some employed mothers but not all for whom it is purported to protect. Some women indicated their mental health was shaken, and conflict in the workplace caused them to quit working or breastfeeding or have pain related to not breastfeeding or pumping such as mastitis. The target audience, employed mothers, did say they were satisfied; however, the group was not representative and even within this group there was much variation.

Reviewing the conceptual model within the CMNHP for this study, the first column, in the Law, it should be expansive, it should include more women, and should have stronger language. Proponents suggested outlining building codes requirements, specifying break time in minutes, and having minimal pumping stations per number of employees. Similar to Dye’s concept of policy incrementalism, this was a step, which was proposed because it was thought to pass, and now, it’s possible to piecemeal a better policy, one that is more expansive and can be better for society. Within, the CMHNP, the 2nd column the Law, what is the best place to pump? Within the CMNHP, under Access: what has worked well in the workplace? Some stated it was beneficial for scheduling breaks, or having a keypad entry, or
having a door sign, with temperature controls in the room, full privacy, and no interruptions. Within the CMHNP: Did employed mothers meet their exclusive breastfeeding and duration goals? The majority had said they did, but also noted how difficult it was.

**Socioecological Model**

For the most parsimonious organization of the emerging themes, it can be thought of in terms of the mother and baby at the center and interactions with others; such as fathers, healthcare providers, and work environment expanding out to the community and world.

At the mother and baby level the Emotional Components, are similar to “We accomplished something here” Stewart-Glenn’s dissertation (2012), which she discusses how employed mothers struggled and feel very proud of being able to combine work and breastfeed. This study also found that women celebrated their work for continuing to breastfeed in their words about duration and exclusive human milk. As Stewart-Glenn (2012) recognized the concept of promotion of breastfeeding as ineffective, this author also agrees that the larger social and cultural context must be explored. Other emotional aspects that were demonstrated in this study that relate to other literature are the concepts of mourning the weaning relationship, Chezem, Montgomery and Fortman (1997) noted when women stopped breastfeeding due to work they felt a deep loss, along with issues of guilt and sadness. The employed mothers wrestled with the feelings of role contentment in being a good mother or good employee. Finally it also related to the Personality Traits (Knowledge, Attitudes, Beliefs) sections of the literature review, particularly Aquilina (2011) and Pollard and Guill’s (2009) work using the BSES-SF, self efficacy scale, as it appeared that women with more autonomy or power were better able to combine breastfeeding and employment.
At the mother and baby and employer level, this research is new and pioneering and does not have other research for comparison purposes. This study developed new research on the Reactions to PPACA Law: Area for Pumping and Break Time which showed both adequate and inadequate spaces and experiences. Since enactment of the law in 2010, many women said they were the first to utilize space and break time at their workplace and while there is research on best practices for pumping at work, no such research has been done surveying mothers reported satisfaction. In this current study there were some Mitigating Factors that helped increase breastfeeding, such as a class or phone call, or offering a physical space to pump, while the space is part of the law it is up to the employer to assess and determine what would be best/optimal for their workplace. More research is called for in this area since the results of this study show it is still an issue; How do employed mothers like specific ergonomical spaces; What about MAMAVA (Mamava, 2020) huts or similar mobile pods. More research is called for regarding the milk expression during a 15-minute break; Does it seem reasonable, when employed mothers are traveling to and from a lactation room, cleaning pumping parts and storing milk? What about the nutritive benefit from a rushed pumping session, considering the first milk does not have the same caloric content as later milk in a pumping session? In addition, are the benefits of exclusively pumping the same as feeding at the breast? As Eagleton et al. (2019) research demonstrated, return to work at 12 weeks was associated with greater weight gain for infants; rapid weight gains in the first 6 months and greater weight-for-length at 1 year, all which appear to be precursors to obesity (Baird et al., 2005). Breastfeeding did not mediate these effects and authors speculated it was a parent or caregiver’s feeding styles that accounted for the significant findings. While the mechanisms remain to be clarified, perhaps more effort should focus on
on-site childcare or paid maternity leave. What outcomes should researchers focus on when examining the benefits of pumped milk (versus fresh, at the breast, human milk)? Should researchers look to the baby’s satiation, growth, health, illness? Perhaps the answer is all of that, as well as comparing the long-term outcomes for infants that were exclusively fed pumped human milk versus infants directly fed at the breast.

At the mother and baby and employer level Formula or Supplements Utilized, Continuation or Cessation of Breastfeeding, and Job Specific themes, all are found within the literature and had similar findings. Under sociodemographic factors in the literature review, variables such as maternal stress, having low social support, being of lower economic status or not having paid maternity leave contributed to lower breastfeeding rates and lower rates of success of combining breastfeeding and employment. Several different work-related jobs were in the literature, such as military (Lundquist, Xu, Barfield & Elo, 2015; Uriell, Perry, Kee & Burress, 2009; Stevens & Janke, 2003) physicians (Sattari et al., 2016; Sattari et al., 2013; Stack et al., 2019) and nurses (Wambach & Britt, 2018). More research is called for in areas of how best to support employed mothers in already known lower breastfeeding groups, as well as explore best practices for specific jobs. In this research, a variety of job types were explored, including a nurse, a restaurant server, a lab technician, a flight attendant, a construction worker and more. Certainly, some job-types will have more work-dependent aspects to taking a break and alternatives and best practice can provide a means to increasing breastfeeding. A feminist approach and viewing women as uniquely different than men with a biologic need to express milk and a multifaceted approach is needed.

At the mother and baby and employer level, Positions of Power discusses coworkers and employers and is similar to having a supportive workplace environment like Bai and
Wunderlich (2013) who examined Breastfeeding Friendly Workplaces. More education is needed, as well as strengthening and increasing the break time, enhancing workplace environments, providing technical support, and creating workplace policies.

At the mother and baby and societal level, all of the emerging themes Break Time, Area for Pumping, Job Specific, Formula or Supplements Utilized, Continuation or Cessation of Breastfeeding, Positions of Power, Emotional Components and Reactions to the PPACA Law areas would have some similar and some new aspects to the research. Some women were timed so closely they were counting minutes for their break time; others had almost unlimited time and autonomy. More equal positions for men and women and valuing women’s’ time for milk expression should be considered for society.

**Limitations**

This study was conducted with a convenience sample of employed mothers, recruited from La Leche League USA Facebook account who returned to work after the birth of their infant, after the PPACA Breastfeeding Provisions were enacted. Results are not generalizable to all women in the U.S. or even the followers on the LLL USA Facebook account. Other limitations included missing data (participants skipping questions or not filling out the survey completely due to boredom or lack of time). Participants could be characterized as a select sample (the women were older, highly educated, mostly white, had middle to high incomes, and most had paid or partially paid time off work). Their occupations and/or individual factors (knowledge, attitudes or beliefs) may have allowed a higher success and satisfaction in breastfeeding than a more diverse sample. In addition, they self-selected, and participants may have responded with a social desirability bias. However, many women in this select group still had difficulty with pumping at work, in getting break time or place to pump.
These responses suggest that breastfeeding and employment is still difficult after the PPACA Breastfeeding Provisions. Those that participated were probably highly motivated by their strong opinions, self-selecting. An additional question could have been added relating to how a participant interacted with LLL USA, in essence, adding a peer-support variable; asking how often they talk to a LLL leader or view Facebook account posts. This peer-support variable could then be used to compare breastfeeding rates. It is also possible that a variety of different responses would have provided more detail, from women who did not return to work, and from women who did not to breastfeed.

**Recommendations for Research Policy**

More research is needed on this first federal breastfeeding law in the U.S. Issues surrounding awareness and education of the law is needed. Places of employment are often job specific and more research is needed as to what would be the best for a particular type of job. This builds upon Lauer and colleagues (2019) as types of employment and pumping research. These findings were consistent with varying rates in different areas of work. Service-line and retail areas had the lowest rates of initiation and workplace support (Lauer et al, 2019).

Many hospital employees had areas of work that did not allow for regularly scheduled breaks, more research on hospital employees is needed. Healthcare workers need space designs that account for preferences. Similar to Henry-Moss et al. (2018), women need to have access to pumping spaces that are close in proximity (they preferred 5-7 minutes away maximum), otherwise they utilized subpar areas such as closets, storages spaces and bathrooms. This study had 48% of the N=507 in a healthcare job and more study is needed
on specific types of healthcare jobs. As Henry-Moss et al. (2018) found the number one requested item for a lactation room was a hospital grade electric pump.

Salaried employees are left out by the PPACA and this group of women may have additional or different needs than hourly employees. In addition, for women who brought their baby into work versus women who pumped, were they happier with their breastfeeding duration or exclusivity? Exploring paid maternity leave as an alternative to pumping at work should also be considered. There was a discussion of tax deductions for businesses to provide better workplace accommodations and this should still be considered by government. Expanding on the space itself has been an issue, but perhaps future construction could include lactation spaces by changing building codes.

**Conclusion**

This study reveals many areas for both research and policy promotion. Women stated they needed more advice and education on pursing complaints; this is in the PUMP for Mothers Act and should be supported. Some women noted they may need longer breaks for full milk expression and more research is needed. In addition, more research is needed on infants at work, and onsite daycare. In addition, there is a call for long term studies of infant’s growth and development based on nutrition and circumstances surrounding food intake. Merkley and Maloney introduced Support for Working Mother’s Act, H.R. 3255 and S. 2122 which would extend existing laws to include executive, administrators and secondary school teachers to have the right for reasonable break time and place to pump other than a bathroom. However, a critical assumption of the PPACA Breastfeeding Provisions is that pumping will give health benefits and that employed mothers can reach their breastfeeding goals; however, quality evidence shows that baby at the breast is better than a breast pump.
(in terms of efficiency and removing the milk effectively) but also in terms of being in the moment in real time (the interaction of baby suckling at the breast has a spit-interaction with the mother’s immune system) so that if the baby at the breast has a cold, the mothers immunity is boosted and is ready to fight the cold at the next feeding. If a baby is absent from the mother for 12 hours –then there is a potential for this immunity protection to be delayed.

Are the policy efforts misguided for pumping at work legislation? Should we encourage more babies at work? These recommendations point us back to alternatives such as on-site daycare centers or more paid maternity leave.

This study adds to the literature in many ways, for one it addresses the satisfaction of Breastfeeding Provision in the PPACA, but perhaps more importantly it begins to address breastfeeding research in terms of conflict resolution. The perception of satisfaction motivates the behaviors or employed mothers. Unless women perceive satisfaction, they will continue to both accommodate and resist.
APPENDIX A

RECRUITMENT FLYER (FACEBOOK ACCOUNT CONTENTS)

Recruiting Volunteers
To Participate in a Study measuring level of Satisfaction of the Breastfeeding Provisions in the Patient Protection and Affordable Care Act (PPACA)

I am a doctoral candidate at the College of Nursing and Health Sciences, University of Massachusetts—Boston. I am grateful to La Leche League USA for their assistance in launching this survey. I am recruiting employed mothers who have given birth since March 23, 2010 who are interested in volunteering to participate in a study to measure satisfaction of the Breastfeeding Provisions in the Patient Protection and Affordable Care Act. You are eligible to participate if you are at least 18 years old, can read and write in English, and have given birth to an infant since March 23, 2010 and resumed employment within 1 year of your child’s birth. You must have delivered a single infant, who was at term (completed 37 weeks gestation) and went back to work more than 20 hours per week after the birth of your infant. Both salaried and hourly employees can respond to this survey. Please only take the survey once. If you have more than one infant born after March 23, 2010, please fill out the survey for your most recent child.

Please do not take the survey if the following circumstances apply to you: You have multiple infants (twins or greater), a stillborn or infant death, a preterm delivery (prior to completing 37 weeks), or if your baby has/had an oral or facial abnormality, such as cleft lip or palate that could interfere with breastfeeding.

Description of the Study
The purpose of this study is to assess employed mothers’ satisfaction in their breastfeeding experiences after the Breastfeeding Provisions in the Patient Protection and Affordable Care Act. One part of the study focuses on employed mother’s experiences and their infant feeding practices. The goal of this study is to determine if the Breastfeeding Provisions in the Patient Protection and Affordable Care Act meet the needs of the people eligible under the law.

What you can expect if you decide to participate:
If you decide to take part in this study, you will participate by completing an online survey and be given a chance to freely write answers as well. This online survey should take approximately 15 minutes to complete. You may skip a question on the survey if you would prefer not to answer it. The benefits of the study include being able to discuss and share your experience. There is minimal risk other than bringing up these memories or using a computer in your everyday life. You will not receive any compensation. When the survey is complete, a report of the survey results will be shared with La Leche League USA and this Facebook community.

Confidentiality
Your participation in this study is strictly confidential. The researcher for this study is mandated to maintain strict confidentiality of all identifying information.

Please click Continue to proceed to the survey. If you have questions about this study contact me by email at umbstudy@gmail.com
Collaboration with La Leche League (LLL) USA
Contact person: Debbi Heffern (LLL USA Council Member).
Collaboration and agreement from emails (8/2/2018 through 5/16/2019 and phone conversations (8/2/18; 8/29/18; 5/15/19 regarding the study, dissertation proposal, and data collection.
# APPENDIX C

## PENDERS BREASTFEEDING SURVEY

<table>
<thead>
<tr>
<th>Record ID</th>
<th>Survey Identifier</th>
<th>Survey Timestamp</th>
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<tr>
<th></th>
<th>This survey asks about when you gave birth to your child and your feeding practices. This child's birthdate must be between March 23, 2010 and today's date. If you have more than one child, please fill out the survey with your last child's delivery. How old is your child?</th>
<th>Select dropdown menu for child’s age</th>
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<tbody>
<tr>
<td>1.</td>
<td>Did the employer you had at the time you gave birth have more than 50 employees?</td>
<td>Yes</td>
</tr>
<tr>
<td>2.</td>
<td>Did you pump at work?</td>
<td>Yes</td>
</tr>
<tr>
<td>3.</td>
<td>Did you bring your infant to work so you could directly latch your infant during break times for feeding?</td>
<td>Yes</td>
</tr>
<tr>
<td>4.</td>
<td>Did your insurance company provide you with a breast pump free of charge?</td>
<td>Yes</td>
</tr>
<tr>
<td>5.</td>
<td>Did your employer provide a breast pump for your use on-site? Examples are manual pumps, battery-powered pumps, or single or double electric pumps.</td>
<td>Yes my employer has a manual pump for my use</td>
</tr>
<tr>
<td>6.</td>
<td>Did your employer provide refrigeration or a lunch box with cold packs for your pumped milk?</td>
<td>Yes</td>
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<tr>
<td>7.</td>
<td>Were you aware of any LACTATION (breastfeeding) SUPPORT PROGRAMS provided through your employer?</td>
<td>Select a statement that reflects your experience.</td>
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<td>---</td>
</tr>
<tr>
<td>9.</td>
<td>For questions 9-13 please refer to the Break Time for Nursing Mothers</td>
<td>Select from the Strongly Agree-Strongly Disagree scale</td>
</tr>
<tr>
<td></td>
<td><a href="https://www.dol.gov/whd/nursingmothers/Sec7rFLSA_btnm.htm">https://www.dol.gov/whd/nursingmothers/Sec7rFLSA_btnm.htm</a></td>
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<td>12.</td>
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<td>13.</td>
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</tr>
<tr>
<td>14.</td>
<td>Reviewing your answer for #9 (using the scale Strongly Agree--Strongly Disagree); Please explain your answer.</td>
<td>Free text allowed, no limit to characters</td>
</tr>
<tr>
<td>15.</td>
<td>Reviewing your answer for #10 (using the scale Strongly Agree--Strongly Disagree); Please explain your answer.</td>
<td>Free text allowed, no limit to characters</td>
</tr>
<tr>
<td>16.</td>
<td>Reviewing your answer for #11 (using the scale Strongly Agree--Strongly Disagree); Please explain your answer.</td>
<td>Free text allowed, no limit to characters</td>
</tr>
<tr>
<td>17.</td>
<td>Reviewing your answer for #12 (using the scale Strongly Agree--Strongly Disagree); Please explain your answer.</td>
<td>Free text allowed, no limit to characters</td>
</tr>
<tr>
<td>18.</td>
<td>Reviewing your answer for #13 (using the scale Strongly Agree--Strongly Disagree); Please explain your answer.</td>
<td>Free text allowed, no limit to characters</td>
</tr>
<tr>
<td>19.</td>
<td>If applicable, why did you stop breastfeeding or pumping?</td>
<td>Free text allowed, no limit to characters</td>
</tr>
<tr>
<td>20.</td>
<td>Do you have anything else you would like to share about your breastfeeding or pumping at work experience?</td>
<td>Free text allowed, no limit to characters</td>
</tr>
<tr>
<td>21.</td>
<td>How long did you exclusively breastfeed? (Select the best answer from the drop down choices.)</td>
<td>Select dropdown in months to years</td>
</tr>
<tr>
<td></td>
<td>Question</td>
<td>Answer Options</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>22.</td>
<td>Year of the birth of your baby:</td>
<td>Select dropdown from 2010-2019</td>
</tr>
<tr>
<td>23.</td>
<td>Are you still breastfeeding?</td>
<td>Yes, No</td>
</tr>
<tr>
<td>24.</td>
<td>Your age at the birth of your baby?</td>
<td>Select dropdown for age</td>
</tr>
<tr>
<td>25.</td>
<td>Did your baby spend any time in the Neonatal Intensive Care Unit (NICU)?</td>
<td>Yes, No</td>
</tr>
<tr>
<td>26.</td>
<td>Did you take time off work following the birth of your baby?</td>
<td>Yes, No</td>
</tr>
<tr>
<td>27.</td>
<td>If yes [to Question 26], did you receive a paycheck during this time?</td>
<td>Yes, I received Full Pay, Yes, I received a Partial Pay, No this time off was Unpaid, N/A I did not take time off work after the birth of my baby</td>
</tr>
<tr>
<td>28.</td>
<td>How many weeks did you take off work?</td>
<td>Select from dropdown menu</td>
</tr>
<tr>
<td>29.</td>
<td>If you have stopped breastfeeding, what age was your child when you stopped?</td>
<td>Select from dropdown menu</td>
</tr>
<tr>
<td>30.</td>
<td>Occupation at the time you gave birth?</td>
<td>Select from dropdown menu</td>
</tr>
<tr>
<td>31.</td>
<td>Job Status (Full-time/Part-time) at the time you gave birth:</td>
<td>Full time, Part time</td>
</tr>
<tr>
<td>32.</td>
<td>Wage paid to you? (Hourly or salaried) at the time you gave birth:</td>
<td>Hourly, Salaried</td>
</tr>
<tr>
<td>33.</td>
<td>Highest level of education at the time you gave birth?</td>
<td>Less than high school, High school completion, Some college, no degree, Vocational training, certificate or diploma, Associate’s degree, Bachelor’s degree, Master’s degree, Doctoral or Professional degree</td>
</tr>
<tr>
<td>34.</td>
<td>How did you give birth?</td>
<td>Vaginal, Cesarean</td>
</tr>
<tr>
<td>35.</td>
<td>Marital status at the time you gave birth:</td>
<td>Now married, Widowed, Divorced, Separated, Never married</td>
</tr>
<tr>
<td></td>
<td>Question</td>
<td>Options</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------------------------</td>
<td>------------------------------------------------------------</td>
</tr>
<tr>
<td>36.</td>
<td>Please select your race/ethnicity (check all that apply).</td>
<td>American Indian/Alaskan Native, Asian/Pacific Islander, Black/African American, Hispanic American, White/Caucasian</td>
</tr>
<tr>
<td>37.</td>
<td>What was your city and state at the time you gave birth? (Please type the full city name and 2 letter state abbreviation, for example Seattle, Washington would be Seattle, WA).</td>
<td>Free text allowed</td>
</tr>
<tr>
<td>38.</td>
<td>How many people were living in your household at the time you gave birth? (For example 2 parents, 2 children and 1 new baby would be 5)</td>
<td>Select from dropdown menu</td>
</tr>
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<td>39.</td>
<td>Estimate your yearly household income at the time you gave birth?</td>
<td>Select from dropdown menu</td>
</tr>
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APPENDIX D:
PENDERS BREASTFEEDING SURVEY
CONTENT VALIDITY RATING

Directions for Rating
The Penders Breastfeeding Survey is designed to determine the extent to which employed women’s breastfeeding experience reflects the PPACA provisions for breastfeeding. A major aim is to determine the extent to which the health policy allows employed women to combine breastfeeding and employment in light of the law.

Space is provided on the right of each item. Please rate each item of the Penders Survey according to the following scale:

(+1) I think this item is important to the survey
(0) I cannot decide if this item is important to the survey
(-1) I think this item is not important to the survey

If you have other categories, comments or suggestions, please use the appropriate column. Thank you.

<table>
<thead>
<tr>
<th>Record ID</th>
<th>Please use this column to rate this item (+1, 0, -1), see scale above</th>
<th>Please use this column to add a comment or suggestion</th>
</tr>
</thead>
</table>

| Survey Identifier | Survey Timestamp | |

1. This survey asks about when you gave birth to your child and your feeding practices. This child's birthdate must be between March 23, 2010 and today's date. If you have more than one child, please fill out the survey with your last child's age | Select dropdown menu for child’s age |
<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>delivery. How old is your child?</td>
<td></td>
</tr>
<tr>
<td>2. Did the employer you had at the time you gave birth have more than 50 employees?</td>
<td>Yes, my employer has a manual pump for my use No, my employer has a battery-powered pump for my use Yes, my employer has a single electric pump for my use Yes, my employer has a double electric pump for my use No, my employer does not provide a breast pump for my use</td>
</tr>
<tr>
<td>3. Did you pump at work?</td>
<td>Yes No</td>
</tr>
<tr>
<td>4. Did you bring your infant to work so you could directly latch your infant during break times for feeding?</td>
<td>Yes No</td>
</tr>
<tr>
<td>5. Did your insurance company provide you with a breast pump free of charge?</td>
<td>Yes No</td>
</tr>
<tr>
<td>6. Did your employer provide a breast pump for your use on-site? Examples are manual pumps, battery-powered pumps, or single or double electric pumps.</td>
<td>Yes, my employer has a manual pump for my use Yes, my employer has a battery-powered pump for my use Yes, my employer has a single electric pump for my use Yes, my employer has a double electric pump for my use No, my employer does not provide a breast pump for my use</td>
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<td>7. Did your employer provide refrigeration or a lunch box with cold packs for your pumped milk?</td>
<td>Yes No</td>
</tr>
<tr>
<td>8. Were you aware of any LACTATION (breastfeeding) SUPPORT PROGRAMS provided through your employer?</td>
<td>Select a statement that reflects your experience.</td>
</tr>
<tr>
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<td>Question</td>
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| 23. | Are you still breastfeeding? | Yes
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<p>|    |                                                                          | No |</p>
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| 26. Did you take time off work following the birth of your baby?          | Yes  
No                                                                 |
| 27. If yes [to Question 26], did you receive a paycheck during this time? | Yes, I received Full Pay  
Yes, I received a Partial Pay  
No this time off was Unpaid  
N/A I did not take time off work after the birth of my baby |
| 28. How many weeks did you take off work?                                | Select from dropdown menu                                                |
| 29. If you have stopped breastfeeding, what age was your child when you stopped? | Select from dropdown menu                                                |
| 30. Occupation at the time you gave birth?                               | Select from dropdown menu                                                |
| 31. Job Status (Full-time/Part-time) at the time you gave birth:          | Full time  
Part time                                                    |
| 32. Wage paid to you? (Hourly or salaried) at the time you gave birth:    | Hourly  
Salaried                                                              |
| 33. Highest level of education at the time you gave birth?               | Less than high school  
High school completion  
Some college, no degree  
Vocational training, certificate or diploma  
Associate’s degree  
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REFERENCES


Madden, S., & Curtis, B. (2013). The case for creating a model insurance policy: Payer coverage of breastfeeding counseling services, pumps and supplies. *Breastfeeding Medicine, 8*(5), 450–452.


