HOW DO KNOWLEDGE AND ATTITUDES RELATE TO THE INITIATION OF BREASTFEEDING IN NATIVE AMERICAN WOMEN IN A NORTH DAKOTA HEALTH CARE FACILITY?

by

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July 2012
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ABSTRACT

Despite research consistently demonstrating the benefits of breastfeeding, Native American women in North Central North Dakota have the lowest rate of breastfeeding in North Dakota with a rate of 8.24%. The reasons why these women are not breastfeeding are not known. There have been no studies regarding the attitudes and knowledge about breastfeeding of these women or their health care professionals. The purpose of this study was to assess the knowledge and attitudes about breastfeeding in this population. Thirteen pregnant women, ten women who have given birth, and twelve health care professionals who provide care to these women comprised the sample of this descriptive study. The results of the surveys demonstrated that these women knew the benefits of breastfeeding but the majority of them did not breastfeed their infants. Attitudes seem to be a more relevant factor than knowledge in influencing breastfeeding initiation in this sample of women. Health care providers should be aware that their own attitude toward breastfeeding may affect a woman’s choice to breastfeed. Results also demonstrated the health care professionals had limited education about infant feeding, lactation, and breastfeeding. These health care providers may be providing conflicting and possibly incorrect knowledge about breastfeeding. Current evidence based breastfeeding recommendations and practices should be incorporated into continuing education so consistent and correct information is provided. Health systems should establish a baby friendly environment that supports and encourages breastfeeding. In addition, the unique characteristics of the Native American women in North Central North Dakota, or any community in which one lives or works, should be considered to better plan interventions that will be effective and sustainable. It is not one identifiable factor that the decision to breastfeed is dependent upon, but factors that may interact and overlap in ways to influence a women’s decision to breastfeed. Understanding context is vital to designing and implementing successful interventions in breastfeeding promotion. Culturally relevant information gathered from this population may not be transferable to others in this particular tribe who may live somewhere else or to other Native American tribes, as their specific cultural attributes may be different from this particular tribe.
Native American people are faced with significant health disparities when compared to the general population (United States Department of Health and Human Services, 2011). One way researchers have found to help reduce many of these disparities is breastfeeding (Centers for Disease Control & Prevention, 2012). Both babies and mothers gain benefits from breastfeeding. Studies have found that breast milk contains antibodies that protect infants from bacterial and viral infections. In addition, studies have found breastfeeding to be associated with a decrease incidence of common childhood infections, such as diarrhea (IP, Chung, Ramen, Chew & Magula, & DeVine et al, 2007) and ear infection (Chien & Howie, 2001). Breastfeeding has also been associated with lower risks for major chronic disease and conditions such as type II diabetes (Owen & Howie, 2006), asthma (IP & Chung et al, 2007), and childhood obesity (Arenz, Rucker, Koletzko, & Kries, 2004). Breastfed babies also have a decreased risk for lower respiratory infections and leukemia (IP & Chung et al, 2007). In addition, breastfed children are less likely to become overweight or obese later in life, (Chung, Raman, Trikalinos, Lau & Ip, 2008). IP & Chung et.al (2007) found risk of sudden infant death syndrome is higher among infants who are never breastfed. Research also indicates that women who breastfeed may have lower rates of certain breast and ovarian cancers (IP & Chung et.al, 2007).
Despite research consistently demonstrating the benefits of breastfeeding, Native American women in North Central North Dakota have the lowest rate of breastfeeding in North Dakota with a rate of 8.24% at discharge from hospital (North Dakota Department of Health, 2010). The reasons why Native American women in North Central North Dakota are not breastfeeding are not known. There have been no studies regarding the attitudes and knowledge of breastfeeding of women or the health care professional’s that care for them in a North Central Native Community. Therefore, the purpose of this study was to assess the knowledge and attitudes about breastfeeding in 1) Native American pregnant women, 2) Native American women who have ever had a biological child, and 3) health care professionals who provide care to Native American women.

The North Dakota Department of Health collects information regarding infant feeding methods 24 hours after and when data for the birth certificate is reported. The 2010 North Dakota Department of Health report on breastfeeding showed that all North Dakota hospitals had an exclusively breastfeeding rate of 64% and a feeding method of partial formula and partial breast milk rate of 75% (United States Department of Health and Human Services, 2011). The report demonstrated that one North Central North Dakota Hospital that primarily serves Native American’s reported a feeding method of exclusively breastfeeding rate of 14% and a feeding method of partial formula and partial breast milk rate of 33% This hospital’s 2010 rate for exclusively breastfeeding and rate for partial formula and partial breastfeeding were the lowest rates of all 14 hospitals in North Dakota with greater than 50 live births. Furthermore, data gathered from the birth certificate in response to the question, “Was infant breastfed at time of discharge?”
revealed a rate of 8.24% at time of discharge, compared to 71.34% for all hospitals in North Dakota.

Global and national initiatives have developed over the past several years in an effort to promote and increase the incidence of breastfeeding. One of these programs is the Baby-Friendly Hospital Initiative (BFHI), which is sponsored by the World Health Organization and the United Nations Children’s Fund. The BFHI encourages hospitals to offer an optimal level of care for infant feeding by assisting the hospitals in giving mothers the information, confidence, and skills necessary to initiate breastfeeding.

Healthy People, managed by the United States Department of Health and Human Services, provide science-based, ten-year national objectives for improving the health of all Americans. Healthy People has established breastfeeding benchmarks and monitored progress over time. The Healthy People 2010 breastfeeding target was 75%. As of 2010, 75% of babies born in the United States were initially breastfed, meeting the Healthy People 2010 goal (CDC, 2010). The Healthy People 2020 breastfeeding target has been increased to 81.9%

Despite global attention and efforts to improve breastfeeding rates, unacceptable disparities in breastfeeding have persisted by race/ethnicity, socioeconomic characteristics, and geography (U.S Department of Health and Human Services, Office of the Surgeon General, 2011). Native American communities are faced with significant health disparities every day. Obesity and diabetes are two of these health disparities that affect Native Americans at disproportionate rates. Studies have shown that breastfeeding is associated with reduced risk for childhood obesity (Kuperberg & Evers, 2006) and type
II diabetes (Petitt, 1997). The Indian Health Service, an agency of the Department of Health and Human Services, in their division of Diabetes Treatment and Prevention recommends exclusive breastfeeding as a primary clinical strategy in the promotion of healthy weight in children and youth (Indian Health Service, 2008). Breastfeeding is recognized by the Centers for Disease Control and Prevention (CDC, 2007) as a primary strategy to reduce childhood obesity.

The compelling advantages that breastfeeding offers and the health disparities that affect Native Americans demonstrates that the low breastfeeding initiation rate among some Native American Indians in North Dakota is a significant health issue. The factors that contribute to the low breastfeeding initiation rates need to be assessed to help find ways to solve this problem. The reasons for the persistently lower rates of breastfeeding among Native American women in North Central North Dakota are not well understood. There have been numerous studies that have hypothesized various factors that are associated with the decision to breastfeed in general. However, there are no studies that are about Native American women in North Dakota that identify any factors that would account for the significant decrease of the breastfeeding initiation rate among Native American women.

Background

Native Americans in North Central North Dakota, with a breastfeeding initiation rate of 8.24%, have a significantly lower breastfeeding initiation rate than that of other populations in North Dakota, which has a breastfeeding initiation rate of 75% (North
Dakota Department of Health, 2010) and the United States, which has a breastfeeding rate of 75% (Centers for Disease Control, 2010). Even though there are numerous studies that demonstrate the benefits of breastfeeding in general, there is not an understanding of why some women do not breastfeed their babies. It is possible that there are special social and cultural considerations among Native Americans that influence infant feeding choices. The American Academy of Pediatrics (AAP) (2005) identified several societal barriers to breastfeeding, which include the lack of support and comfort with breastfeeding as well as the media’s portrayal of bottle feeding as normative (AAP, 2005). Infant formula is often promoted commercially through hospital discharge packets, free coupons targeted at pregnant and post-partum women as well as television and magazine advertising (AAP, 2005).

In addition, the knowledge and attitudes of health care providers play an important role in assisting women in choosing to initiate and be successful with breastfeeding. The United States Office of Minority Health, Department of Health and Human Services (2012), cites that the ability of health care providers to be culturally competent is a major factor in decreasing health care disparities among racial or ethical minority groups. Without cultural knowledge and sensitivity, the health care professional takes the risk of misunderstandings occurring when promoting and supporting breastfeeding.
Purpose of the Study

The purpose of this study is to assess the knowledge and attitudes about breastfeeding in 1) Native American pregnant women, 2) Native American women who have ever had a biological child, and 3) health care professionals who care for Native American women in North Central North Dakota. Once these factors are identified, it may provide important information for doctors and nurses to take measures that may contribute to an increase in breastfeeding. The compelling benefits that breastfeeding offers demonstrates that the low breastfeeding initiation rate among some Native Americans in North Dakota is a significant health issue that needs to be researched.

Significance of the Study

The health of Native American children is one of a tribe’s most important resources. Healthy children are the goal of every community and they are the future of sustainability of each tribe. For the Native American population, childhood obesity is a growing problem. Overweight and obesity are higher among American Indians (69%) than among whites (57%) in North Dakota from 1996-2002. (Healthy North Dakota Highlights, 2004, pp. 1). Type II diabetes, hypertension and other obesity-related chronic diseases are prevalent among adults and have now become more common in youngsters. Kelly, Burrows, Moore, Querec, Geiss & Engelgau (2002, paragraph 16) found that in less than a decade, diabetes prevalence among American Indians and Alaska Natives younger than 35 years increased by 46%. Poor dietary habits and inactivity are reported to contribute to the increase in obesity in youth (U.S Department of Health and Human
Prevention measures are needed to help reduce the risk of obesity. There are many factors that researchers have identified as contributing to obesity, one of which is low rates of breastfeeding. Breastfeeding is a relatively simple, cost-effective measure, which can have a significant impact on establishing the foundation for a lifetime of optimal health.

There have been no studies regarding breastfeeding concerning the knowledge and attitudes among North Central North Dakota Native Americans and their health care providers. There has been little research on Native American breastfeeding. Although past research is important, it is often limited in several areas. Survey results at the national level often under represent minority populations. Breastfeeding research in minority populations is greatly needed. The lack of research in Native American women in North Dakota supported the need for this study.

This study examined the knowledge and attitudes about breastfeeding in Native American women and health care providers of this North Dakota Native Community. By understanding factors that contribute to the low breastfeeding initiation rate, health care professionals will have better insight into planning effective interventions to help increase breastfeeding initiation rates. If an increase in breastfeeding occurs, this may decrease the health disparities among Native Americans.

**Statement of the Problem/Research Question**

There is no research information addressing the issues related to the significantly low initiation rate of breastfeeding in some Native Americans in North Dakota.
Therefore, the research question is, “How do knowledge and attitudes relate to the initiation of breastfeeding in Native American women in North Central North Dakota?”

**Definition of Terms**

For the purpose of this study, the following definitions were used.

- **Attitude**: “A mental position with regard to fact or state” (Merriam-Webster Medical Dictionary, 2007).
- **Culture**: “The customary beliefs, social forms, and material traits of a racial, religious, or social group” (Merriam-Webster Medical Dictionary, 2007).
- **Evidence Based Practice**: The use of research and scientific studies as a base for determining the best practice in the field.
- **Health care professionals**: Licensed practical nurses, registered nurses, midlevel providers, or doctors that provide health services to health care consumers.
- **Native American**: A member of any of the aboriginal peoples of the United States.

**Theoretical Framework**

Bentley, Dee and Jensen’s (2003) Social Ecological Model, as it relates to breastfeeding, was the conceptual framework for this study. The Social Ecological Model demonstrates how macro-level factors (such as media, political, economic and legislative policy) and micro-level factors (such as beliefs, social networks, and the community) interact in ways to influence a woman’s choice to breastfeed. As shown in this model (Figure 1), there are several overlapping levels of influence. These include the individual, interpersonal, community/environmental and organizational, policy and media level.
Factors on different levels may interact and overlap in ways that influence a women’s decision on infant feeding method. According to Bentley, Dee and Jensen (2003), factors within each level can either reinforce or discourage a woman’s decision to breastfeed. This model may help to identify various systems that have an impact on a women’s decision to breastfeed, such as knowledge, beliefs, social supports, healthcare providers, hospital policy: all of which should be examined to help promote and support breastfeeding effectively. There is a need for information that links macro-level factors to micro-level factors.

Figure 1. Social Ecological Framework.
Limitations

The sample was taken from one out-patient clinic and may not be representative of the general population of Native American women receiving care in this community. Culturally relevant information gathered from this population may not be transferable to others in this particular tribe who may live somewhere else or to other Native American tribes, as their specific cultural attributes may be different from this particular tribe.

Assumptions

This study included the following assumptions: (a) participants responded to the survey accurately and to the best of their ability; (b) the study tool measured participants’ knowledge and attitudes about breastfeeding; (c) healthcare providers are an important part of the interpersonal environment and can impact a women’s decision regarding infant feeding choices; (d) those who participated were no different from those who did not participate.

Summary

Even though research has shown that there are benefits of breastfeeding to both mother and baby, Native American women in North Central North Dakota are not choosing to initiate breastfeeding. The reasons why are not well understood. Identifying factors that contribute to the low breastfeeding initiation rate of this population of women was an important first step in planning effective and sustainable interventions that will assist in increasing breastfeeding rates.
The literature research for this study was conducted using numerous electronic data bases. The literature review presented in this chapter focuses on nursing research on the knowledge and attitudes about breastfeeding amongst Native American women and the health care professionals who care for them.

Although breastfeeding rates in North Dakota (75%) (North Dakota Department of Health, 2010) for all races combined mirror national rates (75%) (Center for Disease Control, 2010), some Native Americans in North Dakota, with a rate of 8.24%, have a significantly lower breastfeeding rate than the North Dakota average. Understanding the factors that contribute to the low breastfeeding rate of some Native American women in North Dakota will contribute to the understanding of the unique factors that contribute to the low rates of breastfeeding in this population.

There has been little research on breastfeeding initiation and factors associated with infant feeding choices among Native Americans (Rhodes, Hellerstedt, Davey, Pirie, & Daly, 2008; Stevens, Jessica, Hanson, Prasek, & Elliot, 2008). It is important to clarify that even though Native Americans are classified into one ethnic group, cultural differences among Indian tribes exist that may influence infant feeding practices. A literature search using CINAHL, Medline, and Cochrane search engines was accomplished using the following topics: breastfeeding, Native American, Indian, attitudes, knowledge, and social support. No research was found relating to breastfeeding
among Native American women in North Dakota. Of the articles found, most of the studies were of Canada’s First Nations and from tribes in the Southwest United States.

The North Dakota Department of Health collects information about infant feeding methods in hospitals reporting 50 or more births annually. The data is collected at two separate times; the first at 24 hours after birth and the second is collected when data for the birth certificate is reported. The 2010 North Dakota Department of Health report on breastfeeding showed that all North Dakota hospitals had an exclusively breastfeeding rate of 64% and a feeding method of partial formula and partial breast feeding rate of 75%. The report on breastfeeding by facility revealed that one North Central North Dakota Hospital, that primarily serves Native American’s, reported an exclusively breastfeeding rate of 14% and a feeding method of partial formula and partial breast feeding rate of 33%. This hospital’s 2010 rate for exclusively breastfeeding and rate for partial formula and partial breastfeeding were the lowest rates of all 14 hospitals in North Dakota with greater than 50 live births. Furthermore, data gathered from the birth certificate in response to the question, “Was infant breastfed at time of discharge?” revealed that of 255 babies born in 2010 at the North Central North Dakota Facility, only 21 were breastfeeding at the time of discharge, that is a rate of 8.24% at the time of discharge, compared to 71.34% for all hospitals and all races in North Dakota.

Breastfeeding has health and economic benefits for both mothers and babies. Studies have found that breast milk contains antibodies that protect infants from bacterial and viral infections. In addition, studies have found breastfeeding to be associated with a decreased incidence in common childhood infections, such as diarrhea (IP, Chung,
Breastfeeding has also been associated with lower risks for major chronic disease and conditions such as type II diabetes (Owen & Howie, 2006), asthma (IP & Chung et al, 2007) and childhood obesity (Arenz, Rucker, Koletzko, & Kries, 2004). Also, breastfed children are less likely to become overweight or obese later in life, (Chung, Raman, Trikalinos, Lau & Ip, 2008). Breastfed babies also have a decreased risk for lower respiratory infections and leukemia (IP, Chung, Ramen, Chew & Magula, & DeVine et al, 2007). Furthermore, the risk of sudden infant death syndrome is higher among infants who have never breastfed (IP & Chung et.al, 2007). Research also indicates that women who breastfeed may have lower rates of certain breast and ovarian cancers (IP & Chung et al, 2007).

Breast milk is considered to contain growth factors that inhibit body fat production. Scientists in Ireland studied 32,000 children and found that obesity was 30% less common among those who had been breastfed as babies (irishhealth.com, 2007, retrieved at www.irishhealth.com/article.html?id=3920 on May 3, 2012). Research has shown that type II diabetes is associated with obesity. Research has also shown that breastfeeding is associated with a reduction in the incidence of type II diabetes. Young, Martens, & Tabeck’s (2002) case controlled study with Native First Nation Canadians found infants who were breastfed longer that 12 months were less likely to be diagnosed with type II diabetes by adolescent age. These findings are consistent with Petitet, Forman, Hanson, Knowler, & Bennet’s (1997) study of 720 Pima Indians finding that individuals who had been exclusively breastfed for the first two months of life had a
significantly lower incidence of type II diabetes. Research has shown that there are multiple health benefits of breastfeeding, but many north central Native Americans choose not to breastfeed their infants.

Economic benefits of breastfeeding can be significant for families, health systems, and governments. Ball & Wright’s (1999) study found parents of infants who were never breastfed spent between $331 and $475 (in 1999) more in health care products and services in the first year of life when compared to infants who were breastfed exclusively until three months of age. Breastfeeding also saves on the cost of formula to parents. Many American Indians who reside on reservations may be excluded from the direct financial benefits of breastfeeding. For many families, a reduction of illness would result in a savings on co-pays. In addition, families would benefit financially from not having to purchase formula. However, most Native Americans qualify for health care services at reservation based Indian Health Services (IHS), which does not require a co-payment for services. Tribal members receive health care at no direct cost to the individual. Many Native Americans women participate in the Women, Infants & Children Program (WIC) and receive free formula. Therefore the financial burdens of purchasing formula and the cost of child health care are not experienced.

The reasons a woman chooses to breastfeed or bottle feed are multi-factorial. These reasons may include but are not limited to support from others (Rhodes, Hellerstedt, Davey, Pirie, & Daly’s (2008), the knowledge or attitude of the healthcare providers providing care to the individual (Digirolamo, Grummer-Strawn & Fein, 2003), and the knowledge or attitude of the individual women. Rhodes et al. (2008) examined
the breastfeeding attitudes and practices in an American Indian population in Minnesota. They found factors that were positively associated with breastfeeding initiation included positive breastfeeding attitudes and social support for breastfeeding from the woman’s husband/boyfriend and her mother.

Parents have traditionally been an important role model for children. Marrone, Vogeltanz-Holm & Holm (2008), who studied 161 North Dakota male and female undergraduates, found that attitudes were significantly associated with breastfeeding knowledge and exposure to breastfeeding. They found that attitude toward breastfeeding was the only significant predictor of breastfeeding intentions. Therefore, the likelihood of women to initiate breastfeeding may depend on her having a positive attitude about breastfeeding.

According to Prescosolido, (1992) focus on the individual and his/her behaviors may lead researchers to neglect the social conditions and processes that guide how people make decisions, including decisions associated with health behaviors and outcomes. In addition, Prescosolido believes the role of cultural orientations and normative beliefs about normative practices is important in how people decide what to do. In addition, Baronowski, Bee, Rassin, Richardson, Brown, Guenther, & Nader (1983) analyzed data from a hospital based infant feeding survey in Texas and concluded that the influence of various social support members differs by race/ethnicity. The Social Ecological Framework that considers various levels, such as the individual, interpersonal, community and societal level support the factors that impact a woman’s decision to breastfeed.
Knowledge about breastfeeding can vary between different health care professional groups, and attitudes regarding breastfeeding vary among individuals. Many women may be given fragmented support and conflicting messages about breastfeeding. This may occur because in Indian Health Service women encounter different health professionals with varying levels of knowledge about breastfeeding. In addition, the health care professional may have a negative or indifferent attitude about breastfeeding. Bernaix (2000) found that nurses’ knowledge and attitudes influences their ability to provide breastfeeding support. DiGirolamo, Grummer-Strawn and Fein, (2003) found that many women, in their longitudinal study, did not report receiving positive messages from their health caregivers and hospital staff about breastfeeding. Furthermore, they found that if a breastfeeding woman perceived a neutral attitude from the hospital staff, her breastfeeding duration did not extend beyond six weeks.

Global and national initiatives have been established in efforts to increase breastfeeding rates. One such global program is the Baby-Friendly Hospital Initiative (BFHI), which is sponsored by the World Health Organization and the United Nations Children’s Fund. The BFHI encourages hospitals to offer an optimal level of care for infant feeding by assisting them in giving mothers the information, confidence, and skills necessary to initiate breastfeeding.

A national program, Healthy People, managed by the United States Department of Health and Human Services, provides science-based, ten-year national objectives for improving the health of all Americans. Healthy People has established benchmarks and monitored progress over time. The Healthy People 2010 breastfeeding target was 75%.
As of 2010, 75% of babies born in the United States were initially breastfed, meeting the Healthy People 2020 goal Centers for Disease Control and Prevention (CDC, 2010). The Healthy People 2020 breastfeeding target has been increased to 81.9%

Another initiative, the Maternity Practices in Infant Nutrition and Care (mPINC) Survey was first conducted by the CDC in 2007. It showed that many facilities provide fragmented non-evidence based maternity care, including care related to breastfeeding (CDC, 2012). Bernaix, Beaman, Schmidt, Harris, and Miller (2010) found inconsistencies in hospital policies and educational offerings regarding breastfeeding. This factor along with variations in personal and professional breastfeeding experience has led to a professional network that is not well prepared to support breastfeeding. The hospital settings, as well as the policies and practices, are key areas in which one can make interventions to improve breastfeeding outcomes. Even though evidence based care has gained recognition in health care, many hospitals do not routinely identify and update practices (CDC, 2012). Research to better understanding the health care provider’s knowledge and attitudes toward breastfeeding can help identify training needs to help increase the knowledge and attitudes of providers. This increase may contribute to an increase in breastfeeding initiation rates.

Even though research has shown that there is multiple health and economic benefits of breastfeeding to both mom and baby, many north central Native Americans choose not to breastfeed their infants. Research is needed to determine why. The Social Ecological Framework, as shown in Chapter 1, Figure 1, demonstrates how factors interact on different levels in ways that influence a woman’s choice to breastfeed.
Bentley, Dee & Jenson (2003) hypothesized that macro level factors such as the media marketing of breastmilk substitutes, welfare reform, hospital policy and breastfeeding programs and policy, interact with micro-level factors to influence a woman’s decision to breastfeed. Micro-level factors include community, neighborhoods, workplaces, social and personal networks, cultural norms, and individual beliefs. The reasons for the large disparity between the breastfeeding rates of Native American Women in North Central North Dakota and other ethnic groups can be examined at each level of the framework. This framework may enable researchers to identify important information that can be used to enhance intervention efforts.

Native Americans are a culturally diverse population with each tribe having its own language, cultural beliefs, values, and practices (Palacios & Portillo, 2009). An understanding of the factors that influence infant feeding decisions in any community requires insight into the context of individuals, interpersonal, community, organizational, policy and media factors. When only one factor influencing breastfeeding is addressed without consideration for other factors that may be influencing a woman’s decision to feed her infant, intervention efforts cannot produce the most sustainable and effective results.
CHAPTER 3

METHODS

The following chapter addresses the research methodology utilized in conducting this study. The research design and sample are described, followed by instrumentation, data collection, and data analysis.

Design

An exploratory descriptive design was used in this study. No research has been done regarding Native American women’s knowledge and attitudes of breastfeeding and health care professional’s attitude and knowledge on breastfeeding in this population. Therefore, this design was chosen to assess the knowledge and attitudes about breastfeeding in 1) Native American pregnant women, 2) Native American women who have ever had a biological child, and 3) health care professionals who provide care to Native American women.

Sample

A convenience sample was used for this study. The sample consisted of thirteen pregnant Native American women, ten Native American women who have ever given birth to a child and twelve health care professionals who care for Native American. The inclusion criteria for the study required participants who were pregnant or had given birth to a child to be at least 18 years of age, able to read English, and are Native American.
The inclusion criteria for participation of the health care providers was they could be nurses, doctors, or mid-level providers who were able to read English and were employed at the North Central North Dakota health care facility where the study was conducted. This health care facility is located in North Central North Dakota and exclusively serves the Native American population.

Protection of Human Subjects

The study was approved by the Institutional Review Board for the Protection of Human Subjects at Montana State University (Appendix A), the Indian Health Service Aberdeen Area Institutional Review Board (Appendix B), and received the approval of the tribal council and the facility in which the study took place. Confidentiality of the participants was protected by not including any identifying information of the participant on the survey forms. Access to the data was restricted to the primary researcher and her thesis committee.

Data Collection Procedures

Data collection occurred in April of 2012. Surveys were offered to staff and clients by nursing staff at the North Central North Dakota outpatient clinic that primarily serves Native Americans. Attached to each survey was a cover letter that explained the study and its voluntary nature of participation and included the name and contact information of the researcher and committee chair. The surveys with cover letters were specific for three different populations: 1) Native American pregnant women, cover letter
(Appendix C) and survey (Appendix D), 2) Native American women who have given birth to a child/children, cover letter (Appendix E) and survey (Appendix F), and 3) health care providers; doctors, registered nurses, licensed practical nurses, or mid-level providers of this population cover letter (Appendix G) and survey (Appendix H). Each survey varied in length from 20, 40, and 26 questions, respectively, and required fifteen minutes or less to complete. The completed surveys were placed in a sealed box located at the nurses’ station until they were retrieved by the researcher. Participants were informed they could discontinue participation at any time.

**Instruments**

A self-report survey included demographics, knowledge, personal experiences, support, and attitudes about breastfeeding. Because the survey was originally created for another population, the researcher and her committee adapted the survey to include questions that would elicit information that assessed the knowledge and attitudes of the three populations chosen. Verbal permission was obtained on March 31, 2011 from Sherry Caldwell, committee chair of the Native Breastfeeding Council of Sonoma County California. Since an adapted tool was used, it only had construct validity. The researcher had maternal child nurses review the tool for construct validity.

**Data Analysis**

Access to the data during the analysis process was limited to the primary researcher and her committee. Data was analyzed using descriptive statistics. Since the
participation numbers were less than one hundred, simple reporting with numbers was used.
CHAPTER FOUR

RESULTS

Data was analyzed using descriptive statistics. Since participation less than one hundred, simple reporting with numbers was used. Tables will be used to summarize data. Data is separated by three populations surveyed; pregnant women, women who have ever given birth, and health care professionals.

Native American Pregnant Women

The participants consisted of twelve pregnant women who were all Native American. Eleven pregnant women belonged to one tribe and one belonged to another. Table 1 and 2 contains demographic data about the sample.

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of Cases Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>19-24</td>
<td>7</td>
</tr>
<tr>
<td>25-29</td>
<td>4</td>
</tr>
<tr>
<td>30-34</td>
<td>0</td>
</tr>
<tr>
<td>35-39</td>
<td>1</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>2</td>
</tr>
<tr>
<td>Grade 12 or GED (high school graduate)</td>
<td>3</td>
</tr>
<tr>
<td>College 1-3 years (some college or technical school)</td>
<td>6</td>
</tr>
<tr>
<td>College 4 years or more (college graduate)</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 2. Demographics of Pregnant Mothers with Previous Children.

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of Cases Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Children</strong></td>
<td></td>
</tr>
<tr>
<td>None (First Time Mothers)</td>
<td>3</td>
</tr>
<tr>
<td>One</td>
<td>5</td>
</tr>
<tr>
<td>Two</td>
<td>2</td>
</tr>
<tr>
<td>Four</td>
<td>1</td>
</tr>
<tr>
<td>Six</td>
<td>1</td>
</tr>
<tr>
<td><strong>Mothers age at Time of Birth</strong></td>
<td></td>
</tr>
<tr>
<td>18 or younger</td>
<td>6</td>
</tr>
<tr>
<td>19-24</td>
<td>9</td>
</tr>
<tr>
<td>25-29</td>
<td>4</td>
</tr>
<tr>
<td><strong>Breastfed Children</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
</tr>
<tr>
<td>No</td>
<td>9</td>
</tr>
</tbody>
</table>

The twelve participants ranged in age from 19-38. Their education level ranged from 10th grade to bachelor’s degree. Three of the twelve participants were going to be first time mothers, and nine of the women had between one and six children.

Personal Experiences

The women were asked to describe any personal experiences with breastfeeding or formula feeding. Eight of the twelve women answered the question and four of them left it blank. Examples of their expressed personal experiences are presented below.

“My son was tongue tied when he was born and could not latch on”

- Woman who plans to formula feed and formula fed her previous child

“He would not latch on for two months so I had to pump my milk exclusively”

- Woman who is undecided on feeding and breastfed her previous child

“Good”

- Woman who plans to combination feed and breastfed her previous child
I have always formula fed because I am a smoker, I never had any problems”

-Woman who plans to formula feed and formula fed her previous children

“Both babies had problems and had to switch formulas”

-Woman who plans to formula feed and formula fed her previous children

“Formula feeding gave my daughter acid reflux”

-Woman who is undecided on feeding and formula fed her previous child

“Not latching on”

-Women who plans to breastfeed and formula fed her previous child

Breastfed or Formula Fed

The participants were asked the question, “As an infant, were you breastfed or formula fed, and for how long?” Two of the twelve women reported being breastfed as an infant, one for four months and the other did not know how long she was breastfed. Both women felt very comfortable talking with their own mother about her experience with breastfeeding. Both women are also going to be first time moms and do not intend to breastfeed their infants.

Four of the twelve women reported being formula fed. Two of the women plan to formula feed, one women plans to do a combination of formula and breastfeeding, and one women is undecided how she will feed her infant. Among the four women who were formula fed as infants were two women who have previous children that they breastfed, one plans to combination feed and the other is undecided on the feeding method she will feed her infant.
Comfort Level with Mother

Nine of the twelve participants felt very comfortable talking with their own mother about their mothers experience feeding their own infants. Included in the group of participants who felt very comfortable were two women who had been breastfed as an infant, three first time moms, two women who have children that they breastfed, and two women who plan to breastfeed their infants.

Two of the twelve participants felt somewhat comfortable talking with their own mother about their experience. Both of these women plan to breastfeed their infants, one exclusively and the other plans to use a combination of breastfeeding and formula feeding.

One of the twelve participants, who is not of the regional tribe, reported not feeling comfortable talking with her mother about her own experiences with infant feeding.

Family or Tribal Traditions

Only one of the twelve participants responded to the question asking them to describe any family/tribal traditions or stories that they may have about feeding babies. The responding women, who was not from this regional tribe, commented, “All of my relatives on my father’s side prefer breastfeeding their children.” She was formula fed as an infant and commented that she did not feel comfortable talking to her mother about her mother’s feeding experiences with her children. Furthermore, she formula fed her first child and plans to formula feed the child she is currently pregnant with, despite her
father’s family breastfeeding preference. She further comments that she would prefer to breastfeed, but is concerned her work would be interrupted if she chose to breastfeed.

Benefits of Formula Feeding

The participants were asked to list what they believed to be the top two benefits of formula feeding. The top three responses were convenience, bonding with father and not having to deal with problems with the breast such as sore nipples and leaking milk. Other responses included knowing how much the infant eats, not having to breastfeed in public, feeding the baby anywhere, and others can feed the baby. One participant did not answer the question.

Benefits of Breastfeeding

The participants were asked to list what they believed to be the top two benefits of breastfeeding. The top three responses were immunity, nutrients, and bonding. Other responses included breastfeeding was natural and healthy, healthier brain development, healthy weight gain and growth and development. Four participants did not answer the question.

Six of the participants who did not breastfeed their children they already answered with responses that show they were knowledgeable of the benefits of breastfeeding. This would lead one to believe that knowledge alone does not change behavior.

Plan to Feed Baby

Of the twelve participants, three women plan to exclusively breastfeed their infant, four women plan to formula feed; one woman plans to use a combination of
formula and breastfeeding, and four participants are undecided on how they will feed their infant.

Of the three women who intend to breastfeed, one has other children who had been breastfed and two women have other children that were not breastfed. Of the four women who plan to formula feed, one is a first time mother who had been breastfed as an infant. The other three women who plan to formula feed are all women who have previous children that were all formula fed. In addition, none of these women were breastfed as infants. The woman who plans to use a combination of formula and breastfeeding has a previous child that was breastfed. Included among the four women who are undecided on how they will feed their infant is a woman who has a previous child she breastfed, and a first time mom who was breastfed as an infant, and a first time mom who did not know how she was breastfed as an infant.

Support for Infant Feeding Information

The participants were asked to whom they turned for information regarding choice of infant feeding method. Nine participants identified family, five identified their doctor, four identified friends, four identified the baby’s father, two identified their nurse, and one identified the Women, Infant and Children Program (WIC). The numbers are greater than twelve because many women chose more than one source. All three of the first time moms identified family as to whom they turn to for information regarding infant feeding options.

Of the three pregnant women who planned to breastfeed, all chose different persons to whom they sought guidance regarding their infant feeding choice. One woman
chose family, elders and the doctor, one chose family and the baby’s father and one chose WIC. The woman who plans to feed her infant with a combination of breastfeeding and formula feeding chose the doctor as the person she turns to for information regarding infant feeding options.

Infant Feeding Plans Addressed

Five of the twelve participants reported that their nurse or doctor discussed infant feeding plans with them. This would mean that seven of the twelve women did not have infant feeding plans addressed by their doctor or nurse.

Breastfeeding Confidence

The participants that were planning to breastfeed were asked to rate how confident they felt about breastfeeding on scale from zero to five, with zero being not at all confident and five being very confident. One woman, a five, noted that she felt very confident and will be breastfeeding for twelve months. A second woman rated herself as very confident, a five, that she would breastfeed for six months. She rated her confidence that she would breastfeed for twelve months as a one, not at all confident. Another woman’s confidence seemed to decline with time as she rated confidence at a five that she would breastfeed for one month, a three that she would breastfeed for six months and a one that she would breastfeed for twelve months. The women who planned to provide combination feeding for her infant rated her confidence at a 3 for one, six and twelve months. Of the four women that were undecided on how they will feed their infants, one
did not answer the question. Of the three remaining women that were undecided, none of them rated their confidence higher than a three for feeding one month or longer.

**Breastfeeding Hesitations or Concerns**

The pregnant women were asked to describe and hesitations/concerns that they may have about breastfeeding. Eight of the twelve women answered the question; four of them left it blank. Three of the twelve pregnant women intend to breastfeeding. Of the three women who plan to breastfeed, one of them left the question blank, and two of them responded with “none.” The woman who plans to combination feed was concerned about breastfeeding in public. The four women who were undecided about their feeding method had a variety of responses. Their responses included:

“I am shy.”

“There will be a conflict with my work schedule.”

“Time.”

“Smoking and my breast hurting.”

Of the twelve pregnant women, four intend to formula feed. Of the four women who plan to formula feed, three of them left the question blank and one responded that her work will be interrupted.

**Formula Feeding Confidence**

The participants who were planning to formula feed their infants were asked to rate on a zero to five scale how confident they were that they will indeed formula feed, zero being not at all confident, five being very confident. All of the participants who plan
to formula feed rated their confidence at a four or five that they will formula feed. One woman who planned to use a combination of breastfeeding and formula feeding for her infant rated her confidence at a three that she would formula feed for one, six and twelve months. Though four participants are undecided about their feeding method, three of them rated their confidence at very confident (five) that they will formula feed for one, six and twelve months. The other undecided participant did not answer the question.

**Formula Feeding Hesitations or Concerns**

The women were asked to describe any hesitations/concerns that they may have about formula feeding. Eight of the twelve women answered the question; four of them left it blank. Five of the eight women who responded stated that they did not have any concerns about formula feeding. Other responses included:

- “Baby being overweight”
  
  *-Woman who plans to formula feed*

- “Infants tolerance to formula/allergies”
  
  *-Woman who is undecided on feeding method*

- “I don’t like how the formula makes the baby smell.”
  
  *-Woman who is undecided on feeding method*

**Opinion of Others**

Though the majority of opinions of people that pregnant women valued reflect a preference for breastfeeding, most women chose to formula feed. Because most chose to formula feed, this information suggests that others were supportive of the women’s
choice to formula feed. Regardless of the method of infant feeding the women chose, the women felt that other people supported their decision.

**Native American Women Who Have Given Birth**

The participants consisted of nine Native American women who have given birth to a child. Table 3 and 4 contains demographic data about the sample.

Table 3. Age and Educational Level of Women Who Have Given Birth.

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of Cases Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>30-39</td>
<td>2</td>
</tr>
<tr>
<td>40-49</td>
<td>3</td>
</tr>
<tr>
<td>50-59</td>
<td>2</td>
</tr>
<tr>
<td>60-69</td>
<td>2</td>
</tr>
<tr>
<td><strong>Education</strong>*</td>
<td></td>
</tr>
<tr>
<td>College 1-3 years (some college or technical school)</td>
<td>6</td>
</tr>
<tr>
<td>College 4 years or more (college graduate)</td>
<td>1</td>
</tr>
</tbody>
</table>

*Two participants did not indicate their education level.

The nine participants ranged in age from 30-67. Their education level ranged from one year of college to a bachelor’s degree. Each of the nine women had between one and eight children and had a total of twenty-seven children amongst them. Five of the women breastfed some or all of their children, and four did not breastfeed any of their children.
Table 4. Demographics of Women Who Have Given Birth.

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of Cases Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Children</td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>1</td>
</tr>
<tr>
<td>Two</td>
<td>2</td>
</tr>
<tr>
<td>Three</td>
<td>2</td>
</tr>
<tr>
<td>Four</td>
<td>1</td>
</tr>
<tr>
<td>Five</td>
<td>1</td>
</tr>
<tr>
<td>Six</td>
<td>0</td>
</tr>
<tr>
<td>Seven</td>
<td>1</td>
</tr>
<tr>
<td>Eight</td>
<td>1</td>
</tr>
<tr>
<td>Mothers age at Time of Birth*</td>
<td></td>
</tr>
<tr>
<td>18 or younger</td>
<td>4</td>
</tr>
<tr>
<td>19-24</td>
<td>13</td>
</tr>
<tr>
<td>25-29</td>
<td>3</td>
</tr>
<tr>
<td>30-34</td>
<td>2</td>
</tr>
<tr>
<td>35-40</td>
<td>5</td>
</tr>
<tr>
<td>Breastfed Children</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>5</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
</tr>
</tbody>
</table>

*One woman with eight children did not indicate her age at the time of their births.

**Personal Experience**

The women who had given birth were asked to describe any personal experiences they may have had with breastfeeding or formula feeding. Of the nine women, eight answered the question. Two of the women who had formula fed their infants commented that they had no problems. Examples of the other women’s expressed personal experiences are as follows.

“Good bonding, the children were all healthy, no illness, seldom had colds.”

-Woman who breastfed all seven of her children
“Baby did not eat enough so I was feeding every 1 \( \frac{1}{2} \) to 2 hours. The baby had an upset stomach so I switched to bottle and soy milk.”

- **Woman who was breastfed as an infant and breastfed her child for one and a half months**

“It was a long time ago. It was still thought of as backwards. I didn’t feel comfortable in public. My baby ate a lot; I didn’t get out much, so I stopped.”

- **Woman who breastfed her second of three children for one and a half months**

“There were problems with latching on at first. I loved the bonding. When I returned to work, finding time and a place to pump was hard so I stopped.”

- **Woman who has four children and breastfed her third and fourth child, one for four weeks, and the other for three months**

“Success.”

- **Woman who was breastfed as an infant and breastfed her five children**

“My baby was formula fed and very colic.”

- **Woman who formula fed her two children**

**Breastfed or Formula Fed**

Of the nine participants who were asked the question, “As an infant, were you breastfed or formula fed?” two reported being breastfed. These two women breastfed their children. One woman who breastfed all seven of her children was not breastfed as an infant. Three of the women reported being formula fed as infants, and four women reported that they did not know how they were fed as infants.
Comfort Level with Mother

Four women felt very comfortable talking with their own mother about her experience with breastfeeding, three of whom breastfed their own child/children. One woman who was not certain how she was fed as an infant and did not breastfeed her own children felt somewhat comfortable talking with her own mother about her experience with breastfeeding. Another woman who was not certain how she was fed as an infant and did not breastfeed her own children did not feel comfortable talking with her own mother about her experience with breastfeeding. Three participants did not answer the question.

Family or Tribal Traditions

When the women were asked to describe any family/tribal traditions or stories about feeding babies, three of the women did not answer the question and four of the women’s answers were “none.” One woman who was not breastfed as an infant responded, “My grandmother and other ladies use to breastfeed each other’s kids when they were babysitting.”

Benefits of Formula Feeding

The participants were asked to list what they believed to be the top two benefits of formula feeding. The top two responses were convenience and bonding. Other responses included easier leaving infant in someone else’s care and easier leaving the home. One participant responded “I don’t know.” Three participants did not answer the question.
Benefits of Breastfeeding

The participants were asked to list what they believed to be the top two benefits of breastfeeding. The top two responses were bonding and healthier. No clarification of healthier was provided by the women who listed it. Other responses included it is easier, less expensive, higher “IQ”, no bottle making in the middle of the night, and easier to lose baby fat. Three participants did not answer the question.

Breastfeeding Difficulties or Concerns

The five women who breastfed were asked to list the two greatest difficulties or concerns they had encountered. The women expressed their concerns and difficulties with breastfeeding as shown below.

“None really.”

-Woman who successfully breastfed all seven of her children for at least 18 months

“Baby not getting enough to eat and constant feeding caused me to get rundown.”

-Woman who breastfed her child for one and a half months

“Privacy and public acceptance.”

-Woman who breastfed her second of three children for one and a half months

“Finding time to pump between feedings and going places”

-Woman who has four children and breastfed her third and fourth child, one for four weeks, and the other for three months
“Leaving my child and making sure my child had enough”

-Woman who breastfed her five children, the first for nine months and the last four for three months each

Comfort Breastfeeding at Home

The five women who breastfed were asked to rate their comfort level on a scale of one through ten of how comfortable they were breastfeeding at home, one being not at all comfortable, and ten being very comfortable. One women who breastfed her second of three children for one and a half months rated her comfort level at a three. Another women who also breastfed her infant for one and a half months rated her comfort level at an eight. Three of the women who breastfed their babies rated their comfort level to be a ten, very comfortable. One of these women breastfed each of her seven children for at least eighteen months; one woman breastfed each of her five children for at least three months; and one woman breastfed two of her four children for at least four weeks.

Comfort Breastfeeding in Public

The five women who breastfed were asked to rate their comfort level on a scale of one through ten of how comfortable they were breastfeeding in public, one being not at all comfortable, and ten being very comfortable. One women who breastfed her second of three children for one and a half months rated her comfort level at a zero, writing in a zero since the lowest number on the rating scale was one. One woman who had four children and breastfed her third and fourth child, one for four weeks and the other for three months, rated her comfort level at a one, not comfortable at all. Another women
who breastfed her infant for one and a half months rated her comfort level at an eight. Two women rated their public breastfeeding comfort level at a ten, very comfortable. Of the five women who breastfed, two women breastfed the longest. One woman breastfed each of her seven children for at least eighteen months. The other woman breastfed her five children. The first child was breastfed for nine months and the last four children for three months.

**Formula Feeding Difficulties or Concerns**

The women who formula fed their infants were asked to list the two greatest difficulties or concerns they encountered. Their responses are shown below.

“None.”

- **Woman who breastfed her baby for one and a half months, introduced formula at six weeks of age**

“Running out of WIC supplements and having to buy it…very expensive and finding formula that they did not throw up.”

- **Woman who breastfed her second of three children for one and a half months, then switched to formula**

“Baby had a hard time adjusting from breast milk.”

- **Woman who breastfed the last two of her four children, switching one to formula at 4 weeks of age and the other at three months of age**

“None.”

- **Woman who bottle fed her eight children**
Free Formula

Of the nine women who had given birth, seven of them received free formula, one woman did not, and one woman did not answer the question. All the women, including the women who breastfed, reported that they used the free formula. All seven women who received the free formula reported getting the formula from WIC. In addition, one woman also reported she received free formula from the hospital, friends, and family.

Support for Infant Feeding Information

The women who had given birth and breastfed their baby or babies were asked to identify who they went to for breastfeeding help or advice. Two of the women chose the nurse, one chose the physician, one chose a lactation consultation, one chose other, writing in her response as “WIC,” and one chose “no one” by writing in her response.

Support for Breastfeeding

The participants were asked to rate on a scale of zero to five, zero being not at all supportive and five being very supportive, of how supportive different people were of their breastfeeding. The most common person from whom the mother received support was the baby’s father (5), doctor (3), nurse (3), and family (2).

Exclusive Breastfeeding

The women who breastfed were asked how long they planned to breastfeed and how long they actually breastfed. The results are shown in Table 5.
Table 5. Exclusive Breastfeeding Results.

<table>
<thead>
<tr>
<th>Participant Number</th>
<th>Planned to Exclusively Breastfeed</th>
<th>Actually Exclusively Breastfed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24 months</td>
<td>24 months</td>
</tr>
<tr>
<td>2</td>
<td>6 months</td>
<td>1.5 months</td>
</tr>
<tr>
<td>3</td>
<td>6 months</td>
<td>1.5 months</td>
</tr>
<tr>
<td>4</td>
<td>3 months</td>
<td>3 months</td>
</tr>
<tr>
<td>5</td>
<td>blank</td>
<td>Blank</td>
</tr>
</tbody>
</table>

The women who breastfed were asked at what age they planned to introduce formula feedings to their infant and what age they actually introduced formula to their infant. The results are shown on Table 6.

Table 6. Formula Feeding.

<table>
<thead>
<tr>
<th>Participant Number</th>
<th>Planned to Introduce Formula</th>
<th>Actually Introduced Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Never</td>
<td>12 months</td>
</tr>
<tr>
<td>2</td>
<td>6 months</td>
<td>1.5 months</td>
</tr>
<tr>
<td>3</td>
<td>6 months</td>
<td>1 day</td>
</tr>
<tr>
<td>4</td>
<td>3 months</td>
<td>3 months</td>
</tr>
<tr>
<td>5</td>
<td>3 months</td>
<td>blank</td>
</tr>
</tbody>
</table>

The women who breastfed were asked at what age did they plan to introduce solid foods to their child and what age they actually introduce solid foods to their child. The results are shown on Table 7.

Table 7. Introduction of Solid Foods.

<table>
<thead>
<tr>
<th>Participant Number</th>
<th>Planned to Introduce Solid Foods</th>
<th>Actually Introduced Solid Foods</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.5 months</td>
<td>12 months</td>
</tr>
<tr>
<td>2</td>
<td>12 months</td>
<td>12 months</td>
</tr>
<tr>
<td>3</td>
<td>3 months</td>
<td>2 months</td>
</tr>
<tr>
<td>4</td>
<td>6 months</td>
<td>6 months</td>
</tr>
<tr>
<td>5</td>
<td>blank</td>
<td>6 months</td>
</tr>
</tbody>
</table>
Reasons for Stopping Breastfeeding

The women noted the following primary reasons that they stopped breastfeeding:

“Old enough to eat”

-Woman who successfully breastfed all seven of her children for at least 18 months

“Baby was not getting enough nutrition, not gaining weight as expected and had an upset stomach.”

-Woman who breastfed her child for one and a half months

“No privacy, not accepted at the time.”

-Woman who breastfed her second of three children for one and a half months

“No place to pump at work; could not keep up with feeding; had to introduce formula and decided to stop mainly because of work.”

-Woman who breastfed the last two of her four children, switching one to formula at 4 weeks of age and the other at three months of age

Additional Comments

Participants were asked to add any additional comments. Two participants wrote comments as shown below.
“I enjoyed my experience with breastfeeding and I wish now that I would have continued longer.”

-Woman who breastfed the last two of her four children, switching one to formula at 4 weeks of age and the other at three months of age

“Breastfeeding is gross and unsanitary.”

-A sixty-seven year old woman who gave birth to three children that she formula fed. She was uncertain how she was fed as an infant and shared that she did not feel comfortable talking with her own mother about her experiences feeding her (mother’s) children.

Health Care Professionals of Native American Women

The sample contained twelve participants. Seven of the participants were Native American and five were Non-Native American. Eight of the participants were female, four were male. The participants ranged in age from 29 to 61. Positions of the Health Care Professionals surveyed included Licensed Practical Nurses, Registered Nurses, Mid-level providers, and doctors. Table 8 and 9 contains demographic data about the sample.
### Table 8. Age, Gender, Race and Position of Health Care Professionals.

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of Cases Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>1</td>
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<tr>
<td>30-39</td>
<td>3</td>
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<td>40-49</td>
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<td>50-59</td>
<td>2</td>
</tr>
<tr>
<td>60-69</td>
<td>2</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>4</td>
</tr>
<tr>
<td>Female</td>
<td>8</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
</tr>
<tr>
<td>Native American</td>
<td>7</td>
</tr>
<tr>
<td>Non-Native American</td>
<td>5</td>
</tr>
<tr>
<td><strong>Position</strong></td>
<td></td>
</tr>
<tr>
<td>Licensed Practical Nurse</td>
<td>4</td>
</tr>
<tr>
<td>Registered Nurse</td>
<td>3</td>
</tr>
<tr>
<td>Mid-Level Provider</td>
<td>4</td>
</tr>
<tr>
<td>Doctor</td>
<td>3</td>
</tr>
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</table>

### Table 9. Demographics Health Care Professionals.

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of Cases Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Children</strong></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>2</td>
</tr>
<tr>
<td>One</td>
<td>2</td>
</tr>
<tr>
<td>Two</td>
<td>3</td>
</tr>
<tr>
<td>Three</td>
<td>4</td>
</tr>
<tr>
<td>Four</td>
<td>1</td>
</tr>
<tr>
<td><strong>Health Care Professionals Age at Time of Birth</strong></td>
<td></td>
</tr>
<tr>
<td>18 or younger</td>
<td>2</td>
</tr>
<tr>
<td>19-24</td>
<td>7</td>
</tr>
<tr>
<td>25-29</td>
<td>10</td>
</tr>
<tr>
<td>30-34</td>
<td>5</td>
</tr>
<tr>
<td><strong>Breastfed Children</strong>*</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>4</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
</tr>
</tbody>
</table>

*Two participants did not have children.
Of the twelve health care professionals, ten of them had between one and four children. Of the ten health care professionals that had children, four of them breastfed. Two health care professionals, who gave birth when they were eighteen years of age or younger, did not breastfeed.

Personal Experiences

Of the twelve participants, four had children who were breastfed, six had children who were never breastfed, and two do not have any children. Of the women and men who breastfeed their children or have children that were breastfed, their personal experiences with breastfeeding or formula feeding and any problems or successes were described with comments such as:

One woman who only breastfed her infant for one week commented that “my child would not.”

One male participant commented, “It was great, I got to sleep.”

Two male participants did not answer this question.

Of the women and men who did not breastfeed their children or have children that were breastfed, their personal experiences with breastfeeding or formula feeding and any problems or successes were described with comments such as:

“My son was formula fed and it was a good experience.”

“I have abnormal ducts in my breast and am unable to breastfeed.”

“Not enough time, work schedule.”

“My wife did not breastfeed (for not good reason) and my kids did fine.”

Four participants did not answer this question; two of them do not have children.
**Breastfed or Formula Fed**

The health care professionals were asked the question, “As an infant, were you breastfed or formula fed?” Of the twelve health care professionals, only one woman who was a Native American reported that she was breastfed. She does not have any children. Seven participants reported being formula fed as infants. Four of the participants reported that they did not know how they were fed as an infant.

**Benefits of Formula Feeding**

The participants were asked to list what they believed to be the top two benefits of formula feeding. The top three responses were convenience, bonding with father, and mother has help with feeding the baby. Other responses included intake calculation easier, no privacy issues, others can participate in feeding, and formula feeding is a good option for mothers who object to breastfeeding. One participant did not answer the question.

**Benefits of Breastfeeding**

The health care professionals were asked to list what they believed to be the top two benefits of breastfeeding. The top three responses were immunity, bonding and nutrients. Other responses included having the right temperature, no bottle washing, cost savings, and accessibility. One participant did not answer the question.

**Recommendations**

Twelve participants were asked, “How long would you recommend a woman exclusively breastfeed?” Six of the twelve participants chose up to six months, and six of
the participants chose six to twelve months. The participants were then asked, “At what age would you recommend introducing solid foods to breastfeeding infants?” One participant chose two to four months; five participants chose five to seven months; two participants chose eight to ten months; two participants chose eleven to thirteen months; and one participant did not answer the question.

Breastfeeding Policy

The participants were asked, “Does your facility have written policies in place regarding breastfeeding?” Four participants responded with yes; one responded with no; and seven participants responded that it was unknown if there were written policies in place. All four participants who responded yes also answered yes when asked if they felt the policies were adequate.

Of the four participants who stated that written policies regarding breastfeeding were in place and adequate within their facility of employment, all of them were female, three were Native American and had not themselves breastfed their children, and one was non-Native and had breastfed her infant for one week. The facility in which this study was conducted does have a breastfeeding policy in place; however, it is in need of revision to reflect current and evidence based recommendations (personal communication, March 30, 2011).

The participants were asked, “Does your facility have a place for employees to breastfeed or use a breast pump?” One participant responded yes; six responded no; five responded that they do not know. When asked what location was available for breastfeeding, the participant that answered yes reported an office was available. The
facility in which this study was conducted does not have a designated place for employees to breastfeed or use a breast pump (personal communication, March 30, 2011).

Discussion of Infant Feeding Plans

The participants were also asked, “When do you initiate discussion with pregnant women about their infant feeding plans?” Three participants responded never; six responded in the first trimester; one responded in both the second trimester and third trimester; one responded in the third trimester; one responded by commenting that discussion was initiated at the first consult of the pregnant mom. Of the three participants whose response was never, all were female, Native American, and none of them had breastfed their own children.

The twelve participants were asked, “How frequently do you ask parents about their infant (child) feeding methods?” Five participants answered every visit; two answered at well child visits only; five answered never. Of the four participants who had breastfed their own children, three of them answered that they ask about feeding methods at every visit and one answered that they ask during well child visits only.

Participants were asked, “At what age do you stop asking parents about their infant (child) feeding methods?” Four participants answered I do not ask; two responded one year; five responded greater than one year; one did not answer the question.
Resources

The participants were asked a multiple choice question, “What resources does the facility where you are employed have for infant feeding?” Eleven chose Women, infant and children (WIC); seven chose public health nursing (PHN); one chose peer counseling; two chose lactation consultant; one chose lactation educator; one participant did not answer the question.

The participants were asked another multiple choice question, “What resources does the community have for infant feeding?” Eight chose WIC, seven chose PHN, four chose prenatal classes; one chose breastfeeding coalition; four did not answer the question.

Infant Feeding Education for Health Care Professionals

The health care professionals were asked a multiple choice question, “During your professional education, what training did you receive about infant feeding?” Three participants answered nothing; one answered part of one lecture; four answered one lecture; two answered one chapter in a text; five answered part of clinical experience; one answered one course; one answered other and described the training as a self-study guide. Lactation education results were similar to the breastfeeding education results.

Educational findings for infant feeding are summarized in Table 10.

Participants were asked, “Since graduation, what additional breastfeeding related training have you received?” Eight participants answered nothing; one answered a breakout session during a CME/CEU course; three answered “other.” The other responses
were described as a new breastfeeding/lactation course, a resident lecture series, and one had no description.

Table 10. Infant Feeding Education of Health Care Professionals.

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of Cases Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training on Infant Feeding During Professional Education</td>
<td></td>
</tr>
<tr>
<td>Nothing</td>
<td>3</td>
</tr>
<tr>
<td>Part of One Lecture</td>
<td>1</td>
</tr>
<tr>
<td>One Lecture</td>
<td>4</td>
</tr>
<tr>
<td>One Course</td>
<td>2</td>
</tr>
<tr>
<td>One Chapter in a Text</td>
<td>5</td>
</tr>
<tr>
<td>Part of Clinical Experience</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Training on Lactation During Professional Education</td>
<td></td>
</tr>
<tr>
<td>Nothing</td>
<td>3</td>
</tr>
<tr>
<td>Part of One Lecture</td>
<td>1</td>
</tr>
<tr>
<td>One Lecture</td>
<td>3</td>
</tr>
<tr>
<td>One Course</td>
<td>1</td>
</tr>
<tr>
<td>One Chapter in a Text</td>
<td>3</td>
</tr>
<tr>
<td>Part of Clinical Experience</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
</tr>
<tr>
<td>Training on Breastfeeding During Professional Education</td>
<td></td>
</tr>
<tr>
<td>Nothing</td>
<td>2</td>
</tr>
<tr>
<td>Part of One Lecture</td>
<td>1</td>
</tr>
<tr>
<td>One Lecture</td>
<td>4</td>
</tr>
<tr>
<td>One Course</td>
<td>0</td>
</tr>
<tr>
<td>One Chapter in a Text</td>
<td>2</td>
</tr>
<tr>
<td>Part of Clinical Experience</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
</tr>
<tr>
<td>Training on Breastfeeding Since Graduation</td>
<td></td>
</tr>
<tr>
<td>Nothing</td>
<td>8</td>
</tr>
<tr>
<td>Half Day CME/CEU Course</td>
<td>0</td>
</tr>
<tr>
<td>One Day CME/CEU Course</td>
<td>0</td>
</tr>
<tr>
<td>Breakout Session during CME/CEU Course</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
<tr>
<td>Would Additional Training Enhance Your Ability to Promote Breastfeeding?</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>8</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
</tr>
</tbody>
</table>
When the participants were asked if additional training/resources would enhance their current ability to promote breastfeeding, eight participants responded yes and four responded no. If the response was answered as yes, the participant was asked to please describe what additional training/resources would enhance their ability to promote breastfeeding; however, one respondent wrote handouts. All others who responded yes did not answer the question.

Two of the four participants who answered no had no children, had only one lecture or study guide or less of lactation or breastfeeding training during their professional education and had not had any additional breastfeeding related training since graduation. They still did not feel additional training/resources would enhance their current ability to promote breastfeeding.
The intent of this study was to assess knowledge and attitudes among breastfeeding in Native American women and health care providers who care for Native American women and explore how it relates to the initiation of breastfeeding in a North Central Native American Health Care Facility. The surveyed population consisted of thirteen pregnant women, ten women who have ever given birth to a child, and twelve health care professionals of Native Americans. While the sample size is small, the respondents may provide valuable information about factors associated with the low breastfeeding initiation rate of this population.

An exploratory descriptive design was used in this study. This chapter contains a discussion of findings of the study in relation to the research question and conceptual framework. Strengths and limitations of the study are also discussed. Implications for nursing practice as well as recommendations for future research will conclude this chapter.

**Discussion of Findings**

The research question addressed was “How do knowledge and attitudes relate to the initiation of breastfeeding in Native American women in a North Central North Dakota health care facility?” The results for each population surveyed are as discussed below.
Native American Pregnant Women

Of the twelve Native American pregnant women, nine had previous children. Six of the nine women who had children gave birth to their child when they were eighteen years of age or younger. One woman had a baby when she was fifteen years old, two women had babies when they were sixteen years old, one woman had a baby when she was seventeen years old, and two women had a babies when she was eighteen years old. Of the nine women who had previous children, three breastfed. One woman was nineteen years of age, one woman was twenty years of age, and one breastfed two of her infants when she was age twenty and twenty-four. None of the women who were 18 years of age or younger breastfed their infants. The younger the woman was when she gave birth, the less likely she was to breastfeed.

Five of the twelve pregnant women reported that their nurse or doctor discussed infant feeding plans with them. This would mean that seven of the twelve women did not have infant feeding plans addressed by their doctor or nurse. Missed opportunities such as these may have a negative impact on breastfeeding initiation.

The pregnant women were asked to list what they believed to be the top two benefits of breastfeeding. The top three responses were immunity, nutrients, and bonding. Other responses included breastfeeding is natural and healthy, healthier brain development, healthy weight gain and growth and development. Even participants who did not breastfeed answered with responses that show they are knowledgeable of the benefits of breastfeeding. This would lead one to believe that knowledge alone does not change behavior.
The women were asked to describe any hesitations or concerns that they may have about breastfeeding. None of three women who plan to breastfeed expressed any hesitations or concerns. One woman who plans to formula feed was concerned her work would be interrupted. One woman who plans to combination feed with breastfeeding and formula feeding was concerned about breastfeeding in public. Four women who were undecided about their feeding method had a variety of hesitations or concerns. The responses of the women include:

“My work will be interrupted.”
- Woman who plans to formula feed

“Breastfeeding in public”
- Woman who plans to combination feed

“I am shy.”
- Woman who is undecided on feeding method

“There will be a conflict with my work schedule.”
- Woman who is undecided on feeding method

“Time.”
- Woman who is undecided on feeding method

“Smoking and my breast hurting.”
- Woman who is undecided on feeding method

The participants were asked to list what they believed to be the top two benefits of formula feeding. The top three responses were convenience, bonding with father and not having to deal with problems with the breast such as sore nipples and leaking milk. Other
responses included that you know how much the infant eats, not having to breastfeed in public, you can feed the baby anywhere, and anyone can feed the baby. One participant did not answer the question. Even participants who did not breastfeed their children answered with responses that show they are knowledgeable of the benefits of breastfeeding. This also would lead one to believe that knowledge alone does not change behavior.

The women were asked to describe any hesitations/concerns that they may have about formula feeding. Five of the eight women who responded stated that they did not have any concerns about formula feeding. Responses from other three women include:

“Baby being overweight.”

*Woman who plans to formula feed*

“Infants tolerance to formula/allergies.”

*Woman who is undecided on feeding method*

“I don’t like how formula makes the baby smell.”

*Woman who is undecided on feeding method*

Native American Women
Who Have Ever Given Birth

The participants were asked to list what they believed to be the top two benefits of breastfeeding. These Native American women perceive the main benefits of breastfeeding to be bonding and healthier. Other responses included easier, less expensive, “higher IQ,” no bottle making in the middle of the night, and easier to lose baby fat.
Of the nine women who participated, five breastfed. The five women who breastfed were asked to list the two greatest difficulties or concerns they had encountered. The women expressed their concerns and difficulties with breastfeeding as shown below.

“None really”

*Woman who successfully breastfed all seven of her children for at least 18 months*

“Baby not getting enough to eat and constant feeding caused me to get rundown.”

*Woman who breastfed her child for one and a half months*

“Privacy and public acceptance.”

*Woman who breastfed her second of three children for one and a half months*

“Finding time to pump between feedings and going places.”

*Woman who has four children and breastfed her third and fourth child, one for four weeks, and the other for three months*

“Leaving my child and making sure my child had enough.”

*Woman who breastfed her five children, the first for nine months and the last four for three months each*

The responses indicate that there is a need for lactation education and breastfeeding support services.

The women who formula fed their infants were asked to list the two greatest difficulties or concerns they encountered. Their responses are shown below.
“None.”

Woman who breastfed her baby for one and a half months, introduced formula at six weeks of age

“Running out of WIC supplements and having to buy it…very expensive and finding formula that they did not throw up.”

Woman who breastfed her second of three children for one and a half months, then switched to formula

“Baby had a hard time adjusting from breast milk.”

Woman who breastfed the last two of her four children, switching one to formula at 4 weeks of age and the other at three months of age

“None.”

Woman who bottle fed her eight children

It is interesting that some responses indicate that even though formula is perceived as expensive and formula is difficult to digest by the infant, formula was still chosen as the feeding method for their infants.

Health Care Professionals of Native American Women

Of the twelve participants, ten had children. Four of the ten participants had children that were breastfed, including three men whose wife had breastfed children and one woman who breastfed. Their personal experiences with breastfeeding and any problems or successes where described with comments such as:
“It was great, I got to sleep.”

-Male whose wife breastfed

“Child would not.”

-Woman who breastfed for one week

Two of the men who had breastfed children did not include comments.

Six of the ten participants who had children did not breastfeed their children or have children that were breastfed. Their personal experiences and any problems or successes with infant feeding were described with comments such as:

“My son was formula fed and it was a good experience.”

“I have abnormal ducts in my breast and am unable to breastfeed.”

“Not enough time, work schedule.”

“My wife did not breastfeed (for not good reason) and my kids did fine.”

The participants were asked, “Does your facility have written policies in place regarding breastfeeding?” The majority of the health care professionals, seven of twelve, did not know. One must wonder what the attitude toward breastfeeding is if the health care professionals providing care to pregnant women have not been active in determining what their facilities policy on breastfeeding is. Without policies guiding practice, healthcare providers might be giving women fragmented or conflicting information about breastfeeding.

Four participants responded that yes, there is a policy in place, one responded no, and seven participants responded that it was unknown if there were written policies in
place. All four participants who responded yes also answered yes when asked if they felt the policies were adequate.

The participants were asked a multiple choice question, “During YOUR professional education, what training did you receive about infant feeding?” Three participants answered nothing; one answered part of one lecture; four answered one lecture; two answered one chapter in a text; five answered part of clinical experience; one answered one course; one answered other and described the training as a self-study guide. These health care professionals had limited education on infant feeding, lactation and breastfeeding during their professional education.

When the participants were asked if additional training/resources would enhance their current ability to promote breastfeeding, eight participants responded yes, and four responded no. It is a concern that eight participants would like more education, but did not seek out information, but even more concerning was that four participants thought that more breastfeeding information would increase their ability to promote and support breastfeeding. Health care professionals not having the knowledge about breastfeeding and not seeking additional information may increase the likelihood of fragmented and conflicting messages to the Native American women.

Conceptual Framework

Bentley, Dee and Jensen’s (2003) Social Ecological Model, as it relates to breastfeeding, was the conceptual framework for this study. The Social Ecological Model demonstrates how macro-level factors (such as media, political, economic and legislative
policy) and micro-level factors (such as beliefs, social networks, and the community) interact in ways to influence a woman’s choice to breastfeed. This model helped to uncover various systems that have an impact on a women’s decision to breastfeed. These include a woman’s knowledge and beliefs, social support of partner and family, knowledge and attitudes of healthcare providers, currency, and evidence based nature of the hospital policy. Before real change can occur, many factors need to be considered. Factors on different levels interact and overlap in ways to influence a women’s decision on infant feeding method.

Limitations

The first limitation was there were no tools specific to the knowledge and attitudes that this study sought to explore. The researcher adapted a tool that was used by the Native Breastfeeding Council of Sonoma County in California.

Participant recruitment and generalizability were other limitations. The small sample of participants was taken from one particular health care facility and may not be representative of the general population of Native American women receiving care in this community. In addition, culturally relevant information may not be transferable to any other of the 564 federally recognized Native American tribes or Native American women of this tribe who may live somewhere else. It is important to clarify that even though Native Americans are classified into one ethnic group, cultural differences among Native American tribes exist that may influence infant feeding practices. Each of these tribes holds diverse and unique beliefs (U.S. Census Bureau, 2007).
Implications for Clinical Practice

Health Care Professionals play a vital role in the initiation and promotion of breastfeeding. The most current evidence based breastfeeding recommendations and practices should be incorporated into education so information is being communicated consistently. Furthermore, health systems should establish an environment that supports and encourages breastfeeding. One existing supportive program include the Baby-Friendly Hospital Initiative (BFHI). The BFHI assists hospitals in giving mothers the information, confidence, and skills needed to successfully initiate and continue breastfeeding. The Baby-Friendly Hospital Initiative’s Ten Steps to Successful Breastfeeding for Hospitals (http://www.babyfriendlyusa.org/eng/10steps.html), accessed on June 9, 2012 are:

1. Have a written policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within one hour of birth.
5. Show mothers how to breastfeed and how to maintain lactation, even if they are separated from their infants.
6. Give newborn infants no food or drink other than breastmilk, unless medically indicated.
7. Practice “rooming in”-- allow mothers and infants to remain together 24 hours a day.
8. Encourage breastfeeding on demand.

9. Give no pacifiers or artificial nipples to breastfeeding infants.

10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.

Implementation of all or any of the ten steps could have a positive impact on the initiation and continuation of breastfeeding. Chien, Tai, Chu, Ku, and Chiu’s (2007) study examined the association between the number of Baby Friendly hospital practices experienced by mothers and breastfeeding initiation during hospital stay, breastfeeding at 1 month, and breastfeeding at 3 months after delivery. They found a strong positive association between the number of ten-step practices and the prevalence of breastfeeding.

To promote breastfeeding in any community, three factors need to be considered. The unique characteristics of women, the health care professionals’ viewpoints, and the knowledge and attitudes of healthcare professional. The unique characteristics of the Native American women in North Central North Dakota, or any community in which one lives or works, should be considered to better plan interventions that will be effective and sustainable for this population. Another area that is often overlooked is the health care professional’s viewpoints. Being aware of one’s own perceptions about breastfeeding and being aware of how they influence how one encourages and supports breastfeeding is important to recognize. In addition, Health Care Professionals should become engaged in their community, tailoring breastfeeding promotion efforts and providing culturally competent care. Consideration of the uniqueness of the individual region and tribe is essential for improved breastfeeding initiation and continuation. This study, as well as the
Social Ecological Framework, emphasizes the importance of community assessment as a step in providing and building valuable and sustainable interventions in the promotion of breastfeeding.

Of the twenty-one women who were asked to describe any family/tribal traditions or stories that they may have about feeding babies, only one pregnant woman and one woman who had a child left a comment. This researcher hoped more stories would have been shared to gain better insight into traditional factors that may influence attitudes about breastfeeding. It is unfortunate that tribal traditions that once included breastfeeding were not experiences shared by these women.

In this study, it was surprising to find that many of the health care professionals did not know if a breastfeeding policy was in place within their place of employment. Many women may be given fragmented support and conflicting messages about breastfeeding. In addition, the health care professionals had limited education on infant feeding, lactation and breastfeeding during and since their professional education. It was also interesting that both the women who breastfed or formula fed where aware of the benefits of breastfeeding and the negative effects of formula feeding. This knowledge did not increase the breastfeeding rate.

Suggestions for Future Research

This study provided beginning insight in the knowledge and attitudes of the initiation of breastfeeding in this population. Further research is needed. Continued
research with a larger sample should be done. Further exploration of perceived disadvantages of breastfeeding among this population of women would be useful.

Previous studies have shown that knowledge and education level influence breastfeeding. However, in this study, this was not true. First, even though the women demonstrated that they were knowledgeable about the benefits of breastfeeding, they decided not to breastfeed anyway. Second, of the nine women who had given birth, seven responded that they had an education level from one year of college to a bachelor’s degree though two of the nine participants did not answer the question. Five of the seven women had some college education did not breastfeed. So what is it about this population that previous research finding do not apply with findings of this study?

Knowledge gained from investigating social supports perceptions in relation to infant feeding decisions might serve to assist with the low breastfeeding initiation rate in this population. Rhodes, Hellerstedt, Davey, Pirie & Daly’s (2008) study of American Indian breastfeeding attitudes and practices in Minnesota shows that social support from a woman’s husband/boyfriend has a big impact on a woman’s decision to breastfeed. In addition, past studies have demonstrated that partners have an influence on a women’s decision about infant feeding practices. It would be interesting to explore a man’s view including the baby’s father, the pregnant woman’s father, father-in-law, or grandfather’s view of breastfeeding.
Conclusion

Even though the women in this study demonstrated that they knew benefits of breastfeeding, they did not breastfeed. Therefore, attitudes seem to be a more relevant factor than knowledge in influencing breastfeeding initiation in this sample of Native American women in North Central North Dakota. The majority of health care professionals did not know if a breastfeeding policy was in place within their place of employment. This leads one to think that there is a lack of continuity in practices and communication. Knowledge about breastfeeding can vary between different health care professional groups and attitudes regarding breastfeeding vary among individuals. Many women may be given fragmented support and conflicting messages about breastfeeding.

In addition, the health care professionals had limited education on infant feeding, lactation and breastfeeding during and since their professional education, yet some did not feel additional training/resources would enhance their current ability to promote breastfeeding. When the twelve participants were asked if additional training/resources would enhance their current ability to promote breastfeeding, eight said yes it would, but four responded no, possibly being influenced by their own attitude toward breastfeeding.

The Social Ecological Framework and findings from this study demonstrate that it is not one identifiable factor that the decision to breastfeed is dependent upon, but factors on different levels that may interact and overlap in ways to influence a women’s decision on infant feeding method. Understanding context is vital to designing and implementing successful interventions in breastfeeding education and promotion among this group of Native American women or among any group of people.
REFERENCES


APPENDIX A

MSU INSTITUTIONAL REVIEW BOARD

APPLICATION FOR REVIEW
MONTANA STATE UNIVERSITY
Institutional Review Board Application for Review
(revised 02/09/2011)

THIS AREA IS FOR INSTITUTIONAL REVIEW BOARD USE ONLY. DO NOT WRITE IN THIS AREA.

Approved:
Disapproved:

Approval Date: 2/2/2012
IRB Chair’s Signature: Mark J. Quinn

Date: January 20th, 2012

I. Investigators and Associates (list all investigators involved; application will be filed under name of first person listed)

NAME: Jennifer L. Thomas

DEPT: Nursing

ADDRESS: PO Box 152

E-MAIL ADDRESS: jennifer.thomas@ihs.gov

DATE TRAINING COMPLETED: 11/03/10

TITLE: Family Psychiatric Mental Health Nurse Practitioner Graduate Student

PHONE: 701-477-9479 Home 701-278-0249 Cell

- This is appropriate for exempt
- Survey about breastfeeding
- Anonymous survey with no identifying information
- Approved by Tribal Council and IHS
- Approved by the Health facility

- Little/no risk involved
- No minors
- Recruitment by flyers or referral
- Recommend approval

Required training: CITI training (see IRB website for link)
APPENDIX B

ABERDEEN AREA IRB LETTER
ABERDEEN AREA IRB/RESEARCH and PUBLICATION COMMITTEE

March 26, 2012

Jennifer L. Thomas
Nursing Dept.
P.O. Box 152
Rolla, ND 58367

AAIRB #: 12-R-06AA

Dear Ms. Thomas,

The Aberdeen Area Institutional Review Board (AAIRB) reviewed protocol 12-R-06AA “What is the influence of knowledge and attitudes about breastfeeding in women and health care providers and how does it relate to initiation of breastfeeding in a North Central North Dakota Native Community.”

We have determined that your study is exempt from AAIRB review. Please be aware that according to the publication approval process, the AAIRB has final approval of ALL publications related to this project. Therefore, all publications results from this study will need AAIRB approval. You are free to conduct your study without further reporting to the Aberdeen Area Institutional Review Board.

Thank you for keeping the board informed of your activities.

Sincerely,

[Signature]

Dewey J. Ertz, EdD
Chairman, AAIRB
APPENDIX C

NATIVE AMERICAN PREGNANT WOMAN

COVER LETTER
February 16, 2012

Subject consent
For
Participation In Human Research At
Montana State University

Hello, my name is Jennifer Thomas and I am a nursing graduate student. I would like to invite women who are pregnant to participate in a research study about breastfeeding. Past studies have proven that breastfeeding has many health benefits for both mom and baby. However, breastfeeding rates at the Quentin N. Burdick Memorial Health Care Facility are much lower than the overall breastfeeding rates in all hospitals that deliver babies in North Dakota. Your participation in this study may help us obtain a better understanding of steps needed to increase breastfeeding.

This study has been approved by the Tribal Council of the Turtle Mountain Band of Chippewa Indians, the Montana State University Humans Subject Institutional Review Board, and the Indian Health Service Institutional Review Board. Participation is voluntary and you may choose to not answer any question you do not want to answer and/or stop at any time. If you decide to participate, please complete the attached survey. The survey contains 20 questions and it should take 15 minutes or less to complete. There is no compensation for your participation. The benefit is to provide important information which may be helpful to doctors and nurses to plan steps needed to increase/improve breastfeeding rates. Though there is minimal discomfort and risk involved in completing the survey, some questions may bring up uncomfortable feelings.

The data will be collected in such a way that your identity will remain unknown. There will be no way to identify individual participants. Only the researcher and those involved in data analysis will have access to the data. Data will be stored in a locked box.

Your completion of the survey indicates your consent for the survey information to be used in this study. Completed surveys can be placed in the survey drop box located at the nurse’s desk. If you have any questions, you may contact the researcher, Jennifer Thomas at 701-477-9479, jennifer.thomas5@msu.montana.edu or the thesis chair, Barbara Derwinski at 406-657-1736, bderwinski@montana.edu. Please contact Dr. Mark Quinn at the Montana State University Human Subjects Committee at 406-994-6783 for Institutional Review Board questions. Your care will not be influenced by whether or not you choose to participate in this study. Thank you for your time in considering this invitation to participate.

Sincerely,

Jennifer L. Thomas
WH-BC
Family Psychiatric Mental Health Nurse Practitioner Student
Montana State University
College of Nursing

Barbara Derwinski, MSN, RNC
Associate Professor
Montana State University
College of Nursing
APPENDIX D

NATIVE AMERICAN PREGNANT WOMAN SURVEY
Date____________________

1. Are you American Indian or Alaska Native? Yes _____ No _____

2. If yes, what tribe?

_________________________________________________________________________

3. If no, are you pregnant carrying a Native American child? Yes_____ No_____ 

4. Your age in years? ________ Your highest level of education?

_________________________________________________________________________

5. How many children do you have? (Please circle the number of children you have and complete the table below)

<table>
<thead>
<tr>
<th>Your age at the birth of the child?</th>
<th>Have you ever breastfed the child?</th>
<th>What age was the child when you introduced formula to him/her? Days / Weeks / Months</th>
<th>What age was the child when you stopped breastfeeding? Days / Weeks / Months</th>
</tr>
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<tbody>
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</tbody>
</table>

6. Describe your PERSONAL experience with breastfeeding or formula feeding? Problems/ successes? (If applicable)

_________________________________________________________________________

7. As an infant, were YOU breastfed (BF) or formula fed (F)?
BF _____ If yes, how long were you breastfeed? ______________________
F _____ If yes, how long were you formula fed? ______________________
Don’t know? ___

8. How comfortable are you talking to your mother about her experiences feeding her infant(s)?

Very comfortable Somewhat comfortable Not comfortable
9. Describe any family/tribal traditions or stories you may have about feeding babies.

__________________________________________________________________
__________________________________________________________________

10. Please list what you believe are the top 2 benefits of formula feeding:
    1.)
    2.)

11. Please list what you believe are the top 2 benefits of breast feeding:
    1.)
    2.)

12. How do you plan to feed your baby?
    Breastfeed   Formula   Combination(BF & F)   Undecided

13. Who do you turn to for information regarding infant feeding options? (Circle all that apply)
    Family   Friends   Baby’s Father   Elders   Doctor   Nurse   Other (describe) _______

14. Has your nurse or doctor discussed with you how you plan to feed your baby?
    Yes____ No____
    If yes, at what time during the pregnancy was it discussed? Beginning Middle   End

15. If you are planning to breastfeed, how confident are you that you will breastfeed
    (0-Not at all confident; 5-Very confident)
    For one month?  0 1 2 3 4 5
    For six months? 0 1 2 3 4 5
    For twelve months?  0 1 2 3 4 5

16. Please describe any hesitations/concerns you may have about breastfeeding?

__________________________________________________________________
__________________________________________________________________

17. If you are planning to formula feed, how confident are you that you will formula feed
    (0-Not at all; 5-Very confident)
    For one month?  0 1 2 3 4 5
    For six months? 0 1 2 3 4 5
    For twelve months?  0 1 2 3 4 5
18. Please describe your hesitations/concerns about formula feeding?
________________________________________________________________________
________________________________________________________________________

19. What is the opinion of the following people about how you should feed the baby?

<table>
<thead>
<tr>
<th>Person</th>
<th>Prefers Breastfeed</th>
<th>Prefers Formula</th>
<th>Supports my decision</th>
<th>No opinion</th>
<th>Didn’t discuss</th>
</tr>
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<tbody>
<tr>
<td>Baby’s Father</td>
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<tr>
<td>Mother</td>
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<td>Sister / sister-in-law</td>
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<td>Father</td>
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<td>Doctor</td>
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<tr>
<td>Nurse</td>
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</tbody>
</table>

20. Please add any additional comments:
________________________________________________________________________
________________________________________________________________________

Thank you for taking the time to complete this survey.
APPENDIX E

NATIVE AMERICAN MOTHER COVER LETTER
February 16, 2012

Subject consent
For
Participation In Human Research At
Montana State University

Hello, my name is Jennifer Thomas and I am a nursing graduate student. I would like to invite women who have given birth to a child/children to participate in a research study about breastfeeding. Past studies have proven that breastfeeding has many health benefits for both mom and baby. However, breastfeeding rates at the Quentin N. Burdick Memorial Health Care Facility are much lower than the overall breastfeeding rates in all hospitals that deliver babies in North Dakota. Your participation in this study may help us obtain a better understanding of steps needed to increase breastfeeding.

This study has been approved by the Tribal Council of the Turtle Mountain Band of Chippewa Indians, the Montana State University Humans Subject Institutional Review Board, and the Indian Health Service Institutional Review Board. Participation is voluntary and you may choose to not answer any question you do not want to answer and/or stop at any time. If you decide to participate, please complete the attached survey. The survey contains 40 questions and it should take 15 minutes or less to complete. There is no compensation for your participation. The benefit is to provide important information which may be helpful to doctors and nurses to plan steps needed to increase/improve breastfeeding rates. Though there is minimal discomfort and risk involved in completing the survey, some questions may bring up uncomfortable feelings.

The data will be collected in such a way that your identity will remain unknown. There will be no way to identify individual participants. Only the researcher and those involved in data analysis will have access to the data. Data will be stored in a locked box.

Your completion of the survey indicates your consent for the survey information to be used in this study. Completed surveys can be placed in the survey drop box located at the nurse’s desk. If you have any questions, you may contact the researcher, Jennifer Thomas at 701-477-9479, jennifer.thomas5@msu.montana.edu, or the thesis chair, Barbara Derwinski at 406-657-1736, bderwinski@montana.edu. Please contact Dr. Mark Quinn at the Montana State University Human Subjects Committee at 406-994-6783 for Institutional Review Board questions. Your care will not be influenced by whether or not you choose to participate in this study. Thank you for your time in considering this invitation to participate.

Sincerely,

Jennifer L. Thomas
Jennifer L. Thomas, RN
WH-BC
Family Psychiatric Mental Health Nurse Practitioner Student
Montana State University
College of Nursing

Barbara Derwinski
Barbara Derwinski, MSN, RNC
Associate Professor
Montana State University
College of Nursing
APPENDIX F

NATIVE AMERICAN MOTHER SURVEY
Date____________________

1. Are you American Indian or Alaska Native?  Yes _____ No _____

2. If yes, what tribe?
   ________________________________________________________________

3. Your age in years? ________ Your highest level of education?
   __________________________

4. How many children do you have? (Please circle the number of children you gave birth to and complete the table below)

<table>
<thead>
<tr>
<th></th>
<th>Your age at the birth of the child?</th>
<th>Have you ever breastfed the child?</th>
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<tr>
<td>1</td>
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<td>Yes / No</td>
<td>Days / Weeks / Months</td>
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5. Describe your PERSONAL experience with breastfeeding or formula feeding? Problems/ successes? (If applicable)
   ____________________________________________________________________
   ____________________________________________________________________
   ____________________________________________________________________

6. As an infant, were YOU breastfed (BF) or formula fed (F)?
   BF ____ If yes, how long were you breastfed? ________________
   F ____ If yes, how long were you formula fed? ________________
   Don’t know? ___

7. How comfortable are you talking to your mother about her experience feeding her infant(s)?
   Very comfortable   Somewhat comfortable   Not comfortable
8. Describe any family/tribal traditions or stories about feeding babies.
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

9. Please list what you believe are the top 2 benefits of formula feeding:
1.)
2.)

10. Please list what you believe are the top 2 benefits of breast feeding:
1.)
2.)

11. If you breastfed – Please list the 2 greatest difficulties or concerns for you:
1.)
2.)

12. On a scale of 1-10, how comfortable were you breastfeeding at home? (1=Not at all comfortable, 10=Very comfortable). Please circle:
   1 2 3 4 5 6 7 8 9 10

13. On a scale of 1-10, how comfortable were you breastfeeding in public? (1=Not at all comfortable, 10=Very comfortable). Please circle:
   1 2 3 4 5 6 7 8 9 10

14. If you formula fed – Please list the 2 greatest difficulties or concerns for you:
1.)
2.)

15. Were you ever given FREE formula? No Yes
   If yes – did you use it? No Yes
   Where did the free formula come from: Hospital / WIC / Friends / Family / Came in mail
   Did receiving the free formula change your mind to formula feed and not breastfeed? No Yes

16. Are you aware of the following resources for infant feeding information and assistance?
   WIC? Yes No
   If used, how helpful was it? Very Somewhat Not very
Complete this portion of the survey if you have ever breastfed any of your children at all:

17. Who do / did you go to for breastfeeding help or advice?  (Please circle all that apply)

Baby’s Father  Mother  Father  Sibling  Grandmother  Aunt  Cousin
Nurse   Physician  Lactation consultant  Other – describe __________

20. How supportive were the following of your breastfeeding?  
(0=Not at all; 5=Very supportive)

21. Your family?   0 1 2 3 4 5
22. Your friends?   0 1 2 3 4 5
23. The baby’s father?  0 1 2 3 4 5
24. The elders?   0 1 2 3 4 5
25. Physician?   0 1 2 3 4 5
26. Nurse?  0 1 2 3 4 5

27. Did you ever use a breast pump?   Yes  No

28. If yes, what age was your infant when you began using a breast pump?  
__________ Months

29. Where did you obtain the pump?   WIC  Store  Gift  Rental  Other

30. Why did you choose to use a breast pump?  (Please circle all that apply)
To increase your milk supply / to express milk for work or school / felt uncomfortable putting baby to breast / prefer to bottle feed
Other, describe:
31. How was your experience using the breast pump?  
   (0=Very negative; 5=Very positive)  

   0 1 2 3 4 5

32. How long are you (or did you) plan to EXCLUSIVELY (ONLY) breastfeed your child/children?  
   ___________ Months

33. To what age did you actually EXCLUSIVELY (ONLY) breastfeed?  
   _______________ Months

34. At what age are you (or did you) plan to introduce formula feedings to your child/children?  
   _____ Months  _____ I did not give my infant formula

35. If formula feedings were used, at what age did you actually introduce formula feedings?  
   _____ Months

36. What age was your infant when you stopped breastfeeding?  
   ___________________

37. At what age are you (or did you) plan to introduce solid foods to your child/children?  
   _____ Months

38. At what age did you actually introduce solid foods?  _____ Months

39. Please describe the main reason(s) that you stopped breastfeeding:  
   ____________________________________________________________________
   ____________________________________________________________________
   ____________________________________________________________________

40. Please add any additional comments:  
   ____________________________________________________________________
   ____________________________________________________________________
   ____________________________________________________________________

*Thank you for taking the time to complete this survey.*
APPENDIX G

HEALTH CARE PROFESSIONAL’S COVER LETTER
February 16, 2012

Subject consent
For
Participation In Human Research At
Montana State University

Hello, my name is Jennifer Thomas and I am a nursing graduate student. I would like to invite doctors, nurses and mid-level providers to participate in a research study about breastfeeding. Past studies have proven that breastfeeding has many health benefits for both mom and baby. However, breastfeeding rates at the Quentin N. Burdick Memorial Health Care Facility are much lower than the overall breastfeeding rates in all hospitals that deliver babies in North Dakota. Your participation in this study may help us obtain a better understanding of steps needed to increase breastfeeding.

The purpose of this study is to assess the knowledge and attitudes about breastfeeding in healthcare providers and nurses that provide care at the Quentin N. Burdick Memorial Health Care Facility and explore how it may relate to a patients choice in infant feeding practices. This study has been approved by the Tribal Council of the Turtle Mountain Band of Chippewa Indians, the Montana State University Humans Subject Institutional Review Board, and the Indian Health Service Institutional Review Board. Participation is voluntary and you may choose to not answer any question you do not want to answer and/or stop at any time. If you decide to participate, please complete the attached survey. The survey contains 26 questions and it should take 15 minutes or less to complete. There is no compensation for your participation. The benefit is to provide important information which may be helpful to doctors and nurses to plan steps needed to increase/improve breastfeeding rates. Though there is minimal discomfort and risk involved in completing the survey, some questions may bring up uncomfortable feelings.

The data will be collected in such a way that your identity will remain unknown. There will be no way to identify individual participants. Only the researcher and those involved in data analysis will have access to the data. Data will be stored in a locked box.

Your completion of the survey indicates your consent for the survey information to be used in this study. Completed surveys can be placed in the survey drop box located at the nurse’s desk. If you have any questions, you may contact the researcher, Jennifer Thomas at 701-477-9479, jennifer.thomas5@msu.montana.edu or the thesis chair, Barbara Derwinski at 406-657-1736, bderwinski@montana.edu. Please contact Dr. Mark Quinn at the Montana State University Human Subjects Committee at 406-994-6783 for Institutional Review Board questions. Your care will not be influenced by whether or not you choose to participate in this study. Thank you for your time in considering this invitation to participate.

Sincerely,

[Signature]
Jennifer L. Thomas, RN
WH-BC
Family Psychiatric Mental Health Nurse Practitioner Student
Montana State University
College of Nursing

[Signature]
Barbara Derwinski, MSN, RNC
Associate Professor
Montana State University
College of Nursing
APPENDIX H

HEALTH CARE PROFESSIONAL'S SURVEY
Date __________________

1. Are you American Indian or Alaska Native? Yes _____ No _____

2. Your gender: Male _____ Female _____

3. Your age in years? ________ Your highest level of education? __________________

4. Position: Doctor RN LPN Mid-level Provider Other ________________________________

5. How many children do you have? (Please circle the number of children you have and complete the table below)

<table>
<thead>
<tr>
<th>Your Age at the birth of the child</th>
<th>Have you ever breastfeed the child?</th>
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6. Describe your PERSONAL experience with breastfeeding or formula feeding? Problems/ successes? (If applicable)

_____________________________________________________________

_____________________________________________________________

7. As an infant, were YOU breastfed (BF) or formula fed (F)?
   BF _____ If yes, how long were you breastfed? __________________
   F _____ If yes, how long were you formula fed? __________________
   Don’t know? _____

8. What do you believe to be the top 2 benefits of formula feeding?
   1.)
   2.)
9. **What do you believe to be the top 2 benefits of breast feeding?**
   1.)
   2.)

10. **How long would you recommend a woman EXCLUSIVELY breastfeed?**
    One month  Up to 6 months  6-12 months  Greater than 12 months

11. **At what age would you recommend introducing solid foods to breastfeeding infants?**
    2-4 months  5-7 months  8-10 months  11-13 months

12. **In your opinion what is the optimal duration for an infant to EXCLUSIVELY breastfeed?**
    Never  2-4 months  5-7 months  8-10 months  11-13 months

13. **In your opinion what is the optimal duration for an infant to breastfeed?**
    Never  One month  Up to 6 months  6-12 months  12-24 months

14. **Does your facility have written policies in place regarding breastfeeding?**
    No  Yes  Unknown
    If yes, are they adequate?  No  Yes

15. **Does your facility have a place for employees to breastfeed or use a breast pump?**
    No  Yes
    If yes, where?  Office  Bathroom  Storeroom  Break room
    Other___________

16. **When do you initiate discussion with pregnant women about their infant feeding plans?**
    Never  1st trimester  2nd trimester  3rd trimester

17. **How frequently do you ask parents about their infant (child) feeding methods?**
    Never  Once  Every visit  Well child only

18. **At what age do you stop asking parents about their infant (child) feeding methods?**
    I don’t ask  One month  Six months  One year  Greater than one year
19. What resources does the facility where you are employed have for infant feeding?

   _____ WIC  _____ Lactation consultant
   _____ PHN  _____ Lactation educator
   _____ Peer counselor  _____ other, please describe: 

20. What resources does the community have for infant feeding?

   _____ WIC  _____ Breastfeeding coalition
   _____ PHN/Health Dept  _____ La Leche League
   _____ Pre natal classes  _____ Breastfeeding drop in clinics
   _____ other, please describe: 

21. During YOUR professional education, what training did you receive about infant feeding?

   _____ Nothing  _____ 1 course
   _____ Part of one lecture  _____ One chapter in text
   _____ 1 lecture  _____ Part of clinical experience
   _____ other, please describe

22. During YOUR professional education, what training did you receive about lactation?

   _____ Nothing  _____ 1 course
   _____ Part of one lecture  _____ One chapter in text
   _____ 1 lecture  _____ Part of clinical experience
   _____ other, please describe

23. During YOUR professional education, what training did you receive about breastfeeding?

   _____ Nothing  _____ 1 course
   _____ Part of one lecture  _____ One chapter in text
   _____ 1 lecture  _____ Part of clinical experience
   _____ other, please describe
24. Since graduation, what additional breastfeeding related training have you received?
   ____ Nothing
   ____ half day CME/CEU course
   ____ one day CME/CEU course
   ____ breakout session during CME/CEU course
   ____ other, please describe:
   _____________________________________________________

25. Would additional training / resources etc. enhance your current ability to promote breastfeeding?
   No   Yes
   If yes, please describe
   ___________________________________________________________________
   ___________________________________________________________________
   ___________________________________________________________________

26. Please add any additional comments:
   ___________________________________________________________________
   ___________________________________________________________________
   ___________________________________________________________________

Thank you for taking the time to participating in this survey.