COMMUNICATION IN THE WORKPLACE: DOES COMMUNICATING BREASTFEEDING NEEDS AFFECT BREASTFEEDING DURATION FOR WORKING MOTHERS?

A Thesis
Submitted to the Graduate Faculty
of the
North Dakota State University
of Agriculture and Applied Science

By

Madison Sara Millner

In Partial Fulfillment of the Requirements
for the Degree of
MASTER OF SCIENCE

Major Program:
Exercise & Nutrition Science

March 2018

Fargo, North Dakota

North Dakota State University
Graduate School

Title

Communication in the Workplace: Does Communicating Breastfeeding Needs Affect Breastfeeding Duration for Working Mothers?

By

Madison Sara Millner

The Supervisory Committee certifies that this ***disquisition*** complies with North Dakota State University's regulations and meets the accepted standards for the degree of

DOCTOR OF PHILOSOPHY

SUPERVISORY COMMITTEE:

Dr. Ardith Brunt, PhD, RD
Chair

Dr. Donna Terbizan, PhD

Dr. Rebecca Woods, PhD

Approved:

March 9, 2018
Date

Dr. Yeong Rhee, PhD, RD
Department Chair

ABSTRACT

The purpose of this study was to identify if employer interpersonal communication and support are factors that reduce breastfeeding duration. An online, 85-item questionnaire was completed by employed breastfeeding mothers in the state of North Dakota. Of the 502 respondents, responses of a subset of 214 mothers who had concluded breastfeeding were analyzed. Shorter breastfeeding duration was seen in mothers who reported not being confident in combining breastfeeding and working. This was further seen in shorter breastfeeding duration among mothers who did not feel comfortable asking for accommodations or taking breastfeeding breaks. Mothers who were unsure about manager's support of breastfeeding had shorter breastfeeding duration. Many respondents stated that their employer did not provide instrumental support. Over half of the respondents (60%) were unsure or disagreed/strongly disagreed that written policies concerning breastfeeding or pumping were present. Further research is needed to determine additional workplace barriers that reduce breastfeeding duration.

ACKNOWLEDGEMENTS

First and foremost, I would like to acknowledge my parents because none of this would have been possible without them. They have always pushed me to be the best version of myself and have given me all the opportunities in life to do so. I would like to thank my advisor, Dr. Ardith Brunt. She has been there since my undergraduate program and has helped me every step of the way. She made this busy and stressful time go smoothly and I cannot thank her enough for that. I would also like to thank Dr. Elizabeth Hilliard who has been a mentor to me. She helped me through the recruiting and writing process and I would have never had the privilege to work on this study if it was not for her. I want to thank Dr. Shannon David and Dr. Mary Larson for helping me through the writing process. Also to the Statistics Department and Centers for Writers for always being there to help students and myself with questions on our writing or research. Last but not least, I would like to acknowledge members of my committee, Dr. Rebecca Woods and Dr. Donna Terbizan, who were willing to be a part of my committee despite their busy schedules.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Figure Page

CHAPTER 1. INTRODUCTION

Breastfeeding has long been recognized as the optimal form of infant nutrition and serves as a key strategy to improve public health with its known benefits for infants, children, and mothers. (Center for Disease Control and Prevention, 2016; Cross-Barnett, Augustyn, Gross, Resnik, & Paige, 2012). The immunological and nutritional properties of breast milk are beneficial to babies and can be associated with decreased childhood morbidity and mortality (Kong & Lee, 2004). Breast milk is rich in essential fatty acids, lactose, long chain polyunsaturated fats and phospholipids and also supplies enzymes that increase digestibility (Mathur & Dhingra, 2014). Breast milk also acts as a defense against microbes: infants that are breastfed are less likely to have diarrhea, infections, asthma or other allergic disorders (Mathur & Dhingra, 2014). Breastfeeding also has numerous benefits for a mother. For the mother, breastfeeding helps reduce risks of developing ovarian cancer, premenopausal breast cancer, and osteoporosis (Kosmala-Anderson & Wallace, 2006). Incidentally, while some benefits may seem more important than others, breastfeeding also helps mothers regain their figure, which leads to improved mental health (Kosmala-Anderson & Wallace, 2006).

Because breastfeeding has so many benefits, it has become a major public health priority to encourage mothers to breastfeed (Center for Disease Control and Preventions, 2016). The American Academy of Pediatrics recommends that infants be exclusively breastfed for the first 6 months of life and then be breastfed along with complementary foods until age one. As part of the Healthy People 2020 initiative, the goal is to have 81.9% of mothers initiate breastfeeding and 60.6% of mothers continue breastfeeding until their infant is six months of age (Dagher, McGovern, Schold, & Randall, 2016). However, the numbers of breastfeeding mothers in the United States are falling short of these goals set by Healthy People 2020. According to the 2016

Breastfeeding Report Card compiled by the Center for Disease Control and Prevention (CDC), 81.1% of United States women started to breastfeed, 51.8% were still breastfeeding at 6 months, but only 30.7% were still breastfeeding at 12 months of their infant's life. North Dakota's breastfeeding initiation rate was 82.3%, with 51.5% of infants being breastfed at 6 months, and 27.9% of infants being breastfed at 12 months (Center for Disease Control and Prevention, 2016). High breastfeeding initiation rates suggest that most mothers in the United States, including North Dakota, want to breastfeed and are trying to do so. However, lower breastfeeding rates among infants who are 6 and 12 months of age indicate that many mothers may not be able to continue breastfeeding as recommended (Center for Disease Control and Prevention, 2016). To improve breastfeeding rates, it is critical to understand the reasons mothers do not continue to breastfeed for the first 12 months as recommended. Some researchers suggest that mothers may not be getting adequate support or encouragement that is needed from family, friends, or employers in order to continue breastfeeding for the recommended 12 months (Cross-Barnet et al, 2012; Lewallen et al, 2016; Valizadeh et al, 2017).

Purpose of the Study

The purpose of this study was to learn more about the experiences that mothers report when trying to combine breastfeeding and returning to work. More specifically, this study sought to determine the relationships of communication between breastfeeding mothers and their employers and breastfeeding duration. This study also helped identify if interpersonal communication and support in the workplace is a factor in a mother's decision to continue or discontinue breastfeeding once she returns to work.

Research Questions

- What is the relationship between interpersonal communication regarding the need for lactation accommodations in the workplace and breastfeeding duration in working breastfeeding mothers?
- What is a working, breastfeeding mother's comfort level of communicating her breastfeeding needs to her employer?
- How does an employer communicate policies for breastfeeding once the mother returns to work?

Significance of Study

During recent decades, women have been increasingly involved in full-time employment (Ahmadi & Moosavi, 2013). Despite the fact that mothers initiate breastfeeding, their return to work is associated with a reduction in breastfeeding duration due to the challenge of combining breastfeeding and employment (Ahmadi & Moosavi, 2013). Policies and laws have been implemented to help breastfeeding mothers continue to breastfeed when returning to work. On March 23, 2010, federal legislators passed the Affordable Care Act that required employers to provide break time for an employee to express breast milk for her nursing child up to one year postpartum (United States Department of Labor, 2016). Each state also has separate legislation to help protect woman's rights to breastfeed. In 2009, North Dakota Legislature passed legislation that established an "infant- friendly" designation for workplaces that adopt policies that support breastfeeding (North Dakota Department of Health, 2011). In addition to federal and state mandates, many businesses implement their own breastfeeding support programs. Some businesses have policies for designated private lactation rooms for breastfeeding, storage areas for expressed breast milk, and flexible breaks scheduled to support milk expression during

working hours (Atabay et al, 2015; Bridges, Frank, & Curtin, 1997; Brown, Poag, & Kasprzycki, 2001). However, the effectiveness of different strategies or attitudes of employers that are needed to enforce these policies is unknown (Fein & Roe, 1998). Lack of support and communication from employers about breastfeeding policies at the workplace could result in diminishing breastfeeding rates once the mother returns to work.

Most women are aware that breastfeeding is the healthiest choice as demonstrated by the frequency of initiation. Mothers have stated the desire to continue breastfeeding, but they uncovered barriers that made it difficult to carry on breastfeeding to the recommended 12 months (Brown et al, & 2001). However, few studies provide insight as to what these barriers are and why breastfeeding duration continues to drop at 6 months and even more at 12 months of an infant's life. Some studies have shown that returning to work was a barrier for mothers to continue breastfeeding their child (Chow, Fulmer, & Olson, 2011; Dunn, Zavela, Cline, & Cost, 2004). Consequently, research is needed to determine why returning to work may be a barrier and to understand a breastfeeding mother's experiences after returning to work. This study determined if communication and support from employers and coworkers in the workplace helped a mother decide to continue breastfeeding. In addition, the study helped to determine if supportive communication at the workplace was related to her comfort and confidence in continuing to breastfeed once she returns to employment.

Limitations

Several limitations were found with the study. The survey requested participants to provide their employer name and county, which may cause some participants to hesitate in completing the survey, if their responses could be perceived as unflattering. Participants were assured in the recruitment email and informed consent that their information would be kept

confidential and their employer would only receive aggregate results for the entire study sample. However, some still indicated a level of discomfort in providing the employer information and declined to participate. Many businesses chose not to participate in the research. Also, many businesses that participated employed more men than women, which resulted in few women who were eligible to compete the survey from that business. Asking businesses to distribute the survey resulted in few participants; therefore, snowball sampling and social media were used to increase the number of participants. This may have resulted in an uneven distribution of responses among businesses, although it likely provided access to information from more businesses.

Definition of Terms

Artificial feeding- the process of feeding a child with formula milk rather than breast milk (Public Health & Emergency Services, 2017)

Breastfeeding- providing a child with breast milk either directly from the breast or as expressed milk in a bottle (World Health Organization, 2017)

Breastfeeding initiation- Breastfeeding within the first hour of life (World Health Organization, 2017)

Breastfeeding needs- support, communication, advice, facilities, time, and products that help mothers increase breastfeeding duration (Kornides & Kitsantas, 2013)

Breast pump- a device used to draw milk from a woman's breasts by suction (U.S. Food and Drug Administration, 2016)

Exclusive breastfeeding- providing an infant with breast milk from the mother, or expressed milk given by bottle with no other liquids or solids with the exception of drops consisting of vitamins, mineral supplements, or medicines (World Health Organization, 2017)

Infant Friendly worksite- worksites that adopt breastfeeding support policies. These policies include flexible break times for expression of milk, providing a private space for pumping/nursing, and providing a place for storing breastmilk (North Dakota Department of Health, 2011)

Interpersonal communication- interaction where two (or more) people dynamically exchange information and build relationships. (McCornack, 2013). In this paper, interpersonal communication refers to communication between the employer and the breastfeeding mother regarding her need for lactation accommodations in the workplace.

Lactation consultant/specialist- healthcare professionals who specialize in clinical management of breastfeeding (International Lactation Consultant Association, 2016)

Maternity leave- the period of time that a new mother is granted leave from work following the birth of her baby (American Pregnancy Association, 2016). The Family and Medical Leave Act (FMLA) provides certain employees with up to 12 weeks of unpaid, job-protected leave per year (United States Department of Labor, 2017)

Partial breastfeeding- Mixed feedings, giving a baby some breast milk, and some infant formula or cereal, or other foods (Harmon-Jones, 2006)

Private lactation space/room- private space, other than a bathroom, where breastfeeding woman can use a breast pump or breastfeed her child (Society for Human Resource Management, 2012)

CHAPTER 2. REVIEW OF LITERATURE

The purpose of this study was to determine the association between open communication regarding the need for lactation accommodations in the workplace and breastfeeding duration in working breastfeeding mothers. This study showed if employer communication affects breastfeeding continuation once the mother returned to work and if communication is a factor in a mother's decision to continue breastfeeding. Finally, this research determined if interpersonal communication between a breastfeeding mother and a manager or employer had caused the mother to feel more comfortable communicating her lactation needs.

Global and national public health organizations, including the World Health Organization, recommend exclusive breastfeeding until the infant reaches at least six months of age due to its immediate benefits to the infant (World Health Organization, 2016). The American Academy of Pediatrics, recommends breastfeeding a minimum of one year to obtain the maximum benefits breastfeeding provides (American Academy of Pediatrics, 2016; Center for Disease Control and Prevention, 2016).

Studies have identified factors that affect breastfeeding intentions and continuation, such as employment, social attitudes, public facilities for breastfeeding, and advice given to mothers by health workers (Kong & Lee, 2004; Office of Surgeon General, 2011; Stewart-Knox, Gardiner, & Wright, 2003). Even after the decision to breastfeed was made, many mothers fail to reach their breastfeeding goals because of these barriers (Kong & Lee, 2004). Cross-Barnet et al (2012) reported that inadequate or poor communication in the workplace is a common barrier for breastfeeding continuation; therefore, mothers need consistent support and positive communication to develop and meet personal breastfeeding goals.

History of Breastfeeding

Prior to the 1900's, breastfeeding or wet nursing was the only source of infant nutrition. The use of a wet nurse, which is a woman who breastfeeds another woman's child, was a common practice before the feeding bottle was introduced (Stevens, Patrick, & Pickler, 2009). It became a respected profession with contracts and laws designed for the wet nursing profession. Breastfeeding was not always possible. Some mothers experienced lactation failure and, unfortunately, many mothers died from childbirth in the 17th and 18th century (Stevens et al., 2009). Therefore, wet nursing was the primary alternative-feeding method. Wet nursing continued until the 19th century when the feeding bottle was introduced. This feasible alternative feeding method caused the profession of wet nursing to almost become extinct (Stevens et al., 2009).

Society's negative views of wet nursing, the improvements of the feeding bottle, the availability of animal's milk, and advances in formula development have gradually led to the substitution of artificial feeding for breastfeeding (Stevens et al., 2009). With the onset of the Industrial Revolution, at the end of the 18th century through the 19th century, families relocated from rural to more urban areas. This resulted in increased cost of living and decreased wages for the main wage earner. In order to contribute financially to the household, women started entering the workforce. The mothers began to be away from their babies for extended periods of time, which made it almost impossible for them to breastfeed (Parfitt, 1994; Stevens et al., 2009). At this point in time, breastfeeding an infant went from a need to a choice. Therefore, mothers entering the workforce found it necessary and easier to bottle-feed their infants (Parfitt, 1994). These new, independent women saw breastfeeding as old-fashioned and talked about

breastfeeding their infant in terms of being tied down. By 1958, less than 25% of women in the Unites States breastfed their babies (Parfitt, 1994).

In the 1960's, the feminist movement encouraged women to control their own bodies and this movement helped develop standards for breastfeeding (Parfitt, 1994). Since then, breastfeeding began a slow comeback as more women became aware that breastfeeding could benefit both child and mother. By 1984, 61.0% of infants in the United States were breastfed (Parfitt, 1994). Health professionals started to become involved in the promotion of breastfeeding as a return to traditional values and the "natural" versus the "artificial" way to feed infants (Wright & Shanler, 2001). Today, 81.1% of women start to breastfeed, and 51.8% of women are still breastfeeding at six months (CDC 2016 Breastfeeding Report Card, 2016). While promoting breastfeeding initiation is critical, the declining rates at six months to one year of an infant's life demonstrate a need for promoting breastfeeding continuation as well. The promotion of breastfeeding has become a hot public health topic, so much so that federal legislation was passed to encourage breastfeeding continuation.

Legislation and Breastfeeding

The Patient Protection and Affordable Care Act amended section seven of the Fair Labor Standards Act requiring employers to provide reasonable break time for an employee to express breast milk for her nursing child for one year after the child's birth (United States Department of Labor, 2016). The United States Department of Labor (2016) stated the following:

> "Employers are also required to provide 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. An employer that employs less than 50 employees shall not be subject to the requirements of this section, if such requirements would

impose an undue hardship by causing the employer significant difficulty or expense when considered in relation to size, financial resources, nature, or structure of the employer's business" (United State Department of Labor, 2016).

The break time requirement became effective when President Barack Obama signed the Affordable Care Act into law on March 23, 2010 (United States Department of Labor, 2016).

Breastfeeding in Public Places

Breastfeeding policies or laws vary across states and most do not have enforcement provisions. Forty-nine states have laws that specifically allow women to breastfeed in any public location; moreover, 29 states exempt breastfeeding from public indecency laws (National Conference of State Legislatures, 2016). There are 28 states that have laws related to breastfeeding in the workplace and six states that have implemented or encouraged the development of a breastfeeding awareness education campaign (National Conference of State Legislatures, 2016). Although, laws may have recently come into effect to help increase breastfeeding, society's views on breastfeeding have been problematic for some mothers.

Although 81.1% of women initiate breastfeeding, data from a National Public Opinion survey found that only 43% of U.S. adults believe that women should have the right to breastfeed in public places (Office of the Surgeon General, 2011). Restaurants and shopping center managers have reported that they would either discourage breastfeeding anywhere in their facilities or would suggest that breastfeeding mothers move to an area that was more secluded (McIntyre, Hiller, & Turnbull, 1999). Recently, there have been breastfeeding laws enacted to help mothers feel supported to breastfeed in public. However, embarrassment still remains a barrier to breastfeeding in the United States and is closely related to disapproval of breastfeeding in public places. Feeling embarrassed to breastfeed or even talk about breastfeeding needs have

been cited as a reason why some women choose to feed formula (Anderson et al., 2015; Mitra, Khoury, Hinton, & Carothers, 2004; Office of the Surgeon General, 2011; Stewart-Knox et al., 2003). Embarrassment has not only been experienced by the mothers, but also has been experienced by others, including close friends and family (Stewart-Knox et al., 2003). Embarrassment may imply societal disapproval of breastfeeding in public and can reflect the lack of public and workplace facilities for nursing mothers. This makes it difficult for breastfeeding mother to fully engage in activities outside the home (Stewart-Knox et al., 2003). It would be helpful if breastfeeding mothers were provided with the social support from not only their family and friends but also the community and the workplace.

Diffusion Theory

The Diffusion Theory examines how ideas are spread among groups of people. This theory centers on the conditions that increase or decrease the likelihood that an innovation, an idea, product or practice that is perceived as new, is communicated to and adopted by members of a given culture, community, or group (Dunn et al., 2004; Infante, Rancer, & Womack, 1997). This theory emphasizes why channels of interpersonal communication are an effective way to spread ideas or a practice among a group of people.

There are four main elements that influence the spread of new ideas. The first element is the innovation element which is the idea or practice that is perceived as new by an individual (Rogers, 2003). The second element is the communication channels, which are how the message spreads from one individual to another. The most effective and efficient way to persuade an individual to accept a new idea is through interpersonal communication or mass media. The third element is the length of time that is required to pass through the innovation-decision (Rogers, 2003). The final element of the diffusion of innovation is the social system. According to Rogers

(2003) a social system is "a set of interrelated units that are engaged in joint problem-solving to accomplish a common goal" (p. 23). The sharing of a common idea is what binds the system together.

There are five steps within the innovation-decision process. The first step is the awareness stage, in which an individual becomes aware of the idea or practice (Infant et al., 1997). The second step is the stage of interest, in which the individual wants to learn more about the idea or practice; in this case, the idea is breastfeeding in the workplace. The third step is the evaluation stage, in which an individual asks others for feedback. The fourth step is the trial stage, in which the individual attempts to put the idea or practice into use. The last step is when the individual becomes a believer or user of the product, practice, or idea (Infant et al., 1997). Figure 2.1 adapted from Rogers (2003) shows the four elements in the diffusion of an innovative idea or practice. It also shows the five steps of the diffusion process as well as summarizes the various processes that can contribute to an individual's decision of either adopting or rejecting an innovation.

The employer or manager must personally navigate the five steps of the diffusion process to address and support breastfeeding in order to encourage mothers to continue breastfeeding after returning to work. In other words, the employer must understand and support the idea that breastfeeding is beneficial for the breastfeeding mother and child.

Diffusion Theory requires sensitivity to the customs and values of the intended audience (Accredited in Public Relations, 2016). Managers or employers use the diffusion theory to manage change, learn to recognize the customs and values of the intended audiences, and understand what type of communication works best for a given situation (Accredited in Public Relations, 2016). Employers and managers can accomplish change when a breastfeeding mother

returns to work by communicating the support that is available for them and their new needs. Managers can learn how to recognize their audience and determine the type of communication that will work best for mothers, so mothers understand the support that is available s in order to continue breastfeeding.

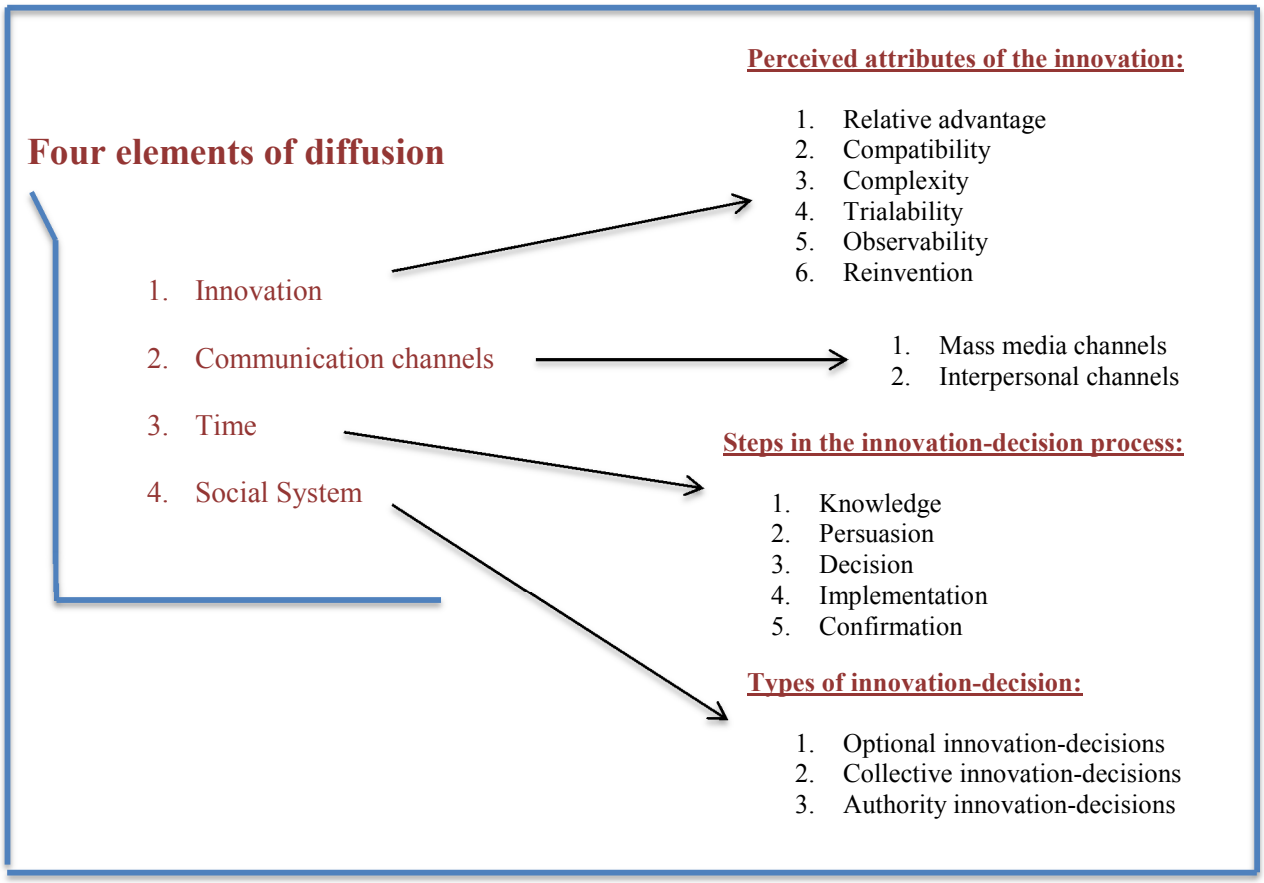

Figure 2.1. Adapted from Four Elements in the Diffusion of Innovation Theory (Rogers, 2003).

Communication Theories

A basic way to describe communication is through the Shannon-Weaver model of communication. The Shannon-Weaver model of communication shows effective communication between a sender and receiver (Communication Theory, 2010). Figure 2.2 below from

Communication Theory (2010) illustrates the process described by the Shannon-Weaver model of communication.

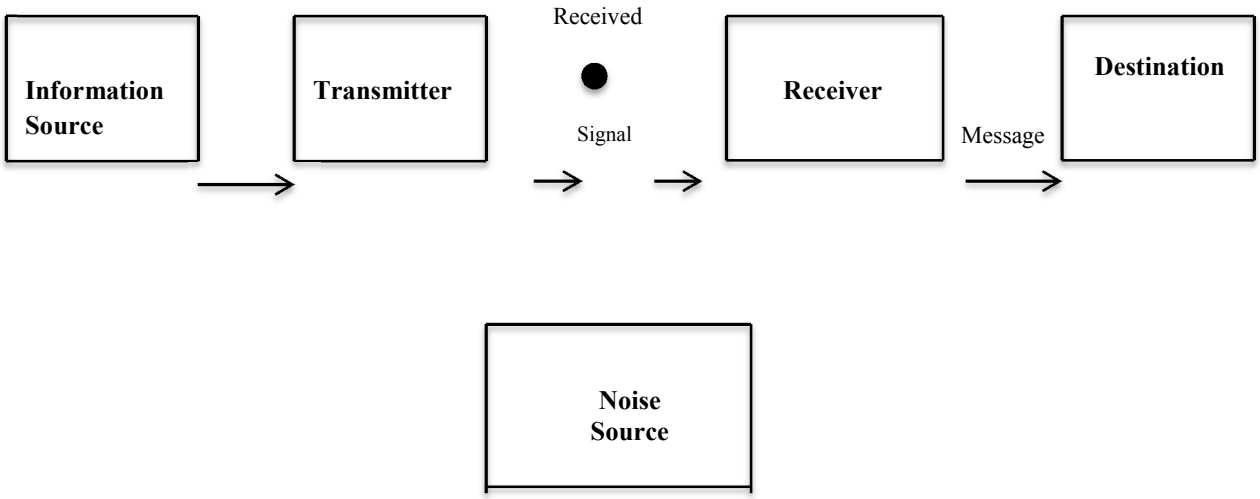

Figure 2.2. Adapted from Shannon-Weaver Model of Communication. (Communication Theory, 2010).

This model deals with several concepts such as information source, transmitter, noise, message, receiver, channel, information destination, and encode and decode (Communication Theory, 2010). In this model, the senders play the primary role since they act as the originator and select the desired message or information while the receivers play the secondary role in communication. Instead of relying on the breastfeeding mothers (the receiver) to understand the breastfeeding policies (or the message) on their own, the managers (the senders) should communicate the policies more effectively to encourage the continuation of breastfeeding. Noise is a disturbance that does not allow the receiver to understand the message that was intended by the sender (Communication Theory, 2010). Managers (the senders) can help decrease possible noise by communicating with breastfeeding mothers in a quiet, comfortable place where the

communication flow cannot be affected and help minimize distractions for mothers to understand the message.

Feedback is also an important component when it comes to effectively relaying a message or information. According to the Schramm's Model of Communication, communication is a never ending circular process that includes feedback to let the sender know if the receiver has interpreted the messages correctly or not; the message becomes useless or even worse if the receiver does not interpret the message as intended (Businesstopia, 2017). Schramm's Model of Communication used the major principles from the Shannon Weaver Model of Communication, but Schramm's model presents communication in a more psychological way whereas the Shannon- Weaver model is more technical. However, both models emphasize that communication is not a one-way process and that the message will lose its effectiveness if feedback is not part of the process. Schramm also believed that the background of the individuals who are involved is important in the communication process because people with various knowledge, experience, and cultural practices will interpret messages differently (Businesstopia, 2017). It may be difficult for the sender to learn how to tailor a message for different individuals. There can be many barriers when trying to engage in effective communication.

Nevertheless, there are ways to overcome barriers of effective communication. Clarity, credibility, content, context, continuity, and channels of a message help overcome the barriers of communication (Accredited in Public Relations, 2016). Employers should design and deliver messages that attract the attention of the intended audience. Moreover, the audience needs to engage in feedback so the sender knows the information was received in the way it was intended (Accredited in Public Relations, 2016). In this particular situation, managers (the sender) should understand the needs of their audience: breastfeeding mothers. The manager should address the

topic of breastfeeding without embarrassment and in such a way that mothers will understand and feel supported. This will help to enable them to continue breastfeeding at work. The manager (the sender) should make sure that the message meets personality and cultural needs appropriate to the situation the receiver is in at the time (Accredited in Public Relations, 2016).

Breastfeeding Communication

In the United States, mothers face numerous challenges when deciding how to feed their infant. Breastfeeding has been known to be the healthiest choice when feeding an infant, but with the widespread exposure and advertisement for substitution of human milk, bottle-feeding has become an easier feeding choice (Office of the Surgeon General, 2011). The advertising and safety of formula products increased their popularity and use. Women have accepted cessation of breastfeeding once they return to work because they were informed that it was the safe and convenient thing to do (Stevens et al., 2009). Furthermore, mothers have decided against or weaned off breastfeeding because of lack of support from family or communication from hospitals about breastfeeding accommodations (Lewallen et al., 2006). This shows that communication and support of breastfeeding is important for a mother to feel confident enough to continue breastfeeding to the recommended time frame.

Breastfeeding support and communication within the hospital, the community, the workplace, and the home are important when a mother is making the decision to begin or to continue breastfeeding (Cross-Barnet et al., 2012; Lewallen et al., 2006). Negative attitudes of families and friends can pose a serious barrier to breastfeeding. In-depth, semi-structured interviews were conducted with breastfeeding, employed mothers to understand their breastfeeding experience with support and communication (Valizadeh, et al., 2017). Valizadeh et al. (2017) found that returning to work after giving birth was difficult to varying degrees for all

of the participants because they had to juggle breastfeeding, family affairs, and household responsibilities before and after work. Participants had expectations that their spouse would offer more support and share family responsibilities, but most of the mothers indicated that they received very limited spousal support for continuation of breastfeeding (Valizadeh, et al., 2017).

In another research study, mothers stated that the role of the father was to provide support for the physical and emotional needs of the breastfeeding mother, such as affection, reassurance, and encouragement, which is critical to success throughout the breastfeeding experience (Avery & Magnus, 2011). The father can be a primary source of support to the breastfeeding mother and can influence and contribute to the decision regarding initiation, continuation, and confidence of breastfeeding (Sherriff, Hall, & Panton, 2014) Therefore, the father should continue to communicate his support for the breastfeeding mother so she feels encouraged making the decision to continue breastfeeding (Office of the Surgeon General, 2011). That also goes for other family members and friends. Nurses and lactation consultants should encourage family members whom they encounter to ask questions, so that they can have correct, current information to offer the breastfeeding woman (Lewallen et al., 2006).

Breastfeeding support and communication should begin before the baby is born. At the beginning of the breastfeeding decision-making process, physicians and nurses play a crucial role to encourage mothers to breastfeed (Bai & Wunderlich, 2013; Cross-Barnet et al., 2012). Mothers' experiences with healthcare professionals influence breastfeeding initiation and duration. A mothers' decision to breastfeed is often made before or early in the pregnancy and can be influenced by her obstetrician (Cross-Barnet et al., 2012). Moreover, mothers' birth experiences and postpartum hospital stays can directly influence their breastfeeding decisions and breastfeeding success. Cross-Barnet and colleagues (2012), surveyed 75 mothers who were

in the hospital right after giving birth. Most of these mothers stated they were told breastfeeding was the best choice but were not given resources to initiate breastfeeding (Cross-Barnett et al., 2012). Some mothers reported receiving information that appeared to be misleading or inaccurate and more than a quarter of the mothers (27%) reported no obstetrician or other medical care provider made mention of breastfeeding (Cross-Barnet et al., 2012). In a follow-up interview, only one of the 75 mothers whom researchers interviewed in a follow-up interview reported receiving consistent, positive information and support prenatally from her obstetrician. Moreover, she was also the only mother who reported never having given her child, who was 10 months, a formula supplement (Cross-Barnet et al., 2012). Obstetricians can communicate specific tips or pointers such as nursing more frequently while at home, maintaining good hydration status, safe methods for storing breast milk, and suggested pumping frequency. These are all important recommendations to be communicated to breastfeeding mother to ensure success breastfeeding (Lewallen, et al., 2006)

Another study found that approximately one of every three women reported that their physician and hospital delivery nurse had not encouraged them to breastfeed during their most recent pregnancy, and only 30% of women had been encouraged to breastfeed by lactation consultants (Khoury, Moazzem, Jarjoura, Carothers, & Hinton, 2005). One-third of women indicated that their family encouraged formula feeding (Khoury et al., 2005). Women who were encouraged to breastfeed by the hospital delivery nurse or lactation consultants were more than two times more likely than other women to initiate breastfeeding (Khoury et al., 2005). The main take away from these findings is that both the health care system and family support are important contributors to initiation and continuation of breastfeeding.

Mothers need consistent information and support to develop and meet personal breastfeeding goals (Cross-Barnet et al., 2012). It would be beneficial to have consistent support throughout because support and communication play a significant role at all stages of pregnancy. Breastfeeding mothers need encouraging communication during postpartum hospital stay as well as through infancy and beyond (Cross-Barnet et al., 2012). Breastfeeding communication in the hospital is important and typically gets breastfeeding started, but continuation of breastfeeding is dependent on what happens after the mother leaves the hospital. Therefore, communication and support of spouses, family and friends, community, and employers could help increase breastfeeding duration to the recommended guidelines (Cross-Barnet et al., 2012; Lewallen et al., 2016).

The Workplace as a Breastfeeding Barrier

Recent global changes in women's social status and rapid growth in educational advancement for women have generated new employment opportunities with additional responsibilities. However, women are still perceived as the primary caregivers for their infants. This becomes a challenge when the mother tries to juggle work and her caregiver responsibilities (Valizadeh, et al., 2017). For many women, paid employment is a necessity rather than an option; new mothers face the challenge of returning to work while trying to continue breastfeeding. The work environment presents additional challenges to lactating women because a mother and her infant are separated during a critical time while the mother is at work, resulting in an interruption of the usual breastfeeding process (Rojjanasrirat, 2004). A major barrier to the continuation of breastfeeding for employed mothers is juggling breastfeeding and work responsibilities (Bai, Fong, & Tarrant, 2015; Brown et al., 2001).

In the United States, one third of all mothers worked outside the home during their infant's first year, and about 34% of these employed mothers worked full-time (Bureau of Labor Statistics, 2016). Studies have shown that women who work less than full-time have been able to continue breastfeeding for a longer duration (Bai & Wunderlich, 2013; Dodgson, Chee, & Yap, 2004; Ryan, Zhou, & Arsensberg, 2006). Ahmadi and Moosavi (2013) recruited 212 breastfeeding mothers from 16 different healthcare centers. The participants had returned to full-time employment and had an infant between the ages of 6 months and 1 year. These participants were surveyed concerning work-related factors in a breastfeeding mother's workplace. The researchers found that 47% of mothers managed to continue to exclusively breastfeed while the other participants started to use formula to feed their infants (Ahmadi & Moosavi, 2013). Another study recruited 1,738 mothers who had returned to paid employment postpartum. The participants were recruited from four different hospitals and were prospectively followed for 12 months or until the infants were weaned. Study results showed that almost 85% of these participants resumed paid employment within 10 weeks postpartum, but only 32% of participants continued breastfeeding after resuming their job (Bai et al., 2015). Bai and Wunderlich (2013) recruited 113 working mothers who were employees of higher-education institutions and clients of an obstetric hospital in the state of New Jersey. Through an online survey, the researchers found that 77% of full-time working mothers were exclusively breastfeeding at four months, as opposed to 93.5% of part-time working mothers (Bai & Wunderlich, 2013) Initiation of breastfeeding is not affected by working prenatally or intending to work postpartum, yet the duration of breastfeeding is influenced by return to full-time maternal employment (Office of the Surgeon General, 2011).

Studies have identified worksite barriers to breastfeeding such as an employer's lack of support, knowledge about breastfeeding management skills, flexible work schedules, and suitable facilities for breastfeeding, pumping, or storing breast milk (Dunn et al., 2004; Johnson, Kirk, & Muzik, 2015, Lewallen, et al., 2006; Weber, Janson, Nolan, Wen, & Rissel, 2011). The workplace may be one of the more common barriers when it comes to the continuation of breastfeeding. Nevertheless, many women reported continuing to breastfeed if given sufficient information and support from their employers. A new mother can leave her baby in the care of someone else when she returns to work, but if she chooses to breastfeed, she must be by her child most of the time or be able to pump and store milk. For many new mothers, the combination of breastfeeding and employment may require major work and lifestyle changes. As a new mother, it is important to evaluate the impact that employment has on the duration of breastfeeding once she returns to work (Ryan et al., 2006).

Breastfeeding Mothers Returning to Work

Dagher and colleagues (2016) found that 70% of employed mothers of children younger than three years had full-time jobs and about one third of these mothers returned to their jobs between the first and third month postpartum. Therefore, it is important to understand workplace-related barriers and facilitators to the initiation and continuation of breastfeeding (Dagher et al., 2016). Kimbro (2006) examined the relationship of combining breastfeeding with paid employment for new mothers. Half of the 4,331 mothers in this sample quit breastfeeding by 3 months, and 75% of the mothers had quit breastfeeding by 6 months. Newer research supports Kimbro's findings which reported that mothers who combine breastfeeding and work are more likely to wean before the recommended times. Researchers who wanted to better understand mothers' experiences of combining breastfeeding with work found that many

mothers stated they knew breastfeeding was the healthier option and initiated breastfeeding, but barriers such as challenges of returning to work forced the mothers to stop breastfeeding earlier than they had planned (Anderson et al., 2014; Johnson et al., 2015; Weber et al., 2011).

Breastfeeding mothers returning to work often feel exhausted, because they feed their infant on demand at home while attending to family and employment responsibilities. This exhaustion could lead to concerns about maternal health and well-being (Valizadeh, et al., 2017). Some mothers stated they did not feel comfortable addressing their breastfeeding needs at work without feeling their jobs would be in jeopardy (Anderson et al., 2015; Johnson et al., 2015; Weber et al., 2011). Weber et al. (2011) distributed a questionnaire to 998 female employees who had taken maternity leave within the last 20 months. They found that 60% of the respondents stated they planned to continue breastfeeding once returning to work, but only 40% continued to do so upon returning (Weber et al., 2011). They also found that 25% stated that one of the main reasons they stopped was because of lack of manager support (Weber et al., 2011). Quitting breastfeeding because a mother has returned to work means that mothers are having a difficult time combining breastfeeding and work. This puts mothers and their infants at a health disadvantage compared to mothers who stay at home with their children (Kimbro, 2006).

In a study conducted by Dunn and colleagues (2004), 157 human resource directors from 23 different Colorado counties responded to the Worksite Infant Feeding Survey. A relatively small percentage of businesses (28.2%) that responded to the Worksite Infant Feeding Survey identified themselves as providing breastfeeding support services by responding “yes” to the question, “Does your organization provide breastfeeding support services for employees?” (Dunn et al., 2004). These results along with results from other more recent studies, suggest that mothers do not have access to breastfeeding-friendly work environments and may need more

flexible work schedules and more support throughout the community (Dunn et al., 2004; Johnson et al., 2015; Weber et al., 2011).

In a cohort study conducted by Dagher and colleagues (2016), women were interviewed to find determinants of breastfeeding initiation and cessation among employed mothers. In the state of Minnesota, mothers who were hospitalized for childbirth were interviewed and were also contacted for a follow up interview 6 weeks, 12 weeks, and 6 months postpartum (Dagher et al., 2016). Results showed the threat for breastfeeding cessation by 6 months was higher for women who returned to work any time during the 6 months postpartum versus those who did not (Dagher et al., 2016). In their sample, mothers had a breastfeeding initiation of 81%, which exceeded the Healthy People 2010 goal of Ever Breastfeeding, and came close to the Healthy People 2020 goals of Ever Breastfeeding (Dagher et al., 2016). However, at 6 moths, this sample had a rate of any breastfeeding at 6 months of 33%, which fell below Healthy People 2020 goals for any breastfeeding at 6 months (Dagher et al., 2016). These results again suggest that employed mothers face challenges in breastfeeding for a 6-month duration. There is a potential need for interventions to support employed breastfeeding women (Dagher et al., 2016).

Interactions/Communication between Breastfeeding Mothers and Their Coworkers and Employers

Employers are a critical part of many breastfeeding mothers' environments (Brown et al., 2001). Valizadeh and colleagues (2017) conducted in-depth, semi-structured interviews with 18 employed women to obtain more information about a breastfeeding mother's experience in the workplace. Results identified negative experiences that mothers had with unsupportive employers and coworkers in relation to breastfeeding and their need to express milk. Employers reportedly did not take into consideration that new mothers were breastfeeding when they

prepared weekly schedules and workloads (Valizadeh, et al., 2017). Libbus and Bullock (2002) surveyed 85 employers' attitudes toward breastfeeding and found that most employers would be willing to facilitate breastfeeding for employees, but saw little benefit for the employer to do so. Libbus and Bullock (2002) concluded that improving facilities for breastfeeding employees might require government legislation. After Libbus and Bullock (2002) conducted this study, some legislative support and policies were enacted that provide maternity leave, private locations for breastfeeding, breaks to use a breast pump, as well as breast milk storage areas. However, little is known how these policies are implemented or communicated to the breastfeeding mother (or her employer) (Anderson et al., 2014; Libbus & Bullock, 2002). Nevertheless, today businesses that have company breastfeeding policies and procedures in place breastfeeding duration remain shorter compared to breastfeeding mothers who do not return to work (Anderson et al., 2015).

Managers influence the work environment by either adhering to or ignoring workplace policies concerning breastfeeding, informally supporting or discouraging breastfeeding employees, and managing or disregarding issues that may arise among employees who are trying to continue to breastfeed (Rojjanasrirat, 2004). Chow and colleagues (2011) explored manager attitudes toward workplace breastfeeding support in the United States. Five focus groups totaling 25 participants were conducted with managers in the state of Michigan to assess their attitudes toward supporting breastfeeding. The managers in this study had some understanding of breastfeeding benefits, but a knowledge gap still existed about certain health benefits. Participating managers indicated that having knowledge about breastfeeding would be helpful, as would access to educational materials or training (Chow et al., 2011). Some participants indicated that formulating company policies for breastfeeding was not needed because they were

concerned that a policy would limit their flexibility with employees' individual needs. Another result from this study was a deeper understanding of how managers perceived their part in supporting breastfeeding (Chow et al., 2011). Also, managers recognized that each breastfeeding employee might have different needs; therefore, managers expressed their openness to communicate with employees to achieve a positive experience. This suggests that effective communication between managers and employees would be beneficial to appropriately address the varying needs of individual employees (Chow et al., 2011).

Rojjanasrirat (2004) conducted a study to better understand breastfeeding experiences after returning to work. Fifty women completed a questionnaire about the types of support they received when they returned to work (Rojjanasrirat, 2004). Three types of support that were consistently reported included emotional, instrumental, and informational support (Rojjanastrirat, 2004). Emotional support was perceived as behaviors that provide empathy and demonstration of understanding, acceptance, and the value of breastfeeding (Rojjanasrirat, 2004). Instrumental support was perceived as behaviors that helped women during times of breastfeeding needs such as providing a private lactation space or a refrigerator for breast milk storage (Rojjanastrirat, 2004). Lack of emotional and instrumental support was a central concern voiced by breastfeeding mothers across focus groups in a study conducted by Johnson and colleagues (2015). Breastfeeding mothers discussed lack of workplace base support more than non-breastfeeding mothers (Johnson et al., 2015). Similar results were expressed in a study conducted by Weber and colleagues (2011). Participants in this study felt largely unsupported by managers and their workplace. Only 8% of women had spoken to their manager about breastfeeding prior to returning to work. Nearly 60% felt that they "would have been more likely to continue

breastfeeding after returning to work" if they had received information and support about the possibility of breastfeeding (Weber et al., 2011).

Studies have shown that formal policies about breastfeeding at the workplace have not been enough for mothers to continue to breastfeed while working (Anderson et al., 2015; Kosmala-Anderson & Wallace, 2006). Moreover, many workplaces have breastfeeding policies for women; however, mothers are still deciding to discontinue breastfeeding (Anderson et al., 2015; Kosmala-Anderson & Wallace, 2006). Anderson and colleagues (2015) have found that communication and support between the employer and the breastfeeding mother would help the breastfeeding mothers know exactly what the policies are and reassure the mothers that they have the support to utilize such policies. Supporting breastfeeding is more than just providing a private place and adequate time to breastfeed (Anderson et al,, 2015).

Kosmala-Anderson and Wallace (2006) conducted a study to determine the experience of employees concerning breastfeeding support at work. Forty-six working mothers from four different organizations completed the survey (Kosmala-Anderson & Wallace, 2006). Only seven respondents (15.9%) were aware of facilities such as private lactation rooms, where mothers could express and store breast milk while at work, and only three had used these facilities (Kosmala-Anderson & Wallace, 2006). None of the respondents were made aware of arrangements to support flexible working hours within the work day to accommodate childcare and breastfeeding (Kosmala-Anderson & Wallace, 2006). Some mentioned that if these arrangements had been available, they would have maintained breastfeeding after returning to work, for example: "I was not aware of this availability. This would have encouraged me to continue breastfeeding." Only four of 46 respondents were aware of any workplace policies related to breastfeeding, covering employer and employees' rights and duties (Kosmala-

Anderson & Wallace, 2006). Of all the participants, 91% of all participants thought that their employer should do more to support employees regarding breastfeeding (Kosmala-Anderson & Wallace, 2006). One respondent stated, "I do not think it is the employer's responsibility to provide information/advice about benefits of breastfeeding. However, communicating private rooms and fridges for storage of breast milk would be useful should women wish for express milk while at work," (Kosmala-Anderson & Wallace, 2006). The most often mentioned worst experience, reported by 21 women, was the apparent lack of interest, information and support from their employer. "I had to sort out a lot of things myself- a room, fridge etc. Surprise was shown that I was planning to breastfeed for longer than six months. Women should be encouraged to breastfeed for as long as they want," (Kosmala-Anderson & Wallace, 2006).

Newer studies have supported these results and have shown mothers' experiences of breastfeeding after returning to work. The mother's perceptions of their personal health showed they were under extreme physical and emotional stress as a result of a lack of support from family and people in the work environment (Valizadeh, et al., 2017). Interpersonal communication is important to implement the formal policies because just having formal policies does not guarantee support or how this support is perceived (Anderson et al., 2015). To help with breastfeeding at work, a breastfeeding mother and her manager should negotiate terms about breastfeeding needs through interpersonal communication (Anderson et al., 2015). In most studies, it was clear that an unsupportive employer mitigated concern and stress for the working mother (Anderson et al., 2015; Valizadeh et al., 2017). Working mothers wanted family-friendly policies at the federal level. If policies were already enacted, they wanted more support and communication behind these policies to help ensure a longer time of breastfeeding (Anderson et al., 2015). Beyond breastfeeding policies and legislation, employers must be motivated to

support breastfeeding and communicate breastfeeding policies to mothers (Brown et al., 2001). Libbus and Bullock (2002) showed that breastfeeding in the workplace is not perceived to be sufficiently important that employers would strongly promote this practice. To improve the ability of mothers to both earn a living and breastfeed their infants, it is essential to encourage and communicate supportive workplace policies (Atabay et al., 2015; Bai & Wunderlich, 2013).

In a study of employers conducted by Bridges and colleagues (1997) almost all of the participants (90%) had the authority to establish workplace/personnel policies, but only 41% of the employers interviewed expressed policies allowing women to take additional time to nurse their infants or express milk. Also, only 43% expressed support and communication for establishing an area in the workplace for women to nurse or express milk (Bridges et al., 1997). Bridges and colleagues (1997) used an Attitudes Towards Breastfeeding Questionnaire that determines the attitude toward breastfeeding in the workplace. The composite score of the questionnaire ranges from 0 (most negative attitudes) to 50 (most positive attitudes). The mean score for participants on the Attitudes Towards Breastfeeding Questionnaire was 32.3 indicating weak positive support for breastfeeding in the workplace (Bridges et al., 1997). To briefly assess knowledge about breastfeeding, participants responded to the statement "formula-fed infants are as healthy as infants who receive human milk." Only 20.3% disagreed with this statement, 39.1% were neutral, and 40.6% agreed that formula-fed babies were as healthy as breastfeeding infants. Only 17% agreed with the statement, "if a woman in my workplace wanted to nurse her infant or express milk in my workplace, I would support it," (Bridge et al., 1997). Even after the Affordable Care Act was passed in 2010, some employers failed to implement policies to help employed mothers carry out breastfeeding needs. Kozhimannil and colleagues (2016) hypothesized that women with access to policies for reasonable break times and private spaces to

breastfeed or pump were more likely to exclusively breastfeed at 6 months and continue to breastfeed for a longer duration (Kozhimannil, Jou, Gjerdingen, & McGovern, 2016). Although the Affordable Care Act requires many employers to providing reasonable breaks and private space to breastfeed, 59% of 550 employed breastfeeding mothers reported having access to reasonable break time to express milk, 45% had access to a private space, and only 40% had both break time and private space (Kozhimannil et al., 2016).

Newer studies have supported older studies by showing that lack of communication and support from employers in the workplace is a concern when it comes to helping mothers to breastfeed the recommended length of time. Because pumping is essential in encouraging long-term breastfeeding, employers should communicate with mothers about private, clean pumping locations and regular breastfeeding breaks during which pumping can occur (Bai & Wunderlich, 2013; Lewallen, et al., 2006; Valizadeh, et al., 2017). Most participants in the study conducted by Johnson and others (2015) thought that peer-based group support as well as individual employer support in a comfortable and convenient location would be most effective when communicating instrumental support and breastfeeding policies to breastfeeding mothers.

Dodgson and colleagues (2004) surveyed breastfeeding employees in 19 hospitals. These researchers found that hospitals with a hospital wide committee to address and communicate workplace issues and the policies had a more supportive environment for breastfeeding employees (Dodgson, Chee, & Yap, 2004). Dagher and colleagues (2016) suggested the importance of having employer support for breastfeeding practices by encouraging women to utilize their paid leaves, instituting lactation support programs in the workplace, and following provisions of the Affordable Care Act. Employers that follow the Affordable Care Act were more likely to have improved breastfeeding duration. Kozhimannil and colleagues (2016) found

that women with sufficient break times were 2.6 times as likely to breastfeed exclusively and 3.0 times as likely to breastfeed some at 6 months postpartum compared to women without access to break times or private spaces. Women with access to both adequate break times and private spaces were 2.3 times as likely to breastfeed exclusively at 6 months. These workplace accommodations are significant predictors of breastfeeding duration (Kozhimannil, Jou, Gjerdingen, & McGovern, 2016). Also, measures such as longer maternity leave, short-term reduction in working hours, mandated workplace breaks, facilities to enable breast milk expression, and additional postpartum breastfeeding support would enable employed mothers to breastfeed for longer (Bai et al., 2015). Communication of these measures from government, family, health care professionals, and especially employers could help to implement these measures to improve breastfeeding duration (Bai et al., 2015).

Breastfeeding does not only benefit a breastfeeding mother and her baby, but it may also benefit her employer. Workplaces where breastfeeding is supported have decreased employee absenteeism and turnover, improved morale, and increased retention and the ability to recruit reliable employees (Dunn et al., 2004). Brown and colleagues (2001) conducted focus groups to better understand an employer's knowledge, attitudes, and practices in providing breastfeeding support for lactating employees. Most employers in these focus groups reported that providing breastfeeding support diffuses some of the stress for breastfeeding employees who desire a balance between family life and work (Brown et al., 2001). These participants also believed that employers who supported breastfeeding employees contributed to mothers' peace of mind, which made mothers more productive and less likely to miss work or quit their jobs (Brown et al., 2001). One participant stated, "One of the hardest issues for women is to be a working mom. You're going to lose good employees if you do not provide something that meets family needs.

Breastfeeding is one of the issues" (Brown et al., 2001). Also, by displaying a lack of concern about employee family needs, the employer may sacrifice a measure of loyalty that might eventually result in increased employee turnover and the attendant upheavals and expenses (Cohen, Myrtek, & Myrtek, 1995).

In summary, women have expressed a need for support from coworkers and managers such as an accepting environment, private spaces and time for pumping (Bai & Wunderlich, 2013; Rojjanasrirat, 2004). Studies have shown that the average time to express milk is 30 minutes and mothers should be given those breaks two to three times a day (Brown et al., 2001). Employers or managers need to provide a supportive environment in order for lactating employees to feel comfortable enough to discuss their needs (Bai & Wunderlich, 2013). Mothers need to maintain a positive attitude so they can commit to and accomplish their breastfeeding goals (Rojjanasrirat, 2004).

Managers have direct involvement in employee performance and promotion decisions, and so, manager's and supervisor's attitudes impact a woman's decision to combine breastfeeding with work (Chow, Fulmer, & Olson, 2011). The full benefits of breastfeeding will not be realized if breastfeeding is curtailed by unsupportive employment practices such as lack of support from employers and coworkers (Kosmala-Anderson & Wallace, 2006).

CHAPTER 3. METHODS

The purpose of this research was to determine if interpersonal communication between breastfeeding mothers and their employers prolongs breastfeeding after the mother returns to work. This research also explored how breastfeeding mothers feel about communicating their lactation accommodation needs to their supervisors and coworkers and whether they feel comfortable and confident about breastfeeding in the workplace. The research questions are:

- What is the association between open communication regarding the need for lactation accommodations in the workplace and breastfeeding duration in working breastfeeding mothers?
- What is a working, breastfeeding mother's comfort level communicating her breastfeeding needs with her employer?
- How does an employer communicate policies for breastfeeding once the mother returns to work?

Population of the Study

The desired sample size was 384 working mothers recruited from different worksites around the state of North Dakota. The desired sample size was calculated prior by using a power analysis. A z-score of 1.96, a standard deviation of 0.5, and a margin of error at 0.05 were used in the equation to determine the necessary sample size. Despite not reaching the desired sample size, this research still showed significant findings. The businesses recruited included worksites that were designated as Infant Friendly by the North Dakota Department of Health in 2011 and 2012 and had reapplied to be Infant-Friendly in 2016. Worksites can be accepted as Infant-Friendly if they adopt certain breastfeeding support policies such as allowing flexible work schedules to allow time for expression of breast milk, offer sanitary locations for breastfeeding,

and a convenient place for storing milk (North Dakota Department of Health, 2011). Workplaces that did not have an Infant-Friendly designation were also recruited in order to gather information from breastfeeding women in a variety of workplaces/businesses. The participants were females who had returned to work postpartum and who had continued to breastfeed their child. The mother's age, ethnicity, and job description were not part of the selection process: only if the respondent gave birth between 2014 and 2016, and was employed in North Dakota. The participants did not receive any incentives for participating in the study. The North Dakota State University Institutional Review Board approved the protocol for this study.

Research Design

This study was a mix method cross-sectional design where results were analyzed from an online questionnaire as well as mother's written comments about their experiences with combining breastfeeding with the workplace. The online questionnaire was developed and distributed to businesses, state level professional associations, social media, and by word of mouth to women in North Dakota. The questionnaire was available between November 2016 and March 2017. Each participant took the questionnaire one time.

Instrumentation for Data Collection

Using Qualtrics survey software, an 85-question questionnaire was developed to measure a breastfeeding mother's experience upon returning to the workplace. With permission, these questions were compiled from other breastfeeding questionnaires to improve the validity of the study (Green, Wolfe & Olson, 2008; Bai, Fong, Tarrant, 2015; Declercq, Sakala, Corry, Applebaum, Herrlich 2013; Declercq, Sakala, Corry & Applebaum 2006; & Hirani, Karmaliani, Parpio, Rafique, 2013). Survey questions were also taken from the Fragile Families and Child Well-Being Study (supported by the Eunice Kennedy Shriver National Institute of Child Health

and Human Development (NICHD) of the National Institutes of Health under award numbers R01HD36916, R01HD39135). The present research was solely the responsibility of the authors and did not necessarily represent the official views of the National Institutes of Health. The instrument was divided into 14 sections containing 1-7 questions in each section. The content of the instrument included questions concerning the recent birth, prenatal work history, infant feeding intentions and practices, full-time or part-time work, education on combining work and breastfeeding, support from family, workplace support for breastfeeding, coworker support for breastfeeding, manager support for breastfeeding, the physical environment for breastfeeding, work breaks, and as well as general demographics. The questionnaire consisted of mainly short answer and multiple choice questions. The multiple-choice questions used a five-point Likert scale that included options of "strongly disagree," "disagree," "somewhat agree," "agree," and "strongly agree," as well as comment boxes to allow participants to report additional information. In addition, the name and county of their employer was asked to determine if the business was Infant Friendly or Non-Infant Friendly worksites. A panel of four experts in the field of breastfeeding reviewed the instrument. It was then pilot tested by a group of 17 mothers outside the state of North Dakota. Based on the feedback from the pilot testing, some questions were revised for clarity and conciseness.

Once the participants clicked on the questionnaire link, they were presented with the informed consent document and were informed that completion and submission of the survey indicated their consent to participate. Approximately 30 minutes was required to complete the questionnaire; however, it did not need to be completed at one time. The results were completely confidential.

Procedures

The recruitment process began by contacting businesses in North Dakota via email or telephone that were designated as Infant-Friendly or Non-Infant Friendly businesses. The department of human resources or managers of these businesses were contacted and informed concerning the research study and were asked for permission to send out the survey. If the businesses agreed to distribute the survey, an email was sent to the appropriate business contact to be forwarded via email to all employees. The email contained a brief explanation of the study and a link to the Qualtrics questionnaire. A second email containing the link was sent two weeks after the initial email to engage women who did not take the survey the first time. However, many businesses, especially health care facilities and some designated as Infant Friendly, declined to participate because they did not feel this research was an appropriate use of their email service.

Due to recruitment difficulties, several additional methods were used to recruit participants to obtain the desired sample size. State level professional organizations were also contacted using similar recruitment procedures. However, only a few agreed to participate. Next, snowballing sampling technique was implemented. Participants were encouraged to send the survey link to others who would be interested. Finally, several social media breastfeeding support groups were used to distribute the survey link as well. The email and survey for each of these methods were the same as that sent to the businesses. These additional sampling methods were approved by the IRB. The new procedures provided a wider recruitment base and increased the probability of achieving the desired number of survey responses.

Analysis Procedure

Using IBM SPSS Statistics 24 software, t-tests and descriptive statistics were used to determine the breastfeeding durations among mothers who returned to paid employment. Analysis of Variance (ANOVA) was used to determine differences in breastfeeding duration among women indicating varying levels of communication regarding breastfeeding. ANOVA tests were also used to determine differences in breastfeeding duration among women indicating varying levels of confidence of breastfeeding at work.

Responses to the open-ended questions were categorized according to either positive or negative themes to allow the breastfeeding mother to explain her experiences.

CHAPTER 4. THE RELATIONSHIP BETWEEN A MOTHER'S COMFORT LEVEL COMMUNICATING BREASTFEEDING NEEDS IN THE WORKPLACE AND BREASTFEEDING DURATION

Abstract

The purpose of this study was to determine the relationship between a mother's comfort level communicating her breastfeeding needs at work and breastfeeding duration. An online 85-item questionnaire was sent to employed breastfeeding mothers to determine a mother's experience combining the workplace with breastfeeding. Although 502 working mothers responded to the questionnaire, only 214 mothers reported having concluded breastfeeding (mean age 30.8 ± 4.12). ANOVA tests showed significant differences between the confidence of a mother combining breastfeeding with work and their breastfeeding duration (p= <.0001). Mothers who strongly disagreed/disagreed being confident combining breastfeeding and working had a shorter breastfeeding duration (4.1 months). There was significant difference between feeling comfortable asking for breastfeeding accommodations at work and their breastfeeding duration (p=<.0001). Mothers who strongly disagreed/disagreed about feeling comfortable asking for accommodations had a shorter breastfeeding duration (5.8 months). There was significant differences between working mother's feeling comfortable taking breastfeeding breaks at work and their breastfeeding duration (p=<.0001). Mothers who strongly disagreed/disagreed about feeling comfortable taking breastfeeding breaks had a shorter breastfeeding duration (5.6 months). More research should be conducted to determine what in the workplace acts as a barrier to breastfeeding duration.

Introduction

The American Academy of Pediatrics (AAP) (2017) recommends mothers to exclusively breastfeed for the first six months of their infant's life. The AAP further recommends that mothers continue to breastfeed and provide complimentary foods until their infant reaches one year of age. It is important to recognize factors that may affect breastfeeding duration. Some researchers suggest that mothers may not be getting adequate support or encouragement that is needed from family, friends, or employers in order to continue breastfeeding for the recommended 12 months (Cross- Barnet, Augustyn, Gross, Resni, & Paige, 2012; Lewallen et al., 2016; Valizadeh, Hosseinzadeh, Mohammadi, et al., 2017). With that said, this research focused on mother's perception of the availability of a supportive work environment for new breastfeeding mothers.

Recent global changes in women's social status and rapid growth in educational advancement for women have generated new employment opportunities resulting in additional responsibilities. However, women are still perceived as the primary caregivers for their infants. This becomes a challenge when the mother tries to juggle work and her caregiver responsibilities (Valizadeh, et al., 2017). For many women, paid employment is a necessity rather than an option; new mothers face the challenge of returning to work while trying to continue breastfeeding.

Dagher and colleagues (2016) found that 70% of employed mothers of children younger than three years had full-time jobs. Moreover, about one-third of these mothers returned to their jobs between the first and third month postpartum. Therefore, it is important to understand workplace-related barriers and facilitators to prolong breastfeeding (Dagher, McGovern, Schold, & Randall, 2016). Kimbro (2006) examined the relationship of combining breastfeeding with

paid employment for new mothers. Half of the 4,331 mothers in this sample quit breastfeeding by 3 months, and 75% of the remaining mothers had stopped breastfeeding by 6 months. Newer research supports Kimbro's findings that mothers who combine breastfeeding and work are more likely to wean before the recommended times (Anderson et al., 2015; Bai, Fong, & Tarrant, 2015).

The work environment presents additional barriers and challenges to lactating women. While she is at work, the mother and her infant are separated during feeding times, interrupting the usual breastfeeding process (Brown, Poag, & Kasprzycki, 2001; Rojjanasrirat, 2004; Bai, Fong, & Tarrant, 2015). Weaning her child because a mother has returned to work may indicate that she is having difficulty combining breastfeeding and work. This puts mothers and their infants at a health disadvantage compared to mothers who stay at home with their children (Kimbro, 2006).

Policies and laws have been implemented to help breastfeeding mothers continue to breastfeed when returning to work. On March 23, 2010, federal legislators passed the Affordable Care Act that required employers to provide break times for an employee to express breast milk for her nursing child up to one year postpartum (United States Department of Labor, 2016). In 2009, North Dakota Legislature passed legislation that established an "infant- friendly" designation for workplaces that adopt breastfeeding support policies (North Dakota Department of Health, 2011). These policies were put in place to help mothers feel accepted and comfortable breastfeeding in the workplace. However, embarrassment still remains a barrier to breastfeeding in the United States. Feeling embarrassed to breastfeed or even talking about breastfeeding needs have been cited as a reason why some women choose to feed formula (Anderson et al., 2015;

Johnson, Kirk, & Muzik, 2015; Mitra, Khoury, Hinton, & Carothers, 2004; Office of the Surgeon General, 2011; Stewart-Knox et al., 2003; Weber et al., 2011).

Researchers who wanted to better understand mothers' experiences of combining breastfeeding with work found that many mothers stated they knew breastfeeding was the healthier option and initiated breastfeeding. Nevertheless, some mothers stated they did not feel quite comfortable enough to address their breastfeeding needs at work, even with policies implemented, without feeling their jobs would be in jeopardy (Anderson et al., 2015; Johnson et al., 2015; Weber et al., 2011). Weber et al. (2011) distributed a questionnaire to 998 female employees who had taken maternity leave within the past 20 months. They found that 60% of the respondents stated they planned to continue breastfeeding once returning to work, but only 40% continued to do so upon returning (Weber et al., 2011). Moreover, 25% stated that one of the main reasons they stopped was because of an unsupportive work environment. Therefore, mothers did not feel comfortable addressing their needs, knowing that they worked in an unsupportive breastfeeding environment (Weber et al., 2011). Only 8% of women had spoken to their manager about breastfeeding prior to returning to work. Nearly 60% felt that they "would have been more likely to continue breastfeeding after returning to work" if they had received information and support about the possibility of breastfeeding (Weber et al., 2011). Receiving information and support about breastfeeding would have shown mothers that their managers were open to the idea of mothers' breastfeeding in the work environment and would have felt more comfortable addressing personal needs of breastfeeding. Employers or managers need to provide a supportive environment in order for lactating employees to feel comfortable enough to discuss their needs (Bai & Wunderlich, 2013). Mothers needed to maintain a positive attitude so they can commit to and accomplish their breastfeeding goals (Rojjanasrirat, 2004).

Recognizing that each breastfeeding employee may have different needs is essential to provide a supportive work environment for breastfeeding employees. To have a positive experience, effective communication between breastfeeding mothers and managers/co-workers in the work environment is essential to appropriately address the varying needs for a breastfeeding mother. This way, a breastfeeding mother feels at ease addressing her needs for pumping or breastfeeding in the workplace (Chow, Fuller, & Olson, 2011). The purpose of this study was to determine the relationship of mother's confidence and comfort level communicating her breastfeeding needs in the workplace and her breastfeeding duration.

Methods

Research Design & Instrumental Development

This study was a mixed methods cross-sectional design where data were analyzed from a quantitative questionnaire as well as mothers written responses about their experiences of breastfeeding within the workplace. After approval of the university's Institutional Review Board for the Protection of Human Participants in Research, an online Qualtrics questionnaire was distributed to gather data from employed breastfeeding mothers. Employed breastfeeding mothers were presented with a consent form before starting the questionnaire. Consent was implied when the participant clicked the link to open the questionnaire. The questionnaire was available between November 2016 and March 2017, and participants were only allowed to complete it once.

The 85-item questionnaire was developed to measure a breastfeeding mother's experience returning to the workplace. With permission, 47 questions were compiled from previous breastfeeding studies (Greene, Wolfe & Olson, 2008; Bai, Fong, Tarrant, 2015; Declercq, Sakala, Corry, Applebaum, Herrlich 2013; Declercq, Sakala, Corry & Applebaum

2006; & Hirani, Karmaliani, Parpio, Rafique, 2013). Additional survey questions were taken from the Fragile Families and Child Well-Being Study (supported by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) of the National Institutes of Health under award numbers R01HD36916, R01HD39135). The remaining 38 questions were original. A panel of four experts in the field of breastfeeding reviewed the instrument. It was then pilot tested by a group of 17 mothers outside the state of North Dakota. Based on the feedback from the pilot testing, some questions were revised for clarity and conciseness.

The questionnaire consisted of mainly short answer and multiple-choice questions with additional space provided for comments. The multiple-choice questions used a five-point Likert scale that included options of "strongly disagree," "disagree," "somewhat agree," "agree," and "strongly agree," as well as comment boxes to allow participants to report additional information. These responses were scored numerically from 1-5 with one being "strongly disagree" and five being "strongly agree."

Recruitment

To recruit employed breastfeeding mothers, 58 North Dakota businesses were contacted by either telephone or email. Specifically, human resource departments or managers of these businesses were contacted to discuss the purpose of the study and ask them to participate. If the businesses agreed to participate in the study, an email was sent to the company representative to be forwarded to all employees. A total of 29 businesses sent the email containing a brief explanation of the study and a link to the Qualtrics questionnaire to their employees. Fourteen of the 58 North Dakota businesses chose not to participate with another 15 never responding to the original or several follow-up contacts. Many businesses, especially health care facilities refused

to participate because they did not feel it was an appropriate use of the company's email. Due to these recruitment difficulties, state level professional associations were also contacted to participate in the study. Of the 6 state professional organizations contacted, only 1 or 2 agreed to distribute the questionnaire to their members. Therefore, snowball sampling technique was implemented to recruit additional participants. The link to the questionnaire was posted to five different lactation support groups through social media. Breastfeeding mothers were also able to forward the questionnaire link to other breastfeeding mothers who fit the criteria.

Participants

Participants were breastfeeding mothers who worked in the state of North Dakota. Respondents were excluded if they worked in any state other than North Dakota and did not give birth between 2014 and 2016. A total of 502 breastfeeding mothers responded to the survey; however, 110 surveys were eliminated because the respondents were either not working in the state of North Dakota or did not complete the survey. There were 178 respondents who reported still breastfeeding and were not included in the analysis. This left 214 respondents in the analysis.

Statistical Analysis

SPSS Statistics 24 software (Armonk, New York) was used to analyze the results from the questionnaire. Descriptive statistics and t-tests were used to determine demographics and the breastfeeding durations among mothers who returned to paid employment. ANOVA tests were used to determine differences in breastfeeding duration among women indicating varying levels of confidence of breastfeeding at work.

Results

The mean age of the participants was 31.17 ± 4.12 years with most participants between the ages of 32-45 years. As seen in Table 4.1., most participants were well educated with a high household income: 149 mothers reported having Bachelor's degree or higher (75%) and 140 participants reported having an income of >$75,000 (72%). A majority of the participants were married (95%) and many were first time mothers (46%). Most of the reporting breastfeeding mothers were white (n=193, 97%).

The average duration of breastfeeding was 8.9 ± 5.28 months. Of the participants who reported breastfeeding duration, 60.9% and 33.5% reported breastfeeding for 6 months and 12 months respectively (See Table 4.2.) A number of demographic variables were related to breastfeeding duration. There was a non-significant trend among the age groups and duration (p=.051). Nevertheless, between the ages 20-31, mean breastfeeding duration was 8.2 months and between the ages of 32-45, mean breastfeeding duration was 10.4 months. Higher levels of education (p=.02) and higher household income (p=.03) were related to longer breastfeeding duration. Relationship to the child's father and breastfeeding duration was not significant (p=.90).

As seen in Table 4.3, most breastfeeding mothers agreed or strongly agreed (69%) to the question, "I was confident that I would be able to successfully breastfeed my child," (mean 3.96 ± 0.93). While still most agreed or strongly agreed (58%) when asked, "I was confident in my ability on combining breastfeeding and working," the mean score decreased slightly (3.71 ± 1.07).

Table 4.1

Demographic Variables Overall and by Age Group

Item	N-total	20-28 yrs	29-31 yrs	32-45 yrs
Income total	195			
<$15,000-$34,999	7	3	1	3
$35,000-$49,999	12	6	4	2
$50,000-$74,999	36	14	6	16
$75,000-$100,000+	140	36	38	66
Marital Status total	199			
Married	189	56	50	83
Cohabitating	7	2	1	4
Single	7	1	0	1
Other	1	0	0	1
Educational total	199			
High School / GED	2	2	0	0
Some College	19	7	5	7
Associate Degree	29	12	4	13
Bachelor's Degree	77	24	26	27
Some Grad. School	15	6	2	7
Master's or higher	57	8	14	35
Race total	198			
White	193	55	50	88
Black	1	0	0	1
Asian/Pacific Island	0	0	0	0
Native American	0	0	0	0
Mixed Background	3	2	1	0
Declined to answer	1	1	0	0
# of births total	199			
1	92	37	23	32
2	69	19	20	30
3	29	3	7	19
4 or more	9	0	1	8
# of children breastfed	196			
1	95	36	25	34
2	68	20	18	30
3	26	2	7	17
4 or more	7	0	1	6

Some participants declined to answer some demographic questions

Table 4.2

Comparison of Breastfeeding Duration in This Study and National Goals

	2020 Health People	ND Breastfeeding Rates	This Study
3 months	-	-	86.5%
6 months	60.6%	51.5%	60.9%
9 months	-	-	42.5%
12 months+	34.1%	27.9%	33.5%

Table 4.3

Mean Confidence and Comfort Level of Breastfeeding Mothers in the Workplace

Variable	N-Total	Mean	Std. Dev.
-I was confident that I would be able to successfully breastfeed my child.	203	3.96	0.93
-I was confident in my ability to combine breastfeeding and working.	203	3.71	1.07
-I was comfortable asking for accommodation to help me breastfeed or pump breast milk at work.	200	3.31	1.35
-I talked with my manager about my breastfeeding needs while at work.	187	3.27	1.35
-I feel comfortable taking breaks during work hours to pump breast milk.	196	3.22	1.34
-My job was at risk (e.g. job loss, loss of scheduled hours, loss of opportunities for advancement) if I chose to breastfeed or pump breast milk at work	192	1.71	0.92

5=Strongly agree, 4=Agree, 3=Somewhat agree, 2=Disagree, 1=Strongly Disagree

About half (51%) of breastfeeding mothers agreed or strongly agreed they were comfortable asking for accommodations to help breastfeeding at work (3.31 ± 1.35). Only 44% agreed or strongly agreed they felt comfortable taking breaks during work hours to pump breast milk (3.22 ± 1.34), or talking to a manager (3.27 ± 1.35) about their breastfeeding needs while at work. Most (80%) strongly disagreed or disagreed that their job was at risk if she chose to continue to breastfeed at work (1.71 ± 0.92).

There were no differences in a mother's confidence to successfully breastfeed her child and breastfeeding duration. Results showed a statistically significant difference in the breastfeeding mother's confidence in their ability to combine breastfeeding with work and

breastfeeding duration. The number of months spent breastfeeding was significantly less between 'strongly disagree/disagree' and 'somewhere agree' (p=.0046), 'agree,' (p=<.0001) and 'strongly agree' (p=<.0001). Participants who 'strongly disagree/disagree' to feeling confident in their ability to combine breastfeeding with work only breastfed for 4.1 months. On the other hand, mothers who answered 'strongly agree' or 'agree' in feeling confident to combine breastfeeding with work both breastfed their infants for 10.2 months. As seen in Table 4.4, comments made by breastfeeding mothers show that they felt time constraints of combining responsibilities of breastfeeding with work.

Table 4.4
Mother's Comments Regarding Combining Breastfeeding with the Workplace

-I never felt comfortable pumping at work as the work still needed to be done and the meetings covered and much of that could not be done outside of work hours.
-It was stressful. There was not real comfortable place. There were all kinds of distractions outside of the room. Not friendly for a first time mommy trying to figure it out.
-Pumping and keeping up with a growing baby is extremely difficult. I use my time between meetings to pump in my office. This makes getting the work I need to get done in a day nearly impossible.
-Breastfeeding itself at times is not a challenge when I'm with my baby, but pumping at work is a challenge. I have to plan my day around pumping and use my break times to try to make it work.
-Getting caught up at work made it hard to find the time and privacy to pump. I didn't feel comfortable asking for more than one chance to pump.
-It was definitely an added task packing my pumping supplies everyday, making the time to pump at work, storing the milk, packing it all home, and doing it all over again the next day.
-I found it extremely difficult to find time to pump at work. Although time could legally be taken, we were so busy and slightly short staffed, so the guilt I felt leaving coworkers for 30 minutes was what kept me from pumping as many times as I needed

Results showed that participants' comfort level of asking for breastfeeding accommodations in the workplace was related to breastfeeding duration (p=<.0001). Mothers who 'strongly disagree' that they felt comfortable asking for breastfeeding accommodations to help them breastfeed or express milk had a lower breastfeeding duration (5.8 months) than participants who 'somewhat agree' (10.5 months), 'agree' (10.1 months), 'strongly agree' (9.8

months). Participants who responded ‘disagree’ also had a lower breastfeeding duration (6.5 months) than participants who answered ‘strongly agree’ and ‘agree.’ There was also a difference in breastfeeding duration with mothers who said they talked to their manager about their breastfeeding needs while at work (p=.0005). Table 4.5 shows participant comments that help support the findings that mothers who strongly disagreed about feeling comfortable asking for breastfeeding accommodations.

Table 4.5
Mother’s Comments about Feeling Uncomfortable Communicating Breastfeeding Needs in the Workplace

-I did not feel comfortable asking employer for help. I was questioned on a few different occasions about why I was stepping out every couple hours around 30 minutes and when I told them the reason they shut down.
-No written policies so I was not comfortable discussing breastfeeding needs
-I did not know what was available and I was shy to ask and worried I would not have enough work time if I breastfed at work.
- I felt embarrassed talking about pumping at work. (2)
- While I did have a space set aside for me to pump, it was not the most convenient nor comfortable. It was a storage/utility room. I did not feel comfortable there nor did I really feel like I could ask for anything else.
- It was a hard topic to discuss with your employer. You want to be seen as a professional instead of discussing your breastfeeding needs. It is awkward.
-My employer adopted the infant friendly work policy during my pregnancy however breastfeeding was still never discussed.
-I did not feel comfortable discussing breastfeeding and pumping at work. (3)
- I did not feel comfortable asking for more than one chance to pump.
- Some reassurance from management about breaks would have helped me continue breastfeeding. Would have gone a long way to ease my mind. I was never confident how anyone else felt about me using all my breaks and in an unconventional manner.
- There was no support offered. It was actually never mentioned by my employer. I did not feel comfortable asking for anything.

Some employers were very supportive of the breastfeeding employees’ needs. Table 4.6 shows the positive support that breastfeeding mothers felt concerning their employers.

If a mother felt comfortable taking breaks during work hours to pump breast milk, breastfeeding duration increased (p=<.0001). There was also a significant difference between mothers answering ‘strongly disagree’ and ‘agree’ (p=<.0001) or ‘strongly agree’ (p=<.001).

Mothers who answered 'strongly disagree' had a lower breastfeeding duration (5.6 months) than mothers who answered 'agree' (11.2 months) and 'strongly agree' (10.4 months) to feeling comfortable taking breaks during work hours to pump breast milk. Mothers who felt that their job was at risk if they chose to breastfeed at work had a significant difference in breastfeeding duration (p=.02). Table 4.7 shows mother's concern about taking breaks to breastfeed or pump.

Table 4.6

Comments by Mothers Concerning Employers Support to Reach Breastfeeding Goals

-My supervisor was once a working, pumping mom when her child was a baby. She was very approachable about the topic and was accommodating when I expressed my intent to pump at work.
-My work place was very supportive, allowed for flexible work hours. At the office there was a lactation room with a refrigerator, outlet and comfortable chair. My manager also was breastfeeding so we talked openly about pumping.
- My manager understood my goal to provide breast milk. Together we knew if I needed assistance to fit pumping I would ask for help.
- My supervisor was extremely supportive of my breastfeeding and made every accommodation in order to help me.
-My department head is extremely supportive of me being a new mom and has expressed that I should ask for whatever I need.
- My manager is supportive of my breastfeeding by being flexible with my time and hours to accommodate pumping or leaving on time at the end of the day to breastfeed my baby at home.
-My team leader helps schedule things around my pumping times and encourages me to pump as often as I need to.
-My manager was very supportive. If there was no one around I was able to count on her to man the office while I stepped out to pump.
-My manager called me prior to me returning from my maternity leave and asked me what accommodations I would need when returning back to work. She explained to me where the pumping room was and where I could store my milk.
-My manager has had personal conversations with me about nursing, she is a full supporter of it.
-My supervisor made provisions for me in my department. I felt comfortable enough to talk to her about the situation
-Written policies about breastfeeding made me feel more comfortable about taking the time to pump

Table 4.7
Mother's Comments about Not Feeling Comfortable Taking Pumping Breaks During Work Hours

- I felt like I was slacking, or letting my employer down for taking so many pump breaks.
-It was hard to escape and go pump for 15 minutes without feeling guilty or shamed for stepping away
-If I ask for more breaks my employer gets angry so I have stopped asking
-I had a coworker who questioned the medical needs to take breaks to pump. This caused both frustration and insecurity.
- I felt like it was an inconvenience to everyone else to pump.
-I felt guilty taking breaks when we were extremely busy or short staffed. This is the factor that prevented me from pumping when I needed to
-I was never confident how anyone felt about me using all my breaks and in an unconventional manner

Discussion

In the current study, 60.9% of mothers breastfed for 6 months and 33.5% breastfed their infant for 12 months of age. According to the Healthy People 2020 initiative, the goal is to have 60.6% and 34.1% of mothers continue breastfeeding until the infant is 6 and 12 months of age, respectively (Department of Health and Human Services, 2016). Nationally, these goals are not being met with 51.8% and 30.7% of mothers still breastfeeding at 6 and 12 months respectively (Centers for Disease Control and Prevention, 2016). North Dakota's rate was 51.5% and 27.9% of infants being breastfed at 6 and 12 months respectively (Centers for Disease and Preventions, 2016). The percentage of mother's breastfeeding at 6 months in the current study met the Healthy People 2020 breastfeeding goal (60.9% vs. 60.6%). At 6 months postpartum, participants had a much higher breastfeeding rate compared to North Dakota's average (60.9% vs. 51.5%). The mothers in the current study had a higher breastfeeding rate (33.5%) than the average rates of breastfeeding at 12 months postpartum of North Dakota mothers (27.9%) and mothers nationally (30.7%). Mothers in the current study almost met Healthy People 2020 goals of breastfeeding 12 months postpartum (33.5% vs. 34.1%).

Mothers were generally confident in their ability to breastfeed their child but this confidence decreased by over 10% in their ability to combine both breastfeeding and working. Mother's comments showed that mothers identified returning to work as a barrier and were not as confident that they could balance the challenges of both breastfeeding and working. Moreover, most women felt less comfortable asking for accommodations, taking breaks to pump and talking to their manager about breastfeeding. This shows that women felt some support in the workplace, but there was room for improvement to increase confidence to breastfeed and thus increase duration. Accommodations that may have increased breastfeeding duration was allowing increased time to express milk, increased flexibility with breaks, and improved lactation spaces. Most mothers felt a massive time management struggle; locations were not convenient and finding a sufficient amount of time to carry out breastfeeding tasks was extremely difficult.

Many mothers reported that they did not have enough time to pump/breastfeed at work nor have a convenient area to breastfeed or pump; therefore, the mother chose to wean the child early. Mothers stated that they found it extremely difficult to find time to pump at work and they felt guilty leaving coworkers for more than 30 minutes. Even though provisions in the Affordable Care Act required a suitable location to breastfeed/pump, participants stated that the spaces designated for breastfeeding were uncomfortable and unfriendly. Lack of appropriate space and break times were big barriers found in this study. The time and organizational skills needed to breastfeed and work are big enough challenges without additional barriers in the workplace.

This research is supported by others who found how difficult it was combining breastfeeding within the workplace (Weber et al., 2011; Bai, Fong, & Tarrant, 2015). This may suggest that mothers felt that they did not work in a work environment that was supportive

enough to talk about a sensitive topic such as breastfeeding needs. However, results did not show that a mother's comfort and confidence level communicating breastfeeding needs were the sole reasons mothers discontinued breastfeeding. Other things could have contributed to the decision to discontinue breastfeeding. For example, limited milk supply, increasing stress at home, or returning to work simply was physically challenging with breastfeeding could have all contributed to weaning early. On the other hand, a few mothers reported a supportive work environment and were able to discuss breastfeeding needs. Individualized accommodations and a supportive environment enabled some mothers to breastfeed longer. This supports findings that when workplaces provided a "friendly" breastfeeding environment, mothers were comfortable enough to address breastfeeding needs and breastfeed longer (Anderson et al., 2015; Weber at al., 2011).

There were several limitations of this study. Telephone recruitment of businesses was challenging at best. Over half the businesses that were contacted refused to send out the questionnaire; moreover, the participants were concerned of anonymity when asked to provide the employer's name. Also, many participants completed the questionnaire but did not answer all the questions, especially demographics. The participants were generally white, well-educated with a relatively high income; therefore the study results may not be generalized to a more diverse population. Ethnicity of this study is similar to that of North Dakota census data for race. A diverse sample size was not expected when the majority of North Dakota residents are Caucasian. An average age above 30 and high education level could mean that this sample have more experience and have more access to resources that make combining breastfeeding with work easier. If more participants were younger and had lower paying jobs, the results may have

been affected. Also, 95% of participants were married. This could result in higher breastfeeding duration compared to a single mother who was trying to breastfeed her baby.

Mothers need to feel comfortable and confident in order to breastfeed in the workplace. The findings of this study indicated a need for a more supportive work environment in order for working mothers to feel comfortable and confident to reach breastfeeding goals. Further research is needed to understand breastfeeding in the workplace and how breastfeeding duration can be increased. More research is also needed to determine the best way to improve lactation spaces and ways to improve the number and length of breastfeeding breaks mothers are able to take.

References

American Academy of Pediatrics. (2017). *AAP reaffirms breastfeeding guidelines.* Retrieved from https://www.aap.org/en-us/about-the-aap/aap-press-room/pages/aap-reaffirms-breastfeeding-guidelines.aspx.

Anderson, J., Kuehl, R., Drury, S., Tschetter, L., Schwaegerl, M., Hildreth M., , . . Lamp, J. (2015). Policies aren't enough: The importance of interpersonal communication about workplace breastfeeding support. *Journal of Human Lactation,* 31(2), 260-266. doi: 10.1177/0890334415570059.

Bai, D. L., Fong, D. Y., & Tarrant, M. (2015). Factors associated with breastfeeding duration and exclusivity in mothers returning to paid employment postpartum. *Maternal and Child Health Journal,* 19(5), 990-999. doi:10.1007/s10995-014-1596-7.

Brown, C., Poag, S., & Kasprzycki, C. (2001) Exploring large employers' and small employers' knowledge, attitudes, and practices on breastfeeding support in the workplace. *Journal of Human Lactation,* 17(1), 39-46. doi: 10.1177/089033440101700108.

Centers for Disease Control and Prevention. (2016*). Breastfeeding Report Card*. Retrieved from https://www.cdc.gov/breastfeeding/pdf/2016breastfeedingreportcard.pdf.

Chow, T., Fuller, I., & Olson, B. (2011). Perspectives of managers toward workplace breastfeeding support in the state of Michigan. *International Lactation Consultant Association,* 27(20), 138-146. doi: 10.1177/0890334410391908.

Cross-Barnet, C., Augustyn, M., Gross, S., Resnik, A., & Paige, D. (2012). Long-term breastfeeding support: Failing mothers in need. *Maternal and Child Health Journal*, 16, 1926-1932. doi: 10.1007/s10995-011-0939-x.

Dagher, R., McGovern, P., Schold, J., & Randall, X. (2016). Determinants of breastfeeding initiation and cessation among employed mothers: A prospective cohort study. *BMC Pregnancy and Childbirth*, 16(194). doi 10.1186/s12884-016-0965-1.\

Declercq, E., Sakala, C., Corry, M., Applebaum, S., & Herrlich, A. (June 2013). Listening to Mothers III: New mothers speak out. New York: Childbirth Connection.

Declercq, E.R., Sakala, C., Corry, M.P., & Applebaum, S. (October 2006). Listening to Mothers II: Birth by numbers. New York: Childbirth Connection.

Department of Health and Human Services. (2016). *Healthy People 2020 Maternal, Infant, and Child Health Objectives*. Retrieved from http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=26

Greene, S. W., Wolfe, E. W., & Olson, B. H. (2008) Assessing the validity of measures of an instrument designed to measure employees' perceptions of workplace breastfeeding support. *Breastfeeding Medicine,* 3(3), 159-163. doi: 10.1089/bfm.2007.0029.

Hirani, S. A., Karmaliani, R., Parpio, Y., & Rafique, G. (2013). Perceived Breastfeeding Support Assessment Tool (PBSAT): Development and testing of psychometric properties with

Pakistani urban working mothers. *Midwifery & Women's Health*, 29(6), 599-607. doi:10.1016/j.midw.2012.05.003.

Johnson, A. M., Kirk, R., & Muzik, M. (2015). Overcoming workplace barriers: A focus group study exploring African American mothers' needs for workplace breastfeeding support. *Journal of Human Lactation*, 31(3), 425-433. doi: 10.1177/0890334415573001.

Kimbro, R. (2006). On-the-job moms: Work and breastfeeding initiation and duration for a sample of low-income women. *Maternal and Child Health Journal*, 10 (1), 19-26. doi: 10.1007/s10995-005-0058-7.

Lewallen, L., Dick, M. J., Flowers, J., Powell, W., Zickefoose, K., Wall, Y., & Price, Z. (2005). Breastfeeding support and early cessation. *Association of Women's Health, Obstetrics and Neonatal Nurses*, 35, 166-172. doi: 10.1111.j.1552-6909.2006.00031.x.

Mitra, A. K., Khoury, A. J., Hinton, A.W., & Carothers, C. (2004). Predictors of breastfeeding intention among low-income women. *Maternal and Child Health Journal,* 8(2), 65-70. doi: 10.1023/b.maci.0000025728.54271.27.

North Dakota Department of Health. (2011). *North Dakota breastfeeding*. Retrieved from http://www.ndhealth.gov/breastfeeding/?id=60&page=For+Employers

Office of the Surgeon General. (2011). *Barriers to Breastfeeding in the United States*. The Surgeon General's Call to Action to Support Breastfeeding. U.S. Library of Medicine. Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK52688/.

Princeton University. (2017). *Fragile families and child well-being study.* Retrieved from https://fragilefamilies.princeton.edu

Rojjanasrirat, W. (2004). Working women's breastfeeding experiences. *The American Journal of Maternal and Child Nursing*, 29(4), 22-227. ISSN: 0361-929X.

Stewart-Knox, B., Gardiner, K., &Wright, M. (2003). What is the problem with breastfeeding? A qualitative analysis of infant feeding perceptions. *Journal of Human Nutrition and Dietetics*, 16, 265-273. doi: 10.1046/j.1365-277X.2003.00446.x.

United States Department of Labor. (2016). *Break time for nursing mothers*. Retrieved from https://www.dol.gov/whd/nursingmothers/.

Weber, D., Janson, A., Nolan, M. Wen, L. M. & Rissel, C. (2011). Female employees' perceptions of organizational support for breastfeeding at work: Findings from an Australian health service workplace. *International Breastfeeding Journal*, 6(19). doi: 10.1186/ 1746-4358-6-19

Valizadeh, S., Hosseinzadeh M., Mohammadi E., Hassankhani, H., Fooladi M. M., & Schmied, V. (2017). Addressing barriers to health: Experience of breastfeeding mothers after returning to work. *Nursing & Health Sciences,* 19(1), 105-111. doi: 10.1111/nhs.12324

CHAPTER 5. THE RELATIONSHIP BETWEEN BREASTFEEDING COMMUNICATION AMONG BREASTFEEDING MOTHERS AND EMPLOYERS AND A MOTHER'S BREASTFEEDING DURATION

Abstract

The purpose of this study was to determine if interpersonal communication between an employer and a mother was related to a mother's breastfeeding duration. In a subset of a larger study, only surveys of participants who reported duration of breastfeeding were analyzed (n=214). ANOVA tests showed significant differences between perceived manager's support of breastfeeding or pumping at work and breastfeeding duration ($p = .01$). Mothers who were unsure about manager's support of breastfeeding had shorter breastfeeding duration (4.9 months). Many participants stated that their employer did not provide instrumental support. Over half of the respondents (60%) were unsure or disagreed/strongly disagreed that written policies concerning breastfeeding or pumping were present. Informational support was not provided. For example, 169 (83%) breastfeeding mothers disagreed/strongly disagreed that their pregnancy their employers provided educational material about breastfeeding at work during their pregnancy. Most mothers stated they did not get educational material for breastfeeding at work before returning to work (n=187, 92%). Half of the participants felt a lack of emotional support. There were 52% of participants who strongly disagreed/disagreed that their employer considered it to be his/her job to help a breastfeeding mother combine breastfeeding and work. In summary, managerial support was related to longer breastfeeding duration; however, there is much room for additional informational support during pregnancy and before returning to work.

Introduction

The benefits of breastfeeding are commonly known and breastfeeding has been accepted as the ideal form of infant nutrition because of the health benefits for infants as well as their mothers (Center for Disease Control and Prevention, 2016; Bai & Wunderlich, 2013). Evidence shows that breastfeeding protects against variety of diseases and conditions in infants such as diarrhea, urinary tract infections, childhood overweight or obesity, respiratory tract infections, allergic disorders, and asthma (American Academy of Pediatrics, 2017). Breastfeeding also has maternal health benefits such as decreased postpartum bleeding, earlier return to pre-pregnancy weight, and decreased risk of breast and ovarian cancers (American Academy of Pediatrics, 2017; Kosmala-Anderson & Wallace, 2006). The American Academy of Pediatrics (2017) recommends that a mother exclusively breastfeeds for the first six months of her infant's life and continues to breastfeed, with the addition to solid foods, until one year of an infant's life.

Healthy People 2020 goals are to increase the breastfeeding initiation rate to 81.1% and any breastfeeding at 6 and 12 months to 60.6% and 34.1% respectively (Department of Health and Human Services, 2016). The recommendations for exclusive breastfeeding at 3 and 6 months are 46.2% and 25.5%, respectively (Department of Health and Human Services, 2016). Ideally, all women who have given birth would initiate breastfeeding and continue to provide human milk for 12 months. According to the 2016 Breastfeeding Report Card, women have not met the recommended goal for breastfeeding at 6 months and beyond. Despite meeting breastfeeding initiation goals, only 12 states met the Health People 2020 goal for the 6-month breastfeeding duration (Center for Disease Control and Prevention, 2016). Nationally, of the 81.1% of mothers who started to breastfeed, 51.8% were still breastfeeding at 6 months, while only 30.7% were

still breastfeeding at 12 months postpartum. It is important to understand what barriers affect a mother's breastfeeding duration.

Rojjanasrirat (2004) conducted a study to better understand experiences of breastfeeding mothers after returning to work. The 50 breastfeeding women consistently reported three types of support they received: instrumental, emotional, and informational support (Rojjanastrirat, 2004). Emotional support was perceived as behaviors that provide empathy and demonstration of understanding, acceptance, and the value of breastfeeding (Rojjanasrirat, 2004). Instrumental support was perceived as assistance that is tangible that helped women during times of breastfeeding such as providing a private lactation space or a storage area for breast milk and providing educational material (Rojjanastrirat, 2004). Another support that employers can provide is informational support, which includes written company policies that are supportive for breastfeeding women.

Kosmala-Anderson and Wallace (2006) conducted a follow-up survey by Rojjanasritat (2004) to determine the experience of mothers regarding breastfeeding support at work. This research showed a lack of informational and instrumental support in regards to breastfeeding in the workplace. Survey results show that only seven of the 46 respondents (15.9%) were aware of facilities such as private lactation rooms, where mothers could express and store breast milk while at work, and only three had used these facilities (Kosmala-Anderson & Wallace, 2006). None of the respondents within the 4 surveyed organizations had been made aware of the possibility of flexible working hours within the working day to accommodate childcare and breastfeeding (Kosmala-Anderson & Wallace, 2006). Some mothers mentioned that if they had been made aware of the availability of flexible working hours, they would have continued to breastfeed after returning to work. For example, one mother stated, "I was not aware of this

availability. This would have encouraged me to continue breastfeeding." Moreover, only four of all respondents (9%) were aware of any workplace policies related to breastfeeding, covering employer and employees' rights and duties (Kosmala-Anderson & Wallace, 2006). Almost all the participants, 91% thought that their employer should do more to support breastfeeding employees (Kosmala-Anderson & Wallace, 2006).

On March 23, 2010, federal legislators passed the Affordable Care Act (ACA) that mandated employers to provide break time for an employee to express breast milk for her nursing child up to one year after the child's birth (United States Department of Labor, 2016). However, research still shows mothers are falling short of the recommended breastfeeding duration. Kozhimannil and colleagues (2016) hypothesized that women with access to policies for reasonable break times and private spaces to breastfeed or pump were more likely to exclusively breastfeed at 6 months and continue to breastfeed even longer (Kozhimannil, Jou, Gjerdingen, & McGovern, 2016). Although the ACA requires many employers to provide reasonable breaks and private space to breastfeed, 59% of 550 employed breastfeeding mothers reported having access to reasonable break time to express milk, 45% had access to a private space, and only 40% had both break time and private space (Kozhimannil et al., 2016). Nearly half reported that their postpartum employment plans affected breastfeeding-related decisions, and 33% indicated that employment posed a challenge to breastfeeding. Women have expressed a need for information and instrumental support from coworkers and managers such as an accepting environment, spatial issues for pumping, and time allowance (Bai & Wunderlich, 2013; Kosmala-Anderson &Wallace, 2006; Rojjanasrirat, 2004).

A lack of emotional and instrumental support was a central concern voiced by breastfeeding mothers across focus groups in a study conducted by Johnson, Kirk, & Muzik

(2015). Breastfeeding mothers discussed lack of workplace base support more than non-breastfeeding mothers and stated a need for professional development workshops to educate employers on communication skills that better support breastfeeding (Johnson et al., 2015). Also, a lack of communication and support from coworkers and employers has been cited as a factor in a mother's decision to discontinue breastfeeding prematurely (Bai et al., 2015; Bai & Wunderlich, 2013; Brown, Poag, & Kasprzycki, 2001). Valizadeh and colleagues (2017) conducted in-depth, semi-structured interviews with 18 breastfeeding employed women to obtain more information about a mother's experience breastfeeding in the workplace. Results identified negative experiences that mothers had with unsupportive employers and coworkers in relation to breastfeeding and their need to express milk (Valizadeh et al., 2017). Employers reportedly did not take into consideration that new mothers were breastfeeding when they prepared weekly schedules and workloads (Valizadeh et al., 2017).

Some legislative support and policies were enacted that provided maternity leave, private locations for breastfeeding, breaks to use a breast pump, as well as breast milk storage areas. However, little is known how these policies are implemented or communicated to the breastfeeding mother (or her employer) (Anderson et al., 2015; Libbus & Bullock, 2002). Today, businesses who have company policies and procedures still seem to fall below recommended breastfeeding duration compared to breastfeeding mothers who do not return to work (Anderson et al., 2015). To improve emotional support and to help with the experience of breastfeeding at work, a breastfeeding mother and her manager should negotiate terms about breastfeeding needs through interpersonal communication (Anderson et al., 2015).

Studies have shown formal policies about breastfeeding at the workplace have not been enough (Anderson et al., 2015; Kosmala-Anderson & Wallace, 2006). Beyond breastfeeding

policies and legislation, employers must be motivated to provide informational and instrumental support for breastfeeding and emotionally supporting mothers by communicating breastfeeding policies to mothers (Brown et al., 2001). Many workplaces have breastfeeding policies; however, mothers are still deciding to discontinue breastfeeding (Anderson et al., 2015; Kosmala-Anderson & Wallace, 2006). Anderson and colleagues (2015) have found that communication and support between the employer and the breastfeeding mother would help the breastfeeding mothers know exactly what the policies are and reassure mothers that they have the support to utilize such policies. Interpersonal communication is necessary in order to implement the formal policies because only having formal policies does not guarantee that there will be support or how this support is perceived. Support for breastfeeding is more than just providing a private place and adequate time to breastfeed (Anderson et al., 2015). There should be emotional support from employers to demonstrate understanding and show empathy so a mother feels she is able to continue breastfeeding (Anderson et al., 2015; Bai et al., 2015; Bai & Wunderlich, 2013; Kosmala-Anderson & Wallace, 2006).

Employers are a critical part of many breastfeeding mothers' environments (Brown et al., 2001). Managers influence the work environment by either adhering to or ignoring workplace policies concerning breastfeeding, informally supporting or discouraging breastfeeding employees, and managing or disregarding issues that may arise among employees who are trying to continue to breastfeed (Rojjanasrirat, 2004). Managers have direct involvement in employee performance and promotion decisions, and so, attitudes of the manager and supervisor are very relevant for women's decisions to combine breastfeeding with work (Chow, Fulmer, & Olson, 2011). The full benefits of breastfeeding will not be realized if breastfeeding is curtailed by unsupportive employment practices such as lack of support from employers and coworkers

(Anderson & Wallace, 2006). The purpose of this study was to identify the relationship between employer communication and support on breastfeeding and a mother's breastfeeding duration.

Methods

Research Design & Instrumental Development

This study used a mixed methods cross-sectional research design. Data was analyzed from a quantitative questionnaire and written comments concerning on mothers' experiences combining breastfeeding with work and employer support of breastfeeding. This study was approved by the university's Institutional Review Board for the Protection of Human Participants in Research. Employed breastfeeding mothers were presented with a consent form before starting the questionnaire. Consent was implied when the participant opened the link to get to the questionnaire. The questionnaire was available between November 2016 and March 2017 and each participant was able to take the questionnaire only one time.

An 85-question questionnaire was developed to measure a breastfeeding mother's experience upon returning to the workplace. With permission, 47 questions were compiled from other breastfeeding questionnaires to improve the validity of the study (Greene, Wolfe & Olson, 2008; Bai et al., 2015; Declercq, Sakala, Corry, Applebaum, Herrlich 2013; Declercq, Sakala, Corry & Applebaum 2006; & Hirani, Karmaliani, Parpio, Rafique, 2013). Survey questions were also taken from the Fragile Families and Child Well-Being Study (supported by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) of the National Institutes of Health under award numbers R01HD36916, R01HD39135). The remaining 38 questions were original. A panel of four content experts reviewed the instrument and then it was pilot tested by 17 breastfeeding mothers outside the state of North Dakota. Feedback from the pilot testing feedback resulted in revision of several questions for clarity and conciseness.

The questionnaire consisted of a demographic section, short answer and multiple-choice questions. The multiple-choice questions used a five-point Likert scale that included options of "strongly disagree," "disagree," "somewhat agree," "agree," and "strongly agree," as well as comment boxes to allow participants to report additional information. These responses were scored numerically from 1-5 with one being "strongly disagree" and five being "strongly agree."

Recruitment

Managers or directors of human resources of North Dakota businesses were contacted to request participation in the study. Of the 58 businesses that were contacted, half agreed to forward the email containing a brief explanation of the study and a link to the Qualtrics questionnaire to all employees. Fourteen of the 58 North Dakota businesses chose not to participate in the study, with an additional 15 who were non-responsive to the original recruitment email. Due to limited business recruitment success, state level professional associations were asked to participate in the study using the same recruitment procedures with the same very limited success. To further recruit participants, snowballing sampling techniques were implemented by sharing a link to the questionnaire on several different lactation support groups via social media. Word-of-mouth technique was also implemented where mothers were able to forward the questionnaire link to other breastfeeding mothers who fit the research criteria.

Participants

The study specifically recruited working breastfeeding mothers from the state of North Dakota who had given birth between 2014 and 2016. Other demographic characteristics were not part of the selection process. The participants did not receive any incentives for participating in the study. A total of 502 breastfeeding mothers responded to the survey but 110 questionnaires were rejected because either the respondents were not working in North Dakota or did not

complete many of the questions on the survey. Of the remaining respondents, 178 were removed because these mothers were still breastfeeding. This left 214 participants who were included in analysis.

Statistical Analysis

SPSS Statistics 24 (Armonk, New York) was used to analyze the data from the questionnaire. T-tests and descriptive statistics were used to determine breastfeeding duration among mothers who had returned to the workplace. ANOVA tests were used to determine differences in breastfeeding duration among women indicating varying levels of communication and support regarding breastfeeding.

Results

Demographic characteristics of participants who reported breastfeeding duration are found on Table 5.1. A majority of the population was white (97%). Only one out 198 participants reported being black, and two participants stated a mixed background. An income of $75,000 or greater was reported by 72% of participants, and 75% reported earning a bachelor degree or higher. Almost all stated they were married (95%), and 46% stated that this was their first child. The average age of the participants was 31.17 ± 4.12 years with most participants being between the ages of 32-45 years.

The average duration of breastfeeding was 8.9 months ± 5.28. There were 60.9% and 33.5% of participants that were breastfeeding at 6 months and 12 months, respectively. Although non-significant (p=.051), participants who were younger (20-31 years old) breastfed an average of 8.2 months whereas those who were older (32-45 years old) breastfed longer (10.4 months). Higher levels of education (p=.02) and higher household income (p=.03) were related to increasing breastfeeding duration.

Table 5.1
Demographic Variables Overall and by Age Group

Item	N-total	20-28 yrs	29-31 yrs	32-45 yrs
Income total	195			
<$15,000-$34,999	7	3	1	3
$35,000-$49,999	12	6	4	2
$50,000-$74,999	36	14	6	16
$75,000-$100,000+	140	36	38	66
Marital Status total	199			
Married	189	56	50	83
Cohabitating	7	2	1	4
Single	7	1	0	1
Other	1	0	0	1
Educational total	199			
H.S or GED	2	2	0	0
Some College	19	7	5	7
Associate Degree	29	12	4	13
Bachelor's	77	24	26	27
Some Grad. School	15	6	2	7
Master's or higher	57	8	14	35
Race total	198			
White	193	55	50	88
Black	1	0	0	1
Asian/Pacific Island	0	0	0	0
Native American	0	0	0	0
Mixed Background	3	2	1	0
Declined to answer	1	1	0	0
# of births total	199			
1	92	37	23	32
2	69	19	20	30
3	29	3	7	19
4 or more	9	0	1	8
# of children breastfed	196			
1	95	36	25	34
2	68	20	18	30
3	26	2	7	17
4 or more	7	0	1	6

Some participants declined to answer some demographic questions

Most breastfeeding mothers disagreed or strongly disagreed that employers communicated instrumental support such as written company policies, information support such as educational material, and emotional support such as expressing and saying things that made mothers think employers supported breastfeeding at work. As seen in Table 5.2, almost half

(n=93) agreed or strongly agreed that "My manager said things that make me think he/she supported my breastfeeding efforts," (mean 3.33 ± 1.37). Nevertheless, 27% disagreed or strongly disagreed with the above statement, while 9% were simply unsure. On a more positive note, over half of the participants strongly agreed or agreed that "My manager supported my breastfeeding or pumping breast milk at work" (mean 3.56 ± 1.26). Only 16% strongly disagreed or disagreed to the above statement. A majority of breastfeeding mothers strongly disagreed or disagreed or answered not sure (63%, 2.88 ± 1.49) to the question, "My employer was written policies for employers who are breastfeeding or pumping breast milk."

Table 5.2
Mean Employer Communication and Support Regarding Breastfeeding in the Workplace

Variable	N-Total	Mean	Std. Dev.
-My manager supported my breastfeeding or pumping breast milk at work	187	3.56	1.26
-My manager said things that make me think he/she supported my breastfeeding efforts	180	3.33	1.37
-My employer has written policies for employees who are breastfeeding or pumping breast milk	140	2.88	1.49
-My manager helped me adjust my workload so I could breastfeed or pump breast milk at work	186	2.85	1.37
-My manager considered it part of his/her job to help me combine breastfeeding and work	179	2.57	1.43
-I was made aware of the expectations for using and maintaining the designated space for breastfeeding or pumping breast milk	197	2.57	1.42
-During my pregnancy, my employer provided educational material about breastfeeding and working	203	1.72	1.03
-Before I returned to work, my employer provided educational materials about breastfeeding and working	203	1.47	0.77
-My employer provided me with information on breastfeeding resources available in our community (such as local lactation consultants or support groups)	203	1.43	0.81
-My employer provided a lactation consultant	203	1.37	0.75

5=Strongly agree, 4=Agree, 3=Somewhat agree, 2=Disagree, 1=Strongly disagree

About 40% of the participants strongly disagreed or disagreed that "My manager helped me adjust my workload so I could breastfeed or pump breast milk at work" (mean 2.85 ± 1.37).

Around half of the participants strongly disagreed or disagreed that "I was made aware of the expectations for using and maintaining the designated space for breastfeeding or pumping breast milk" (mean 2.57 ± 1.42) and that "My manager considered it part of his/her job to help me combine breastfeeding and work" (mean 2.57 ± 1.43).

There was also a high percentage of participants who strongly disagreed or disagreed (83%, mean 1.72 ± 1.03). to the questions, "*During my pregnancy*, my employer provided me educational materials about breastfeeding and working" and "*Before returning to work*, my employer provided educational materials about breastfeeding and working" (92%, mean 1.47 ± 0.77). Almost all of the participants strongly disagreed or disagreed that employers provided mothers with information about breastfeeding resources in the community (93%, mean 1.43 ± 0.81) or that the employer provided lactation consultants (95%, mean 1.37 ± 0.75).

Further analysis showed that there was a difference between managers supporting breastfeeding or pumping at work and breastfeeding duration (p=.01). Mothers who answered, "not sure" to managers supporting breastfeeding at work breastfed for 4.9 months compared to mothers who stated, "agree" to managers supporting breastfeeding at work breastfed for 9.6 months (p=.05). Compared to mothers who were "unsure," mothers who answered, "strongly agree" breastfed for 10.1 months (p=.02). This was the only question that showed statistically significant differences in breastfeeding duration between the various response levels.

A common theme showed that a majority of the coworkers of breastfeeding mothers supported her and her breastfeeding needs in the workplace. Table 5.3 reports comments of mothers about coworker support and how they facilitated breastfeeding in the workplace.

Table 5.3

Mother's Comments Regarding Coworkers Facilitating Breastfeeding in the Workplace

- Coworkers helped cover for me while I pumped and were emotionally supportive. (8)
- All my coworkers were supportive of breastfeeding because they have or are breastfeeding as well. (30+)
- My coworkers never shamed me, they always made sure I felt comfortable.
- My coworkers understood my need to express milk. We rearranged the workload to fit my body's schedule.
- Coworkers helped me find a place to pump have covered for me. My coworkers that have had experience with breastfeeding/pumping have also provided encouragement for me. (3)
- They were all very supportive and understanding when it comes time for me to pump. (2)
- My coworkers would frequently ask questions about my breastfeeding journey and were very interested and were very supportive. They would always show excitement when I would tell them "yes, I am still breastfeeding and pumping."
-My coworkers are very supportive of my breastfeeding, as they encourage me to take as much time as I need to pump. (2)
- They would incorporate it into our day as any normal thing. I was super happy it become normal.
- It is a non-issue from coworkers when I need to go pump, which is huge for a sleep deprived, starving, leaking, breastfeeding mother.
- I was lucky to work in a very supportive department. I would not have been able to pump as long as I did without their support.
- My coworkers supported me by allowing me to go and pump milk when it was possible due to our workload. If there was not an available room to pump in, they did not have a problem if I shut the door to our office and used that as a clean, private place to pump.

However, a handful of breastfeeding mothers explained their negative experience with coworkers breastfeeding support. Table 5.4 shows that unsupportive work environments still exist for some mothers.

Manager support was also voiced in the comments. Even though some participants stated that managers were somewhat supportive of breastfeeding, more participants reported a negative experience in regards to employer support of breastfeeding in the workplace. Several mothers stated that a lack of support in the workplace was why they weaned their child earlier than anticipated. The most common comments are found in Table 5.5.

Table 5.4

Comments of Breastfeeding Mothers Regarding Unsupportive Coworkers

- Very few people in my office have children and did not understand the need to pump as often as I needed to. (4)
- I was treated like I was not being a team player by stepping away to pump because people had to cover for me (5)
- I work with a lot of males and we do not talk about it. (6)
-My coworkers have made is difficult to breastfeed. They have excluded me from meetings and blame it on that I am "not around" or "I am hiding in my room" even though they know why I am. It makes working with them difficult.
- Questioned me about the fairness of using contracted hours for pumping.
- I believe my co-workers found my pumping somewhat annoying, since I had to pump at least 3 times per day. (2)
- My coworkers found breastfeeding "appalling" and made their opinions known.
- Coworkers would occasionally lie to my boss saying I was not feeling well when I would try to sneak in a pump session. The rest of my coworkers were not supportive and would tattle on me or accuse me of not doing my job.
- Coworkers always seemed disappointed when I had to step away to pump and made me feel guilty every time I went.
- I did not discuss breastfeeding with coworkers. (2)
- I have heated discussions with some coworkers about what is and is not acceptable in public. They do not think you should be able to feed on demand and should cover yourself or go in the bathroom. That makes me incredibly angry.
- One coworker has been supportive of my experience but others seem to think I was stealing company time and did not think it was fair I always took breaks. (3)

Table 5.5
Mother's Comments Concerning Employers/Managers being a Barrier to Breastfeeding in the Workplace

-My employer does not advertise or offer a lot in terms of supporting breastfeeding.
- Employers complained if I asked for a 15-minute break and were disrespectful and crabby towards me.
- I only know about lactation rooms because I had seen one, I received no information from my employer about them or other policies.
- I was provided the bare minimum of what is required by law, so I was never felt fully supported.
- My employer was male and probably did not think about the fact that I would be pumping when I returned from maternity leave. It was an uncomfortable conversation. (4)
- I felt I was somewhat viewed as a hassle when asking for changes so I could pump.
- They do not seem very supportive at all. They have never said a word about me breastfeeding nor have we discussed it.
- My supervisors allowed it but not enthusiastically. There was nobody sent to replace me or cover me when I had to pump.
- I was told I was taking "advantage" of my pumping sessions, which I did not understand.
- My department did create a lactation policy but I felt that the policy was very restrictive and was not supportive at all. Frankly I felt like it was a slap in the face as I am a dedicated long-term employee.
- I was constantly asked how much longer I was going to continue to pump. I stopped pumping way sooner than I would have liked at work.
- I did not have any support from my employer for breastfeeding.
- It was difficult for me to get them to set up a place to pump at work.
- My employer did not have a room to pump and were not supportive or flexible. (5)
- Employers would not allow me to pump when I needed to and I did not have a space to pump. They made comments about how they thought I was abusing my position and taking advantage of them by pumping. My boss accused me of lying to get breaks and not really pumping since I would rarely get more than an ounce during a pump session.
- My employer adopted the infant-friendly policy during my pregnancy but breastfeeding was still never discussed.
- I was unaware that my job had any breastfeeding policies in place. (2)
- Management was uneducated about breastfeeding and pumping. (2)
- Employers told me I was taking money and time from the company. Made me feel horrible.
- It is basically not talked about. My manager has not brought it up. I have heard them complaining how much time it takes out of the day, and asking the mother if she really has to pump 3 times a day. This is discouraging to hear.
-My employer wasn't necessarily unsupportive, but was not exactly accommodating either. I would have to leave the floor for up to 25 minutes to fully pump. I would have other nurses roll their eyes at the thought of me breastfeeding and having to take on my workload while I was pumping.

Lack of instrumental and informational support was a central concern for breastfeeding working mothers. Employers typically did not communicate about the availability of private

lactation rooms nor were supportive of the time needed for pumping. The most common comments stated about lactation space and time to breastfeed are in Table 5.6.

Table 5.6
Mother's Comments Concerning Lack of Time and Private Space to Pump

-When I asked about a dedicated room for me to pump in I was repeatedly told one was not available. I asked for a lock on the door of the room I pumped in and was denied. I explained 15 minutes was not enough time to pump and was told my lunch break would have to do.
-I had to find my own time to sneak away and breastfeed, which was difficult.
- My employer and coworkers were not supportive of me being able to step away in order to pump. I also asked for a private room in order to pump, and the only place that was offered to me was the bathroom.
- I did not have a decent room to pump in and employers told me I could go to the basement of our building
- I asked multiple times for policies on breastfeeding and have yet to see anything on the county level. I pumped in a bathroom and washed in a bathroom sink. It was extremely frustrating to get my employer to understand and it would have been easier if we had policies to help new moms with these discussions.
- I did not receive any materials on breastfeeding in the workplace, nor was I shown or told where I could breastfeed in a mother's room. It would have been nice to feel like I was supported in breastfeeding by being given materials on breastfeeding in the workplace.
-Employers did not give time to pump if needed and no specific room to pump.

Discussion

This study sought to identify the relationship between employer communication and support of breastfeeding and a mother's breastfeeding duration. Breastfeeding duration varied widely depending on the perceived support breastfeeding mother received from their employers and coworkers.

In the current study, mothers stated a lack of instrumental, informational, as well as emotional support from employers and coworkers to pump or breastfeed at work. Further complicating the issue was that many participants were unsure if their employer had written policies concerning breastfeeding or pumping. While some companies may not have written lactation policies, it is more likely that managers were not communicating what policies are in place for breastfeeding mothers. This in turn may reduce breastfeeding duration. It is in the

employers' best interest to have employees who are knowledgeable of company policies. Therefore, employers should meet with breastfeeding mothers before they return to work to provide them with informational/instrumental support by communicating policies that are in place for breastfeeding employees. Not only will mothers be aware of the written policies to help them breastfeed in the workplace, but it will also reassure them concerning their decision to continue to breastfeed.

While it is widely recognized that mothers have a difficult time combining breastfeeding and working, (Bai & Wunderlich, 2013; Kosmala-Anderson &Wallace, 2006; Rojjanasrirat, 2004; Weber et al., 2011; Bai et al., 2015; Kozhimannil et al., 2016), the barriers to doing both have not necessarily been identified. This may suggest that they do not have the support from employers to breastfeed the full recommended time of one year postpartum.

Breastfeeding mothers may feel overwhelmed when retuning to work based on a few barriers. Like previous studies, the biggest barrier that was addressed from breastfeeding mothers was how extremely difficult it was to find time to pump throughout the day and lack of a dedicated area to comfortably breastfeed or pump (Kozhimannil et al., 2017; Alb, Theall, Jacocs, & Bales, 2017)). Milk supply decreased when mothers returned to work due to stress and limited time to pump. Mothers who did voice support from their employer were able to breastfeed longer. They felt less stressed and were able to set their own hours to be able to pump when their body needed to pump. Employers should establish clear and easily understood policies for employees to request reasonable break times and private space to express breast milk, as well as taking measures to inform employees about their right to access these accommodations (Kozhimannil et al., 2016). Setting up meetings or workshops for employers and guiding them through what would work for breastfeeding employees in their specific workspace would be

beneficial (Alb et al., 2017). Communication and support from the work environment would help mothers feel they can take the extra time to pump.

Another theme was lack of emotional support because many coworkers and employers caused guilt trips for the breastfeeding mothers. Mothers addressed that coworkers and employers viewed breastfeeding as an unnecessary additional hassle in the work place. Moreover, some employers and coworkers implied that breastfeeding mothers were not doing their part because coworkers had to cover for them. This put mothers in a stressful situation and many of them ceased breastfeeding because of the lack of support. This is supported by other research that showed working breastfeeding mothers were under extreme physical and emotional stress as a result of unsupportive family and people in the workplace (Valizadeh et al., 2017). Qualitative data from the current study showed that breastfeeding mothers think coworker support is important because it can really help create the feeling of normality and result in the continuation of breastfeeding. Even though participants stated some negative support from coworkers, they also had coworkers who were supportive in encouraging mothers to continue to breastfeed. Many of these coworkers were female and had breastfed as well. Positive coworker support is important because breastfeeding mothers typically have more interaction with their coworkers and work side-by-side with them daily. Mothers who stated that they had emotional support from employers and coworkers, such as employers demonstrating understanding and positive reinforcement, were able to continue breastfeeding for a longer time. This shows that providing empathy and understanding has a relation on a mother's decision to continue breastfeeding once she returns to work.

There were a few limitations in this study. Telephone and email recruitment was difficult when over half of the businesses declined to send out the questionnaire to their employees.

Another limitation was that several participants did not answer all of the questions, especially demographics. There were 502 breastfeeding mothers who took the questionnaire but only 214 participant questionnaires were used in analysis. Some participants who took the questionnaire did not complete the questionnaire. The participants were generally white and well educated with a relatively high income. Therefore, the results of this study may not be generalized to a more diverse population. However, the ethnicity of this study is similar to that of North Dakota census data for race in the area so a diverse sample size was not expected.

Few studies have focused on maternal health, employment, and breastfeeding beyond early postpartum. That is why this study focused more on working mothers' experiences trying to combine breastfeeding with working and how workplace support could affect their breastfeeding duration. With that said, the findings of the current study indicated a need to improve employer support on breastfeeding in the workplace. This included finding and designating clean, appropriate private lactation spaces for mothers to pump and breastfeed. Given the demonstrated health benefits of breastfeeding, employers should recognize the importance of their support in the workplace. Employers should be informed how their support can impact breastfeeding employees so these employees are able to carry out breastfeeding policies. Employers play a huge role in a mother's daily life. They have the power to make appropriate accommodations for working mothers to breastfeed comfortably. Providing them with breastfeeding material, communicating breastfeeding policies that are in place, and showing empathy and understanding about trying to combine breastfeeding with work can be related to breastfeeding duration for employees and their infants. Breastfeeding support in the workplace must be a higher a priority to help promote breastfeeding.

References

Alb, C. H., Theall, K., Jacobs, M. B., & Bales, A. (2017). Awareness of Unites States' law for nursing mothers among employers in New Orleans, Louisiana. *Women's Health Issues*, 27(1), 14-20. doi: 10.1016/j.whi.2016.10.009.

American Academy of Pediatrics. (2016). *AAP policy on breastfeeding and use of human milk.* Retrieved from https://www2.aap.org/breastfeeding/policyonbreastfeedinganduseofhumanmilk.html

American Academy of Pediatrics (2017). *Benefits of breastfeeding*. Retrieved from https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Breastfeeding/Pages/Benefits-of-Breastfeeding.aspx

Anderson, J., Kuehl, R., Drury, S., Tschetter, L., Schwaegerl, M.,…. & Lamp, J. (2015). Policies aren't enough: The importance of interpersonal communication about workplace breastfeeding support. *Journal of Human Lactation,* 31(2), 260-266. doi: 10.1177/0890334415570059.

Bai, D. L., Fong, D. Y., & Tarrant, M. (2015). Factors associated with breastfeeding duration and exclusivity in mothers returning to paid employment postpartum. *Maternal and Child Health Journal,* 19(5), 990-999. doi:10.1007/s10995-014-1596-7.

Bai, Y. & Wunderlich, S. (2013). Lactation accommodation in the workplace and duration of exclusive breastfeeding. *Journal of Midwifery and Women's Health*, 58, 690-696. doi: 10.1111/jmwh.12072.

Brown, C., Poag, S., & Kasprzycki, C. (2001). Exploring large employers' and small employers' knowledge, attitudes, and practices on breastfeeding support in the workplace. *Journal of Human Lactation,* 17(1), 39-46. doi: 10.1177/089033440101700108.

Centers for Disease Control and Prevention. (2016*). Breastfeeding Report Card*. Retrieved from https://www.cdc.gov/breastfeeding/pdf/2016breastfeedingreportcard.pdf.

Chow, T., Fuller, I., & Olson, B. (2010). Perspectives of managers toward workplace breastfeeding support in the state of Michigan. *International Lactation Consultant Association,* 27(20), 138-146. doi: 10.1177/0890334410391908.

Declercq, E., Sakala, C., Corry, M., Applebaum, S., & Herrlich, A. (June 2013). Listening to Mothers III: New mothers speak out. New York: Childbirth Connection.

Declercq, E.R., Sakala, C., Corry, M.P., & Applebaum, S. (October 2006). Listening to Mothers II: Birth by numbers. New York: Childbirth Connection.

Department of Health and Human Services. (2016). *Healthy People 2020 Maternal, Infant, and Child Health Objectives*. Retrieved from http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=26

Greene, S. W., Wolfe, E. W., & Olson, B. H. (2008). Assessing the validity of measures of an instrument designed to measure employees' perceptions of workplace breastfeeding support. *Breastfeeding Medicine,* 3(3), 159-163. doi: 10.1089/bfm.2007.0029.

Hirani, S. A., Karmaliani, R., Parpio, Y., & Rafique, G. (2013). Perceived Breastfeeding Support Assessment Tool (PBSAT): Development and testing of psychometric properties with Pakistani urban working mothers. *Midwifery & Women's Health*, 29(6), 599-607. doi:10.1016/j.midw.2012.05.003.

Johnson, A. M., Kirk, R., & Muzik, M. (2015). Overcoming workplace barriers: A focus group study exploring African American mothers' needs for workplace breastfeeding support. *Journal of Human Lactation*, 31(3), 425-433. doi: 10.1177/0890334415573001.

Kosmala-Anderson, J. & Wallace, L. (2006). Breastfeeding works: The role of employers in supporting women who wish to breastfeed and work in four organizations in England. *Journal of Public Health*, 28(3), 183-191. doi: 10.1093/pubmed/fdl.012.

Kozhimannil, K. B., Jou, J., Gjerdingen, D. K., & McGovern, P. M. (2016). Access to workplace accommodations to support breastfeeding after passage of the affordable care act. *Women health Issues Journal*, 26(1), 6-13. doi: 10.1016/j.whi.2015.08.002.

Libbus, M. & Bullock, L. (2002). Breastfeeding and employment: An assessment of employer attitudes. *Journal of Human Lactation*, 18(3), 247-251. doi: 10.1177/089033440201800306.

Rojjanasrirat, W. (2004). Working women's breastfeeding experiences. *The American Journal of Maternal and Child Nursing*, 29(4), 22-227. ISSN: 0361-929X.

United States Department of Labor. (2016). *Break time for nursing mothers*. Retrieved from https://www.dol.gov/whd/nursingmothers/.

Valizadeh, S., Hosseinzadeh M., Mohammadi E., Hassankhani, H., Fooladi M. M., & Schmied, V. (2017). Addressing barriers to health: Experiences of breastfeeding mothers after returning to work. *Nursing & Health Sciences,* 19(1), 105-111. doi: 10.1111/nhs.12324.

CHAPTER 6. SUMMARY

The benefits of breastfeeding are commonly known (Bai & Wunderlich, 2013). The initiation of women breastfeeding has increased, but very few mothers continue in breastfeeding for the recommended 12 months (Bai, Gaits, & Wunderlich, 2014; Centers for Disease Control and Prevention, 2016). Several studies have shown that re-entering the workforce has been a major barrier for the continuation of breastfeeding for many mothers (Bai, Fong, & Tarrant, 2015; Brown, Poag, & Kasprzycki, 2001; Chow, Fulmer, & Olson, 2011; Rojjanasrirat, 2004; Valizadeh, Hosseinzadeh, Mohammadi, Hassankhani, Foolad, & Schmied, 2017). This study was conducted to determine how the workplace affected a mother's breastfeeding duration. More specifically, this study examined the association between open communication regarding the need for lactation accommodations in the workplace and breastfeeding duration in working breastfeeding mothers. Additionally, the study examined how employers communicate policies for breastfeeding once a mother returns to work and the breastfeeding mother's comfort level communicating her breastfeeding needs with her employer.

The results of this study showed a significant relationship between education levels, household income and breastfeeding duration among working mothers. Working mothers who had higher levels of education and a higher household income breastfed for a longer period of time. There were no significant relationships between a mother's age and their relationship with the child's father and their breastfeeding duration.

Most mothers were very confident that they could breastfeed; however, that confidence dropped when the mother considered combining breastfeeding with returning to work. There were no significant differences on a mother's confidence to breastfeed their child and their duration. However, a breastfeeding mother's confidence in her ability to combine breastfeeding

with work was related to breastfeeding duration. Mothers who felt confident in their ability to combine breastfeeding with work had a longer breastfeeding duration. There was a significant difference in breastfeeding mothers who felt comfortable asking for breastfeeding accommodations in the workplace and their breastfeeding duration. Mothers who stated they were comfortable asking for breastfeeding accommodations in the workplace breastfed for 5 months longer than mothers who did not feel comfortable asking for accommodations. Mothers who worked in a non-supportive breastfeeding environment did not feel comfortable addressing their needs (Weber, Janson, Nolan, & Rissel, 2011). If a mother felt comfortable taking breaks during work hours to pump, breastfeeding duration increased from 5 months for those who did not feel comfortable taking breaks to 11 months for those who did. Studies have shown that the feeling of embarrassment to breastfeed, not feeling confident to take breaks, or not feeling comfortable to communicate breastfeeding needs in the workplace affects breastfeeding duration (Anderson et al., 2015; Johnson, Kirk, & Muzik, 2015; Mitra, Khoury, Hinton & Carothers, 2004; Office of the Surgeon General, 2011; Stewart-Knox et al., 2003; Weber et al., 2011).

Breastfeeding mothers who felt that their job was at risk if they chose to breastfeed at work had no significant relation to their breastfeeding duration. However, there was a significant difference between managers supporting breastfeeding or pumping at work and breastfeeding duration. Breastfeeding mothers who stated that managers supported breastfeeding at work had longer breastfeeding duration by 4.7 months. This study supports previous research and shows that managers have direct involvement in employee work performance. Therefore, employer's attitudes are very relevant for a woman's decision to combine breastfeeding with work (Chow, Fulmer, & Olson, 2011). Almost all participants stated that their employers did not communicate

written policies, provide educational materials, or express the understanding or empathy about breastfeeding in the workplace.

Communication theories and the Diffusion Theory were used in this study. The Diffusion Theory focuses on how ideas are spread among groups of people. The Diffusion Theory and other communication theories require sensitivity to values of the intended audience in order to effectively spread ideas, products, or practices among a group of people (Accredited in Public Relations, 2016). The results found in this study showed that employers were not sensitive toward working mothers who were trying to combine breastfeeding with the workplace. Therefore, the insensitivity towards this practice was related to lower breastfeeding duration. Employers can help improve the practice of breastfeeding in the workplace by communicating the support available for mothers and their new needs. For employers, learning how to recognize their audience and determining what type of communication that will work best for breastfeeding mothers will help mothers understand the support that is available for them to continue breastfeeding at work.

Most themes found in this study were negative. The overarching theme in the current study was that breastfeeding working mothers lacked sufficient time to breastfeed/pump in the workplace. Also, there was lack of an appropriate private room to pump. Even though many participants stated lack of time and appropriate place to breastfeed, breastfeeding duration did not increase among employers who had written policies regarding accommodations for breastfeeding mothers.

There were several limitations to the current study that may have affected the results. Recruiting businesses over the phone and email was extremely difficult. Over half of the businesses contacted were not willing to send out the questionnaire. Also, many participants did

not finish the entire questionnaire. Less than half of the participant questionnaires were used in analysis because they were either still breastfeeding, they did not answer most of the study questions or they lived outside of the state of North Dakota. Another limitation of this study is that it may not be generalized to a more diverse population. Most of the participants were Caucasian with a high education and high-income level. Future research should take this into consideration in order to get more generalizable results.

This study has concluded, based on the current data, that the environment when returning to work is related to breastfeeding duration. Breastfeeding mothers who returned to work with more perceived support from employers were able to reach their breastfeeding goals. Future research should focus on a breastfeeding mother's workplace environment and find ways to improve the workplace for mothers who want to continue breastfeeding their child. Future studies could also assess the knowledge of employers regarding their knowledge of their breastfeeding policies and to what extent they support their breastfeeding employees. In order to increase breastfeeding duration, research should be conducted to determine more effective ways to support breastfeeding mothers in the workplace.

REFERENCES

Accredited In Public Relations. (2016). *Communication models and theories.* Retrieved from http://www.praccreditation.org/resources/documents/APRSG-Comm-Models.pdf.

Ahmadi, M. & Moosavi, S. M. (2013). Evaluation of occupational factors on continuation of breastfeeding and formula initiation in employed mothers. *Global Journal of Health Science.* 5(6). 166-171.

American Academy of Pediatrics. (2017). *AAP reaffirms breastfeeding guidelines.* Retrieved from https://www.aap.org/en-us/about-the-aap/aap-press-room/pages/aap-reaffirms-breastfeeding-guidelines.aspx.

American Academy of Pediatrics. (2016). *AAP policy on breastfeeding and use of human milk.* Retrieved from https://www2.aap.org/breastfeeding/policyonbreastfeedinganduseofhumanmilk.html.

American Pregnancy Association. (2016). Maternity leave. Retrieved from http://americanpregnancy.org/planning/maternity-leave/.

Anderson, J., Kuehl, R., Drury, S., Tschetter, L., Schwaegerl, M., Hildreth M., . . . & Lamp, J. (2015). Policies aren't enough: The importance of interpersonal communication about workplace breastfeeding support. *Journal of Human Lactation,* 31(2), 260-266. doi: 10.1177/0890334415570059.

Atabay, E., Moreno, G., Nandi, A., Kranz, G., Vincent, I., . . . & Heymann, S. (2015). Facilitating working mothers' ability to breastfeed: Global trends guaranteeing breastfeeding at work. *Journal of Human Lactation*, 31(1), 81-88. doi: 10.1177/0890334414554806.

Avery, A. B. & Magnuss, J. H. (2011). Expectant fathers' and mothers' perceptions of breastfeeding and formula feeding: A focus group study in three US cities. *Journal of Human Lactation*, 27(2), 147-154. doi: 10.1177/0890334410395753.

Bai, D. L., Fong, D. Y., & Tarrant, M. (2015). Factors associated with breastfeeding duration and exclusivity in mothers returning to paid employment postpartum. *Maternal and Child Health Journal,* 19(5), 990-999. Doi:10.1007/s10995-014-1596-7.

Bai, Y. & Wunderlich, S. (2013). Lactation accommodation in the workplace and duration of exclusive breastfeeding. *Journal of Midwifery and Women's Health*, 58, 690-696. doi: 10.1111/jmwh.12072.

Bridges, C. B., Frank, D. I., & Curtin, J. (1997). Employer attitudes toward breastfeeding in the workplace. *Journal of Human Lactation*. 13(3), 215-219. doi: 10.1177/089033449701300310.

Brown, C., Poag, S., & Kasprzycki, C. (2001). Exploring large employers' and small employers' knowledge, attitudes, and practices on breastfeeding support in the workplace. *Journal of Human Lactation,* 17(1), 39-46. doi: 10.1177/089033440101700108.

Bureau of Labor Statistics. (2016). *Employment status of mothers with own children under 3 years old by single year of age of youngest child and marital status.* Retrieved from https://www.bls.gov/news.release/famee.t06.htm.

Businesstopia. (2017). Schramm's model of communication. Retrieved from https://www.businesstopia.net/communication/schramms-model-communication.

Centers for Disease Control and Prevention. (2016*). Breastfeeding Report Card*. Retrieved from https://www.cdc.gov/breastfeeding/pdf/2016breastfeedingreportcard.pdf.

Chow, T., Fuller, I., & Olson, B. (2011). Perspectives of managers toward workplace breastfeeding support in the state of Michigan. *International Lactation Consultant Association,* 27(20), 138-146. doi: 10.1177/0890334410391908.

Cohen, R., Myrtek, M. B., & Myrtek, R. G. (1995). Comparison of maternal absenteeism and infant illness rates among breastfeeding and formula-feeding women in two corporations. *American Journal of Health Promotion*, 10(2), 148-153. doi: 10.4278/0890-1171-10.2.148.

Communication Theory. (2010). Shannon and Weaver model of communication. Retrieved from http://communicationtheory.org/shannon-and-weaver-model-of-communication/.

Cross-Barnet, C., Augustyn, M., Gross, S., Resnik, A., & Paige, D. (2012). Long-term breastfeeding support: Failing mothers in need. *Maternal and Child Health Journal*, 16, 1926-1932. doi: 10.1007/s10995-011-0939-x.

Dagher, R., McGovern, P., Schold, J., & Randall, X. (2016). Determinants of breastfeeding initiation and cessation among employed mothers: A prospective cohort study. *BMC Pregnancy and Childbirth*, 16(194). doi 10.1186/s12884-016-0965-1.

Declercq, E., Sakala, C., Corry, M., Applebaum, S., & Herrlich, A. (June 2013). Listening to Mothers III: New mothers speak out. New York: Childbirth Connection.

Declercq, E.R., Sakala, C., Corry, M.P., & Applebaum, S. (October 2006). Listening to Mothers II: Birth by numbers. New York: Childbirth Connection.

Dodgson, J., Chee, Y. O., & Yap, T. S. (2003). Workplace breastfeeding support for hospital employees. *Journal of Advanced Nursing*, 47(1), 91-100. doi: 10.1111/j.1365-2648.2004.03070.x.

Dunn, B., Zavela, K., Cline, A., & Cost, P. (2004). Breastfeeding practices in Colorado businesses. *International Lactation Consultant Association,* 20(2), 170-177. doi:10.1177/0890334404263739.

Fein, S. B. & Roe, B. (1998). The effect of work status on initiation and duration of breast-feeding. *American Journal of Public Health*. 88, 1042-1046. doi: 10.2105/AJPH.88.7.1042.

Greene, S. W., Wolfe, E. W., & Olson, B. H. (2008). Assessing the validity of measures of an instrument designed to measure employees' perceptions of workplace breastfeeding support. *Breastfeeding Medicine,* 3(3), 159-163. doi: 10.1089/bfm.2007.0029.

Harmon-Jones, C. (2006). Duration, intensity, and exclusivity of breastfeeding: Recent research confirms the importance of these variables. *Breastfeeding Abstracts*, 25(3), 17-20.

Hirani, S. A., Karmaliani, R., Parpio, Y., & Rafique, G. (2013). Perceived Breastfeeding Support Assessment Tool (PBSAT): Development and testing of psychometric properties with Pakistani urban working mothers. *Midwifery & Women's Health*, 29(6), 599-607. doi:10.1016/j.midw.2012.05.003.

Infante, D., Rancer, A., & Womack, D. (1997). *Building communication theory*, Third Edition. Prospect Heights, IL: Waveland.

International Lactation Consultant Association. (2016). *What is an IBCLC?* Retrieved from http://www.ilca.org/main/why-ibclc/ibclc.

Johnson, A. M., Kirk, R., & Muzik, M. (2015). Overcoming workplace barriers: A focus group study exploring African American mothers' needs for workplace breastfeeding support. *Journal of Human Lactation*, 31(3), 425-433. doi: 10.1177/0890334415573001.

Khoury, A. J., Moazzem, S. W., Jarjoura, C. M., Carothers, C., & Hinton, A. (2005). Breastfeeding initiation in low-income women: Role of attitudes, support, and perceived control. *Women's Health Issues*, 12, 64-72. doi: 10.1016/j.whi.2004.09.003.

Kimbro, R. (2006). On-the-job moms: Work and breastfeeding initiation and duration for a sample of low-income women. *Maternal and Child Health Journal*, 10 (1), 19-26. doi: 10.1007/s10995-005-0058-7.

Kong, S. & Lee, D. (2004). Factors influencing decision to breastfeed. *Journal of Advanced Nursing,* 46(4), 369-379. doi: 10.1111/j.1365-2648.2004.03003.x.

Kornides, M. & Kitsantas, P. (2013). Evaluation of breastfeeding promotion, support, and knowledge of benefits on breastfeeding outcomes. *Journal of Child Health Care*, 17(3), 264-273. doi: 10.1177/1367493512461460.

Kosmala-Anderson, J. & Wallace, L. (2006). Breastfeeding works: The role of employers in supporting women who wish to breastfeed and work in four organizations in England. *Journal of Public Health*, 28(3), 183-191. doi: 10.1093/pubmed/fdl.012.

Kozhimannil, K. B., Jou, J., Gjerdingen, D. K., & McGovern, P. M. (2016). Access to workplace accommodations to support breastfeeding after passage of the affordable care act. *Women health Issues Journal*, 26(1), 6-13. doi: 10.1016/j.whi.2015.08.002.

Lewallen, L., Dick, M. J., Flowers, J., Powell, W., Zickefoose, K., . . . & Price, Z. (2005). Breastfeeding support and early cessation. *Association of Women's Health, Obstetrics and Neonatal Nurses*, 35, 166-172. doi: 10.1111.j.1552-6909.2006.00031.x.

Libbus, M. & Bullock, L. (2002). Breastfeeding and employment: An assessment of employer attitudes. *Journal of Human Lactation*, 18(3), 247-251. doi: 10.1177/089033440201800306.

Mathur, N. B. & Dhingra, D. (2014). Breastfeeding. *Indian Journal of Pediatrics*, 81(2), 143-149. doi: 10.1007/s12098-013-1153-1.

McCornack, S. (2013) *Reflect and relate: An introduction to interpersonal communication*. 3rd Edition. Boston, MA: Bedford/St. Martin's.

McIntyre, E., Hiller, J. E., & Turnbull, D. (1999). Breastfeeding in public places. *Journal of Human Lactation,* 15(2), p.131-135. doi: 10.1177/089033449901500211.

Mitra, A. K., Khoury, A. J., Hinton, A.W., & Carothers, C. (2004). Predictors of breastfeeding intention among low-income women. *Maternal and Child Health Journal,* 8(2), 65-70. doi: 10.1023/b.maci.0000025728.54271.27.

National Conference of State Legislature (2016). *Breastfeeding state laws.* Retrieved from http://www.ncsl.org/research/health/breastfeeding-state-laws.aspx.

North Dakota Department of Health. (2011). *North Dakota breastfeeding*. Retrieved from http://www.ndhealth.gov/breastfeeding/?id=60&page=For+Employers.

Office of the Surgeon General. (2011). *Barriers to Breastfeeding in the United States*. The Surgeon General's Call to Action to Support Breastfeeding. U.S. Library of Medicine. Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK52688/.

Parfitt, D. (1994). Influencing factors in American women's culture and the history of breastfeeding. *International Journal of Childbirth Education*. 9, 31-33. ISSN: 08878625.

Princeton University. (2017). Fragile families and child well-being study. Retrieved from https://fragilefamilies.princeton.edu

Public Health & Emergency Services. (2017). *Artificial baby milk*. Retrieved from http://chd.region.waterloo.on.ca/en/childFamilyHealth/artificialbabymilkformula.asp

Rogers, E.M. (2003). *Diffusion of innovations* (5th edition). Free Press: New York.

Rojjanasrirat, W. (2004). Working women's breastfeeding experiences. *The American Journal of Maternal and Child Nursing*, 29(4), 22-227. ISSN: 0361-929X.

Ryan, A. S., Zhou, W., & Arensberg, M. B. (2006). The effect of employment status on breastfeeding in the United States. *Women's Health Issues*, 16, 243-251. doi: 10.1016/j.whi.2006.08.001.

Sheriff, N., Hall, V., & Panton, C. (2014). Engaging and supporting fathers to promote breastfeeding: A concept analysis. *Journal of Midwifery*, 30(6), 667-677. doi: 10.1111/j.14716712.2010.00850.x.

Society for Human Resource Management. (2012). Breastfeeding breaks: What is the definition of "a private place" under the breastfeeding break provision of the Patient Protection and Affordable Care Act? Retrieved from https://www.shrm.org/resourcesandtools/tools-and-samples/hr-qa/pages/whatisaprivateplace.aspx.

Stevens, E., Patrick, T., & Pickler, R. (2009). A history of infant feeding. *Journal of Perinatal Education*, 18(2), 32-39. doi: 10.1624/105812409X426314.

Stewart-Knox, B., Gardiner, K., &Wright, M. (2003). What is the problem with breastfeeding? A qualitative analysis of infant feeding perceptions. *Journal of Human Nutrition and Dietetics*, 16, 265-273. doi: 10.1046/j.1365-277X.2003.00446.x.

United States Department of Labor. (2016). *Break time for nursing mothers*. Retrieved from https://www.dol.gov/whd/nursingmothers/.

Valizadeh, S., Hosseinzadeh M., Mohammadi E., Hassankhani, H., Fooladi M. M., & Schmied, V. (2017). Addressing barriers to health: Experience of breastfeeding mothers after returning to work. *Nursing & Health Sciences,* 19(1), 105-111. doi: 10.1111/nhs.12324

Weber, D., Janson, A., Nolan, M. Wen, L. M., & Rissel, C. (2011). Female employees' perceptions of organizational support for breastfeeding at work: Findings from an Australian health service workplace. *International Breastfeeding Journal*, 6(19). https://doi.org/10.1186/1746-4358-6-19

World Health Organization. (2017) *Breastfeeding.* Retrieved from http://www.who.int/maternal_child_adolescent/topics/newborn/nutrition/breastfeeding/en

World Health Organization. (2017). *Exclusive breastfeeding*. Retrieved from http://www.who.int/nutrition/topics/exclusive_breastfeeding/en/

Wright, A. L. & Schanler R. (2001). The resurgence of breastfeeding at the end of the second millennium. *Journal of Nutrition*, 131(2), 421S-425S.

APPENDIX A. IRB APPROVAL LETTER

NDSU NORTH DAKOTA STATE UNIVERSITY

November 9, 2016

Dr. Ardith Brunt
Health, Nutrition & Exercise Science

Re: IRB Certification of Exempt Human Subjects Research:
Protocol #HE17090, "Differences in Breastfeeding Duration Between Infant-Friendly Designated and Non-Designated Worksites"

Co-investigator(s) and research team: Elizabeth Hilliard, Madison Millner

Certification Date: 11/9/2016 Expiration Date: 11/8/2019
Study site(s): varied (TBD)
Sponsor: n/a

The above referenced human subjects research project has been certified as exempt (category # 2b) in accordance with federal regulations (Code of Federal Regulations, Title 45, Part 46, Protection of Human Subjects). This determination is based on the original protocol submission with revised consent (received 11/9/2016).

Please also note the following:
• If you wish to continue the research after the expiration, submit a request for recertification several weeks prior to the expiration.
• The study must be conducted as described in the approved protocol. Changes to this protocol must be approved prior to initiating, unless the changes are necessary to eliminate an immediate hazard to subjects.
• Notify the IRB promptly of any adverse events, complaints, or unanticipated problems involving risks to subjects or others related to this project.
• Report any significant new findings that may affect the risks and benefits to the participants and the IRB.

Research records may be subject to a random or directed audit at any time to verify compliance with IRB standard operating procedures.

Thank you for your cooperation with NDSU IRB procedures. Best wishes for a successful study.
Sincerely,

Kristy Shirley
Digitally signed by Kristy Shirley
DN: cn=Kristy Shirley, o=NDSU, ou=Institutional Review Board, email=kristy.shirley@ndsu.edu, c=US
Date: 2016.11.09 14:54:47 -06'00'

Kristy Shirley, CIP, Research Compliance Administrator

For more information regarding IRB Office submissions and guidelines, please consult http://www.ndsu.edu/research/integrity_compliance/irb/. This Institution has an approved FederalWide Assurance with the Department of Health and Human Services: FWA00002439.

INSTITUTIONAL REVIEW BOARD
NDSU Dept 4000 | PO Box 6050 | Fargo ND 58108-6050 | 701.231.8995 | Fax 701.231.8098 | ndsu.edu/irb
Shipping address: Research 1, 1735 NDSU Research Park Drive, Fargo ND 58102

APPENDIX B. PARTICIPANT RECRUITMENT EMAIL

Greetings,

My name is Madison Millner and I am a graduate student at North Dakota State University. I am conducting a research study to learn more about mothers' experiences with working and breastfeeding. The purpose of this study is to identify ways to better support mothers who choose to continue breastfeeding once they return to work. If you have had a baby between 2014 and 2016, please click on the link below to take the survey. The survey contains 85 questions, which are broken into small sections that will only take few minutes to complete. You do not need to complete the survey all at once. It should not take more than 30 minutes to finish the survey. More information on this study will be available when you click the survey link.

https://ndstate.co1.qualtrics.com/SE/?SID=SV_01Fc5oxMKTUiUcJ

Thank you for your participation and valuable input. Your responses are greatly appreciated and will be helpful in supporting working mothers.

Sincerely,

Madison Millner
Graduate Student
North Dakota State University

APPENDIX C. PARTICIPANT RECRUITMENT PHONE SCRIPT

Hello,

My name is Madison Millner and I am a graduate student at North Dakota State University. I am conducting a research study to learn more about the experiences of mothers who choose to continue breastfeeding their infant after returning to work. I am hoping to email a survey to women at various worksites in North Dakota, and was calling to ask your business for participation. The survey responses are confidential, so no individual woman will be identifiable. Women are asked to provide the name and county of their employer so the researchers can determine if the employer is designated as Infant Friendly in the State of North Dakota. Otherwise, the employer information will not be released or used in any other way. Once all surveys have been completed, a summary of the survey results from all employees will be compiled and distributed to employers. Again, this will not identify the employer or individual respondent. This research study has been approved by the Institutional Review Board at North Dakota State University (HE17090). Would your business be willing to distribute this online survey through email to employees?

APPENDIX D. PARTICIPANT SURVEY

Infant Friendly Worksite Survey (IFWS)_Elizabeth HilliardQ1 NDSU

North Dakota State University
Department of ----Health, Nutrition and Exercise Sciences
1310 Centennial Blvd., EML Hall 316
NDSU Dept. 2620
PO Box 6050
Fargo, ND 58108-6050
701.231.7474

Differences in Breastfeeding Duration Between Infant-Friendly Designated and Non-Designated Worksites

Dear Working Mother:

My name is Elizabeth Hilliard. I am a graduate student in the Department of Health, Nutrition and Exercise Sciences at North Dakota State University, and I am conducting a research project to determine the impact of the North Dakota Infant-Friendly business designation on breastfeeding duration in working women. It is our hope, that with this research, we will learn more about how to support women who choose to breastfeed their infants upon return to paid employment.

Because you are a working mother who has given birth in the last 2 years, you are invited to take part in this research project. Whether you breastfed upon return to work or not, we encourage you to complete the survey. Your participation is entirely your choice, and you may change your mind or quit participating at any time, with no penalty to you.

It is not possible to identify all potential risks in research procedures, but we have taken reasonable safeguards to minimize any known risks. These known risks include: emotional discomfort while responding to questions, or potential loss of confidentiality for your responses. You do not need to provide your name for this survey; however, we do ask that you identify the name and county of your employer. Individual survey responses will not be released to employers. Only data that has been compiled will be released so that no individual respondent can be identified.

It is unlikely that you will personally benefit by taking part in this survey. However, benefits to others and society are likely to include advancement of knowledge on supporting breastfeeding, working mothers, and identification of areas of improvement for the Infant-Friendly business designation.

It should take about 30 minutes to complete the entire survey. The survey is divided into 14 sections with 1 – 7 questions each. Each section should take no more than 5 minutes to complete. The survey does not have to be completed in one sitting as long as you use the same computer or mobile device each time you open it. Questions will cover a variety of topics from basic demographic data, personal experience with breastfeeding, your worksites breastfeeding support policies and accommodations, and family support for breastfeeding. There is no compensation

available for completing the survey. However, the data that you provide will be critical in furthering the support for breastfeeding, working mothers in North Dakota.

We will keep private all research records that identify you. The identifying information will be the name and county of your employer. Your name will not be collected. Your information will be combined with information from other people taking part in the study, and we will write about the combined information that we have gathered. You will not be identified in these written materials. We may publish the results of the study; however, we will keep your name and other identifying information private. Additionally, we will not provide employers with individual response data, so they will not be able to identify you. By completing and submitting the survey, you are providing consent for us to use your data for analysis and publication.

If you have any questions about this project, please contact me at 701-231-7480 or Elizabeth.hilliard@ndsu.edu , or contact my advisor Dr. Ardith Brunt at 701-231-7475 or aridth.brunt@ndsu.edu. You have rights as a research participant. If you have questions about your rights or complaints about this research, you may talk to the researcher or contact the NDSU Human Research Protection Program at 701.231.8995, toll-free at 1-855-800-6717, by email at ndsu.irb@ndsu.edu, or by mail at: NDSU HRPP Office, NDSU Dept. 4000, P.O. Box 6050, Fargo, ND 58108-6050.

Thank you for your taking part in this research. If you wish to receive a copy of the results, please contact Elizabeth Hilliard at 701-231-7480 or Elizabeth.hilliard@ndsu.edu. If you would like to participate, please click the response option below. If you do not wish to participate, close the survey.

- ❍ I agree to participate and give consent for my responses to be used for research (1)

Q2 Section A: Recent birth (7 questions) This section will take approximately 2 minutes to complete.

Q3 1. Did you give birth between 2014 and 2016?

- ❍ Yes (2)
- ❍ No (1)

If No Is Selected, Then Skip to End of Survey

Q4 What was the date you gave birth between 2014 and 2016? mm/dd/yyyy

Q5 2. How many weeks pregnant were you when you gave birth to the child born between 2014 - 2016?

- ❍ Less than 28 weeks (1)
- ❍ More than 28 weeks but less than 32 weeks (2)
- ❍ More than 32 weeks but less than 37 weeks (3)
- ❍ More than 37 but less than 40 weeks (4)
- ❍ More than 40 weeks (5)

Q6 3. How many infants were born during this pregnancy?
- ❍ 1 (1)
- ❍ 2 (2)
- ❍ 3 (3)
- ❍ More than 3 (4)

Q7 4. What is your relationship with the child's father?
- ❍ We are married (1)
- ❍ We are not married but living together (2)
- ❍ We are married but live apart (3)
- ❍ We are not married and live apart (4)
- ❍ We are separated but have contact with each other (5)
- ❍ We have no contact at all (6)
- ❍ Other (7) _____

Q8 5. How many times have you given birth?
- ❍ 1 (1)
- ❍ 2 (2)
- ❍ 3 (3)
- ❍ 4 (4)
- ❍ More than 4 (5)

Q9 6. How many children have you breastfed?
- ❍ 1 (1)
- ❍ 2 (2)
- ❍ 3 (3)
- ❍ 4 (4)
- ❍ More than 4 (5)

Q10 Section B: Prenatal work history (2 questions) The next section includes questions about your place of employment during your pregnancy with the child born between 2014 and 2016. This should take you 1 minute to complete.

Q11 1. Were you employed during this pregnancy?
- ❍ Yes, part - time for someone else (less than 30 hours per week) (1)
- ❍ Yes, full – time for someone else (more than 30 hours per week) (2)
- ❍ Yes – part - time, self employed (3)
- ❍ Yes – full – time, self employed (4)
- ❍ No (5)
- ❍ Not sure (6)
- ❍ Decline to answer (7)

Q12 2. Were you employed with your current employer during this pregnancy?
- ❍ Yes (1)
- ❍ No, employed with a different employer (2)
- ❍ No, not employed during this pregnancy (3)
- ❍ Not sure (4)
- ❍ Decline to answer (5)

Q13 Section C: Infant feeding intentions and practices (10 questions) The next section asks questions about how you fed the child born between 2014 and 2016. This should take you 3 minutes to complete.

Q14 1. During your most recent pregnancy, how had you hoped to feed your baby?
- ❍ Breast milk only (1)
- ❍ Formula only (2)
- ❍ A combination of breast milk and formula (3)
- ❍ Not sure (4)
- ❍ Decline to answer (5)

Q15 2. How are you currently feeding your child?
- ❍ Breast milk only □ (1)
- ❍ Formula only □ (2)
- ❍ Both breast milk and formula □□ (3)
- ❍ Both breast milk and solid food □ (4)
- ❍ Both formula and solid food □ (5)
- ❍ All three: breast milk, formula and solid food □ (6)
- ❍ Solid food, and whole or low fat cow's milk (7)
- ❍ Other (8) _____
- ❍ Not sure (9)
- ❍ Decline to answer (10)

Q16 3. If you are currently feeding your child breast milk, how does your child receive it?
- ❍ From my breast (1)
- ❍ From a bottle (pumped milk) (2)
- ❍ From my breast and a bottle (3)
- ❍ From a cup (4)
- ❍ From my breast and a cup (5)
- ❍ Other (6) _____
- ❍ Decline to answer (7)
- ❍ I am not feeding my child any breast milk at this time (8)

Q17 4. How long did you continue to feed your baby with breast milk only (meaning no formula, juice, water, or cow's milk)? If you are not sure, then give your best estimate. If you did not breastfeed or breastfed only for less than 1 week, select 0 months.

- ❍ 0 months (1)
- ❍ 1 week (2)
- ❍ 2 weeks (3)
- ❍ 3 weeks (4)
- ❍ 1 month (5)
- ❍ 2 months (6)
- ❍ 3 months (7)
- ❍ 4 months (8)
- ❍ 5 months (9)
- ❍ 6 months (10)
- ❍ 7 months (11)
- ❍ 8 months (12)
- ❍ I am still providing breast milk only (13)
- ❍ Not sure (14)
- ❍ Decline to answer (15)

Q18 5. How old was your baby when you stopped feeding him/her breast milk – that is when was your baby was completely weaned? If less than one month, enter 0.

- ❍ Months (1) _____
- ❍ Not yet weaned (2)

Q19 6. Did you meet your breastfeeding goal?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Decline to answer (3)
- ❍ I did not intend to breastfeed (4)

Q20 7. Please explain your response to question 6.

Q21 Please indicate how much you agree with the following questions.

	Strongly Agree (5)	Agree (4)	Somewhat Agree (3)	Disagree (2)	Strongly Disagree (1)
8. I believe breastfeeding is a healthy way to feed babies. (1)	❍	❍	❍	❍	❍
9. I was confident that I would be able to successfully breastfeed my child. (2)	❍	❍	❍	❍	❍
10. I was confident in my ability to combine breastfeeding and working. (3)	❍	❍	❍	❍	❍

Q22 Section D: Maternity leave (7 questions) This section includes questions about the maternity leave benefits available to you for the child born between 2014 and 2016. This should take you 3 minutes to complete.

Q23 1. After giving birth, which of the following types of leave did you use to stay home with your baby? Please mark all that apply.

- ❑ Sick leave (1)
- ❑ Vacation leave (2)
- ❑ Paid time off (PTO) (3)
- ❑ Short term disability (4)
- ❑ None of above, my employer offered paid maternity leave (5)
- ❑ Other (6) _____
- ❑ Decline to answer (7)

Q24 2. While you were on leave, for how many weeks did you receive pay? If you are not sure, give your best estimate.

Q25 3. What percentage of your regular pay did you receive? If you are not sure, give your best estimate.

Q26 4. How many weeks after giving birth did you return to work? If you are not sure, give your best estimate. If you are still on leave write “still on leave.”

Q27 5. How much do you agree with this statement? I had enough leave (paid and/or unpaid) to get breastfeeding started before going back to work.

- Strongly Agree (5)
- Agree (4)
- Somewhat Agree (3)
- Disagree (2)
- Strongly Disagree (1)

Q28 6. In many countries, new mothers have fully paid maternity leave, health insurance, and job protection. If you had this type of support, what would be the ideal amount of time off to be with your baby? In Months please.

Q29 7. Please explain your answer to question 6.

Q30 Section E: Full-time or part- time work (7 questions) This section asks questions about whether you worked full-time or part-time after your birth between 2014 and 2016. This should take you 3 minutes to complete.

Q31 1. Where were you employed after the birth of your child born between 2014 and 2016? This information will not be shared with your employer, but is very important to the purpose of this research study.

Write in the name of the employer: (1)
County of employer: (2)

Q32 2. Was your employer designated as "Infant Friendly" by the State of North Dakota Department of Health?

- Yes (1)
- No (2)
- Not sure (3)
- Decline to answer (4)

Q33 3. How would you categorize the type of work you did when you returned to work after your 2014 to 2016 birth?

- Professional/technical (1)
- Executive/administration/ managerial (2)
- Sales (3)
- Administrative support (4)
- Precision production/craft/repair (5)
- Machine operator/ assembly/inspection (6)
- Transportation/material moving (7)
- Handler/equipment cleaner/laborer (8)
- Service (not private household) (9)
- Military farming/agriculture (10)
- Other (11) _____

Q34 4. When you did return to work, was it…?
- Part - time for the same pre-birth employer (on average, less than 30 hours a week) (1)
- Full - time for the same pre-birth employer (on average, 30 or more hours a week) (2)
- Part - time for a different employer (on average, less than 30 hours a week) (3)
- Full - time for a different employer (on average, 30 or more hours a week) (4)
- Part - time (self-employed) (5)
- Full - time (self-employed) (6)
- Not sure (7)
- Decline to answer (8)

Q35 5. How much do you agree with the following statement? The number of hours I worked made it difficult to continue breastfeeding as long as I wanted to.
- Strongly Agree (5)
- Agree (4)
- Somewhat Agree (3)
- Disagree (2)
- Strongly Disagree (1)

Q37 6. Upon returning to work after this birth, how challenging was breastfeeding?
- Not a challenge (1)
- A minor challenge (2)
- A major challenge (3)
- I did not breastfeed upon returning to work (4)

Q36 Please explain your answer for question 5

Q38 Section F: Education on combining work and breastfeeding (8 questions) This section asks questions about whether you received any information on how to combine breastfeeding and working for the child born between 2014 and 2016. This should take you 2 minutes to complete.

Q39 Please indicate how much you agree with questions 1 - 6.

	Strongly Agree (5)	Agree (4)	Somewhat Agree (3)	Disagree (2)	Strongly Disagree (1)
1. During my pregnancy, my health care provider discussed breastfeeding with me and/or provided educational materials on breastfeeding. (1)	❍	❍	❍	❍	❍
2. During my pregnancy, my employer provided educational materials about breastfeeding and working. (2)	❍	❍	❍	❍	❍
3. When my child was born, I received breastfeeding education or support from the nursing staff at the hospital. (3)	❍	❍	❍	❍	❍
4. Before I returned to work, my employer provided educational materials about breastfeeding and working. (4)	❍	❍	❍	❍	❍
5. My employer provided a lactation consultant. (5)	❍	❍	❍	❍	❍
6. My employer provided me with information on breastfeeding resources available in our community (such as local lactation consultants or support groups). (6)	❍	❍	❍	❍	❍

Q40 7. Which of the following community breastfeeding resources are you aware of? Please mark all that apply.

- ❑ Visiting nurses (1)
- ❑ Parenting classes (2)
- ❑ WIC (Women, Infants, and Children) (3)
- ❑ Local lactation support group (4)
- ❑ Local lactation consultant clinic (5)
- ❑ La Leche League (6)
- ❑ Well baby clinics or check-ups (7)
- ❑ Other (8) _____

Q41 8. Since your most recent birth, have you received help from any of the following agencies or programs? Please mark all that apply.

- ❑ Visiting nurses (1)
- ❑ Parenting classes (2)
- ❑ WIC (Women, Infants, and Children) (3)
- ❑ Local lactation support group (4)
- ❑ Local lactation consultant clinic (5)
- ❑ La Leche League (6)
- ❑ Well baby clinics or check-ups (7)
- ❑ Other (8) _____

Q42 Section G: Support from family (7 questions) This section asks questions about how your family supported your breastfeeding efforts for the child born between 2014 and 2016. This should take you 3 minutes to complete. Please indicate how much you agree with each of the following statements.

Q43 1. My partner supported breastfeeding.

- ❍ Strongly Agree (1)
- ❍ Agree (2)
- ❍ Somewhat Agree (3)
- ❍ Disagree (4)
- ❍ Strongly Disagree (5)
- ❍ Not applicable (6)

Q44 2. My family supported breastfeeding.

- ❍ Strongly Agree (5)
- ❍ Agree (4)
- ❍ Somewhat Agree (3)
- ❍ Disagree (2)
- ❍ Strongly Disagree (1)

Q45 3. Which family members were most influential in your breastfeeding decisions?

- ❍ Partner (1)
- ❍ Mother (2)
- ❍ Grandmother (3)
- ❍ Sister (4)
- ❍ Aunt (5)
- ❍ Cousin (6)
- ❍ Other (7) _____
- ❍ None of my family was influential (8)
- ❍ Don't know (9)

Q46 4. Please explain how your family influenced your breastfeeding decisions.

Q47 5. My family encouraged me to continue breastfeeding when I returned to work.
- ❍ Strongly Agree (5)
- ❍ Agree (4)
- ❍ Somewhat Agree (3)
- ❍ Disagree (2)
- ❍ Strongly Disagree (1)

Q48 6. My partner encouraged me to continue breastfeeding when I returned to work.
- ❍ Strongly Agree (5)
- ❍ Agree (4)
- ❍ Somewhat Agree (3)
- ❍ Disagree (2)
- ❍ Strongly Disagree (1)
- ❍ Not applicable (0)

Q49 7. Please explain how your partner influenced your breastfeeding decisions

Q50 Section H: Childcare (2 questions) This section asks questions about the childcare options you had for the child born between 2014 and 2016.

Q51 1. While you are working, who takes care of this child? Please select all that apply.
- ❑ Family member or friend (1)
- ❑ A nanny or sitter at my home (2)
- ❑ A home daycare provider (3)
- ❑ Staff at a child care center away from my worksite (4)
- ❑ Staff at a child care center at my worksite (5)
- ❑ I keep my baby at work with me (6)
- ❑ Other (7) _____

Q52 2. How much do you agree with the following statement? My baby's caregivers are supportive of breastfeeding.
- ❍ Strongly Agree (5)
- ❍ Agree (4)
- ❍ Somewhat Agree (3)
- ❍ Disagree (2)
- ❍ Strongly Disagree (1)
- ❍ Not Applicable (0)

Q53 Section I: Workplace support for breastfeeding (5 questions) This section asks questions about how your worksite supported breastfeeding the child born between 2014 and 2016. This should take you 2 minutes to complete.

Q54 Please indicate how much you agree with the following statements

	Strongly Agree (5)	Agree (4)	Somewhat Agree (3)	Disagree (2)	Strongly Disagree (1)	Not Sure (6)
1. My employer had written policies for employees that are breastfeeding or pumping breast milk. (1)	❍	❍	❍	❍	❍	❍
2. Breastfeeding was common in my workplace. (2)	❍	❍	❍	❍	❍	❍
3. My job was at risk (e.g., job loss, loss of scheduled hours, loss of opportunities for advancement) if I chose to breastfeed or pump breast milk at work. (3)	❍	❍	❍	❍	❍	❍
4. I was comfortable asking for accommodations to help me breastfeed or pump breast milk at work. (4)	❍	❍	❍	❍	❍	❍

Q55 5. Please explain how your employer supported or didn't support your breastfeeding efforts. Write your answers below.

Q56 Section J: Coworker support for breastfeeding (5 questions) This section asks about the support you received from coworkers while breastfeeding the child born between 2014 and 2016. This should take you 2 minutes to complete.

Q57 Please indicate how much you agree with the following statements.

	Strongly Agree (5)	Agree (4)	Somewhat agree (3)	Disagree (2)	Strongly disagree (1)	Not Sure (6)
1. My coworkers willingly cover for me when I need to pump breast milk. (1)	❍	❍	❍	❍	❍	❍
2. My coworkers would help me find a place to breastfeed or pump breast milk if I needed it. (2)	❍	❍	❍	❍	❍	❍
3. My coworkers said things that made me think they supported my breastfeeding efforts. (3)	❍	❍	❍	❍	❍	❍
4. My coworkers listen to me talk about my breastfeeding experience. (4)	❍	❍	❍	❍	❍	❍

Q58 5. Please explain how your coworkers supported or didn't support your breastfeeding efforts.

Q59 Section K: Manager support for breastfeeding (6 questions) This section asks questions about the support you received from your manager while breastfeeding the child born between 2014 and 2016. This should take you 2 minutes to complete.

Q60 Please indicate how much you agree with the following statements.

	Strongly Agree (5)	Agree (4)	Somewhat Agree (3)	Disagree (2)	Strongly Disagree (1)	Not Sure (6)
1. My manager helped me adjust my workload so I could breastfeed or pump breast milk at work. (1)	❍	❍	❍	❍	❍	❍
2. My manager considered it part of his/her job to help me combine breastfeeding and work. (2)	❍	❍	❍	❍	❍	❍
3. My manager supported my breastfeeding or pumping breast milk at work. (3)	❍	❍	❍	❍	❍	❍
4. My manager said things that make me think he/she supported my breastfeeding efforts. (4)	❍	❍	❍	❍	❍	❍
5. I talked with my manager about my breastfeeding needs while at work. (5)	❍	❍	❍	❍	❍	❍

Q61 6. Please explain how your manager supported or didn't support your breastfeeding efforts.

Q62 Section L: Physical environment for breastfeeding (9 questions) This section asks questions about where you were able to express milk and what equipment was available to you at work to breastfeed the child born between 2014 and 2016. This should take you 2 minutes to complete.

Q74 Where did you pump your breast milk while at work? Please mark all that apply.

- ❑ My private office (1)
- ❑ A coworker's private office (2)
- ❑ A bathroom (3)
- ❑ A closet (4)
- ❑ The designated worksite pumping/nursing room (5)
- ❑ I did not pump breast milk while at work (6)
- ❑ Other (7) _____

Q63 Please indicate how much you agree with the following statements.

	Strongly Agree (5)	Agree (4)	Somewhat Agree (3)	Disagree (2)	Strongly Disagree (1)	Not Sure (6)
1. While at work, I could easily find a quiet place, other than the bathroom, to breastfeed or pump breast milk. (1)	❍	❍	❍	❍	❍	❍
2. My workplace provided a designated place for breastfeeding or pumping breast milk. (2)	❍	❍	❍	❍	❍	❍
3. The designated place for breastfeeding or pumping breast milk was available when I needed it. (3)	❍	❍	❍	❍	❍	❍
4. The designated place for breastfeeding or pumping breast milk was satisfactory. (4)	❍	❍	❍	❍	❍	❍

Q64 5. The designated place for breastfeeding or pumping included the following (mark all that apply):

- ❑ A comfortable chair (1)
- ❑ A working electrical outlet (2)
- ❑ A table (3)
- ❑ A sink for hand washing (or a sink near the room) (4)
- ❑ An electric breast pump (5)
- ❑ A telephone (6)
- ❑ A computer (7)
- ❑ Adequate lighting (8)
- ❑ A diaper changing area (9)
- ❑ A locking door (10)
- ❑ Privacy (11)

Q65 Please indicate how much you agree with the following statements.

	Strongly Agree (5)	Agree (4)	Somewhat Agree (3)	Disagree (2)	Strongly Disagree (1)
6. My workplace had a refrigerator that I could use to store my milk. (1)	❍	❍	❍	❍	❍
7. My workplace had a breast pump available for breastfeeding mothers to use. (2)	❍	❍	❍	❍	❍
8. I was made aware of the expectations for using and maintaining the designated space for breastfeeding or pumping breast milk. (3)	❍	❍	❍	❍	❍

Q66 Section M: Breaks (6 questions) This section asks questions about your break schedule at work while you were breastfeeding the child born between 2014 and 2016. This should take you 2 minutes to complete.

Q67 Please indicate how much you agree with the following statements.

	Strongly Agree (5)	Agree (4)	Somewhat Agree (3)	Disagree (2)	Strongly Disagree (1)
1. My breaks were frequent enough for breastfeeding or pumping breast milk. (1)	❍	❍	❍	❍	❍
2. My breaks were long enough for breastfeeding or pumping breast milk. (2)	❍	❍	❍	❍	❍
3. Some days I would need to skip a breastfeeding or pumping session because my work schedule was too hectic. (3)	❍	❍	❍	❍	❍
4. I could adjust my break schedule in order to breastfeed or pump breast milk. (4)	❍	❍	❍	❍	❍
5. I feel comfortable taking the breaks during work hours to pump breast milk. (5)	❍	❍	❍	❍	❍

Q68 6. Are there any other accommodations that would have been beneficial in helping you continue to breastfeed after returning to work?

Q69 Section N: Demographic data (4 questions) This section asks questions ask about other things that have been shown to affect how long women breastfeed. Please respond to as many questions as you feel comfortable answering. This should take you 2 minutes to complete.

Q70 1. What is your current age?

Q71 2. What is the highest level of education you have completed or the highest degree you have received?

- ❍ Less than high school □ (1)
- ❍ Some high school □ (2)
- ❍ High school or equivalent (e.g., GED) □ (3)
- ❍ Some college, but no degree □ (4)
- ❍ Associate's degree (5)
- ❍ College (Bachelor's degree) □ (6)
- ❍ Some graduate school, but no degree □ (7)
- ❍ Graduate school (e.g., Master's degree or Doctor of Philosophy) □ (8)
- ❍ Not sure (9)
- ❍ Decline to answer (10)

Q72 3. Which of the following best describes your family/household income before taxes?

- ❍ Less than $15,000 □ (1)
- ❍ $15,000 to $24,999 □ (2)
- ❍ $25,000 to $34,999 □ (3)
- ❍ $35,000 to $49,999 □ (4)
- ❍ $50,000 to $74,999 □ (5)
- ❍ $75,000 to $99,999 □ (6)
- ❍ Above $100,000 (7)
- ❍ Not sure (8)
- ❍ Decline to answer (9)

Q73 4. Do you consider yourself….? (Mark all that apply)

- ❑ White (1)
- ❑ Black (2)
- ❑ African American (3)
- ❑ Asian or Pacific Islander (4)
- ❑ Native American or Alaskan Native (5)
- ❑ Mixed racial background (6)
- ❑ Other race (7) _____
- ❑ Not sure (8)
- ❑ Decline to answer (9)

APPENDIX E. INFORMED CONSENT

NDSU **North Dakota State University**
Department of Health, Nutrition and Exercise Sciences
1310 Centennial Blvd., EML Hall 316
NDSU Dept. 2620
PO Box 6050
Fargo, ND 58108-6050
701.231.7474

Differences in Breastfeeding Duration Between Infant-Friendly Designated and Non-Designated Worksites

Dear Working Mother:

My name is Madison Millner. I am an Exercise/ Nutrition Science graduate student at North Dakota State University, and I am conducting a research study to determine the impact of breastfeeding mothers returning to work and how that impacts their decision to continue breastfeeding to the recommended amount of time. It is our hope, that with this research, we will learn more about how to support women who choose to breastfeed their infants upon return to paid employment.

Because you are a working mother who has given birth in the last 2 years, you are invited to take part in this research project. Whether you breastfed upon return to work or not, we encourage you to complete the survey. Your participation is entirely your choice, and you may change your mind or quit participating at any time, with no penalty to you.

It is not possible to identify all potential risks in research procedures, but we have taken reasonable safeguards to minimize any known risks. These known risks include: emotional discomfort while responding to questions, or potential loss of confidentiality for your responses. You do not need to provide your name for this survey; however, we do ask that you identify the name and county of your employer. Individual survey responses will not be released to employers. Only data that has been compiled will be released so that no individual respondent can be identified.

It is unlikely that you will personally benefit by taking part in this survey. However, benefits to others and society are likely to include advancement of knowledge on supporting breastfeeding, working mothers, and identification of areas of improvement for the Infant-Friendly business designation.

It should take about 30 minutes to complete the entire survey. The survey is divided into 14 sections with 1 – 7 questions each. Each section should take no more than 5 minutes to complete.

The survey does not have to be completed in one sitting as long as you use the same computer or mobile device each time you open it. Questions will cover a variety of topics from basic demographic data, personal experience with breastfeeding, your worksites breastfeeding support policies and accommodations, and family support for breastfeeding. There is no compensation available for completing the survey. However, the data that you provide will be critical in furthering the support for breastfeeding, working mothers in North Dakota.

We will keep private all research records that identify you. The identifying information will be the name and county of your employer. Your name will not be collected. Your information will be combined with information from other people taking part in the study, and we will write about the combined information that we have gathered. You will not be identified in these written materials. We may publish the results of the study; however, we will keep your name and other identifying information private. Additionally, we will not provide employers with individual response data, so they will not be able to identify you. By completing and submitting the survey, you are providing consent for us to use your data for analysis and publication.

If you have any questions about this project, please contact me at 218-242-2807 or madison.millner@ndsu.edu, or contact my advisor Dr. Ardith Brunt at 701-231-7475 or aridth.brunt@ndsu.edu.

You have rights as a research participant. If you have questions about your rights or complaints about this research, you may talk to the researcher or contact the NDSU Human Research Protection Program at 701.231.8995, toll-free at 1-855-800-6717, by email at ndsu.irb@ndsu.edu, or by mail at: NDSU HRPP Office, NDSU Dept. 4000, P.O. Box 6050, Fargo, ND 58108-6050.

Thank you for your taking part in this research. If you wish to receive a copy of the results, please contact Madison Millner at 218-242-2807 or madison.millner@ndus.edu as well as Elizabeth Hilliard at 701-231-7480 or Elizabeth.hilliard@ndsu.edu.