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Attitudes of young adults about breastfeeding and the association of breastfeeding exposure

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ATTITUDES OF YOUNG ADULTS ABOUT BREASTFEEDING AND
THE ASSOCIATION OF BREASTFEEDING EXPOSURE

by

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Bachelor of Science in Nursing
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A thesis submitted in partial fulfillment of the
requirements for the

**Master of Science in Nursing
School of Nursing
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Cheryl Lynn Darby-Carlberg

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ABSTRACT

Attitudes of Young Adults about Breastfeeding and the Association of Breastfeeding Exposure

by

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This study was conducted to determine the attitudes of young adults in Clark County, Nevada about breastfeeding and was a replication of part of a study by Marrone, Vogeltanz-Holm, and Holm (2008). The theory for reasoned action was used as the framework to guide the study. This theory explains deliberate behavior and how specific behaviors, such as breastfeeding, are affected by individual attitudes and social support. The research is a cross-sectional correlational study and sought to test two null hypotheses: (1) There is no association between previous exposure to breastfeeding and positive attitudes toward breastfeeding, and (2) There is no difference between male subjects' and female subjects' attitudes about breastfeeding. A convenience sample of 190 young adults (male and female students between the ages of 18 and 24), which is adequate to detect a statistical difference for a small effect size (.20) at .80 power, was obtained from various classes at the University of Nevada, Las Vegas (UNLV). The research showed the Iowa Infant Feeding Attitude Scale (IIFAS) to be a valid predictor of desire to breastfeed future children in this sample.

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CHAPTER 1

WHY BREASTFEEDING?

Breastfeeding duration and support in Nevada are greatly lacking (Centers for Disease Control and Prevention, 2007). Positive support for breastfeeding may increase initiation and duration within the United States (U.S.) and in Clark County. This chapter includes the rationale for the study, definition of terms, the conceptual framework, the problem being addressed, and research questions of the study.

Rationale for the Study

The importance of increased initiation and duration of breastfeeding becomes clear when one realizes that only 11% of the population within Clark County, the most populous county in Nevada, continues exclusive breastfeeding at six months (Kaiser Family Foundation, 2005). Breastfeeding goals of Healthy People 2010 are for 75% of women to initiate breastfeeding and 50% of the population to continue exclusive breastfeeding at six months (U.S. Department of Health and Human Services, 2000). Nevada has met only one of Healthy People 2010 goals for breastfeeding process indicators and only one of outcome indicators with 79.3% of women initiating breastfeeding (Centers for Disease Control and Prevention, 2009). While most women have made their infant feeding choice by the beginning of their pregnancy, research has shown that lack of encouraging support by partners, family, and society and lack of self breastfeeding confidence are the major reasons given by women who choose not to breastfeed (McLeod, Pullon, & Cookson, 2002; Schmidt & Sigman-Grant, 2000; Scott, Shaker, & Reid, 2004). To be able to improve duration of breastfeeding, it is imperative to change attitudes of young adults before pregnancy in order to increase the number of

women who choose to breastfeed. Change in society's attitude also increases the support women need to continue exclusive breastfeeding to six months. Nurse practitioners are in a unique position to be able to work to improve breastfeeding education to patients, to inform peers, and to work at the governmental level to develop policies that are breastfeeding friendly.

Definition of Terms

The definition of exclusive breastfeeding is provided by the World Health Organization (WHO): “infant only receives breastmilk without any additional food or drink, not even water, *is* breastfeeding on demand – that is as often as the child wants, day and night, *with* no use of bottles, teats or pacifiers” (World Health Organization, 2001). The definition of young adults is men and women between the ages of 18 and 24. This age delineation is based on the definitions from the U.S. Census Bureau (Overturf-Johnson, Kominski, Smith, & Tillman, 2005) and additional references (Collahan & Cooper, 2004; Kaiser Family Foundation, 2008; Ornstein, 1997). This choice was also made because the age of 18 is the age of majority in most states, including Nevada, and 24 is the age by which many young adults have formed permanent relationships (U. S. Census Bureau, 2003).

For this study, breastfeeding exposure is defined as of having knowledge of being breastfed as an infant or having personally seen a woman breastfeeding her child (Tarrant & Dodgson, 2007), which were determined by questions on the background questionnaire. Positive breastfeeding response was determined by the possibility of breastfeeding future children as determined from the Likert scored question on the background questionnaire: What is the probability that you will (or encourage your

partner to) breastfeed your future children? Additionally positive breastfeeding attitudes (knowledge) were determined by a higher score on the Iowa Infant Feeding Attitude Scale (IIFAS).

Conceptual Framework

The conceptual framework gives order and lays out a map of progression for the study. It can be used to explain the correlation among the variables of the study. The theory of reasoned action (TRA) is the conceptual framework that was used to guide this study (Figure 1). This theory suggests behavior is determined by the individual's intention to perform the behavior. Intention to perform the behavior develops due to the person's personal attitude toward the chosen behavior (breastfeeding), her belief in her ability to perform the behavior, and the perceived attitudes of society (normative) toward that chosen behavior (Ajzen & Fishbein, 1980). Positive maternal attitudes as well as increased maternal knowledge about breastfeeding enhance both the initiation and duration of breastfeeding (Bailey, Clark, & Shepherd, 2008; Jacknowitz, 2007; Ladomenou, Kafatos, & Galanakis, 2007). Women state explicit support from their partners and other family members promotes their decision to breastfeed and encourages longer duration (Bishop, Cousins, Casson, & Moore, 2008; Grassley & Eschiti, 2008; Jacknowitz, 2007). Women need support from family members, friends, and society, as well as correct education, to help them feel empowered to feed their babies at the breast (Munoz-Silva, Sanchez-Garcia, Nunes, & Martins, 2007). It is essential that breastfeeding, rather than bottle feeding, be seen as the societal norm to provide an encouraging environment for more women to choose to breastfeed. Thus the woman's attitude toward breastfeeding, the attitudes of her support group, her perceived positive

cooperation of society, and her belief in her own ability to breastfeed produce the woman's intent to breastfeed (Shaker, Scott, & Reid, 2004).

Problem Being Addressed and Research Questions

This study replicated part of a study that looked at breastfeeding attitudes of college students in North Dakota (Moarrone, Vogeltanz-Holm, & Holm, 2008).

Breastfeeding is the normal process for feeding any infant, but many young adults choose the abnormal and decide to feed their infant milk from another mammal. This decision is greatly affected by the views of the society in which the young adult lives. It can be understood from the TRA that it is important for women, those around them, and the society in which they live, to have a positive attitude about breastfeeding. The TRA also stresses the importance of the mother's belief in her ability, which comes from an adequate understanding of the process of breastfeeding. Before we can improve breastfeeding attitudes and knowledge in Southern Nevada, we must better understand the attitudes of young adults in Clark County about breastfeeding.

Obtaining a sample of Clark County, Nevada young adult college students' attitudes about and exposure to breastfeeding will provide a beginning foundation needed to develop interventions to increase optimistic responses to breastfeeding among young adults. Improvement of knowledge and attitudes in this population may help to increase duration of breastfeeding in the state's most populous county.

This leads us to the development of two hypotheses: H 1: There is no association between previous exposure to breastfeeding and positive attitudes toward breastfeeding; and H 2: There is no difference between male subjects' and female subjects' attitudes about breastfeeding (Hurst, 2007; Ward, Merriwether, & Caruthers, 2006). The research

was a cross-sectional correlational design and sought information to test the two hypotheses.

CHAPTER 2

LITERATURE REVIEW

Introduction

The focus of this study was to assess breastfeeding attitudes in a young adult population to provide a foundation for intervention to increase duration of exclusive breastfeeding rates. A literature search was done using Academic Search Premier, EBSCO, MEDLINE, government sites, and Google Scholar. More than 350 articles were reviewed in response to the search words: support, breastfeeding initiation and duration, breastfeeding attitude, infant feeding, young adults, psychological factors, IIFAS, mothers' socio-demographics, and history of breastfeeding. The benefits of breastfeeding are described to explain why the improvement of breastfeeding rates is vital. Because the emphasis of this study was to look at attitudes of young adults in relation to low exclusive breastfeeding rates, the literature review also describes the historical social factors that caused a decrease in breastfeeding rates within the United States. It presents the current literature that supports the importance of social support of breastfeeding and how it affects women's choices to start and continue breastfeeding.

Benefits and Support of Breastfeeding

Breastfeeding has multiple benefits for the mother, infant, and society. Breastfeeding benefits for the infant include protection against infection (Lawrence & Lawrence, 2000; Lowdon, 2008), immunologic fortification (Greer, Sicherer, Burks, 2008; Colombo et al., 2007; Galson, 2008; Lawrence, 2000; Lowdon, 2008), allergy protection (Galson, 2008; Lawrence & Lawrence, 2000; Mhrshahi, Webb, Almqvist, & Kemp, 2008), and psychological advantages (Johnston, 2006; Lawrence & Lawrence,

2000,). Breastfeeding also provides long-term benefits for the mother including empowerment (Galson, 2008; Lawrence, & Lawrence, 2000; Mohrbacher & Stock, 2003; J. Riordan, 2005), better adjustment to the role of parent, and a decrease in diabetes (Gunderson, 2007), osteoporosis, ovarian cancer, and breast cancer (ACOG, 2007; Hernandez & Callahan, 2008; Hurst, 2007; Lawrence & Lawrence, 2000; Mohrbacher & Stock, 2003; J. Riordan, 2005). It also provides a long-term decrease in blood pressure (Jonas, et al. 2008) and protective infant spacing (ACOG, 2007; Hale, 2007; King, 2007). Benefits for society include health care cost decreases of more than three billion dollars per year (Department of Health Services, CA, 2009) and a decrease in the more than 1½ billion dollars per year the U.S. Department of Agriculture spends on formula for the WIC program (Oliveira, Prell, Smallwood, & Frazao, 2005). Other benefits include cost savings to business due to decrease absenteeism and lower employee turnover rates (Tuttle & Slavit, 2009). These benefits are dose dependent, so the longer a woman and infant breastfeed, the better it is for all (Raisler, Alexander, & O'Campo, 1999).

There are multiple organizations that agree breastfeeding has these intensive benefits. Breastfeeding is promoted by world organizations, such as WHO (World Health Organization, 2001), World Alliance for Breastfeeding Action (World Alliance for Breastfeeding Action, 2009), the International Pediatric Association (International Pediatric Association, 2009), UNICEF (WHO/UNICEF, 1990), and the International Lactation Consultant Association (2005). Within the U.S., breastfeeding has been recognized as a health promotion imperative with its inclusion in Healthy People 2010 (U.S. Department of Health and Human Services, 2000). The American Public Health Association (APHA) views the lack of breastfeeding as a fundamental public health

issue. The APHA recommends infants receive no food or liquids except breastmilk for the first six months and encourages breastfeeding duration for at least one to two years after that period (American Public Health Association, 2008). Breastfeeding is also promoted by U.S. Department of Health and Human Services (2009), the Surgeon General (Galson, 2009), Agency for Healthcare Research and Quality (AHRQ, 2007), the American Academy of Pediatrics (2005), the American College of Obstetrics and Gynecology (ACOG, 2007), and the Academy of Breastfeeding Medicine (The Academy of Breastfeeding Medicine Board of Directors, 2008). There are also nursing organizations that promote breastfeeding including the American Academy of Nursing (Meier & Huemick, 2005), American College of Nurse Midwives (Division of Women's Health Policy and Leadership, 1992), the Association of Woman's Health Obstetric and Neonatal Nurses (AWHONN Board of Directors, 1991), and the National Association of Neonatal Nurses (NANN, 2009), as well as support in nonmaternity arenas (Crenshaw, 2005). Nevada organizations that promote breastfeeding include Nevada WIC (Nevada State Health Department, 2006), Breastfeeding Task Force of Nevada (2009), La Leche League of California and Southern Nevada (2009), and many health care providers and facilities.

Historical Overview

Infant feeding practices have fluctuated within the United States due to the changing societal views of breastfeeding. In the early 1600s, breastfeeding rates were at the highest of any time in the history of the United States.

Puritan reformers were the most outspoken advocates for maternal breastfeeding. They emphasized the maternal rather than the sensual nature of women,

condemning those who chose not to nurse their own infant as “vain . . . and sinful in nature” (Thulier, 2009, p. 85).

Breastfeeding rates in the U.S. decreased under the influence of the Age of Enlightenment and as European cultural choices, which did not support breastfeeding, spread across the country. There was a rise in breastfeeding rates in the early 1800s when both physicians and U.S. culture supported breastfeeding but this quickly changed with the introduction of “formulas.” In the 1850s, infant “formulas” became “the most perfect substitute for mother’s milk” (Riordan & Wambach, 2010, p. 56). These “formulas” created a new category of physicians, the pediatrician, each developing his/her own mixing formula for infant feeding and at the same time creating a monetary reason to encourage women to bottle feed. Unfortunately, these formulas were often made with spoiled and contaminated cow’s milk (Wolf, 2003). These products led to extremely high infant mortality with more than 18% of all infants dying before their first birthday. More than half of these deaths were caused by diarrhea from tainted milk (Wolf, 2003).

Physicians often refused to believe their formula could cause such problems or that mothers could readily produce enough milk for their children without hampering their own health, as this example by Louis Starr (1886) reveals:

Unfortunately, the woman who has sufficient health and strength to furnish an abundant supply of good milk during the ten or twelve months of normal lactation is unique in our day, and the great bulk of those who do nurse their children grow pale, thin, and feeble and give milk, which though sufficient

in quality to fill the suckling stomach and satisfy the craving of hunger, does not contain enough pabulum to meet the demands of nutrition (p. 339).

With the approach of a new century and as infant mortality increased, public health officials and doctors in many parts of the country recognized the importance of breastfeeding in preventing diarrhea killing illness and “unanimously decried the troubles and dangers of artificial feeding” (Wolf, p. 3). As breastfeeding rates increased, there was a decrease in infant mortality.

As with many public health issues, when the immediate problem of tainted milk was resolved through pasteurization laws, the other less obvious health concerns were forgotten. With the development of the scientific age, science and medicine became the answer for all society’s troubles. This scientific revolution saw pasteurization, which provided clean milk, as the answer to any problems caused by formula. This was also seen as a breakthrough for those women who had to work. Physicians became the new oracles for what was healthy for the American home, and newer physicians were not aware of deaths and illness of infants caused by formula feeding. Many physicians explained that birth was not a natural process but a life threatening illness that needed to be medically managed in a sterilized hospital, rather than at home with unclean and uneducated midwives. Bottle feeding of formula fit best in the sterile, regimented schedule of the hospital (Schwab, 1996). Physicians told women they could breastfeed if their milk was not watery and blue. Of course, no one told women that all human milk is often watery and blue, and the appearance is not an indication of the nutritional value (Thulier, 2009). Again formula was promoted as the best science had to offer for all involved in the controlled project of delivery of an infant. All these changes in society

and the medicalization of infant feeding created an ebbing breastfeeding rate, which started at a 70% initiation rate in the 1930s to a dismal 20% initiation rate by 1956 (La Leche League International, 2003).

Medical groups and physicians continued to encourage women to bottle feed even though studies as early as 1905 from Howarth and in 1922 by Woodbury indicated breastfeeding was healthier for infants than bottle feeding (Riordan & Wambach, 2010). A group of women who did not necessarily share all the same philosophies of the feminist movement came together to share personal experience and knowledge to assist other women to breastfeed successfully. From this, the La Leche League (LLL), a grass roots movement that provided support and helpful breastfeeding information to other mothers, was established. Beginning in 1956 with seven women meeting in one of their homes, this group published “The Womanly Art of Breastfeeding” in 1958, the first book of its kind to describe the variations in normal breastfeeding and how to handle selected basic problems. The LLL quickly grew to become an international organization having leaders in 68 countries and having trained more than 42,000 leaders in the last 50 years (La Leche League International, 2003). LLL and other grass root groups were the most supportive and encouraging of breastfeeding, which started the gradual rise in breastfeeding initiation and duration rates.

The support and education provided by these organizations slowly increased breastfeeding rates in spite of physician orders of no feeding of the infant for the first 24 hours of life and strict four-hour structure feeding schedules of the 1950s and 1960s (Riordan & Wambach, 2010). Unfortunately, the feminist movement of the 1960s, which

desired to empower women and depose the male dominated medical establishment, continued the degradation of breastfeeding.

In 1984, then Surgeon General C. Everett Koop proposed a Workshop on Breastfeeding and Human Lactation to bring together political, social, and medical groups to support and increase breastfeeding (Koop, 2009). But government, those with money, society, and formula companies decided that there were bigger issues to be addressed as evidenced by the lack of change in Healthy People goals for the last thirty years. The Healthy People 2010 breastfeeding goals are basically the same goals set in 1990 for the Healthy People 2000 (Office of Disease Prevention and Health Promotion, 2000).

Slowly there has been an increase in available public breastfeeding information and improved professional education and support. The development of the professional role of the lactation consultant by La Leche League and other breastfeeding experts has also helped to improve breastfeeding outcomes by providing comprehensive, evidence based and up-to-date education for women and providers (Thurman & Allen, 2008). Although progress has been made, our society continues to struggle with breastfeeding being the norm and must become willing to state that any other substitute is repugnant.

Current Literature about Breastfeeding Support

Due to lay advocacy and grassroots groups, researchers interested in breastfeeding, public health leaders, and education of women about breastfeeding benefits, there was a gradual increase in rates (Schwab, 1996). The rise of breastfeeding initiation and duration rates first occurred mostly in the higher economic groups of mothers who were white, had a higher degree of education, and were married (LeFevre,

Kruse, & Zweig, 1987; Manstead, Plevin, & Smart, 1984). As initiation rates increased among all groups, newer research showed maternal feeding attitudes, knowledge, and the attitudes of those around her may be a better predictor of duration of exclusive breastfeeding than demographics (Jacknowitz, 2007).

Many things have been accomplished to improve breastfeeding rates. The Baby-Friendly Hospital Initiative (BFHI) is a movement that has and continues to increase rates greatly. The BFHI is defined by WHO as:

a global program to encourage and recognize hospitals and birthing centers that offer an optimal level of care for lactation. The BFHI assists hospitals in giving breastfeeding mothers the information, confidence, and skills needed to successfully initiate and continue breastfeeding their babies and gives special recognition to hospitals that have done so.

(Baby-Friendly, USA, 2004, para, 1)

Despite the benefits of breastfeeding and the support of multiple organizations, the U.S. lags far behind other nations in the number of Baby-Friendly Hospitals. There are more than 20,000 designated facilities in 152 countries around the world but only 83 hospitals are so designated within the United States (Baby-Friendly USA, 2004). The BFHI is summarized by the *Ten Steps to Successful Breastfeeding* (see Appendix A) and is supported by massive research that shows how the BFHI improves initiation and duration rates regardless of demographic factors (Radford, 1997; Rondo & Souza, 2007). One of the biggest factors preventing most hospitals from achieving Baby-Friendly status is the requirement that they accept no free merchandise from formula companies including free samples of formula (Li, Hotta, Wongkhomthong, & Ushijima, 1999;

Merewood, Mehta, Chamberlain, Philipp, & Bauchner, 2005). This continues to be true, even though research shows giving free formula packs decreases breastfeeding initiation (Bliss, Wilkie, Acredolo, Berman, & Tebb, 1997) and duration. We need a change in the culture of medicine and society if we are to improve breastfeeding rates within the United States.

The importance of BFHI and societal support was demonstrated when New York City's Department of Health and Mental Hygiene (DOHMH) decided in 2007 (Kaplan & Graff, 2008) to tackle the issue of making breastfeeding the normal and expected infant feeding behavior within the city. It developed a three level campaign to change the attitudes and support for breastfeeding within New York City. The DOHMH provided education to health care professionals, their staff, and the outreach workers who made home visit in parts of the communities with the poorest health outcomes. At the community level, DOHMH produced and shared multimedia information about the benefits and social acceptability of breastfeeding. The city encouraged and provided funding for 11 of its public hospitals to start the process to get a Certificate of Intent to become Baby-Friendly. The DOHMH also took action to make its own workplace Baby-Friendly by providing a breast pump loan program and workplace breastfeeding friendly policies. At the policy level, DOHMH worked with local and state government to pass a Breastfeeding Bill of Rights. In 2008, most New York women initiated breastfeeding (85%), but only 25% were exclusively breastfeeding at 8 weeks postpartum. The authors suggest issues that need to be addressed to further the effect of this campaign. First, to protect breastfeeding, there must be system wide changes from the Health Department, the hospitals and care providers, and within each individual. Second, expect there will be

resistance from those who don't understand the damage caused by formula and from the formula companies themselves. Third, there must be breastfeeding champions in every arena of city life for breastfeeding to become the norm.

The importance of changing the attitudes of the individual is demonstrated in the research from several sources (Arora, McJunkin, Wehrer, & Kuhn, 2000; Freed & Fraley, 1993) that show the support of the baby's father is one of the greatest predictors of breastfeeding initiation and duration. A literature review of 23 articles by Bar-Yam and Darby (1997) showed fathers are a vital foundation of support for initiation and duration of breastfeeding as have later studies (Arora et al., 2000; Earle, 2000; Freed et al., 1993; Rempel et al, 2004; Scott et al., 2004; Shepherd et al., 2000). Yet research shows fathers and other men have minimal breastfeeding knowledge and are more likely to have negative attitudes about breastfeeding for a variety of reasons (Arora et al., 2000; Bick, MacArthur, & Lancashire, 1998; Kedrowski & Lipscomb, 2005; Rempel & Rempel, 2004; Shepherd, Power, Carter & Power, 2000; Ward et al., 2006). Some reasons given for many men's lack of knowledge or affirmative response to breastfeeding is that society dictates to men through the media the definition of masculine ideology (Riordan & Wambach, 2010; Ward et al., 2006). One of the biggest factors is the lack of male involvement encouraged by health care providers, social workers, and breastfeeding support groups (Fletcher, Vimpani, Russell, & Keatinge, 2008; Hurst, 2007). Very seldom are men asked to attend breastfeeding classes with their partners, and there is a comparatively small amount of research that involves men and breastfeeding.

Stremler and Lovera (2004) looked at a Father to Father Support program initiated in several WIC programs. Fathers educated fathers-to-be about many of the

aspects of breastfeeding. The three pilot studies counseled 89 men and breastfeeding rates at each WIC clinic increased. The fathers felt empowered to help meet the needs of their families and encourage their partners to breastfeed. Results of a study by Pisacane, Continisio, Aldinucci, D'Amora, and Continisio (2005) showed teaching fathers in the intervention group how to prevent basic breastfeeding problems increased the exclusive duration of breastfeeding at six months (25% vs. 15%) and 1 year (19% vs. 11%). This was a controlled trial and included 280 couples. All mothers were given breastfeeding support and advice while only one group of fathers received breastfeeding education. This education also decreased perceived milk insufficiency in the intervention group (8.6%) to control (18%) and decreased other breastfeeding problems. Mothers, in this study and others, also expressed desire for constructive help from other family members (Grassley & Eschiti, 2008; Whaley, Meehan, Lange, Slusser, & Jenks, 2002; Zaghoul, Harrison, Fendley, Pierce, & Morrissey, 2004)

Australia has higher breastfeeding rates than the United States as indicated by the fact that 83% of Australian mothers attempt to breastfeed from birth and 18% continue exclusive breastfeeding up to six months while in the United States initiation is 73.8% and exclusive duration at 6 months is only 11.3% (Centers for Disease Control and Prevention, 2007). Despite these higher breastfeeding a rate, a study in Australia (McIntyre, Hiller, & Turnbull, 2001) shows that the lack of societal support is a problem throughout the world. This randomized telephone survey of over 3,400 adults, showed there was little support for breastfeeding and much more for bottle feeding. Lack of social support included discomfort with public breastfeeding, lack of father's support, and the mother's lack of previous experience and knowledge of breastfeeding. The

writers suggested strategies to support breastfeeding “should be directed at the community level in general rather than specific groups within the community” (p. 22).

A study (Shaker et al., 2004) used a convenience sample ($N = 108$ couples) to show positive breastfeeding attitudes of the mother were a greater predictor of breastfeeding at hospital discharge than her parity, socioeconomic status, or living with the father of the baby. The study was done in Glasgow, Scotland and used the Iowa Infant Feeding Attitude Scale (IIFAS) to determine the attitudes of the mother and the father. A later study ($N = 547$) (J. Scott, Binns, Oddy, & Graham, 2006) also showed breastfeeding duration was positively correlated with positive maternal attitudes and knowledge of breastfeeding. This study failed to find any association between breastfeeding initiation and duration and any socioeconomic factors. The authors suggested social “inequalities in breastfeeding initiation are less apparent as breastfeeding initiation approaches universality” (p. e651).

Simmie (2006) showed the decision to start and continue breastfeeding is affected by three variables: social support, mother’s attitude, and knowledge of breastfeeding. Using a convenience sample of 108 Asian (28.4%) and Caucasian (71.6%) women, this study and others (Ladomenou et al., 2007) suggest it would be helpful to find ways to alter attitudes of young women before they make the choice about infant feeding. The need for social support, encouraging attitude, and breastfeeding knowledge were also supported by other studies (Blyth et al., 2002; Bosnjak, Grguric, Stanojevic, & Sonicki, 2009)

A meta-analysis (Britton, McCormick, Renfrew, Wade, & King, 2007) using Cochrane Database, MEDLINE (1966 – November 2005), EMBASE (1974 – November

2005), and MIDIRS (1991 to September 2005) compared 34 randomized or quasi-randomized controlled trials from 14 countries. These combined trials included 29,385 mother-infant dyads and demonstrated all forms of support showed an increase in duration of any breastfeeding. This study and others showed lay support (Haasnoot-Smallegange, Renders, Oudesluys-Murphy, & Hirasing, 2009) and professional support (Sikorski, Renfrew, Pindoria, & Wade, 2003) increased exclusive breastfeeding. The researchers also indicated WHO/UNICEF training provided high-quality breastfeeding education to professionals and enabled them to provide better breastfeeding support (Sikorski et al., 2003).

Tarrant and Dodgson (2007) did a descriptive cross-sectional survey of male and female participants using a convenience sample of 403 students from a large university in Hong Kong. Data were collected using a self-administered questionnaire that looked at breastfeeding knowledge, infant feeding attitudes, and demographic information. The Tarrant and Dodgson, study and others (Kang, Song, & Im, 2005; Spear, 2007) found students who intended to breastfeed had a higher knowledge level and a more positive attitude about breastfeeding. They were also more likely to have been breastfed themselves. Tarrant and Dodgson concluded that effective breastfeeding promotion campaigns need to be directed at the societal level to promote breastfeeding as the normal choice.

O'Brien, Buikstra, and Hegney (2008) examined the effects of women's level of psychological optimism and breastfeeding self-efficacy on the duration of breastfeeding. A convenience sample of 375 controlling for socio-demographic characteristics, showed three psychological factors were statistically significantly associated with duration of

breastfeeding. These factors were positive levels of optimism, breastfeeding self-efficacy, and faith in breastmilk. The results of this study and additional studies (Mitra, Khoury, Hinton, & Carothers, 2004; Swanson, Power, Kaur, Carter, & Shepherd, 2006) suggest this information can be used to develop programs to help women to breastfeed for longer periods of time.

McInnes and Chambers (2008) reviewed 54 qualitative studies, written in English, from 1990 through 2005, to synthesize mothers' and health care providers' discernment of support for breastfeeding. Each study was reviewed independently, which produced a narrative synthesis of common themes. The authors concluded mothers rated social support and encouragement from their families as more important than support from health care providers. The mothers also stated that they found health care providers support lacking and described the unhelpful attention as "bossy, judgmental, inaccessible and uncaring and . . . projecting a lack of belief in the mother's ability to breastfeed successfully" (p. 418).

Persad and Mensinger (2008) compared the intent to breastfeed of Afro-Caribbeans and African Americans. They looked at 79 women with the majority intending to breastfeed from 4 to 11 months. Continuation of breastfeeding was significantly associated with support from family and partner. Breastfeeding initiation and continuation was also associated with education and higher income. It is interesting to note that those born outside of the United States had a higher association with breastfeeding. This study indicates family and partners should be included in breastfeeding education, particularly in low income families. Further research is needed to clarify why those born outside the United States are more likely to breastfeed. It might

be that women born outside of the U.S. have been exposed to a more constructive breastfeeding philosophy than African American women.

Studies illustrate that most people who have interaction with new families also have minimal breastfeeding knowledge (Hunt, 2006) Clark and associates (Clark, Anderson, Adams, & Baker, 2008) explained the majority of child care workers (79%) acknowledged they had minimal knowledge about breastfeeding. Health care providers often lack correct breastfeeding information and thereby misdirect their patients care (Clifford & McIntyre, 2008; Cricco-Lizza, 2006; Dusdieker, Dungy, & Losch, 2006; Guise & Freed, 2000). Media (Cafazzo, 2007; Frerichs, Andsager, Campo, Aquilino, & Stewart Dyer, 2006; Kedrowski & Lipscomb, 2005), society (R. Li, et al., 2004) and businesses within the U.S. (Seijts & Yip, 2008) send mixed messages to the population about breastfeeding. Change must occur for breastfeeding to be perceived as the normal process for feeding a baby. This change must occur at a societal level so that women are supported in all venues to breastfeed their baby.

According to the TRA, change can occur through exposure, education, and empowerment of young adults to allow them to appreciate breastfeeding as a primary health choice. First, young adults need to see breastfeeding as normal and understand the health outcomes for mother and babies are substantial. This helps to create a positive attitude toward breastfeeding and to create a society that attaches importance to the process of breastfeeding.

This education must also occur within the medical and nursing fields so that health professionals can present the correct education at the right time. The goal is for breastfeeding to become the subjective norm for future parents, their families, and society

so breastfeeding is not seen as the best choice but the conventional choice (Swanson et al., 2006). Our society must recognize the high cost of formula feeding, which includes a 29% increased risk of dying in first year of life of the infant who is not breastfed, even in industrial countries like the United States (Chen & Rogan, 2004). When these changes occur, then bottle feeding can be seen for what it is: hazardous, disease-producing, and sub-standard.

CHAPTER 3
METHODOLOGY

Design

This study is a cross sectional, correlational study design. The study was developed to investigate the breastfeeding attitudes of young adults. The design was selected because the researcher was looking for a relationship between breastfeeding and previous exposure to breastfeeding and the relationship of gender. If there is a relationship, this design helps us to see the strength of these relationships. This type of study is used to answer questions of interest. It is designated cross sectional because the information gathered is a representation of what occurred at a specific time. This design has several advantages for this study. It is a successful way of collecting a large amount of data and data about attitudes and behaviors. It is also used when comparing different groups within the sample such as male and female. This design is good for exploratory research and may suggest possible interventions for low exclusive breastfeeding duration and may provide a foundation for future research.

There are several disadvantages to this design. These include an increased chance of error, inability to measure change, or to establish cause and effect, and no control of the independent variable. This type of study also makes it difficult to rule out other triggers that may have not been considered.

In the first hypothesis (H1), the author looked for a relationship between breastfeeding exposure and attitudes and commitment to future breastfeeding. In the second hypothesis (H2), the researcher looked for differences in attitude and knowledge between college males and females.

Research Population

The sample for this study was taken from undergraduate level classes on a large urban campus in the southwestern United States. There are over 21,000 students enrolled with 55.2% being female and an average age of 22. The student body is very diverse with students from every state in the union and 63 foreign countries (University of Nevada, Las Vegas, 2009). The researcher obtained completed surveys from 190 unmarried, childless students between the ages of 18 and 24 years of age who were able to read and understand English at the time of data collection that were enrolled in six non-nursing undergraduate classes. This sample size is large enough to detect a small effect size (.20) at .80 power with a *p* value set at .05 (CI = 95%) (Faul, Engelder, Lang, & Bushner, 2007). The specific age range for the sample was selected as determined by the definition of young adults for this study.

Variables

For H1: There is no association between previous exposure to breastfeeding and attitudes toward breastfeeding, the independent variable, exposure to breastfeeding, had two specific definitions. The first definition for exposure was how often a subject has personally seen a woman breastfeeding her child. The second definition was having knowledge of being breastfed as a child. The dependent variables included breastfeeding attitudes and knowledge, which were determined by a score of the IIFAS (see Appendix C) and response of the subjects to the question “What is the probability that you will (or encourage your partner to) breastfeed your future children?” As noted in the literature, positive attitudes about breastfeeding are correlated with breastfeeding knowledge and exposure (Blyth et al., 2002; Li, Rock & Grummer-Strawn, 2007; Nakar et al., 2007).

The TRA also suggests that more positive attitudes and knowledge increase the likelihood of positive behavior.

For H2: There is no difference between male subjects' and female subjects' attitudes about breastfeeding, the independent variable is gender and the dependent variable is attitudes and knowledge about breastfeeding measured by the IIFAS. Other independent variables included the demographic data: age, race/ethnicity, years in college, tuition status (to determine state of residence), and parental education. Parental college education was used to determine the socioeconomic status of the student. Because many students at this age are supported partly by their parents, the student's individual income is not an accurate indicator of his/her economic status. The other demographic variables were collected to determine their possible association with this population's attitude about breastfeeding (see Appendix B).

Instrumentation

Data collection tools used for this study included the IIFAS and a demographic survey (see Appendix B). The IIFAS measures attitudes (knowledge) and has been shown to be an appropriate instrument. Literature that supports the effectiveness of the IIFAS and development of the demographic tool are covered below.

Current Literature about the IIFAS.

The IIFAS is a scale that can be used to assess men and women's attitudes about breastfeeding and the probability of their intent to breastfeed their child. The IIFAS is a self-administered, 17 item questionnaire with each item measured on a five point bipolar Likert Scale. About half of the items are worded to be favorable to breastfeeding and half are worded to be favorable to formula feeding. The formula feeding items were

reverse scored, giving a possible score between 17 and 85 with a higher score associated with more positive attitudes about breastfeeding. This tool was picked due to the high reliability and validity it has shown to have in more than twenty studies with women before and after birth of their child. It has been shown to be reliable in multiple age groups, males, and different ethnic/racial groups. Research showed the scale to have adequate reliability ($\alpha = .85$), validity ($r = .80$) and high internal consistency ($\alpha = .86$) (De La Mora et al., 1999).

This tool was first introduced in 1999 to measure postpartum women's attitudes regarding infant feeding choices. It was developed to help predict which mothers would breastfeed and which were more likely to formula feed. Through three individual studies, De La Mora and associates (De La Mora et al., 1999) selected 17 questions that had the most reliability and validity. In phase 1 of the study, the researchers used a convenience sample in a 456 bed community hospital in the Midwest. The women ($N = 125$) were given a three section questionnaire that asked about how they planned to feed their infant and how they felt about breastfeeding and bottle feeding, as well as the 17 questions that make up the IIFAS. When scored, the IIFAS was found to have a high reliability ($\alpha = .86$). After the researchers controlled for demographic variables, a high score on the scale was an accurate indicator of breastfeeding ($p < .001$). A Pearson correlation run between feeding choice and attitude was high ($r = .79$), and scores indicated that the IIFAS was a reliable and valid assessment of mother's attitudes about infant feeding and an accurate predictor of breastfeeding intentions. Study 2 ($N = 130$) found the tool to be extremely reliable ($\alpha = 0.85$). Mothers who planned to breastfeed had a higher (more positive) score toward breastfeeding ($M = 65.61$, $SD = 7.21$) than those who planned to

bottle feed ($M = 50.02$, $SD = 7.21$). Studies indicated the tool was highly predictive of feeding choice and feeding behavior.

Shaker (2004), used a convenience sample of 108 couples living in Glasgow, Scotland to test the validity of the IIFAS. The scores of women correlated highly with their partners' scores ($r = 0.67$; $p < 0.001$), and maternal scores were statistically significant as predictors of infant feeding choice ($OR = 1.16$, $95\% CI = 1.09-1.24$). When controlled for confounding variables, "the only factor to be independently associated with choice of feeding method was maternal infant feeding attitude" (p. 130). Another study ($N = 120$) in the United Kingdom showed similar results with the IIFAS in a socio-economically deprived area of Belfast with higher IFAS scores as significant predictors of exclusive breastfeeding (Bishop et al., 2008).

An intensive study (Chambers, McInnes, Hoddinott & Alder, 2006) done by the National Health Service (NHS) in Scotland reviewed sources from 1990 through 2005 to look for psychometric measures to evaluate mothers' breastfeeding knowledge, attitude and confidence/satisfaction. They found 23 studies that contained 13 different tools. The IIFAS was given a score of B+ (the best score received by any tool), which was based on amount of research, methodological quality of evidence, consistency of the evidence, generalizability to the UK population, and clinical usefulness. The NHS suggested the IIFAS is an adequate scale to determine breastfeeding attitudes in non-pregnant populations to ascertain attitudes and belief of those groups to develop interventions. Additionally, other researchers (Tappin, Britten, Broadfoot, & McInnes, 2006) used the IIFAS to determine breastfeeding attitudes of home visit workers ($N = 146$). This study

found the IIFAS to be reliable and valid ($M = 71.2$, $SD = 8.4$, $\alpha = 0.79$) in this non-pregnant population.

In 2007 (Wallis et al.) the IIFAS was translated into Romanian (IIFAS-R) and tested on a group of women more than 18 year of age in their third trimester of pregnancy ($N = 336$) and a postpartum group ($N = 276$) of women. The IIFAS-R was found to have adequate reliability in both groups ($\alpha = 0.63$). Reverse scoring showed strong internal consistency; it also had criterion validity and predictive validity of breastfeeding at six weeks postpartum ($\chi^2 = 6.5$; $p < .05$), and six months ($\chi^2 = 5.5$; $p > .05$). The study does indicate the IIFAS-R is more reliable in more educated women and those with more experience as parents.

Dungy, McInnes, Tappin, Wallis, and Oprescu (2007) looked at the reliability of the IIFAS in low socio-economic, urban pregnant women and their social support group. The social support group included husbands, sisters, mothers and sister-in-laws. The IIFAS showed internal consistency and reliability ($\alpha = 0.86$) for both groups. Scores of the mothers and all members of their social groups were effective in predicting not breastfeeding ($p = .001$) and high scores which predicted breastfeeding ($r = 0.70$; $p < .005$). No demographic variable affected the IIFAS scores. This study validated the use of this tool in low social-economic groups of pregnant and non-pregnant females and males.

Another study (Binns, Graham, Scott, & Oddy, 2007) found a mother's ($N = 453$) low score on the IIFAS had a positive correlation with early introduction of cow's milk to her infant ($OR 1.83$, $CI 1.21-1.77$). This was a continuation of a longitudinal study in Australia which also found there was a positive correlation between the lack of fathers'

support of breastfeeding and early introduction of cow's milk (*OR* 1.70, *CI* 1.23-2.58). The authors conclude that a low score on the IIFAS correlates with a lack of knowledge about best infant feeding practices. An additional study ($N = 275$) (Robledo, Wares, Fricker, & Pasek, 2007) confirmed that lower scores (negative breastfeeding) on the IIFAS were highly correlated with a higher score on the Public Breastfeeding as Embarrassing Scale.

The IIFAS was used in a correlation design study (Foulkes, Dundas, & Denison, 2008) to look at breastfeeding attitudes of male and female students in secondary schools in east Scotland. Students ($N = 757$) from 16 schools participated in the study, which included 546 girls and 211 boys. The IIFAS was shown to be statistically significant within this population ($p < .0005$). Knowledge of being breastfed was the only other item that was significantly correlated with a future desire to breastfeed ($p < .0005$). The authors stated, "We therefore believe that this scale (IIFAS) may be a useful and valid tool to assess attitudes about infant feeding in an adolescent population" (p. 10).

Only one study showed low reliability of the IIFAS (Moarrone et al., 2008). This study also looked at undergraduate university students in North Dakota and included 161 participants made up of 68.9% women ($n = 111$) and 31.1% men ($n = 50$). The study found a Cronbach's alpha reliability of .14. This study did not find the tool reliable, so no further analyses were done with the IIFAS scale.

Because there is extensive data supporting the use of the IIFAS in a variety of populations showing high reliability and validity, the IIFAS was chosen for this research study. There were several other tools that were developed for determining attitudes about breastfeeding, but they have limited psychometric testing and are more difficult to

administer (Chambers, McInnes, Hoddinott, & Alder, 2007; Dungy et al., 2007). The IIFAS has been proven to be reliable in a variety of ages, socio-economic groups, educational levels, racial groups and can be used to predict women's and men's attitudes about breastfeeding.

Development of the Background Questionnaire Tool.

The background survey was developed by the researcher based on other breastfeeding demographic questionnaires and from breastfeeding research. The researcher also included data that has been shown to affect breastfeeding outcomes. The background questionnaire tool was critiqued by four experienced researchers and a statistician. Changes were made to the tool per their suggestions to give the tool content validity. The final background questionnaire included age, gender, race/ethnicity, number of years in college, tuition status, having children, parental education, and breastfeeding history.

Data Collection

After receiving exempt status from the University of Nevada, Las Vegas Office for the Protection of Research Subjects Institutional Review Board (IRB), the researcher collected data from students in undergraduate courses with permission from the professor for each class. Data collection occurred in six different undergraduate, non-nursing classes between November 10, 2009 and November 23, 2009. The process included handing out the consent forms and explaining the research project. Keeping the consent form and filling out the questionnaire indicated agreement to participate in the research. Questions from students were answered, and it was explained to each student that their participation was not required nor would their participation be reflected in their grade for

the class. Then the IIFAS and the demographic survey were handed out to each student. Forms were collected by students and given to the researcher face down. To help protect anonymity of those who did not wish to participate, they handed back the uncompleted forms at the time of collection. Of the 198 questionnaires collected by the researcher, eight were not used because two had children, one was married, and five had more than 10% (three or more questions) not completed. The 190 completed forms were examined for missing information.

Data Analysis

Following collection of data, responses were entered into an Excel Spread sheet and then imported into the Statistical Package for Social Sciences (SPSS) for data analysis. Correlations and fractional correlations were determined using the SPSS 17 program. The first part of H1 was tested using a Spearman's rho and the third part with Kendall tau. The second and fourth components involving the IIFAS, an interval level measure, were analyzed with ANOVA. H2 was analyzed using a chi-square. A Pearson Correlation was used to analyze the relationship between the two dependent variables of H1 to determine if they measured the same choice. The demographic variables were analyzed to determine if they affected the outcomes of the two hypotheses. The completed forms were secured per the approved IRB protocol.

CHAPTER 4

FINDINGS OF THE STUDY

The statistical findings of the research project will be covered in this chapter. The discussion will include the demographics of the sample, the rejection or the failure to reject the null hypotheses and the statistical data that supports those choices.

Sample Population

In the surveys ($N = 190$), 61% ($n = 115$) of the participants indicated they were in their first year of college. The mean age was 19.3 years (± 1.579) with more than 80% being 20 years or less. Most participants (57.4%, $n = 109$) indicated at least one of their parents had graduated from college. It is interesting to note that although most class populations had at least 40% male students, fewer males chose to participate in the research than females. No further information is available on the nonparticipating students. Demographic information of the sample population is presented in Table 1.

First Hypothesis

The first null hypothesis has several components as determined by the definition of breastfeeding exposure and attitudes. The first part of the null hypothesis: Seeing a woman breastfeeding has no association with the desire to breastfeed future children, failed to be rejected because there was no statistically significant association found using Spearman's rho ($r_s = .091$). The third part: Knowledge of being breastfed as a child has no relationship with the desire to breastfeed future children was rejected because a statistically significant correlation was found using Kendall tau ($p > .001$).

ANOVA was used to determine if the second and fourth component of the first null hypothesis would be rejected. These components were: There is no association between

seeing a woman breastfeed her child or knowledge of being breastfed as a child on breastfeeding knowledge as determined by the score on IIFAS.

The IIFAS score ranges from 17 – 85 with a higher score indicating that the person had a more optimistic attitude toward breastfeeding than bottle feeding. The researcher, as done in previous studies (Foulkes, Dundas, & Denison, 2008; Scott et al., 2006; Tappin, Britten, Broadfoot, & McInnes, 2006), set the median score of the group ($M = 57.06$, $Mdn = 56$, $SD = 7.561$) as the score to indicate a positive attitude toward breastfeeding.

There are three assumptions that must be true to use ANOVA: the dependent variable must be continuous, and normally distributed, and the groups mutually exclusive (Munro, 2005). The data met these specific requirements. Figure 2 shows the results of the total scores with minimal skewness (.310) and kurtosis (-.135) of the total IIFAS scores and shows a fairly normal distribution.

ANOVA results indicated seeing a woman breastfeed her child did not have an association with more breastfeeding knowledge as indicated by a higher scores on the IIFAS ($F = 2.258$ $p = .083$), causing us to fail to reject the second component of the null hypothesis (H1). Knowledge of being breastfed as a child, as indicated by 65% ($n = 123$) of the participants, did have a statistically significant correlation with positive breastfeeding attitudes ($F = 16.811$, $p > .001$) as indicated by higher scores on the IIFAS, so the fourth part of the first null hypothesis was rejected. A statistically significant correlation was found between the dependent variables, desire to breastfeed future children and positive IIFAS score ($r = .558$, $p > .001$).

Second Hypothesis

The second null hypothesis: There is no difference between male subjects' and female subjects' attitude about breastfeeding failed to be rejected. When comparing means between male ($M = 55.05$, $R = 25$) and female ($M = 56.09$, $R = 38$), the difference in overall attitudes about breastfeeding was not statistically significant ($\chi^2 = .281$). This was also indicated by comparing the number of men (49%, $n = 25$) and women (51%, $n = 71$) whose IIFAS score were ≥ 56 , which indicated a more positive attitude toward breastfeeding.

In this sample age ($r = .292$), race ($F(3,189) = .675$, $p = .568$), and year in college ($F(3,189) = 2.042$, $p = .110$) did not have a statistically significant effect on the dependent variable outcomes. The differences in the numbers of the two groups of in-state (92%, $n = 174$) and out of state (8%, $n = 16$) tuition were too large to be able to compare the groups. Only one of the demographic variables, at least one parent graduated from college ($F(1,189) = 5.540$, $p = .02$), had any statistically significant relationship with the scores on the IIFAS.

Many of the individual IIFAS scores (Table 2) were statistically significant when correlated with the desire to breastfeed future children. Two questions: Benefits of breastmilk only last during breastfeeding, and a woman should not breastfeed if she drinks occasionally, were scored negatively by most participants, indicating a lack in correct breastfeeding information. A third question, fathers do not feel left out of parenting because of breastfeeding, was scored positively by most participants regardless of their desire to breastfeed or bottle feed future children.

The majority of the sample population lived in the state of Nevada and most (80%) were 20 years old or younger. It is evident that seeing a woman breastfeeding did not correlate in this group with a greater desire to breastfeed or with more affirmative attitude (knowledge) about breastfeeding. The knowledge of being breastfed as a child did have a positive association with the desire to breastfeed future children and a more positive score on the IIFAS (indicating increased breastfeeding knowledge and attitudes).

CHAPTER 5

CONCLUSIONS AND IMPLICATIONS

Limitations of the Study

Helpful interventions cannot be developed without a starting point, so this research endeavored to gather basic information about young adult attitudes and knowledge about breastfeeding. Its applicability is limited because it is a cross-sectional study and because of the use of a convenience sample of college students at one institution. A cross-sectional design is used to look at relationships between the variables, but it does not indicate cause. “Convenience sampling is considered a weak approach to sampling because it provides little opportunity to control for biases” (Burns & Grove, 2005). The data will be applicable to this cohort (young adults at UNLV) and the implementation of the results may help increase duration within this group in the future. There were also a greater percentage of females than males, which may have affected the outcomes that were based on gender.

Conclusions

This was an initial study to help determine what attitudes are prevalent among a young adult collegiate population in Las Vegas, Nevada. The study looked for association between breastfeeding exposure, positive breastfeeding attitudes, desire to breastfeed, and the differences between men and women’s attitudes about breastfeeding.

Historically, a lack of support by the family and society has caused a rapid decrease in breastfeeding initiation and duration rates within the United States. The history of breastfeeding in the United States shows that breastfeeding support is determined by the mindset of society rather than the evidence. The literature review

showed the constructive effect of correct breastfeeding knowledge and positive breastfeeding attitudes on the initiation and duration of breastfeeding. Studies (Bar-Yam et al., 1997; Stremier et al., 2004; & Shaker et al., 2004) continually show the value of a father's encouraging attitude on the breastfeeding relationship. Other research has shown that more exposure to breastfeeding has a positive association with more positive attitudes about breastfeeding. This was not supported by this study's first definition of exposure as personally seeing a woman breastfeeding her child. This variation from the literature may be due to differences in this sample from others studied. A greater probability is that for this component of the first hypothesis, the definition of breastfeeding exposure as personally seeing a woman breastfeeding her child did not necessarily represent positive exposure in a valid manner. The definition did not differentiate between a positive experience or a negative experience. The participants were not given specific definitions of the categories: never, occasionally, some, and frequently. This ambiguity may have decreased the acquisition of significant data for this definition of the variable.

Statistically significant relationships were found between knowledge of being breastfed as a child and the desire to breastfeed future children and increased breastfeeding knowledge as indicated by a higher score on the IIFAS. This is also supported by research (Kang et al., 2005; Spear, 2007) which found students who were breastfed were also more likely to breastfeed. These results showed we must reject the second and fourth component of the first null hypothesis that knowledge of being breastfed as a child has no association with increase desire to breastfeed future children or increase knowledge of breastfeeding as indicated by a higher score on the IIFAS. This association

shows that when a participant had prior knowledge of being breastfed as a child, there was a positive association with the desire to breastfeed future children.

Does the knowledge of being breastfed as a child encourage a person to see the process of breastfeeding as the norm? This may be likely, as research (Gardner, 2006; Goaksen, 2002; Grote & Clark, 1998; Hoffmann, 2007; Rutland et al., 2007) shows that many individuals tend to see their home lives as a picture of normal. It might be that this positive attitude is due to the increased knowledge base of the family about breastfeeding. If true, this would suggest that it is important for breastfeeding parents to discuss their breastfeeding decisions with their children. This idea is supported by the literature review which showed all areas of society need to be supportive of the pregnant and breastfeeding mother if we are going to increase initiation and duration. These ideas are further supported by the research on the TRA that suggests that perceived norms have an influence on the choices individuals make. These associations highlight questions that need to be answered. It is important to note that the two operationalized definitions (desire to breastfeed future children and positive score of the IIFAS) for affirmative breastfeeding attitudes and knowledge did have a positive correlation with one another. This increases the probability that each was an accurate measure for the same dependent variable.

The results indicate that we must fail to reject the second null hypothesis: there is no difference between men and women's attitudes about breastfeeding; it is interesting that in this population being male or female did not make a significant difference in these young adults' attitudes about breastfeeding. Research indicates that many women perceive that men are less supportive of breastfeeding than themselves (Arora, McJunkin,

Wehrer, & Kuhm, 2000; Earle, 2000; Freed, Fraley, & Schanler, 1993). It may be true that some men have negative ideas about women's bodies and breastfeeding. Ward (2006) studied how the adherence to the masculinity ideology that is prominent the United States, "conceptions of masculinity achievement and status, self-reliance" (p. 715) may increase the likelihood men will have negative views of breastfeeding and breastfeeding in public. While there was no statistical difference between the males and females in this population, only half of the sample had positive feelings about breastfeeding. It may be that the difference in this study was due to the difference in the number of men compared to women in our sample. It may be due to a greater percentage of women in this sample not having a positive attitude about breastfeeding. We would expect this percentage to be higher as indicated by the research of the Kaiser Foundation (2006), which showed that 79% of women in Nevada initiate breastfeeding. A greater percentage of those who initiated breastfeeding were college-educated women; of course, some of the women who did initiate were not college-educated. Perhaps the change to a positive attitude about breastfeeding that we would expect to occur may not transpire in this population group. It may also be that the process of coming to understand the positive aspects of breastfeeding does not occur until some young adults are older and have had more exposure to the world.

Ongoing research indicates that as a higher percentage of women choose to breastfeed, demographic variables seem to be minimal indicators of those who choose to initiate and continue to breastfeeding. Within this sample, that was also true of all demographic variables except for those students who had at least one parent graduate from college. A greater percentage of these students indicated a desire to breastfeed

future children and had increased breastfeeding knowledge as indicated by a higher score of the IIFAS.

Several answers on the IIFAS indicate strong gaps in this sample's knowledge about breastfeeding. Only 9% of the sample recognized that occasional alcohol intake was not a reason for a woman to bottle feed her child. In the recent past, there has been incorrect information (Calnen, 2009) about breastfeeding and alcohol intake that needs to be addressed further. Another incorrect assumption as indicated by answers on the IIFAS was that breast milk is lacking in iron (38%). Research shows that the iron in breastmilk is extremely bioavailable and able to meet the iron needs of a healthy newborn (Riordan & Wambach, 2010).

The outcomes also show that more than 36% of the participants of this study believe that formula is as healthy for infants as breastmilk. This has been a growing problem as indicated by a study by Li, Rock and Grummer-Strawn (2007) that found that there is a large increase in the number of adults that believe that formula is equivalent to breastmilk.

Interestingly, a majority (69%) of this sample did not feel that breastfeeding made the father feel left out of parenting, which is often a reason given by some not to breastfeed. It is also interesting to note that many mothers have a much more negative perception of father's attitudes about breastfeeding than relayed by the father (Freed et al., 1993; Auora et al., 2000; Earle, 2000; Fletcher et al, 2008).

Implications

The first implication for practice indicated by this research is the need for more accurate and complete breastfeeding education within this population. These results do

show the strong necessity for breastfeeding education that includes the benefits for mom and baby and resolution of several myths this sample seems to accept. An essential issue to tackle is the negative attitudes held by a large percentage of this sample about breastfeeding. Education is required that makes it plain to young adults that the benefits of breastfeeding last a lifetime for the infant and the mother.

Another misconception brought out by this research indicated that this group of young adults believed that formula is equal to breastmilk. Obviously, the education of this population about the negative effects of formula is lacking. There are multiple disease processes that increase when an infant is fed formula. These include an increase in Sudden Infant Death Syndrome by more than a third, infant death by more than 27%, and a risk ratio (RR) of .50 in acute otitis media, a .50 for atopic dermatitis, .36 for gastrointestinal infections, .28 for lower respiratory infections, .73 for asthma, and .76 for obesity. This does not even take in account the increase in Type 1 and Type 2 diabetes, increase in childhood leukemia and health deficits for the mother who feeds formula to her infant (Stanley, Chung, Raman, Thomas, & Lau, 2009). These truths must be made evident to adolescents and young adults so they can make an informed choice about breastfeeding.

Next, it is important for young adults to understand the truth about alcohol intake and breastfeeding. According to the La Leche League, an occasional drink does not have to alter a mother's breastfeeding pattern (Mohrbacher & Stock, 2003; Gotsch & Torqus, 2008), and the American Academy of Pediatrics Committee on Drugs (2001) considers occasional alcohol compatible with breastfeeding. Dr. Jack Newman, the foremost

breastfeeding expert in Canada states, “Prohibiting alcohol is another way we make life unnecessarily restrictive for breastfeeding mothers” (Newman & Pitman, 2000).

Thomas Hale (2008), pharmacological expert and author of “Medications and Mother’s Milk” affirms “that alcohol is secreted into breastmilk but is not considered harmful to the infant if the amount and duration are limited . . . those who are chronic or heavy consumers of alcohol should not breastfeed”(p. 121). This information needs to be provided to young adults, so that when they become parents, they can make knowledgeable choices. Erroneous information could potentially prevent women from breastfeeding or minimally make their breastfeeding experience more complicated than it needs to be. Occasional alcohol intake is not a reason to discontinue or never start breastfeeding and those that promote this fallacy do not recognize the substantial harm, including decreased health of infant and mother, increased health care cost, increased cost to society, and increased risk of infant death which occurs when even one child is not breastfed (Chen et al., 2004; Stuebe, 2009).

Although health care organizations say they support breastfeeding, their health care actions are often detrimental and help promote another fallacy held by this population about the amount of iron that is readily available in breastmilk. The Academy of Breastfeeding Medicine (2007) and the American Academy of Pediatrics (2009) and other research show that breastmilk plus infant iron stores contain more than enough iron to meet the needs of the healthy infant for at least the first six months. In fact, research (Deshpando, 2008) shows that giving iron supplements to a breastfed infant can decrease the amount of iron their gut will be able to absorb. A study by Raj, Faridi, Rusia, Singh (2008) showed that infant that were exclusively breastfed for 6 months did not develop

iron deficiency regardless if the mother was anemic or not. Exogenous iron also destroys the natural flora in the newborn's intestines, which increases the likelihood of the infant developing intestinal infections and diarrhea. Exclusive breastfeeding for the first 6 months is imperative to promote healthy infants and mothers. It is important for nurse practitioners to be correctly informed, to provide accurate instructions to their patients, and to encourage the same of their peers.

Because this study is cross-sectional correlational design, we are only able to draw associations from the results and posit possible causes that will require further research. Research is needed to develop a tool that would correctly measure positive breastfeeding exposure, including a tool that would accurately measure the effects of seeing a woman breastfeeding her child and how to make this a more positive experience. This could provide additional ways to encourage an affirmative response to breastfeeding. This would help us to discover what manner of education and experiences would help young adults to react optimistically to breastfeeding.

It is also important that research continues to look at the effect of varying demographics on the mother's choice to breastfeed and to continue to breastfeed. This would offer suggestions that may help mothers to continue exclusive breastfeeding for a greater period of time. It is also important that more men are involved in breastfeeding research. We know that the support of the father and the family increases the woman's desire to breastfeed and to continue to breastfeed. We must find ways to provide education to men that is interesting and productive.

It would also be helpful if more in-depth research was done to determine why young adults who know they were breastfed are more likely to breastfeed their own

children. It would be important to determine if this is due to seeing breastfeeding as a normal process, being raised with more correct breastfeeding information, or some other factor.

Summary

This study illustrated the importance of breastfeeding education in this population and most probably their families. It also revealed that much false information about breastfeeding still permeates this sample of young adults. As stated before, research shows confident maternal attitudes as well as increased maternal knowledge about breastfeeding enhance both the initiation and duration of breastfeeding (Bailey et al., 2008; Jackowitz, 2007; Ladomenou et al., 2007). Women feel empowered with augmented knowledge and understanding of the breastfeeding process which provides the motivation to follow through on this behavior. It is imperative that women of child-bearing age be surrounded by friends and family who recognize the significance of breastfeeding and who encourage and support her in this decision. Fathers should be encouraged to partake in as much breastfeeding education as their partners so that they can be part of the support needed by their breastfeeding partner and their family.

It is also important to enhance and develop breastfeeding education that is available to mothers, fathers, families, and health care providers. Finally, the society in which the breastfeeding mother lives must have an appreciation for breastfeeding and its multiple benefits in order to encourage and reinforce her in this process for the good of her family and for society itself.

This study also produced questions that need to be answered by further research. It is important for further research to incorporate more men and find ways to encourage

men to understand the importance of their participation in breastfeeding research. The responses of this sample indicate that many are not comfortable with women breastfeeding in public. Fear of breastfeeding in public can be a large deterrent as women decide whether to breastfeed or bottle feed. Additional research is needed to see what specific knowledge gaps occur in the general population of southern Nevada and what content and where this education should occur to be the most beneficial to counter misinformation. Finally, the study showed that, if breastfeeding duration is to be increased in southern Nevada, those who acknowledge that breastfeeding is a public health issue have much work ahead.

TABLES

Table 1

Biographical Data of the Sample Population

| Demographic Information | % of Sample <i>N</i> = 190 |
|----------------------------|----------------------------------|
| <hr/> | |
| <i>Race</i> | |
| Caucasian | 44 (<i>n</i> = 84) |
| Asian or Pacific Islander | 31 (<i>n</i> = 59) |
| Latino/Hispanic | 12 (<i>n</i> = 23) |
| More than one race | 6 (<i>n</i> = 12) |
| African American | 4 (<i>n</i> = 8) |
| Native American | 2 (<i>n</i> = 2) |
| <i>Sex</i> | |
| Male | 27 (<i>n</i> = 51) |
| Female | 73 (<i>n</i> = 139) |
| <i>Tuition Status</i> | |
| In state | 93 (<i>n</i> = 175) |
| Out of state | 7 (<i>n</i> = 15) |

Table 2

Statistics for Individual IIFAS Questions

| Question | Mean | Median | Skewness | Kurtosis | Standard Deviations | Pearson Correlation |
|---|------|--------|----------|----------|---------------------|---------------------|
| 1. Nutritional benefits of breastfeeding* | 3.44 | 3.00 | -.301 | -.567 | 1.095 | .130 |
| 2. Formula is more convenient* | 2.76 | 3.00 | .286 | -.904 | 1.218 | .294*** |
| 3. Breastfeeding increases bonding | 4.09 | 4.00 | -1.192 | 1.088 | 1.019 | .257*** |
| 4. Breast milk lacking in iron* | 3.52 | 3.00 | .441 | -.186 | .859 | .256*** |
| 5. Formula fed infants more overfed | 3.27 | 3.00 | -.028 | -.374 | .959 | .180** |
| 6. Formula better choice for working mom* | 2.85 | 3.00 | .319 | -.723 | 1.112 | .262*** |
| 7. Mothers feed formula miss a great joy | 3.31 | 3.00 | -.268 | -.672 | 1.160 | .381*** |
| 8. Should not breastfeed in public* | 2.54 | 2.00 | .393 | -1.093 | 1.367 | .240*** |
| 9. Breastfed babies are healthier | 3.68 | 4.00 | -.446 | -.354 | 1.031 | .334*** |
| 10. Breastfed babies are overfed* | 3.59 | 4.00 | .099 | -.238 | .810 | .224*** |
| 11. Fathers feel left out if mothers breastfeed* | 3.97 | 4.00 | -.924 | .423 | 1.054 | .075 |
| 12. Breast milk ideal food | 4.00 | 4.00 | -.785 | .390 | .903 | .462*** |
| 13. Breast milk easier to digest | 3.68 | 4.00 | -.022 | -.489 | .906 | .373*** |
| 14. Formula as healthy as breastmilk* | 3.18 | 3.00 | -.077 | -.555 | 1.108 | .338*** |
| 15. Breast milk is more convenient | 3.08 | 3.00 | .025 | -.672 | 1.147 | .075 |
| 16. Breast milk less expensive | 4.33 | 5.00 | -1.585 | 3.089 | .867 | .158** |
| 17. If woman drinks occasionally she should not breastfeed* | 1.76 | 1.00 | 1.385 | 1.089 | 1 .081 | .036 |

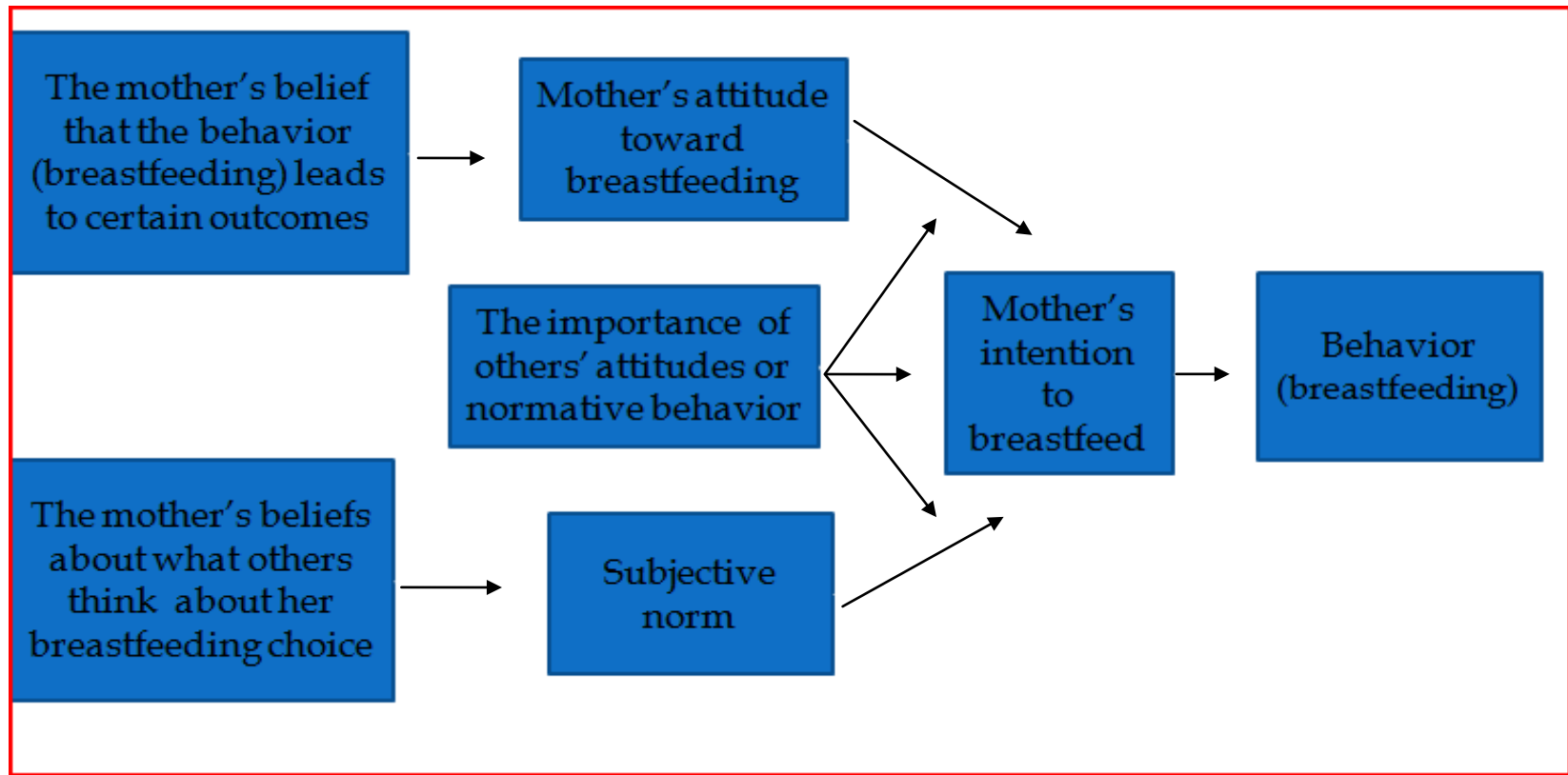
*These question's variables were reverse scored to determine total IIFAS score

**Correlation is significant at the .01 level

***Correlation is significant at the .05 level

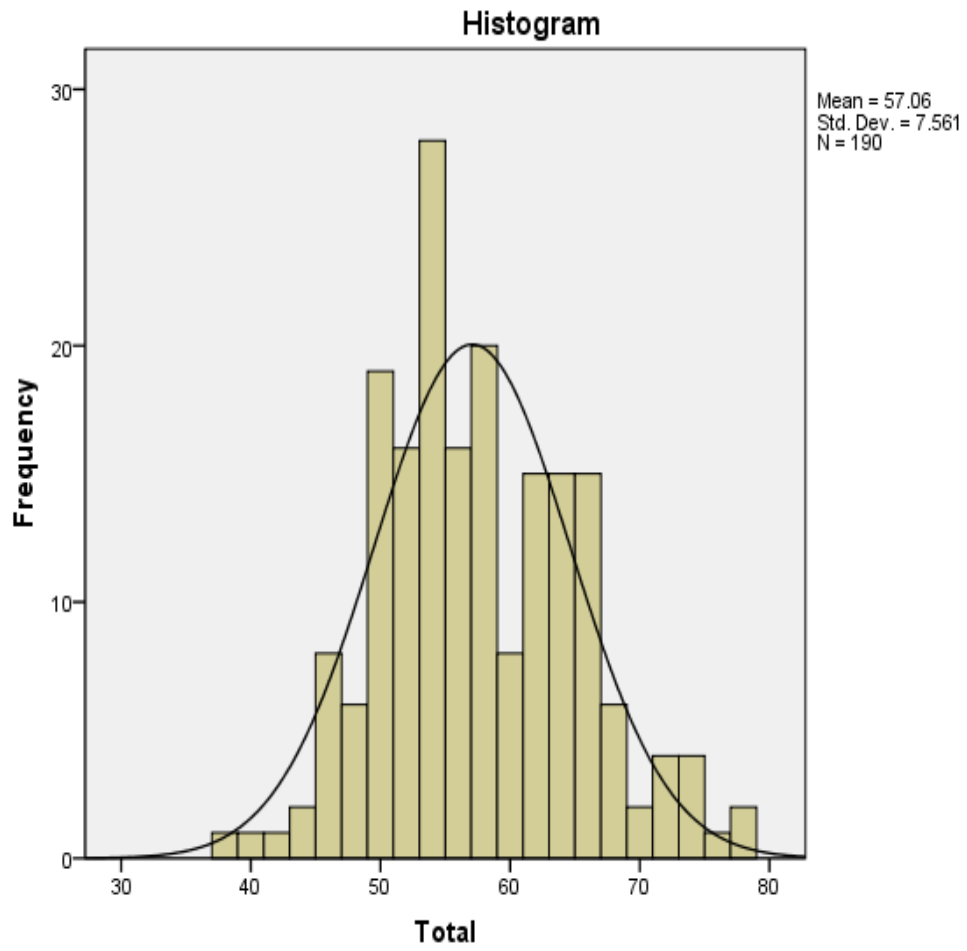
FIGURES

Figure 1 The Conceptual Framework - The Theory of Reasoned Action



Adapted, from Ajsen and Fishbein (1980)

Figure 2 Normal Distribution of IIFAS Total Scores



APPENDIX A

THE TEN STEPS TO SUCCESSFUL BREASTFEEDING

1. Maintain a written breastfeeding 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 infants no food or drink other than breastmilk, unless medically indicated.
7. Practice “rooming in” – allow mother and infants to remain together 24 hours a day.
8. Encourage unrestricted breastfeeding.
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.

APPENDIX B

BACKGROUND INFORMATION

Gender: female male

Age: _____

Race/Ethnicity:

- Asian or Pacific Islander Latino/Hispanic
 Black/African American Caucasian/White
 Native American More than one race (specify): _____

Year in college:

- First-year sophomore junior senior

Tuition status:

- in-state out-of-state

Do you have any children?

- yes no

Has at least one or more of your parents graduated from college?

- yes no

Were you breastfed as an infant?

- yes no

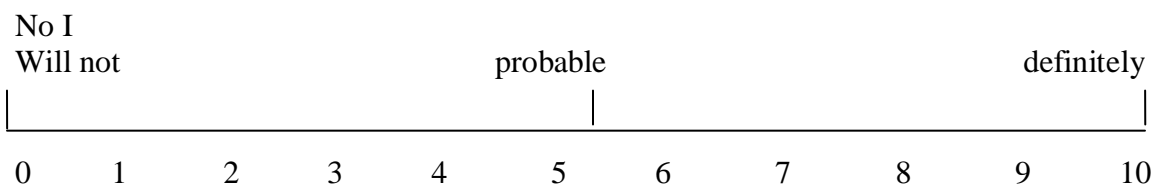
If yes, for how long?

- 0 to 3 months between 4 to 6 months
 between 7 to 12 months > 12 months don't know

How often have you personally seen a mother breastfeeding her child?

- never occasionally some frequently

What is the probability that you will (or encourage your partner to) breastfeed your future children?



APPENDIX C

IOWA INFANT FEEDING ATTITUDE SCALE

For each of the following statements, please indicate how much you agree or disagree by circling the number that most closely corresponds to your opinion (1 = strong disagreement [SD], 2 = disagreement [D], 3 = neutral [N], 4 = agreement [A], 5 = strong agreement [SA]). You may choose any number from 1 to 5.

Copy righted material may be found in:

De La Mora, A., Russell, D. W., Dungy, C., Losch, M., & Dusdieker, L. (1999). The Iowa Infant Feeding Attitude Scale: Analysis of reliability and validity. *Journal of Applied Social Psychology, 29*, 2362-2380.

APPENDIX D



IRB Exempt Review

**Biomedical IRB – Exempt Review
Approved as Exempt**

DATE: September 30, 2009

TO: **Dr. Nancy Menzel**, Psychosocial Nursing

FROM: Office for the Protection of Research Subjects

RE: Notification of IRB Action by
Protocol Title: **Attitudes of Young Adult UNLV Students about
Breastfeeding and the Effect of Breastfeeding Exposure**
OPRS# 0908-3174

This memorandum is notification that the project referenced above has been reviewed by the UNLV Biomedical Institutional Review Board (IRB) as indicated in Federal regulatory statutes 45CFR46.

The protocol has been reviewed and deemed exempt from IRB review. It is not in need of further review or approval by the IRB.

PLEASE NOTE:

Attached to this approval notice is the **official Informed Consent (IC) Form** for this study. The IC contains an official approval stamp. Only copies of this official IC form may be used when obtaining consent. Please keep the original for your records.

Any changes to the exempt protocol may cause this project to require a different level of IRB review. Should any changes need to be made, please submit a **Modification Form**.

If you have questions or require any assistance, please contact the Office for the Protection of Research Subjects at OPRSHumanSubjects@unlv.edu or call 895-2794.

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