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INTENT OF EXPECTING FATHERS TO ENCOURAGE BREASTFEEDING,
PERCEPTIONS OF SUPPORT AND BARRIERS TO ENCOURAGING
BREASTFEEDING

by

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A THESIS

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INTENT OF EXPECTING FATHERS TO ENCOURAGE BREASTFEEDING,
PERCEPTIONS OF SUPPORT AND BARRIERS TO ENCOURAGING
BREASTFEEDING

Katrina Harwood, M.S.

University of Nebraska, 2011

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Breastfeeding is well known to be the optimal feeding method for healthy infants.

Although the benefits of breastfeeding have been well documented, according to the Centers for Disease Control (CDC) 2010 breastfeeding report card, breastfeeding rates at 3 months, 6 months and 12 months post-partum have fallen below the objectives set by Healthy People 2010. A mother's decision to breastfeed has been associated with a variety of factors including, income, education level, geographic location and level of breastfeeding support provided by health care professionals, her mother and the infant's father. The father of the unborn child has been identified as being very influential in feeding method decision. The purpose of this study was to assess the intent of expecting fathers to encourage breastfeeding and to explore perceptions of the father's involvement in breastfeeding and barriers to encouraging breastfeeding. Ten expecting fathers were recruited from a crisis pregnancy center and a Special Supplemental Nutrition Program for Women, Infants and Children (WIC) clinic to complete a questionnaire and a one-on-one interview with the researcher. Intent of the fathers to encourage breastfeeding was assessed using the Theory of Planned Behavior model. Overall, the fathers were found to intend to encourage breastfeeding and have positive attitudes regarding encouraging breastfeeding. The father's perceived behavioral control was lower than scores for intent,

attitude and subjective norms. This finding suggests that the fathers were not confident in their ability to encourage breastfeeding if they desired to. Having the mother use a breastpump and being there for the mother as she breastfeeds were found to be ways fathers felt they could be involved in the infant's feeding. The main barrier to encouraging breastfeeding was that it was ultimately the woman's decision.

For my mother

Thank you for breastfeeding.

I want to thank Dr. Kaye Stanek-Krogstrand
for her guidance, patience and expertise.

I would like to thank the Lincoln Crisis Pregnancy Center
and the Siouxland District Health Department WIC Program
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who participated in this study.

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Review of Literature

Breastfeeding is known as the optimal feeding method for infants. Exclusive breastfeeding for the first 6 months of life is recommended by several health organizations including the American Academy of Pediatrics, American College of Obstetricians and Gynecologists, the World Health Organization and the American Dietetic Association. These organizations, among others, are in support of exclusive breastfeeding for the first six months of life (Kogan et al., 2008). After six months of age, breastfeeding along with introduction of complementary foods is recommended. Breastfeeding provides all the needed nutrients for developing infants with the exception of vitamin D and iron, which should be given as supplements within days after birth and beginning at four months of age, respectively.

Knowledge of the benefits of breastfeeding and the components of breastmilk that facilitate optimal growth and development continue to expand as more research is conducted. Breastfeeding provides infants with a continual intake of antibodies that are shown to increase the infant's immune system which, in turn, decreases the number of acute infections these infants have (Schack and Michaelson, 2007). Breastfeeding has also been associated with other benefits to infants including increases in cognitive abilities, optimal growth as well as correct jaw and tooth development (Brown, 2005; Schack and Michaelson, 2007; Mahan and Escott-Stump, 2004).

Studies have also shown that women who decide to breastfeed have a lower risk of developing cancers such as breast cancer and ovarian cancer. Breastfeeding mothers also have a lower risk of developing osteoporosis and recover after childbirth quicker with a decreased risk of hemorrhaging after birth (United States Breastfeeding

Committee – benefits of breastfeeding). Breastfeeding benefits for the family include a healthier infant and cost savings. The benefits of breastfeeding reach beyond the breastfeeding mother and infant and impact both the environment and the lives of all community members. Breastfeeding can be considered a “green,” or environmentally friendly, feeding method because while breastfeeding, there are no containers to dispose of. Breastfeeding also does not require use of natural resources that formula uses for production and transportation. An increase in breastfeeding rates and an increase in infant and child health also decrease the need for health service. It is estimated that at least \$3.6 billion is paid each year to treat conditions that breastfeeding could have prevented (US Breastfeeding Committee – economic benefits of breastfeeding).

Although breastfeeding is understood to be best for infants, mothers and society, breastfeeding rates fluctuate and often fall short of goals set by organizations such as those that establish health goals for the nation (Healthy People Objectives for the Nation). Healthy People 2010 set goals for breastfeeding in the United States that included 75% of women initiating breastfeeding, at least 50% of women breastfeeding six months postpartum and at least 25% of women breastfeeding one year after the infant’s birth (U.S. Department of Health and Human Services (n.d.), Healthy People 2010). The final report of Healthy People 2010 indicated that, overall, the nation fell short of these breastfeeding rate goals. The 2010 Center for Disease Control (CDC) Breastfeeding Report Card indicated that nationally, 75% of women initiated breastfeeding, 43.0% of women had continued to breastfeed at six months and 22.4% of women were breastfeeding at twelve months. Among mothers, 33.0% were exclusively breastfeeding at three months and 13.3% were exclusively breastfeeding at six months (Centers for

Disease Control and Prevention [CDC] breastfeeding report card, 2010). These results show that despite national and local initiatives to increase rates of breastfeeding, women are facing barriers that prevent them from achieving national goals. Increasing the number of infants who are breastfed is a continual process. Current national breastfeeding goals, as set by Healthy People 2020, are to continue to increase the number of women who choose to breastfeed to meet the percentage goals previously set in Healthy People 2010. Healthy People 2020 has set a target level of infants who were ever breastfed at 81.9%. Continued, exclusive breastfeeding, through three months target is 46.2% of infant, exclusively breastfeeding through six months target is 25.5%. Breastfeeding rates at 6 months, whether exclusive or supplementing with formula, has a target set as 60.6% and breastfeeding at one year after birth target is set for 34.1% (U.S. Department of Health and Human Services (n.d.), Healthy People 2020).

Rates of breastfeeding depend on a variety of factors including socioeconomic and demographic factors. The mother's age, education level, income and non-smoking status have all been associated with higher rates of breastfeeding (Kogan et al., 2008). Women who were breastfed as an infant are also more likely to breastfeed their children compared to women who were bottle-fed (Murimi et al., 2010). Results of studies on the rates of breastfeeding have also indicated that breastfeeding rates are higher in western states as well as states that have laws to support and protect breastfeeding (Kogan et al., 2008). Nationally, breastfeeding barriers are being addressed. National legislation that has recently been implemented requires "employers to provide reasonable break time for an employee to express breast milk for her nursing child" (United States Department of

Labor). This requirement has the possibility of increasing breastfeeding duration for mothers who return to work and who wish to continue breastfeeding.

There are several reasons why some women decide not to breastfeed. Fear of pain, fear of physical discomfort, inconvenience, restrictions on lifestyle and embarrassment have all been identified as reasons why a woman would choose not to breastfeed (Ryser, 2004). Poor support from family, friends and health professionals could also be a reason women decide not to breastfeed or discontinue breastfeeding.

Increasing the rates of breastfeeding has not only been a goal of Healthy People 2010 and Healthy People 2020, but has been the focus of several studies. Many studies have discussed the crucial role social support plays in both a woman's decision to breastfeed as well as the length of time a woman continues to breastfeed (Piscane et al., 2005; Arora et al., 2000; Earle, 2002). These studies, among others, suggest that support from nurses and health care professionals before and after the infant's birth increases the chances of the mother breastfeeding. Support to breastfeed also comes from other people who are important to the mother, including family members. The woman's significant other, including the father of the infant, has been discussed in studies to be very influential in both the decision to breastfeed as well as the duration of breastfeeding (Piscane et al., 2005; Arora et al., 2000).

Healthcare professionals, including physicians, nurses and dietitians, play an important role in breastfeeding promotion and education. Stanek-Krogstrand and Parr conducted a study involving 262 physicians located in Nebraska representing obstetrics and gynecology, pediatrics and family practice. Physicians completed a survey consisting of questions related to demographics, current breastfeeding promotion,

breastfeeding knowledge and areas of breastfeeding were they wished to have more knowledge. Among the study's results were that 82% of the physicians believed that the physician has a primary role in the mother's decision whether or not to breastfeed, yet many did not recommend breastfeeding if a woman had already made a decision to formula feed (Krogstrand and Parr, 2005).

A study conducted by Arora and colleagues in 2000 examined the main factors that influence a woman's decision to breastfeed. This study analyzed surveys that were mailed to 245 women whose infant had received care from birth to age one at a large community hospital (Arora et al., 2000). This study concluded three main reasons why a mother would choose not to breastfeed. The most common reason the women gave for deciding not to breastfeed was the mother's perception of the father's attitude. This study also concluded that the mothers who decided to bottle-feed thought that more breastfeeding information in prenatal classes, on TV, in magazines or books as well as family support were all things that would have encouraged them to breastfeed instead of bottle-feed. Interesting to note, the study also concluded that although the father's attitude about breastfeeding played a role in the mother's decision whether or not to breastfeed, the fathers were generally more in favor of breastfeeding than the mother thought (Arora et al., 2000).

One study conducted by Gibson-Davis and Brooks-Gunn looked specifically at the relationship between the mother and the father and the initiation of breastfeeding through a survey. The study found that unwed mothers, who receive support mainly through money or other assistance from the father, were less likely to breastfeed. The authors later described that the mother may feel that the father may be more willing to

pay for formula if he provides financial assistance (Gibson-Davis and Brooks-Gunn, 2007). The type of support that a woman receives during pregnancy from the infant's father is important and it is important to encourage the father to be involved in the infant's life and not just provide money to the mother. Along with being more supportive and involved in infant feeding, comes the need for more information on the benefits of breastfeeding to be available to future and new fathers.

The role of social support in the mother's decision to initiate and continue breastfeeding has been discussed in several other studies in addition to the studies previously discussed (Arora et al., 2000; Piscane et al., 2005). The support of the father of the infant has been identified as playing a major role in the mother's decision to breastfeed (Kessler et al., 1995; Giugliani et al., 1994; Littman et al., 1994; Earle, 2000; Scott et al., 1997; Swanson and Power, 2005). Novotny and colleagues identified the infant's father as possibly the most influential person in the mother's decision to breastfeed (Novotny et al., 1994). In a survey conducted with 2,690 English and Spanish speaking low-income women during their first prenatal visit, Lee and colleagues found that lower education, smoking, a multiple pregnancy as well as not living with the infant's father were negatively associated with the intent of the mother to breastfeed (Lee et al., 2005). The study does not explore the reasons why pregnant women who are living with the infant's father have higher rates of breastfeeding, but this could be due to the support a live-in person can provide and not necessarily the infant's father providing encouragement to breastfeed. This live-in support person was also discussed in a study conducted by Earle. Fathers were viewed as being available to "alleviate the daily grind of early motherhood, or there was a desire for shared-parenting" (Earle, 2002).

In one study involving new mothers in Australia, 71.5% of mothers who were breastfeeding at discharge from the hospital were connected to a father who either did not prefer breastfeeding or did not care. Among fathers who did prefer breastfeeding as the feeding method, 96.5% of the mothers were breastfeeding at hospital discharge. New fathers who either preferred bottle feeding or did not care on the feeding method accounted for 478 of the participants. Of the new fathers, 408 preferred breastfeeding as the feeding method for their infant (Scott et al., 2001). Paternal preference for the feeding method does play a part in the mother's decision to breastfeed as well as the duration of breastfeeding. Scott et al. also concluded that breastfeeding mothers were less likely to discontinue breastfeeding if it was the preferred feeding method of the father. The feeding method preference of the father and the infant's maternal grandmother, as perceived by the mother, were associated with the mother breastfeeding at discharge. The strongest variable associated with breastfeeding at discharge was the mother's perception of the father's support of breastfeeding (Scott et al., 2001). Another study conducted by Freed and colleagues, involving 268 pregnant women attending prenatal classes, found that 70% of the women were planning on exclusively breastfeeding. Of these women, 68% thought that the infant's father wanted them to breastfeed. This study also concluded that women who planned on bottle-feeding, "predicted less positive paternal attitudes regarding breastfeeding." This perception of the father's feelings was noted to be either correct or incorrect in relation to how the father truly feels about breastfeeding (Freed et al., 1992).

Men and breastfeeding

As stated previously, fathers have an important role in the mother's decision to breastfeed (Kessler et al., 1995; Giugliani et al., 1994; Littman et al., 1994; Earle 2000; Scott et al., 1997; Swanson and Power, 2005). In a review of the literature on fathers and breastfeeding conducted by Bar-Yam and Darby, fathers were found to influence breastfeeding in four ways. Fathers are influential in the decision to breastfeed and during the first feeding. They are also important in the duration of breastfeeding and risk associated with bottle feeding (Bar-Yam and Darby, 1997). Rivera and colleagues determined that 92% of fathers studied (n=100) were interested in supporting their partner to exclusively breastfeed (Rivera et al., 2006).

In a study published in 2010, Laanteras and colleagues explored Finnish parents' breastfeeding attitudes. Both mothers (n=123) and fathers (n=49). The study concluded that although breastfeeding was believed to be important, 54% of the participants wanted both the mother and the father to be involved in the infants feeding. Participants who were expecting their first child were found to have more negative feelings regarding breastfeeding than participants who already had children. More negative breastfeeding feelings were also associated with participants who had a moderate level of breastfeeding knowledge, were 18-26 years of age and who had a lower education level (Laanteras et al., 2010).

A study conducted by Shepherd et al. examined data obtained as part of a longitudinal study on determinants of infant feeding among couples as well as attitudes of pro-breastfeeding and pro-bottle feeding couples (Shepherd et al., 2000). The study included both breastfeeding and bottle-feeding couples. The study measured attitudes of the couples by their agreement with eight pro-breastfeeding statements as well as six pro-

bottle-feeding statements. The pro-breastfeeding responses that were found to be significantly lower in the fathers were as follows: most mothers have sufficient breastmilk, bottle feeding is more expensive than breastfeeding, breastfeeding protects infants from disease and breastfeeding is beneficial to the mother's health. The pro-bottle-feeding responses that were significantly higher in fathers were found to be the following: bottle feeding is very convenient; bottle feeding allows greater freedom for mothers and breastfed babies need to be fed more often. Other findings of this study were that fathers were more embarrassed about the mother breastfeeding in-front of non-family members and fathers of bottle-fed infants had a smaller knowledge base of breastfeeding benefits for both the mother and the infant (Shepherd et al., 2000).

The breastfeeding knowledge and involvement of fathers has been the topic of several studies. Rempel and Rempel interviewed 21 fathers who were parents of a breastfeeding infant to determine their involvement in the breastfeeding experience. The results of this study concluded that there were several unique ways in which the fathers became part of breastfeeding. One of the leading ways fathers saw as a way to be involved in breastfeeding was to gain knowledge in breastfeeding and using this knowledge to "encourage and assist breastfeeding." Other areas identified by the fathers were valuing the mother and being a part of housework and child care. (Rempel and Rempel, 2010).

The breastfeeding knowledge of fathers was found to be low in a study conducted by Giuglaini and colleagues. In this study, which involved 92 fathers whose infant was being breastfed and 89 fathers whose infant was being bottle-fed, concluded that fathers had an increased chance of being more knowledgeable about breastfeeding if they: had

previous children who were breastfed, attended prenatal classes and received information from health professionals about breastfeeding (Giuglaini et al., 1994).

Another qualitative study conducted by Pontes and colleagues in 2009 explored the opinions of both men and women about the father's role in breastfeeding. This study included eleven men (five of the men's infants were breastfeeding) and nine women (three of the women were breastfeeding). The fathers associated the following behaviors with breastfeeding: ambivalence, conflict, exclusion, insecurity and concern for breastfeeding. Pontes and colleagues also concluded five ways a father can be involved in breastfeeding as a result of the interviews conducted (Pontes et al., 2009). These practices of fathers were found to be:

1. Provide a favorable environment for the mother and baby.
2. Participate more during pregnancy and birth.
3. Help with domestic chores.
4. Develop parenthood.
5. Be present during breastfeeding.

As discussed, the breastfeeding support a father can give is important in both the initiation of breastfeeding as well as the duration by providing support. Tohotoa and colleagues conducted focus groups of mothers as well as focus groups, interviews and an online survey with fathers regarding what paternal breastfeeding support includes. The study concluded themes relating to fathers support for both the mother and the fathers. Results of the mothers' focus groups concluded that the fathers do make a difference. Sub themes for this area included: "anticipating needs and getting the job done, encouragement to do your best and paternal determination and commitment." The main

theme among the fathers' data was a desire to be involved and the three sub themes were identified as: "wanting more information, learning the role and being an advocate" (Tohotoa et al., 2009).

The results from the studies previously discussed indicate that some fathers have a limited amount of knowledge on the benefits of breastfeeding and should be involved in discussions about breastfeeding while the mother is pregnant so that the father becomes more comfortable with the act of breastfeeding.

There are many documented concerns that new fathers have that are associated with breastfeeding. Stremler and Lovera concluded there were five main concerns men have when the mother begins breastfeeding. These concerns involve their opportunity to bond with the infant if the mother is breastfeeding all the time, the time constraints of breastfeeding on the mother and her available time to spend with the father, whether there is something about breastfeeding that makes it better for fathers than bottle feeding, the chance of the mother losing interest in the father and finally, fathers are concerned with ways in which they can help with breastfeeding (Stremler and Lovera, 2004). Resuming a sexual relationship with the mother, supporting the mother during breastfeeding and time constraints have also been identified as paternal issues while the mother is breastfeeding (Fletcher et al., 2008).

Henderson and colleagues studied the infant feeding beliefs of 28 low-income British men between the ages of 16 and 45. Men who were already fathers, expecting fathers and men who were potentially fathers were included in this study. This study concluded three main themes associated with the infant feeding beliefs of the men which were found to be: sexuality, embarrassment and social conduct. Although the men in the

study viewed breastfeeding as being a natural feeding method, concerns were raised about breastfeeding. Participants who did not have experience with breastfeeding women were more likely to feel that breastfeeding would involve “excessive public exposure” and would attract attention from other men. The association between breasts and sexuality was found to be one reason for the fear of attention from other men. This study concluded that the media portrayal of breasts being sexual could be involved in feelings toward breastfeeding (Henderson et al., 2011).

Additional concerns new fathers had about breastfeeding were explored through a qualitative study involving interviews with 56 soon to-be fathers and recent first-time fathers conducted by Jordan and Wall. Fathers were interviewed six to seven times from before the infant’s birth to one year after birth. The study found that although the fathers believed that breastfeeding was best for their infant and that they wanted the best for their child, after birth and while the mother was breastfeeding, concerns about their involvement in the infant’s life became apparent. Concerns in this study were similar to the concerns found by Stremler et al. and three main concerns were noted and found to be the following: the lack of ability for the father to bond with the infant, feeling inadequate and being separated from the mother by the infant (Jordan and Wall, 1990). For the fathers involved in this study, it was very important for them to be able to bond with their new baby. Feeling the need to bond and be part of the infant’s life may be perceived as a negative aspect of breastfeeding for the father.

Breastfeeding attitudes of expecting fathers was closely studied by Freed and colleagues through a questionnaire distributed to 258 expecting fathers who were enrolled in a childbirth class (Freed et al., 1992). The future fathers were divided into

three groups, those planning to breastfeed exclusively, bottle feed exclusively or a combination of breast and bottle feeding. Ten significant attitudinal variables were identified by the study and are listed as the following (Freed et al., 1992):

1. Breastfeeding is not natural.
2. Breastfeeding is acceptable in public.
3. Breastfeeding helps protect the baby from diseases.
4. Breastfeeding is bad for breasts.
5. Breastfeeding is better for the baby.
6. Breastfeeding interferes with sex.
7. Think highly of women who breastfeed.
8. Breasts were made for breastfeeding.
9. Breastfeeding helps with bonding.
10. Less attracted to spouse/partner if she breastfeeds.

The negative variables identified by Freed and colleagues may possibly contribute to the lack of support some fathers have for breastfeeding. Some of the negative responses that were identified as being significant variables can also be seen as opportunities to correct misperceptions and misinformation through education about breastfeeding with the hope of increasing father's support of breastfeeding.

Schmidt and Sigman-Grant conducted a qualitative study on the perspectives of low-income father's support of breastfeeding. The Stages of Change framework was also used in this study to determine the acceptance of breastfeeding. Only fathers and their partner who were intending to breastfeed were recruited to participate in the study and the study consisted of five couples. Although this was a small study and involved only those

fathers who were supportive of breastfeeding, the attitudes of the fathers are important to note. The study included seventeen couples that were divided into five groups of father and five groups of mothers. Of the five groups of fathers, all of the groups identified a role of the father in infant feeding was caring for the mother and the infant. Three of the five groups stated that use of a breast pump would allow the father to feed the infant. All five of the father groups believed that breastfeeding helps protect the infant from disease, all five of the groups either disagreed with the statement that breastfeeding is bad for the breasts or they did not think it was an issue and all five of the groups of fathers believed that discretion and/or modesty makes breastfeeding acceptable in public (Schmidt and Sigman-Grant, 2000).

Although there are many challenges for new father's to bond with an infant during breastfeeding as shown through the previously mentioned studies, fathers should be involved in education sessions as well as prenatal classes to discuss their thoughts about how breastfeeding will impact their relationship with the infant and their role as a father.

Increasing Father's Support

There have been few studies done on ways to increase the number of fathers who support breastfeeding. In a controlled trial of an intervention for fathers, the rate of breastfeeding initiation among new mothers was 74% when the partner attended a breastfeeding class as opposed to a 41% breastfeeding initiation rate among mothers whose partner did not attend the intervention class (Wolfberg et al., 2004). Promising results were seen in this study as well as other studies that involved an educational session for fathers. One of these studies involved fathers of infants whose mothers were

enrolled in a Texas Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). This program for fathers was lead by other fathers of WIC participants. The study reported that breastfeeding rates did increase in the WIC program when there was a peer dad pilot program in place. This study notes that although there have been other programs for fathers to become better advocates of breastfeeding, the strategies for intervention and the content of the interventions have not been shared (Stremmler and Lovera, 2004). By sharing information on what has worked in previous programs for new fathers, better approaches to education can be developed for fathers. By knowing what educational strategies work, permanent programs can be developed. Although the study by Stremmler and Lovera acknowledged the importance of sharing information on pilot programs for fathers, their training manual for fathers teaching the classes is no longer available through the website provided.

Table 1: Summary of studies involving men and breastfeeding, participants and significant findings.

Study (Title and authors)	Participants	Significant findings
Major factors influencing breastfeeding rates: mother's perception of father's attitude and milk supply. Arora et al., 2000	245 women	Perception of the father's breastfeeding attitude was the most common reason women gave for deciding not to breastfeed. Fathers were generally more in favor of breastfeeding than the mother thought.
Why Some Women do not Breastfeed: Bottle Feeding and Fathers' Role. Earle, 2000	19 mothers	The desire for the father being involved infant feeding was found to be a significant reason for the mothers decision not to breastfeed.
Attitudes of Expectant Fathers Regarding	269 fathers	The fathers who reported exclusive breastfeeding as the feeding method for

Breastfeeding. Freed et al., 1992		<p>their infant, were more likely to believe that breastfeeding is best for the infant, protects the baby from disease and helps with bonding.</p> <p>The majority of all of the fathers (regardless of feeding method) believed that breastfeeding is not acceptable in public.</p>
The association of couples' relationship status and quality with breastfeeding initiation. Gibson-Davis and Brooks-Gunn, 2007	3,567 parents	Unwed mothers receiving mainly financial support from the father were less likely to breastfeed.
Effects of Breastfeeding Support from Different Sources on Mothers' Decisions to Breastfeed. Giuliani et al., 1994	200 mothers	The most important factor associated with the mother's decision to breastfeed was the father's positive breastfeeding attitude.
Men and infant feeding: perceptions of embarrassment, sexuality and social conduct in white low-income British men. Henderson et al., 2011	28 fathers	Breastfeeding was found to be viewed as natural but fathers who did not have experience with a breastfeeding partner were more likely to think that breastfeeding involved "excessive public exposure."
Breastfeeding and Fathers: Illuminating the Darker Side. Jordan and Wall, 1990	56 fathers	<p>Fathers believed that breastfeeding is best for babies and wanted the best for their infant.</p> <p>Fathers became concerned with their opportunity to bond with the infant. Feelings of inadequacy and separation from the infant and mother were noted.</p>
The Effect of a Woman's Significant Other in her Breastfeeding Decision. Kessler et al., 1995	133 couples	A woman's decision to breastfeed is strongly associated with the infant feeding preferences of her significant other.
Breastfeeding attitudes of Finnish parents during	123 mothers	Breastfeeding was identified as important in both groups.

pregnancy. Laanteras et al., 2010	and 49 fathers	54% of the participants wanted both the mother and the father to be able to feed the infant.
The Decision to Breastfeed. The Importance of Father's Approval. Littman et al., 1994	115 mothers	Higher percentage of breastfeeding was reported when the father had strong approval of breastfeeding.
Health of infant is the main reason for breastfeeding in a WIC population in Hawaii. Novotny et al., 1994	322 mothers	The father is possibly the most influential person in the mother's decision to breastfeed.
A Controlled Trial of the Father's Role in Breastfeeding Promotion. Piscane et al., 2005	280 couples	Increasing fathers' breastfeeding knowledge about breastfeeding, including the prevention and management of breastfeeding issues, was associated with higher rates of exclusive breastfeeding at 6 months.
Building a place for the father as an ally for breastfeeding. Pontes et al., 2009	11 fathers and 9 mothers	Fathers associated behaviors with breastfeeding including: ambivalence, conflict, exclusion, insecurity and concern for breastfeeding.
The breastfeeding team: the role of involved fathers in the breastfeeding family. Rempel and Rempel, 2010	21 fathers	Fathers concluded that gaining knowledge in breastfeeding was one way to be involved and to encourage breastfeeding.
Exploratory study: breastfeeding knowledge, attitudes towards sexuality and breastfeeding, and disposition towards breastfeeding in future Puerto Rican male parents. Rivera et al., 2006	100 fathers	92% of the fathers were interested in supporting their partner to exclusively breastfeed.
Perspectives of Low-Income Fathers' Support of Breastfeeding: An Exploratory Study.	17 couples	Five of the five fathers group discussions identified caring for the mother and infant as their role in the infant's feeding. Three of the five groups identified the use of

Schmidt and Sigman-Grant, 2000		<p>a breastpump and feeding expressed milk one role of the father.</p> <p>All five of the fathers groups believed that breastmilk helps protect the infant from disease.</p> <p>All five of the fathers groups identified the feeding method was decided upon by the mother.</p> <p>All five of the mothers groups identified the mother as the one deciding the feeding method, three of the groups identified it as a mutual decision and three of the mothers groups concluded that even though the father may support breastfeeding, it is the mother's decision.</p>
<p>The Influence of Reported Paternal Attitudes on the Decision to Breastfeed.</p> <p>Scott et al., 1997</p>	556 mothers	The father's preference for breastfeeding was the most influential factor in the mother's decision to breastfeed.
<p>Examining the correspondence of breastfeeding and bottle-feeding couples' infant feeding attitudes.</p> <p>Shepherd et al., 2000</p>	227 couples	<p>Fathers of infants who were formula fed had limited knowledge about the benefits of breastfeeding.</p> <p>Fathers were found to be more embarrassed about breastfeeding in front of others than mothers were.</p>
<p>Initiation and continuation of breastfeeding: theory of planned behavior.</p> <p>Swanson and Power, 2005</p>	203 mothers	Women who continued to breastfeed at 6 weeks post-partum perceived the father as being more "pro-breastfeeding."
<p>Dads as Breastfeeding Advocates: Results from a Randomized Controlled Trial of an Educational Intervention.</p> <p>Wolfberg et al., 2004</p>	59 fathers	Of the women whose significant other attended the breastfeeding intervention class, 74% initiated breastfeeding as compared to 41% of the women whose significant other attended the control class ($p=.02$).

Theory of Planned Behavior

A meta-analytic review of 185 studies, using the Theory of Planned Behavior, was conducted by Armitage and Conner and resulted in support of the theory as a way to predict intention and behavior (Armitage and Conner, 2001). The results of the meta-analysis indicated that the Theory of Planned Behavior measured 27% of the variance in behavior and 39% of the variance in intention. The three constructs of the theory (attitude, subjective norm and perceived behavioral control) were examined independently to determine their impact on intention and behavior. It was determined that the influence of these constructs depended on the type of behavior and situation. Armitage and Conner made note that “in situations where (for example) attitudes are strong, or where normative influences are powerful, perceived behavioral control may be less predictive of intentions” (Armitage and Conner, 2001). As evident by the Theory of Planned Behavior model, perceived behavioral control can directly influence the behavior. For example, if expecting fathers perceive little control over the mother’s decision to breastfeed, they may not intend to encourage breastfeeding even if their attitude and subjective norm constructs indicate a strong intention to support and encourage breastfeeding. Moreover, perceived behavioral control is not likely to accurately measure actual control (Armitage and Conner, 2001).

The Theory of Planned Behavior has been used in many different areas of research, including breastfeeding, as a way to predict behavior (Swanson and Power, 2005; Duckett et al., 1998; Humphreys et al., 1998; Goksen, 2002). The studies that have used the Theory of Planned Behavior in breastfeeding focus on the mother’s intent to

breastfeed. Although the father has been identified through these studies as an important person to the mother, the intent of fathers to support and encourage breastfeeding as the feeding method for their infant measured by the Theory of Planned Behavior has not been found to exist through literature review. Therefore, assessing the intent of fathers to support and encourage breastfeeding becomes an important factor in analyzing their impact on the mother's decision to breastfeed.

Methods

The purpose of this study was to develop and test a questionnaire based on the Theory of Planned Behavior to measure the intent of men, who at the time of the study had a significant other who was pregnant, to support and encourage breastfeeding. The second purpose of the study was to explore future fathers' views on their involvement in breastfeeding and explore perceived barriers that would prevent them from encouraging their infant's mother to breastfeed. Objectives for this study were to:

1. Review the literature regarding the father's role in breastfeeding, breastfeeding attitudes and knowledge of fathers.
2. Develop a research tool to measure the intent of future fathers to encourage breastfeeding as the feeding method for their infant.
3. Assess future fathers' perceptions of their involvement in infant feedings if the infant is breastfed.
4. Explore perceived barriers among future fathers to being supportive and encourage breastfeeding.

Approval to complete this study was obtained from the University of Nebraska-Lincoln Institutional Review Board.

Development of the research tool

The questionnaire was developed after review of *Understanding Attitudes and Predicting Social Behavior* by Ajzen and Fishbein (1980) and *Constructing Questionnaires based on the Theory of Planned Behavior. A Manual for Health Services Researchers* written by Francis and colleagues (2004). The questions used in the study

were written following careful review of the literature published regarding men and breastfeeding. Before recruitment of participants, the questionnaire was reviewed by experts in the field on breastfeeding and the Theory of Planned Behavior.

Recruitment of participants

Permission was received from two WIC clinics and one crisis pregnancy center to recruit participants. Recruiting of participants took place at these two WIC clinics and a crisis pregnancy center. Only men, 19 years of age and older, who had a significant other in the WIC program or the crisis pregnancy center, at the time of participation, were asked to participate. Participation in this study was open to all men who met the criteria listed above regardless of their perception of breastfeeding. Fliers were provided at the locations for people interested in participating with directions to contact the researcher. If the researcher was available on-site at the time the participant received the flier and was interested in participating, the interview was conducted immediately. If the researcher was not available at the time the participant received the flier inviting them to participate, a time was scheduled for participation. Participation, which involved a one-on-one interview with the researcher, took place in a comfortable, private room at a location convenient for the participant (either at the WIC clinic or the crisis pregnancy center). Recruitment of participants was conducted over a 13 month time.

Data collection

Prior to individuals beginning participation, informed consent was received and a copy of the informed consent form was given to the participant. Participants then filled out a form with their name, address and social security number (which was required from the university for an incentive check to be mailed following participation).

Participants were asked to complete a four page questionnaire. Following the completion of the questionnaire, participants were asked two open ended questions that were audio recorded and later transcribed verbatim. Following the interview, participants were thanked for their time.

Data Analysis

The questionnaire was scored based on the Theory of Planned Behavior. Overall generalized intention of the future fathers to support and encourage breastfeeding was determined by the second set of questions 1, 2 and 3 on the questionnaire. The participant indicated his agreement with the statement on a scale of 1-7 for each of the three questions. The mean was then calculated from these scores to determine intention.

The future fathers' attitude regarding encouraging his infant's mother to breastfeed was calculated by finding the mean score of four questions on a scale of 1-7. Prior to determining the mean, the question was corrected so that the higher score would correspond to a positive attitude. Attitude was also measured indirectly in question five. For this measurement, each behavioral belief was multiplied by the corresponding outcome evaluation. The sum of all of the behavioral beliefs and the outcome evaluations were summed to calculate attitude.

Subjective norm score for each participant was determined by calculating the mean score of questions 7-10 on the questionnaire. Again, these questions were scored on a scale of 1-7 and the questions were corrected to have the positive statements correspond to the higher scores prior to calculating the mean.

Direct perceived behavioral control for each participant was determined by calculation of the mean for questions 11-14. As with the pervious calculations, questions

were corrected to have all positive responses (which would indicate a feeling of greater control) correspond to the higher number on a scale of 1-7.

Pearson's correlation coefficient was calculated to determine the linear relationship between each of the constructs for the Theory of Planned Behavior (attitudes, subjective norms, perceived behavioral control) and intention.

General breastfeeding attitudes of the fathers were assessed by their level of agreement, on a scale of 1-7, with four breastfeeding statements (question 15 on the questionnaire). The fathers were also asked to rate on a scale of 1-7 how important it is that their infant is breastfed (question 16 on the questionnaire). These two questions were in addition to the questions related to the Theory of Planned Behavior and were included as a way to assess the father's perception of breastfeeding and not necessarily their involvement in encouraging breastfeeding.

The transcript of the qualitative portion of the study was reviewed several times to determine themes for each of the questions. For each theme, supporting significant statements were determined.

Results

For this study, ten participants were recruited from a crisis pregnancy center parenting class and a Special Supplemental Nutrition Program for Women, Infants and children (WIC) clinic. Participation, which included completing the questionnaire and qualitative questions, took 10-15 minutes. Questionnaires were completed in a one-on-one setting where the participants were able to ask questions of the researcher if they were not sure what a question was asking. During the completion of the questionnaire, only clarifying questions were asked such as, “Do I answer all of these [questions]?” The participants represented ages between 19 and 24. Three participants indicated that they are living with, but not married to, their significant other. Three of the ten participants were engaged to the infant’s mother, three of the participants identified their relationship with the infant’s mother as “dating” and one of the participants was married to the infant’s mother. Of the participants, the majority (eight out of ten) were expecting their first child at the time of participation. Two of the men reported having another child; neither of the fathers with children reported that the child was breastfed.

Four of the ten participants reported that a feeding method was already decided for their infant, and all of these fathers reported being involved in the feeding method decision. Of the four fathers, two reported that the infant feeding method decided upon was breastfeeding, one reported both breastfeeding and formula and one reported formula feeding only. Five of the fathers reported that they were breastfed; two fathers indicated that they were not breastfed and three fathers were not sure if they were breastfed. Most of the fathers, nine out of ten, reported that they know a little about breastfeeding and one participant reported knowing nothing about breastfeeding (Table 2).

Generalized scores of the father's intent to support and encourage their infant's mother to breastfeed ranged from 3-7; the possible range of scores for intent were 1-7, one being little or no intent to encourage breastfeeding and seven being strong intent to encourage breastfeeding. The mean for the scores related to intention was 5.2.

The father's attitude regarding encouraging their infant's mother to breastfeed was measured both directly and indirectly. The direct measure of attitude score range was 4.25-7; the possible range for these scores was 1-7. The mean attitude score, based on direct measurement, was found to be 5.9. Using the indirect method for measuring the attitude of the fathers' range of scores was found to be +5 to +94; the possible range was -147 to +147. The mean indirect attitude score was found to be +44.9. The positive score of intention indicates that the fathers do intend to encourage breastfeeding.

During calculation and analysis of the subjective norm score for each of the participants, the responses of the individual fathers about their subjective norms were found to have low internal consistency. In five of the ten questionnaires, the fathers' perception of social influences on him encouraging his infant's mother to breastfeed was found to be several points lower than the other subjective norm questions. For this reason, responses to this question were omitted in the calculation of the subjective norm score. Following the correction of these scores, the ranges of scores was found to be 4-7, and the mean score was found to be 5.1.

Table 2: Characteristics of the participants.

Participant	1	2	3	4	5	6	7	8	9	10
Age	24	20	24	20	19	21	24	21	24	23
Relationship with the mother	Living together	Engaged	Engaged	Married	Dating	Engaged	Dating	Living together	Dating	Living together
Other children	Yes (1)	No	No	No	No	No	No	No	Yes (1)	No
Other child Breastfed	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	N/A
Feeding decision made	Yes	No	Not sure	Yes	Not sure	Not sure	Not Sure	Yes	Not Sure	Yes
Involved in decision	Yes	N/A	N/A	Yes	N/A	N/A	N/A	Yes	N/A	Yes
Decision	Breast	N/A	N/A	Breast and Formula	N/A	N/A	N/A	Formula	N/A	Breast
Breastfed as an infant	Not sure	No	Yes	Yes	Yes	Not sure	No	Yes	Yes	Not sure
Breastfeeding knowledge	A little	A little	A little	A little	Nothing	A little	A little	A little	A little	A little

Perceived behavioral control was calculated for nine of the ten fathers. One participant skipped one of the questions related to perceived behavioral control so his score was not included in the calculations of range and mean. The range of scores for control was found to be 2.25-6, while the mean score for the fathers was calculated to be 4.4. Although the mean score was calculated for each of the constructs, the mean would be a better assessment to represent the population if more participants were recruited for the study.

Pearson's correlation coefficient was calculated for attitude and intention, subjective norms and intention as well as perceived behavioral control and intention. Correlation was calculated from the data available on the nine questionnaires that had all questions answered. The Pearson correlation coefficients are described in table 3.

Table 3: Relationships between Theory of Planned Behavior constructs and intention.

Correlation	r	R ²
Attitude → Intention	0.71	0.50
Subjective Norms → Intention	0.72	0.52
Perceived Behavioral Control → Intention	0.53	0.28

Breastfeeding attitudes were measured by having the fathers indicate their level of agreement with four breastfeeding attitudes on a scale of 1-7. On a similar scale of 1-7, fathers were asked to indicate how important it is to them that their infant is breastfed. The breastfeeding attitudes that were assessed were: breastfeeding is beneficial/harmful,

good/bad, pleasant/unpleasant, natural/unnatural. The higher the score, the more the participant agrees with breastfeeding being beneficial, good, pleasant, natural and important for their infant. A score of four would indicate that the father is “neutral” and feels that breastfeeding is neither beneficial nor harmful, etc. The results of these questions are displayed in table 4.

Table 4: Breastfeeding attitudes of expecting fathers.

Participant	1	2	3	4	5	6	7	8	9	10
Beneficial/harmful	6	5	7	7	7	7	7	7	7	6
Good/bad	7	5	7	7	7	7	4	7	7	6
Pleasant/unpleasant	6	4	4	7	7	7	4	7	4	4
Natural/unnatural	6	7	6	7	7	7	7	7	7	6
Important/not important for their infant	6	4	4	7	4	7	4	1	5	6

The transcripts of the qualitative data were carefully reviewed and analyzed to determine themes related to the father’s perception of how he could be involved in infant feedings if his infant is breastfed and barriers to him being more supportive and encouraging of breastfeeding. The results of the qualitative questions, including themes and significant statements relating to each theme, are presented in the tables 5 and 6.

Table 5: Father’s perception of their involvement in the infant’s feeding, if the infant is breastfed.

Theme	Significant statements
Be there for the mother	<p>“...and make sure she [the mother] stays healthy because I know that can affect the baby too.”</p> <p>“Well, I heard positive encouragement.”</p>

	<p>“Maybe not making a big deal of when the child is with us and she has to breastfeed in public.”</p> <p>“Um tell her she’s doing a good job.”</p> <p>“Just letting her know how I feel about it which we already discussed.”</p> <p>“Just be there for her, encourage her.”</p> <p>“Hmm, that’s a tough one, um like support her if she does want to breastfeed. Just be there with her and say it will be okay even if, you know, it bites.”</p>
Have the mother use a breastpump	<p>“Like um, giving him, you know, bottles or something. Some women breastfeed not directly, they put their breastmilk in a bottle and I could get stuff together like that.”</p> <p>“I could have the mother pump some milk into a bottle, and like when she is sleeping, I could maybe warm up the bottle and feed it to them. That way I could get a little of that bond that the mother does with the baby.”</p> <p>“Um, well, like that I’ve seen from my sister is having her breastpump so I could feed him some breastmilk when she can’t or when she’s not home.”</p>
Nothing/not known	<p>“As far as breastfeeding goes and how I would be involved, I don’t necessarily understand how a guy would be involved with breastfeeding.</p> <p>“”Um, I have no idea.”</p> <p>“I don’t know. I guess I don’t know much about it.”</p>

Table 6: Father's perception of barriers to him being supportive and encouraging the mother to breastfeed.

Theme	Significant statements
Comfort of the mother	<p>"Um, if I want her to and she wasn't comfortable with it, you know I have to respect her decision."</p> <p>"The thing that might be the most or least uncomfortable would be breastfeeding in a public place or just having to do breastfeeding in a awkward place and having her feel like she can't."</p> <p>"As far as the leaking goes, you know, I'd let her be by themselves and...because lactating would be embarrassing for her and she may not feel comfortable around other people."</p>
Nothing, it is up to her	<p>"Um nothing really. I think it would be up to her, her decision so if she wants to do it I will be there 100% supportive of her and just be with her every step of the way."</p> <p>"Um, just her not wanting to do it."</p> <p>"She's stubborn I guess so it is going to be hard if she doesn't want to, it is going to be hard to get her to...I think she is going to be really hard to convince. It is basically up to her."</p>

Discussion

As evidenced by the lack of questions about the questions on the questionnaire by the participants, the questionnaire was apparently easily understood by the participants. Because the future fathers were either attending a parenting class with the infant's mother or attending WIC appointments with the mother, they could be considered to be more interested and/or involved with the care of the infant than if they were not attending these classes and appointments. The father's participation in the parenting class and the WIC appointments could also have impacted their knowledge of breastfeeding and could be one reason why nine of ten participants reported knowing a little about breastfeeding.

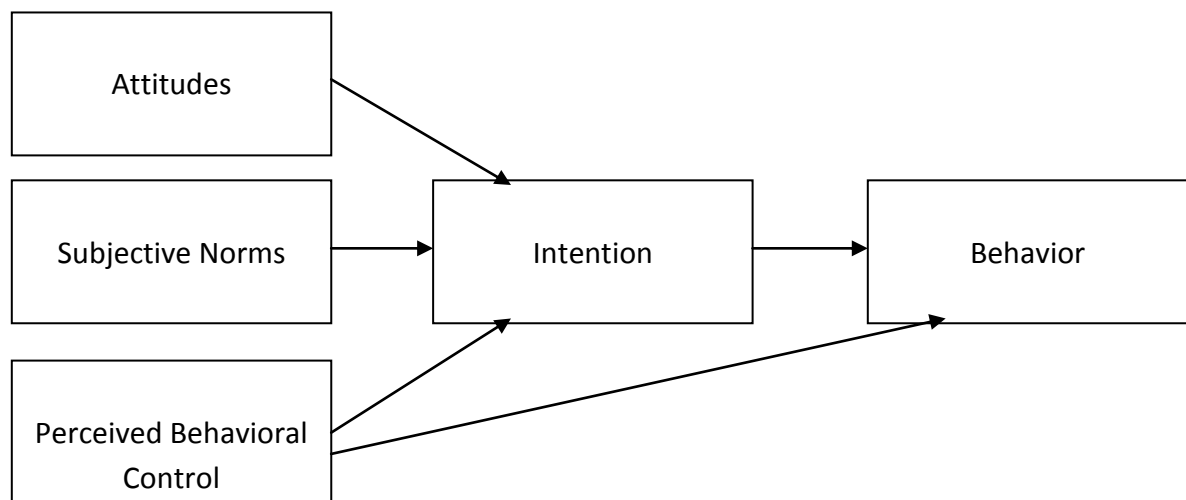
Although it has been reported that fathers are generally supportive of breastfeeding and that mothers often perceive the father to be less supportive of breastfeeding than he actually is, simply encouraging expecting couples to discuss breastfeeding may not necessarily relate to a decision to breastfeed (Arora et al., 2000). This is evident in the results of this study, indicating that in spite of intention to support and encourage breastfeeding, one father reported his infant will be solely formula-fed.

The Theory of Planned Behavior strives to predict behavior by assessing the attitudes towards the behavior, the subjective norms and the perceived behavioral control of the behavior (figure 1). In this study, the attitudes of the fathers towards encouraging and supporting their infant's mother to breastfeed as well as subjective norms were found to have a relatively strong relationship to the father's intention to support breastfeeding ($r=0.71$ and $r=0.72$, respectively).

Individual perceived behavioral control scores from the father's questionnaires were found to be lower than attitude and subjective norm scores. This is an important finding in the study because as the Theory of Planned Behavior suggests, perceived

behavioral control does not only influence the father's intention to support and encourage the infant's mother to breastfeed, but it also can directly impact the whether or not the behavior was observed or reported (whether or not the father actually encouraged the infant's mother to breastfeed). The low scores for perceived behavioral control can also be linked to the themes that were determined from the qualitative interview question regarding barriers to being more supportive of breastfeeding. The fathers acknowledged that it was ultimately the woman's decision whether or not she breastfeeds. If the mother did not want to breastfeed, the fathers indicated that there is nothing that they would be able to do.

Figure 1: The Theory of Planned behavior.



Following review of the literature regarding fathers' attitudes about breastfeeding, it was found that several studies made note of the concern fathers have about breastfeeding in public (Henderson et al., 2011; Freed et al., 1992; Shepherd et al., 2000). Fathers involved in a study by Freed and colleagues noted that some fathers believed that breastfeeding was not acceptable in public (Freed et al., 1992). Other studies conducted

suggest that fathers may feel more embarrassment about breastfeeding in public.

Breastfeeding in public was also a concern of the fathers involved in this study as evidenced by statements relating to both the father's involvement in breastfeeding and barriers to being supportive, but the concern was not found to be that breastfeeding in public would be inappropriate. The fathers were more concerned with the comfort of the mother. One father's comment about breastfeeding implied that he would be supportive and "maybe not make[ing] a big deal of when the child is with us and she has to breastfeed in public." The comfort of the mother, not necessarily the father's opinion of whether breastfeeding in public would be acceptable or unacceptable, was a concern for one father who stated that a barrier to him being supportive of breastfeeding would be the mother feeling like she cannot breastfeed in a public or "awkward" place.

The results of this study correspond and confirm findings from other studies on men and breastfeeding. According to the 2010 study conducted by Laantera and colleagues, 54% of the mothers (n=123) and fathers (n=49) studied wanted both parents to feed the infant. This concern of parents' could be related to feeding formula or breastmilk in a bottle (Laantera et al., 2010). Schmidt and Sigman-Grant also noted the identification of a breastpump as a way for fathers to feed the infant (Schmidt and Sigman-Grant, 2000). The results of this study indicate that the fathers recognize using a breastpump as a way for them to also feed the infant.

Other findings from the 2000 study by Schmidt and Sigman-Grant were also concluded in this study. Caring for the breastfeeding mother and infant was identified by all five of the groups of fathers in the 2000 study as their role in breastfeeding. In this study, being there for the mother was determined to be one of the main themes in the

fathers' perception of their involvement in breastfeeding. The fathers noted that making sure the mother stays healthy, positive encouragement, letting her know how he feels about breastfeeding and just to be with her. Through these findings, the fathers identified themselves as a person who can provide support and encouragement to the breastfeeding mother.

Similar to the findings by Schmidt and Sigman-Grant, the fathers in this study also concluded that ultimately it is the mother's decision whether or not to breastfeed (Schmidt and Sigman-Grant, 2000). Through the data collected, it does appear that if the mother does want to breastfeed, the fathers involved in the study would intend to encourage her and would be supportive.

The questionnaire developed and used in this study appeared to be easy for participants to understand and simple to complete. However, it is recommended that 80-100 participants are surveyed to effectively use the Theory of Planned Behavior as an assessment of intention. For this reason, it would be an opportunity for future researchers to conduct this study again with a larger population. Revisions to the demographic information collected would be important to make if this study were to be repeated on a larger population. For instance, questions regarding the participant's income and education would be important to include in a larger population. The characteristics of the participants in this study, as described in table 2, would likely be more diverse if based on a larger population. Assessment of breastfeeding attitude in a large population based survey such as the Behavioral Risk Factor Survey could give a valuable insight on where breastfeeding attitudes are at. Having a follow-up contact with the participant to ask whether or not he encouraged the infant's mother to breastfeed

would allow for the correlation between intention and behavior as well as perceived behavioral control and behavior to be determined. Assessment of intention to encourage breastfeeding using a wider population, including men who were not expecting a child, could also be beneficial in a future study.

Conducting a study based on group discussions related to breastfeeding among expecting fathers could provide a deeper understanding of expecting fathers' attitudes towards breastfeeding as well as their concerns and opportunities to be involved in infant feedings. Because the infant's father is one of the most, if not the most, influential person in a woman's decision to breastfeed, it would be valuable to further look at the perceived behavioral control of the expecting fathers regarding encouraging breastfeeding. In this study, fathers felt that one barrier to encouraging breastfeeding was that it is ultimately the woman's decision. Group discussions that focus on how fathers can encourage breastfeeding, especially in situations where the mother is reluctant to breastfeed, would be a significant contribution to the topic and could lead to the development of breastfeeding messages for expecting fathers. Providing expecting and new fathers with breastfeeding knowledge and skills is the main focus of the Peer Dad Program which is a program run by Texas WIC. The expansion of this program to other areas of the country would give interested fathers an increased skill set of their involvement in breastfeeding.

A valuable outcome of this study is the results of the qualitative data (Tables 5 and 6). The concerns of the fathers that arose in the qualitative themes can be used to develop counseling strategies that would empower expecting fathers to encourage

breastfeeding and provide them with ideas on how they can be involved in infant feedings.

Based on the findings of this pilot study, it would be beneficial to further review and revise the questionnaire prior to using it again in a study. The low scores related to the questions assessing the fathers' perceived behavioral control of encouraging breastfeeding could be related to the wording on the questionnaire itself.

The interviewer did not feel that the men were hiding any of their opinions about breastfeeding. One topic of discussion prior to beginning the study was whether the male participants would be more comfortable discussing breastfeeding with another male interviewer or a female interviewer. Following a review of the literature and the previous studies that included an interview portion and were conducted by female researchers on men and breastfeeding, there was no mention of the possibility of a female researcher affecting the opinions shared by the participants. The researcher in this study did not feel that the participants were uncomfortable discussing their feelings about breastfeeding with a female interviewer. A female interviewer in a study of this sort does not appear to hinder the responses of the male participants. One possible confounder of this study was in the locations used to recruit participants. The parenting class, where some participants were recruited, discusses breastfeeding benefits and breastfeeding is often a topic during WIC clinic visits for pregnant women. Hearing about breastfeeding, including the benefits, prior to participating in the study might have increased the breastfeeding knowledge of the participants and possibly impacted their opinion of breastfeeding. There was no known way to control for this.

One barrier to the completion of this study was recruiting participants. It was found that a flier provided to potential participants was not enough to get expecting fathers interested in participating. One-on-one recruitment of the participants did seem to increase interest in participation. Another factor that could have been related to interest in participation is convenience of participation which would include the location and time of participation. For this study, it seemed to work best to complete participation directly following the participant expressing interest. Having the interviewer on-site at the time the fathers are in the office seems to be the most effective means of recruiting participants for a study similar to the one conducted.

Another challenge in conducting a study such as this one, with few participants and in a one-on-one setting, is keeping personal comments about the research and participants out of the study.

The breastfeeding culture has been relatively stable in the past few decades. As discussed in the review of literature as well as the results of this study, breastfeeding in public remains a concern of fathers. Although the 2010 CDC Breastfeeding Report does conclude that the rate of infants who are ever breastfed has increased to the goal of Healthy People 2010, there are still 25% of infants who never receive breastmilk. The infant's father plays an important role in the mother's decision to breastfeed as well as her experience breastfeeding. Involved fathers can provide an essential level of support and encouragement before and during the breastfeeding experience. Because of their role in breastfeeding success, fathers should be included in breastfeeding education as often as possible and should be informed of ways they can support breastfeeding, discuss

breastfeeding with their significant other and be involved in the infant's care if the infant is breastfed.

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Appendix A

Fathers To-Be

We need your help in a research study we are having with fathers who have a partner who is pregnant. Participants will receive \$25 in the form of a check (mailed to them after their participation in the study).

Requirements to participate:

- Must be male, 19 years or older and have a significant other who is pregnant.
- Must be willing to participate in a one on one interview with the researcher to answer questions about how you feel about breastfeeding. The interview will last approximately 30 minutes.

If interested and willing to participate in the study,
please call (402) 472-5285 and speak to Kaye or Katrina
or email Katrina at katrina.harwood@huskers.unl.edu

Appendix B

Future Father's Breastfeeding Beliefs

Directions: Please answer the questions as truthfully as you can. Your input is greatly appreciated.

1. What is your age? _____
2. What is your current relationship status with your infant's mother?
 - a. Married
 - b. Living together but not married
 - c. Engaged
 - d. Dating
 - e. None of these
3. How many children do you have? (If this will be your first child, skip question 3 and 4.)
_____Children
4. Were any of your children breastfed? (Please circle) YES NO
If so, how many children were breastfed?
_____Children
5. Has a decision been made on the feeding method for your baby who will be born?
 - a. Yes
 - b. No
 - c. Not sure
6. If a feeding method has been decided on, were you part of the decision?
 - a. Yes
 - b. No
 - c. No decision has been made
7. If a decision has been made, how is your baby going to be fed?
 - a. Breastfeeding
 - b. Formula feeding
 - c. Both breast and formula
 - d. No decision has been made yet
8. Were you breastfed as an infant?
 - a. Yes
 - b. No
 - c. Not sure
9. Please describe your knowledge on breastfeeding.
 - a. I know nothing about breastfeeding.
 - b. I know a little about breastfeeding.
 - c. I know a lot about breastfeeding.

Directions: Please circle the number that indicates how much you agree or disagree with the statement. In the number scale, 4 means that you neither agree nor disagree.

1. I expect to support and encourage my infant's mother to breastfeed.
Strongly disagree 1 2 3 4 5 6 7 Strongly agree
2. I want to support and encourage my infant's mother to breastfeed.
Strongly disagree 1 2 3 4 5 6 7 Strongly agree
3. I intend to support and encourage my infant's mother to breastfeed.
Strongly disagree 1 2 3 4 5 6 7 Strongly agree
4. Encouraging my infant's mother to breastfeed is

Harmful	1	2	3	4	5	6	7	Beneficial
Good	1	2	3	4	5	6	7	Bad
Pleasant (for me)	1	2	3	4	5	6	7	Unpleasant (for me)
Worthless	1	2	3	4	5	6	7	Worthwhile
5. Please circle how unlikely or likely each statement is.

a. If I encourage my infant's mother to breastfeed, she will breastfeed.	Unlikely 1 2 3 4 5 6 7 Likely
b. Breastfeeding in public is embarrassing.	Unlikely 1 2 3 4 5 6 7 Likely
c. If my infant's mother breastfeeds, I will be able to bond with my infant.	Unlikely 1 2 3 4 5 6 7 Likely
d. Breastfeeding will be difficult in public.	Unlikely 1 2 3 4 5 6 7 Likely
e. Breastfeeding will change the shape of my infant's mother's breasts.	Unlikely 1 2 3 4 5 6 7 Likely
f. Breastfeeding is beneficial to the infant.	Unlikely 1 2 3 4 5 6 7 Likely
g. My intimate relationship with my infant's mother will be negatively changed if she breastfeeds.	Unlikely 1 2 3 4 5 6 7 Likely

6. Please circle how desirable or undesirable each statement is.

h. Encouraging my infant's mother to breastfeed is	Undesirable -3 -2 -1 0 1 2 3 Desirable
i. Embarrassment from breastfeeding is	Undesirable -3 -2 -1 0 1 2 3 Desirable
j. Bonding with my infant is	Undesirable -3 -2 -1 0 1 2 3 Desirable
k. Easy infant feeding in public is	Undesirable -3 -2 -1 0 1 2 3 Desirable
l. A change in the shape of my infant's mother's breasts is	Undesirable -3 -2 -1 0 1 2 3 Desirable
m. A healthy infant is	Undesirable -3 -2 -1 0 1 2 3 Desirable
n. My intimate relationship being negatively changed is	Undesirable -3 -2 -1 0 1 2 3 Desirable

7. Most people who are important to me think that

I should 1 2 3 4 5 6 7 I should not
encourage my infant's mother to breastfeed

8. I am expected to encourage my infant's mother to breastfeed.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

9. I feel under social pressure to encourage my infant's mother to breastfeed.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

10. People who are important to me want me to encourage my infant's mother to breastfeed.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

11. I am confident that I could encourage my infant's mother to breastfeed if I wanted to.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

12. If I wanted to, encouraging my infant's mother to breastfeed would be

Easy 1 2 3 4 5 6 7 Difficult

13. The decision to encourage my infant's mother to breastfeed is beyond my control

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

14. Whether I encourage my infant's mother to breastfeed is NOT up to me
 Strongly disagree 1 2 3 4 5 6 7 Strongly agree

15. Breastfeeding a baby is

Harmful 1 2 3 4 5 6 7 Beneficial

Good 1 2 3 4 5 6 7 Bad

Pleasant 1 2 3 4 5 6 7 Unpleasant

Natural 1 2 3 4 5 6 7 Unnatural

16. It is important to me that my infant is breastfed.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Appendix C

1. What are some ways you think you can be involved in your infant's feeding if your infant is breastfed?
2. What do you feel are barriers to you being more supportive and encouraging of breastfeeding?

Appendix D



COLLEGE OF EDUCATION AND HUMAN SCIENCES
Department of Nutrition & Health Sciences

INFORMED CONSENT

Identification of the Project: Future father's Thoughts on Breastfeeding.

Purpose of the Research: This is a research project being conducted by the Department of Health and Nutrition Sciences at the University of Nebraska-Lincoln. The purpose of the research project is to determine attitudes and behaviors of future fathers about their infant's mother breastfeeding. You must be 19 years or older to be in this study. You have been asked to be in this study because you have a significant other who is currently pregnant.

Procedures: Being in this study will take 30 minutes of your time. You will be asked to fill out a form that will ask questions about your attitudes toward breastfeeding as well as information about yourself. You will also be asked to complete an interview with the researcher that will be tape recorded. The interview with the researcher will include discussion about your involvement in the method of infant feeding you and your partner have decided upon as well as things you think are barriers to encouraging the mother to breastfeed. Interviews will take place at the Lincoln Crisis Pregnancy Center.

Risks and/or Discomforts: There are no perceived risks or discomforts connected with being in this study.

Benefits: By being in this study, you may have a better understanding of your attitudes and behaviors regarding breastfeeding. Your participation in this study is valuable to the researcher as part of an effort to better understand the father's involvement in encouraging breastfeeding.

Confidentiality: Being in this study is confidential. The information from the forms and the interviews will only be seen by the researchers who are named at the bottom of this form. The information will be kept in a locked cabinet in the researcher's office at the university for five years after the study is complete. After the information from the recorded interviews is typed, the tapes will be erased. The information from this study may be published in scientific journals or presented at scientific meetings but the information will be reported all together so no one can be identified.

Compensation: For your valuable time in this study, you will be given \$25. In order to receive this, you must give the researcher your name, social security number and a mailing address so that a check can be mailed to you.



Opportunity to Ask Questions: Prior to the beginning of the study, you have the right to ask questions and have your questions answered. To receive answers about the research or voice concerns or problems about the research please call or email the researchers listed at the bottom of this form. Please call the University of Nebraska-Lincoln Institutional Review Board at (402) 472-6965 if you wish to talk to someone other than the researchers about questions you have, if you have complaints or concerns about the research, or to provide information and in the event that the researchers can not be reached.

Freedom to Withdraw: Taking part in this study is voluntary. You can refuse to be in this study or quit any time without affecting your relationship with the researchers or the University of Nebraska-Lincoln, or in any other way receive a loss of benefits to you which you should otherwise be entitled.

Consent, Right to Receive a Copy: You are voluntarily making a decision whether or not to be in this study. Your signature indicates that you have decided to be in the study having read and understood the information presented. You will be given a copy of this consent form to keep.

Signature

Date

Name and phone number of investigators:

Katrina Harwood Primary Investigator (402) 472-5285
Email: Katrina.harwood@huskers.unl.edu

Kaye Stanek-Krogstrand Secondary Investigator (402) 472-5285
Email: kstanek1@unl.edu

Appendix E



COLLEGE OF EDUCATION AND HUMAN SCIENCES
Department of Nutrition & Health Sciences

INFORMED CONSENT

Identification of the Project: Future father's Thoughts on Breastfeeding.

Purpose of the Research: This is a research project being conducted by the Department of Health and Nutrition Sciences at the University of Nebraska-Lincoln. The purpose of the research project is to determine attitudes and behaviors of future fathers about their infant's mother breastfeeding. You must be 19 years or older to be in this study. You have been asked to be in this study because you have a significant other who is currently pregnant.

Procedures: Being in this study will take 30 minutes of your time. You will be asked to fill out a form that will ask questions about your attitudes toward breastfeeding as well as information about yourself. You will also be asked to complete an interview with the researcher that will be tape recorded. The interview with the researcher will include discussion about your involvement in the method of infant feeding you and your partner have decided upon as well as things you think are barriers to encouraging the mother to breastfeed. Interviews will take place at the Siouxland District Health Department WIC Clinic.

Risks and/or Discomforts: There are no perceived risks or discomforts connected with being in this study.

Benefits: By being in this study, you may have a better understanding of your attitudes and behaviors regarding breastfeeding. Your participation in this study is valuable to the researcher as part of an effort to better understand the father's involvement in encouraging breastfeeding.

Confidentiality: Being in this study is confidential. The information from the forms and the interviews will only be seen by the researchers who are named at the bottom of this form. The information will be kept in a locked cabinet in the researcher's office at the university for five years after the study is complete. After the information from the recorded interviews is typed, the tapes will be erased. The information from this study may be published in scientific journals or presented at scientific meetings but the information will be reported all together so no one can be identified.

Compensation: For your valuable time in this study, you will be given \$25. In order to receive this, you must give the researcher your name, social security number and a mailing address so that a check can be mailed to you.



Opportunity to Ask Questions: Prior to the beginning of the study, you have the right to ask questions and have your questions answered. To receive answers about the research or voice concerns or problems about the research please call or email the researchers listed at the bottom of this form. Please call the University of Nebraska-Lincoln Institutional Review Board at (402) 472-6965 if you wish to talk to someone other than the researchers about questions you have, if you have complaints or concerns about the research, or to provide information and in the event that the researchers can not be reached.

Freedom to Withdraw: Taking part in this study is voluntary. You can refuse to be in this study or quit any time without affecting your relationship with the researchers or the University of Nebraska-Lincoln, or in any other way receive a loss of benefits to you which you should otherwise be entitled.

Consent, Right to Receive a Copy: You are voluntarily making a decision whether or not to be in this study. Your signature indicates that you have decided to be in the study having read and understood the information presented. You will be given a copy of this consent form to keep. Your decision to participate in this study will not affect your standing with the WIC program or the Siouxland District Health Department.

Signature

Date

Name and phone number of investigators:

Katrina Harwood Primary Investigator (402) 472-5285
 Email: Katrina.harwood@huskers.unl.edu

Kaye Stanek-Krogstrand Secondary Investigator (402) 472-5285
 Email: kstanek1@unl.edu

Appendix F



September 22, 2009

Katrina Harwood

Department of Nutrition and Health Sciences

7120 Adams St Apt 85 Lincoln, NE 68507

Kaye Stanek Krogstrand

Department of Nutrition and Health Sciences

202J LEV UNL 68583-0806

IRB Number: 20090910244 EX

Project ID: 10244

Project Title: Intent of future fathers to be supportive and encourage their infant's mother to
breastfeed: Application of the theory of planned behavior

Dear Katrina:

This letter is to officially notify you of the approval of your project by the Institutional Review Board (IRB) for the Protection of Human Subjects. It is the Board's opinion that you have provided adequate safeguards for the rights and welfare of the participants in this study based on the information provided. Your proposal is in compliance with this institution's Federal Wide

Assurance 00002258 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46) and has been classified as exempt.

You are authorized to implement this study as of the Date of Final Approval: 09/22/2009. This approval is Valid Until: 12/08/2009.

1. The approved informed consent email has been uploaded to NUgrant (Informed Consent-Approved.pdf file). Please use this form to distribute to participants. If you need to make changes to the informed consent form, please submit the revised form to the IRB for review and approval prior to using it.

We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:

- Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research procedures;
- Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to recur;
- Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;
- Any breach in confidentiality or compromise in data privacy related to the subject or others; or
- Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

This project should be conducted in full accordance with all applicable sections of the IRB Guidelines and you should notify the IRB immediately of any proposed changes that may affect the exempt status of your research project. You should report any unanticipated problems involving risks to the participants or others to the Board.

If you have any questions, please contact the IRB office at 472-6965.

Sincerely,

A handwritten signature in black ink, appearing to read "Mario Scalora". The signature is fluid and cursive, with the first name "Mario" and last name "Scalora" clearly distinguishable.

Mario Scalora, Ph.D.

Chair for the IRB



Appendix G



Dear Institutional Review Board,

November 17, 2009

The Lincoln Crisis Pregnancy Center is willing to participate in Katrina Harwood's thesis in regards to ***The Intent of Future Fathers to Encourage Their Infant's Mother to Breastfeed.***

Katrina will be able to recruit fathers from our parenting classes. Katrina will be able to give the research information to our fathers, and if they are willing to participate then Katrina will interview them at our location 4247 O. Katrina has informed me that the fathers and babies names will not be made public.

We are excited about getting our fathers involved and see this as a good opportunity for them to voice their opinions on the subject. You can reach me at 483-4247 Monday through Thursday if you have any questions.

Sincerely,

Kim McCarthy

Director

Appendix H

SIouxLAND
DISTRICT HEALTH
DEPARTMENT



August 3, 2010

Institutional Review Board
University of Nebraska - Lincoln
Lincoln, NE

To whom it may concern:

Katrina Harwood, RD, LD, has the permission of the Siouxland District Health Department to recruit participants from the Siouxland WIC program for the Future Father's Thoughts on Breastfeeding research project. As a local health department, we support further education for our staff and value the impact and results obtained from local research.

Sincerely,

Sharon Schroeder, RD, LD

Sharon Schroeder, RD, LD
Nutrition Director
Siouxland District Health Department

ADMINISTRATION
(712) 279-6119
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