The Online Sharing of Human Milk: A Content Analysis

By

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Abstract

Background

The benefits of human milk are well-known, as human milk provides optimal nutrition in facilitating the growth, health, and development of infants and children. There are circumstances when a mother’s breast milk may be unavailable due to maternal illness, insufficient milk supply, contraindications, or geographical barriers (Dempsey & Miletin, 2010). Global recommendations support the use of donor human milk in situations where a mother’s own breast milk is unavailable (World Health Organization, 2009). Due to the limited supply, the pasteurized product is allocated to high risk infants within the hospitalized setting (Human Milk Bank Association of North America, 2008). Based on the allocation priorities, many individuals are unable to access donor human milk.

In response to the growing demands for donor human milk, Internet based organizations have facilitated peer to peer human milk sharing. Given the fact that sharing human milk has been practiced as a covert activity, there is a lack of prevalence data (Thorley, 2008). To date, minimal research has examined this phenomenon.

Objective

The purpose of this study was to explore the description of sharing human milk utilizing an online commerce-free approach.
Method

Data was collected through semi-structured interviews with 13 research participants and analyzed using an inductive approach to qualitative content analysis. Qualitative content analysis was selected based on the recognition of the importance of obtaining a rich description when exploring this phenomenon.

Findings

Outcomes generated from the research study resulted in emerging concepts and categories. The concepts from the data analysis consisted of the following: commitment to human milk; virtual nature of relationships; and making the private public. The identified categories include: 1) infant feeding practices; 2) experience with sharing human milk; 3) selection of donors or recipients; 4) relationships among donors and recipients sharing human milk; 5) shared doctrine; 6) use of the Internet to share human milk; and 7) informing health care professionals and others regarding sharing human milk.

Conclusion

Findings generated from this study provide an increase in understanding of this phenomenon. The cultivated knowledge will assist health care professionals in working in partnership with families to ensure optimal outcomes.
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Declaration of Interest

Alicia Papanicolaou is a Master of Science student at Queen’s University, Faculty of Health Science within the School of Nursing. Her clinical knowledge and practice is specialized to maternal child nursing. As a registered nurse, she practices according to the guidelines established by the College of Nurses of Ontario. As a lactation consultant, she is committed to promoting and sustaining lactation.

With regards to the topic of sharing human milk online using a commerce-free approach, the primary investigator does not have any personal, commercial, or financial conflicts of interest. The objective to the research project was to provide a rich description of the phenomenon. The research was guided by respect and curiosity regarding the participants’ experiences with sharing human milk online. The role of the researcher was clearly identified to participants in an effort to separate the role of a researcher compared to a clinician.
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Chapter One

Introduction

The benefits of human milk are well established within the literature, as human milk provides optimal nutrition in facilitating the growth, health, and development of infants and children (World Health Organization [WHO], 2009). Human milk contains many unique properties such as nutrients, growth factors, hormones, enzymes, and anti-infective factors that provide protection against many acute and chronic diseases (The Breastfeeding Committee for Canada, 2002; WHO, 2009). Global guidelines recommend exclusive breastfeeding for the infant’s first six months of life (American Academy of Pediatrics [AAP], 2009; Canadian Paediatric Society [CPS], Dietitians of Canada, and Health Canada, 2005; WHO, 2009). Exclusive breastfeeding is the consumption of human milk without supplementation, except for vitamins, minerals, or medications (Riordan & Wambach, 2010). Exclusive breastfeeding has been shown to provide many short and long term benefits (AAP, 2005; WHO, 2009). According to a systematic review of over 400 individual studies conducted by Ip et al. (2007), breastfeeding reduced the incidence of infection, sudden infant death syndrome, obesity, necrotizing enterocolitis, childhood cancer, asthma, diabetes, and dermatitis. According to a Cochrane review completed by Dempsey and Miletin (2010), the reported benefits of human milk within the preterm population include improved gastric emptying, earlier attainment of full enteral feeding, and enhanced motility and maturation within the gastrointestinal system.
Canadian Breastfeeding Rates

The decision to exclusively breastfeed or provide human milk substitutes is complex; there are multiple casual factors that interact synergistically. Biological, social, and psychosocial traits of mothers are influenced by external determinants of breastfeeding such as education, support, and hospital policy (Dennis, 2002). There are circumstances when parents wishing to exclusively breastfeed may be unable to due to maternal illness, insufficient milk supply, contraindications, or geographical separation (Dempsey & Miletin, 2010). According to the Public Health Agency of Canada (2009), 90% of women within Canada initiate breastfeeding at the time of birth. Within the first two weeks after delivery, 25% of mothers claim to supplement with alternative liquids other than human milk. At six months of life, 14% of mothers are exclusively breastfeeding their infants. The rate of exclusive breastfeeding in Canada is lower than the worldwide estimate. Findings from the Canadian Community Health Survey (2007) regarding the percentage of women within Ontario that breastfed non-exclusively for six months are outlined in Appendix I. The WHO (2009) claims that on an international level, 35% of infants are exclusively breastfed for the first six months of life. The low prevalence of exclusive breastfeeding is of growing concern, as absence of exclusive breastfeeding is an important risk factor for infant and child morbidity and mortality.

Human Milk Banking

Global recommendations support the use of donor human milk (DHM) in situations where a mother’s own breast milk is unavailable (WHO, 2009).
**Historical Perspective.** In the early twentieth century, human milk banks were developed as a result of advancements in technology. The first established human milk banks were founded in Austria, United States, and Germany (Riordan & Wambach, 2010). Interest in milk banking grew as increasingly earlier premature infants and infants with more complex illnesses survived due to advances in health care. By the mid twentieth century, guidelines were established for donor milk banking and milk banks were growing at an increasing rate. DHM was dispensed either raw or pasteurized depending on the preference on the milk bank. However, fear surrounding the potential transmission of the cytomegalovirus and human immunodeficiency virus through human milk resulted in many milk banks closing (Riordan & Wambach, 2010). Requirements for additional screening and pasteurizing were implemented; however, many of the milk banks did not have the funds to support the additional processing.

**Current Development.** Recently, there has been a resurgent interest in human milk banking based on clinical evidence and global recommendations supporting the use of pasteurized DHM (WHO, 2009). Within North America, non-profit human milk banks operate under the guidelines established by the Human Milk Banking Association of North America (HMBANA); the banks provide pasteurized DHM that is considered a safe method of feeding (Arnold & Larson, 1993). HMBANA has collaborated with the Centers of Disease Control, the Food and Drug Administration, and the Infectious Disease Committee of the American Academy of Pediatrics to establish guidelines ensuring the safety of DHM while preserving its immunological and nutritional properties (Arnold & Larson, 1993; HMBANA, 2008; Landers & Hartmann, 2013). Human milk banks recruit and screen donors using a standardized screening tool. Donor screening
involves verbal, written, and serum screening; the donor’s health care provider must submit a form focusing on the health and suitability of the donor (Arnold & Larson, 1993; Riordan & Wambach, 2010). Laboratory serum tests screen for human immunodeficiency virus, human T-lymphotropic virus, hepatitis B and C, syphilis, and tuberculosis (Landers & Hartmann, 2013). Human milk donors receive education regarding contraindications to donation, collection techniques, labeling, storage, and shipping principles to minimize the risk of contamination from systemic or extrinsic factors (Arnold & Larson, 1993; Landers & Hartmann, 2013). The DHM is pasteurized using the Holder method; human milk is rapidly heated in containers that are agitated while the temperature is held at 62.5°C for 30 minutes (Landers & Hartmann, 2013; Riordan & Wambach, 2010). To date, there has never been a recall for contaminated DHM that was distributed by HMBANA (Riordan & Wambach, 2010).

Human milk banks thrive in countries where DHM is protected, promoted, and supported within national breastfeeding policies (Arnold, 2006). To date, human milk banks operate in Africa, Asia, Australia, Central America, North America, South America, and Europe (Riordan & Wambach, 2010). Currently, there are 13 human milk banks operating in North America (HMBANA, 2013). Within Canada, there are three human milk banks that are operational to date; the milk banks are located in Alberta, British Columbia, and Ontario. Due to the limited supply of human milk donated to HMBANA, the pasteurized product is allocated to high risk infants within the hospitalized setting (HMBANA, 2008). The most critical demand for DHM is for infants that are either preterm or full term infants with medical problems (Riordan & Wambach, 2010). In Canada, there are approximately 350,000 births annually; approximately seven
percent of infants are born preterm (CPS, 2010). According to the CPS (2010), the human milk banks are “not able to meet the needs of all preterm neonates in Canada” (p.2). The demand of DHM is so great in North America that the milk bank members are unable to even meet a quarter of the current demand (Akre, 2012). Unfortunately, many individuals are unable to access pasteurized DHM supplied by a milk bank.

Sharing Human Milk

Operational Definitions. The sharing of human milk has been practiced and documented throughout history and across the world. Historically, there has been a lack of consistency when defining breastfeeding practices. The lack of consistency in breastfeeding research has limited the generalizability of the findings (Smith & Tully, 2001). Wet-nursing, human milk banking, cross-nursing, and cross-feeding all involve the lending and borrowing of bodily fluids (Shaw, 2004). Wet-nursing is the “practice of breastfeeding someone else’s child for hire” (Riordan & Wambach, 2010, p.477). Cross-nursing occurs when “women feed each other’s babies on a regular or occasional basis” (Shaw, 2004, p.287). Cross-nursing is similar to wet-nursing, where there is a contractual commitment to breastfeed another woman’s infant (Shaw, 2004). The term cross-feeding has been recently introduced in the literature under the category of shared human milk. Cross-feeding is the informal sharing of human milk that is usually unpaid and may be reciprocal (Thorley, 2008). The term cross-feeding shares many of the same characteristics as cross-nursing; however, substituting the term nursing with feeding implies that the sharing of human milk is not occurring directly at the breast. Cross-feeding more accurately describes the practices associated with the sharing of expressed human milk between participants.
Online Exchange Utilizing a Commerce-free approach. In response to the growing demands for DHM, organizations have been developed that facilitate peer to peer human milk sharing. According to Shaw and Bartlett (2010), the informal exchange of human milk is “alive and well, thriving, but fragile” (p.129). While the concept of human milk as a commodity is not new, the twenty-first century has evolved to a capitalized and complex market for human milk (Nathoo & Ostry, 2010). The methods of sharing human milk have been transformed through advancements in technology, providing a modern twist on an age old practice (Gribble & Hausman, 2012). The use of the Internet and express shipping facilitates the exchange of human milk between individuals. According to Landers and Hartmann (2013), “Internet-based and community sharing of donor human milk is now commonplace” (p.253). Organizations such as Eats on Feets and Human Milk 4 Human Babies utilize social network via the Internet; these organizations serve as a platform for participants to share human milk using a commerce-free approach. Eats on Feets and Human Milk 4 Human Babies have been operating over the Internet since 2010 and operate in nearly 50 countries (Akre, Gribble & Minchin, 2011). In 2011, Human Milk 4 Human Babies had 130 Facebook community pages and over 20,000 community page members. With the sharing of human milk through these commerce-free organizations, there are no formal protocols for screening, collecting, pasteurizing, testing, and dispensing of DHM. Eats on Feets and Human Milk 4 Human Babies operate under the principles of informed decision making. The distribution of human milk relies solely on the responsibility of donors and recipients (Landers & Hartmann, 2013). The founding members of Eats on Feets, Walker and Armstrong (2012), describe four pillars of community breast milk sharing: informed choice, personal inquiry about donor screening, safe handling, and home pasteurization. Informed choice
refers to the examination of “all credible, verifiable, and relevant information available and using it to carefully and objectively weigh options as well as potential consequences” (Walker & Armstrong, 2012, p.34). Thorough and proper donor screening reduces the risk of exposure to potential contaminants in human milk. Donor screening includes communication regarding general health, communicable diseases, serology, medications, lifestyle, and social circumstances. Participants are encouraged to follow guidelines for the safe handling and storage of expressed human milk. Home pasteurization may be performed to reduce the risk of viral and bacterial contaminants (Walker & Armstrong, 2012). The limitation with pasteurization is that there is a loss of nutrients and immunological factors (Arnold & Larson, 1993). According to the Food and Drug Administration (2010), quantitative and qualitative changes occur during the process of human milk collection, storage, and pasteurization.

Position Statements

As the benefits of DHM are emerging, several stakeholders have issued guidelines and recommendations. The WHO has consistently supported the use of DHM in situations where a mother’s own breast milk is unavailable. In 1980, the World Health Assembly endorsed the WHO and UNICEF joint resolution on infant and young children which supported the use of banked DHM. The Academy of Breastfeeding Medicine (2009) clinical protocol states, “If the volume of the mother’s own colostrum does not meet her infant’s feeding requirements, pasteurized donor human milk is preferable to other supplements” (p.177). The CPS (2010) position statement reads, “For the sick, hospitalized newborn, pasteurized donor breast milk should be made available as an alternative feeding choice followed by commercial formula” (p.1).
Health Canada recently reviewed and updated Nutrition for Healthy Term Infants, a document that provides infant feeding recommendations for health care professionals within Canada. The joint statement was assembled based on recommendations brought forward from Health Canada, CPS, Dietitians of Canada, and Breastfeeding Committee for Canada (Health Canada, 2011). The document states, “For infants who cannot or should not be fed their mother’s breast milk, pasteurized human milk from appropriately screened donors and commercial formula are suitable alternatives. These options depend on individual circumstances” (Health Canada, 2012, Recommendations on the use of breast milk substitutes, para.3).

Based on the fact that a variety of organisms, environmental contaminants, and drugs are excreted in human milk, many organizations also have policy statements against the informal sharing of unpasteurized human milk (AAP, 2005; CPS, 2010; Health Canada, 2011; United States Food and Drug Administration, 2011). According to the Food and Drug Administration (2010), the associated risk of contamination may be donor derived or introduced during the handling and processing of human milk. The La Leche League International (2007) discourages informal exchange and recommends that potential donors contact a registered milk bank for careful screening. The AAP (2005) policy statement states the unpasteurized human milk from unscreened donors is not recommended due to the risk of potential transmission of infectious agents. Human milk has a very low risk of disease transmission (Riordan & Wambach, 2010). However, disease transmission risks include human immunodeficiency virus, human T-lymphotropic virus, hepatitis, and cytomegalovirus, in addition to other viral and bacterial infections (Arnold & Larson, 1993; Riordan & Wambach, 2010).
Research Problem

Within Western culture, the sharing of human milk deviates from the prevailing and dominant social norms regarding breastfeeding practices (Shaw, 2007). Based on the white, heterosexual, biological motherhood ideology, cross-feeding is often viewed as inappropriate or non-conventional, forcing women to complete this work in isolation from other women (Shaw, 2004). Given the fact that cross-feeding has been practiced as a covert activity, there is a lack of prevalence data (Thorley, 2008). Anecdotal evidence indicates that the practice of sharing human milk is more common than usually assumed (Shaw, 2007). However, the quantity and quality of human milk being exchanged over the Internet is impossible to accurately trace (Bromberg Bar-Yam, 2005). Bromberg Bar-Yam (2005) states that a recent surge in media attention regarding the online sharing of human milk has widened the exposure, introducing peer to peer milk sharing to individuals that may not have previously known about the practice. To date, minimal research has examined this phenomenon.

According to Bromberg Bar-Yam (2005) and Thorley (2008), informal sharing of human milk is private and many women choose to not inform or consult health care providers when participating. Women often do not consult their health care providers regarding cross-feeding due to fear of a negative reaction, as well as a perceived lack of support and knowledge (Bromberg Bar-Yam, 2005). An increase in understanding of the concept of cross-feeding will assist health care professionals to work in partnership with the participants involved to provide non-judgmental counseling (Thorley, 2008). It is essential that health care professionals cultivate knowledge and skill to appropriately counsel families regarding the online sharing of human milk. Supporting optimal infant
feeding practices is one of the most effective interventions for health outcome (WHO, 2009).

**Research Objective**

The purpose of the research study was to explore the description of sharing human milk utilizing an online commerce-free approach. The aim of this investigation was to attain an abstracted and comprehensive description of the phenomenon.

**Outline of Thesis**

In an effort to explore the current body of knowledge on the description of sharing human milk, a review of the literature is outlined in chapter two. Chapter three describes the research methodology that was implemented to achieve the research objective. Chapter four provides a rich description of the online sharing of human milk utilizing a commerce-free approach through the identification of emerging concepts and categories. An association between the previous literature and the results from this current research study is discussed in chapter five. This final chapter also contains the strengths and limitations to the study, in addition to implications for health care practice and nursing research. Finally, chapter five provides a summary and conclusion of the study.
Chapter Two

Literature Review

In an effort to identify current knowledge and areas of knowledge development, a methodical search was conducted using key search terms in multiple bibliographical databases (Appendix II). In addition to attempts to locating grey literature, additional articles were yielded through the reference list in indexed articles. The number of articles located, screened, critiqued, and included in the literature review are outlined in Appendix III. Research articles were critically appraised using Davies and Logan (2008) companion worksheets.

The systematic literature search identified five seminal research studies that examined the experience of cross-feeding using a qualitative approach and three quantitative research studies that examined the characterizations of human milk donors. The purpose of this review was to synthesize and critically appraise the literature focusing on the motivation, safety, and experience of sharing of human milk, in addition to the values and demographics of human milk donors. The literature review commences with a brief description of the seminal qualitative research studies in chronological order, the main findings from each study are further explored under the headings motivation, safety, and experience of sharing human milk. Lastly, the quantitative studies describing the characterization of human milk donors are appraised. The literature review highlighted the evidence of gaps in current knowledge, supporting the need for a qualitative research study investigating the sharing of human milk over the Internet using a commerce-free approach.
In 2003, Long published her research exploring the beliefs and behaviours associated with cross-feeding in an Australian context. The researcher conducted ethnographic fieldwork within an urban Australian public hospital from October 1999 to September 2000. Long recorded conversations with approximately 30 women using the hospital services and approximately 20 health care professionals; 12 of the participants had previously cross-fed and four participants were actively considering cross-feeding. The majority of the participants were Anglo-Australian. During the researcher’s fieldwork, participants shared their feelings, opinions, and reactions to cross-feeding. Occasionally, participants provided anecdotal stories offering a range of cross-feeding situations.

Bromberg Bar-Yam (2005) conducted a qualitative, exploratory study with women who were involved with cross-nursing relationships in the United States. A small convenient sample of 20 women participated in telephone interviews. The sample was obtained from respondents that were involved in cross-feeding at the time of the study or had cross-fed previously. The sample also included women that had cross-nursed with babies directly at the breast. The study examined the partnership and arrangements among participants. The study also explored the experience and medical concerns of cross-feeding.

As part of a larger research project, Shaw (2007) analyzed the reciprocal relations involved in cross-nursing arrangements. This qualitative social science study offered a feminist perspective. The research aimed to discuss assumptions embedded in breastfeeding practices, in particular, cross-nursing. The phenomenon was assessed within a contemporary context in an effort to illuminate some of the moral dimensions
associated with sharing human milk. A sample size of 12 women from New Zealand was recruited through the snowball technique. Participants engaged in semi-structured, face-to-face interviews averaging one to two hours in length. Findings were coded for common themes arising around the ethics of cross-nursing and attitudes towards the exchange of bodily fluids.

In 2009, Thorley conducted a qualitative study exploring the experience of sharing breastfeeding or expressed breast milk from the perspective of Australian women. In an effort to gain a historical perspective, inclusion criteria included women that had cross-fed during the time period of 1978 to 2008. The author recruited 43 participants through personal contacts, websites, and snowballing methods. The respondents participated in a telephone or email interview. A limitation of this study includes potential response bias as some of the participants were selected through personal contacts. Due to the fact that participants had cross-fed during the time period of 1978 to 2008, an additional limitation includes recall bias.

Thorley furthered her qualitative research in 2012 through a study that explored the experience of sharing human milk with women from eight different countries. Participants were recruited from Australia (N=7), Canada (N=2), Columbia (N=1), India (N=1), Indonesia (N=1), Lebanon (N=1), Netherlands (N=1), and the United States of America (=9). The aim of this study was to provide a snapshot of the diversity of situations and experience in several cultural contexts in the present day. Recruitment of participants included 22 women that had shared human milk, in addition to the coordinator of an online human milk sharing organization. Participants were invited to participate in the research study through online breastfeeding networks, personal contacts,
and word of mouth. Participants responded to a set of open-ended questions via telephone or email. Thorley used themes that emerged from her previous work in 2009 to provide a framework for reporting the experiences. Themes included the following: consent, screening, infant behaviour, opinions of others, and respondent’s view of their experience.

Motivation to Share Human Milk

The motivation to share human milk was only examined in two of the qualitative studies. Findings from Thorley (2009; 2012) indicated that the overwhelming reason for cross-feeding was the desire to provide human milk to the infant rather than milk derived from an animal. The participants that donated human milk were conscious of the recipients’ desire to avoid the use of artificial milk substitutes. The convenience of a cross-feeding arrangement was an additional explanation provided regarding the motivation to share human milk (Thorley, 2009; Thorley, 2012).

Safety in Sharing Human Milk

Three of the seminal publications on the topic of sharing human milk have explored safety. Thorley (2009) claims that participants involved in cross-feeding were knowledgeable of the general family health and lifestyle with which they shared human milk. Similarly, Bromberg Bar-Yam’s (2005) participants were aware of the risks of passing infection and medications through human milk. Despite the fact that most mothers claim that they did not consciously screen, participants articulated clear explanations for which they choose to share human milk with and whom they would not. The participants were aware of many, if not all, of the issues screened for in blood donor
questionnaire by Red Cross (Thorley, 2009). In contrast, Bromberg Bar-Yam’s (2005) research indicated that most women were not sure which diseases could be transmitted or whether a cross-nursing partner could have such a disease without being aware of the disease. The women in the study claimed that they knew their cross-nursing partners well; they trusted that if their partners had a transmittable disease or taking medications, they would not participate in cross-nursing. In general, each mother made an informed decision to engage in the informal exchange of unpasteurized DHM based on their own risk-benefit analysis. Bromberg Bar-Yam (2005) provided a caution for trading human milk over the Internet. The author argued that when the exchange of human milk moves beyond the close social circle, there is increased risk of transmitting disease, medications, and contaminants.

Findings from Long (2003) reported that concerns regarding the sharing of bodily fluids were common among health care professionals. Among family physicians, obstetricians, and some midwives, milk was viewed as a source of infection. Long (2003) stated that participants who “reacted to cross-feeding often responded on levels that were not necessarily linked to biomedical models of body fluid exposure risks” (p.109).

Experience of Sharing Human Milk

All of the identified qualitative studies focused on the experiences of sharing human milk, each study offered some unique similarities and differences regarding partnership, emotional response, and informing others.

**Partnership.** In general, women often shared human milk with someone that was a relative or close friend. These individuals demonstrated dedication and commitment to
the wellbeing of others (Bromber Bar-Yam, 2005). Long (2003) demonstrated that sharing human milk involved a “deep level of trust and a close emotional relationship between lactating women” (p. 106). Relationships among individuals that cross-fed were based on the “trust, reciprocity of some kind or another, support, mutual empowerment, and generosity” (Shaw, 2007, p. 445). Most participants knew other individuals that shared human milk outside their own partnership, these relationships created a sense of support and inspiration (Bromber Bar-Yam, 2005).

**Emotional Response.** The act of cross-feeding can mean multiple things to different individuals (Shaw, 2007). According to Bromber Bar-Yam (2005), women reported a wide range of physical and emotional responses to donating and receiving human milk. Long (2003) reported that attitudes towards cross-feeding were polarized, as some participants viewed it as completely natural, while other participants viewed it as completely unnatural. Findings from Thorley (2009) indicated that women that cross-fed were comfortable and open with their experience. There were logistic challenges for donors; however, the women reported that the temporary inconvenience was reduced by the feelings of gratification at being able to help a family member or friend in need (Bromber Bar-Yam, 2005). Participants that had donated their human milk were positive about the opportunity to help others (Thorley, 2009; Thorley, 2012).

**Informing Others.** Shaw (2007) found that cross-feeding is an underground practice that exists in “subcultural pockets, as well as within non-mainstream cultures” (p.441). Health care professionals within Long’s ethnographic fieldwork (2003) described cross-feeding as hidden. Thorley (2009) inquired with participants about their experience disclosing their decision to cross-feed. Participants stated that the response
from others ranged from positive to negative. Among Thorley’s (2009) study participants, the reported attitudes of medical physicians regarding sharing human milk were positive and supportive. However, Bromberg Bar-Yam (2005) claimed that women typically did not consult health care professionals for information or advice regarding cross-feeding. In general, these women did not feel that their health care providers would be supportive regarding cross-feeding. As well, they felt that the health care professional would not provide any guidance or useful information beyond what they had already obtained (Bromberg, Bar-Yam, 2005).

Characterization of Human Milk Donors

In an effort to build on the findings from qualitative research outlined in the above section, quantitative studies describing the characterization of human milk donors were also appraised. However, there is a limited amount of research on this topic (Osbaldiston & Mingle, 2007; Pimenteria Thomaz et al., 2008). In an effort to build on the anecdotal findings published by Arnold and Borman (1996), there are three seminal quantitative studies that have examined the motivation, values, and demographics of human milk bank donors. The findings generated from Azema and Callahan (2003), Osbaldiston and Mingle (2007), and Pimenteria Thomaz et al. (2008) are limited in terms of generalizability. Azema and Callahan (2003) examined the characteristics of 103 human milk bank donors within eight geographical areas within France. Osbaldiston and Mingle furthered this work in 2007 when they collected data through telephone interviews with 87 donors from Austin, Texas. Pimenteria Thomaz et al. (2008) conducted a cross-sectional survey of 737 women to identify factors that influenced or motivated women to
donate human milk in Brazil. This self-administered survey compared the findings among first time and repeat human milk donors.

**Motivation to Donate to Milk Banks.** The act of donating milk is viewed as an expression of one’s personal values. Arnold and Borman (1996) indicated that the act of donating human milk provided women with a sense of affirmation as mothers, as they were able to contribute to the well-being of others. For many mothers, the act of human milk donation enhanced their self-esteem and confidence (Arnold & Borman, 1996). Most values that donors endorsed were social concern, tolerance, security, and self-direction (Osbaldiston & Mingle, 2007). Arnold and Borman (1996) provided anecdotal evidence when describing the motivation of ideal human milk donors. Two explanations were provided: donors did not want to waste the milk that they worked hard to express and donors wanted to help some other infant or young child survive or regain health (Arnold & Borman, 1996). These findings were validated in a descriptive quantitative studies completed by Azema and Callahan (2003), Osbaldiston and Mingle (2007), as well as Pimenteria Thomaz et al. (2008). Findings from these studies suggest that milk donors have optimistic, altruistic, and benevolent qualities (Azema & Callahan, 2003; Osbaldiston & Mingle, 2007). In contrast to previous findings, the most commonly reported reason for donation included encouragement of a health care professional. Women were also increasingly motivated to donate human milk once they received information on the needs and use of DHM (Pimenteria Thomaz et al., 2008).

**Demographics.** In an effort to further understand human milk donation, researchers have assessed the demographic characteristics of donors. Results produced by Azema and Callahan (2003) indicated that donors were of the average childbearing
years, 97% of these women were married or living with someone, and a relatively significant percentage of women were not working outside of the home. Of the 49% of women that did work outside of the home, one quarter of the women worked in the medical or social services fields (Azema & Callahan, 2003). Similar to the findings published by Azema and Callahan (2003), Osbaldiston and Mingle (2007) claimed that most human milk donors were young, married, well-educated, financially secure, and healthy. Pimenteria Thomaz et al. (2008) determined that the only reliable predictors of becoming a regular donor included having four to seven pregnancies (Relative Risk [RR]=1.92; 95% Confidence Interval [CI]=1.03-3.58) and a higher than secondary education level (RR=2.06; 95% CI=1.01-4.21).

**Knowledge Gaps in Literature**

The practice of sharing human milk has been previously explored; however, the methods of sharing human milk have been radically transformed through the advancements in technology. Within the past three years, the development of social networks utilizing the Internet and express shipping has revolutionized cross-feeding. The boundaries for sharing human milk have expanded, as the use of the Internet facilitates the exchange of human milk between strangers. In light of the literature search, there were no other research studies that examined the online sharing of human milk utilizing a commerce-free approach from a Canadian perspective. The research objective of this current study was to explore this phenomenon, thereby fulfilling an identified knowledge gap within the literature. An increase in understanding on this topic has significant implications for health care practice.
Chapter Three

Methodology

To address the research objective, an inductive conventional approach to content analysis was employed to collect and analyze qualitative data regarding the description of sharing human milk utilizing an online commerce-free approach. Qualitative content analysis was selected as the investigating methodology based on the recognition of the importance of obtaining a rich description when exploring this phenomenon. The inductive conventional approach to content analysis was appropriate for this research given the limited literature on this phenomenon. An inductive approach facilitated the emergence of key categories and concepts from the data. Within recent years, this methodology has come into wide use within health care research (Hsieh & Shannon, 2005). Within nursing research, content analysis has an established position and offers several advantages for researchers. Content analysis is well-suited to analyze “data on the multifaceted, sensitive phenomena characteristic of nursing” (Elo & Kyngas, 2007, p. 113).

This chapter addresses the research design, sampling, recruitment, data collection, data analysis, ethical considerations, and trustworthiness.

Research Design

Content Analysis. According to Krippendorff (2004), contemporary content analysis is an exploratory process that is an empirically grounded method. The roots of qualitative content analysis were developed in the empirical social sciences (Schreier, 2012). Content analysis “examine data, printed matter, images, or sounds-texts in order to understand what they mean to people, what they enable or prevent, and what the
information conveyed by them does” (Krippendorff, 2004, p.xvii). Content analysis offers a scientific tool to produce replicable and valid inferences from meaningful matter by identifying apparent patterns within data (Krippendorff, 2004). Data are the results of the procedures the researcher has chosen based on the answer to specific questions, “hence data are made, not found” (Krippendorff, 2004, p.81).

**Qualitative Content Analysis.** Qualitative content analysis developed out of quantitative content analysis (Graneheim & Lundman, 2004; Schreier, 2012). The aim of content analysis is to obtain a broad description of the phenomenon through the development of categories and key concepts (Elo & Kyngas, 2007; Schreier, 2012). According to Schreier (2012), qualitative content analysis is appropriate when the research question is descriptive in nature and the researchers are working with rich data that requires analysis. When implementing an inductive approach, researchers avoid imposing any preconceived categories or theoretical perspectives in an effort to capture the complexities within a phenomenon (Hsieh & Shannon, 2005). Conventional content analysis researchers immerse themselves within the data in an effort to induce categories. Hsieh and Shannon (2005) describe content analysis as the subjective interpretation of data through systematic coding. The emerging categories are derived from the data through induction, as the “data moves from the specific to the general” (Elo & Kyngas, p.109).

The research design for this project was inspired by Schreier (2012) as it offered a systematic and flexible approach to reduce and summarize data. The qualitative content analysis consisted of the following steps as outlined in *Figure 3.1*. 

21
Figure 3.1 Steps in Qualitative Content Analysis

Figure 3.1 Adapted from Schreier, M. (2012). Qualitative Content Analysis in Practice. Thousand Oaks, CA: SAGE Publications Inc.
Participants

**Sampling.** The population of interest for this study was individuals participating in the online sharing of human milk utilizing a commerce-free approach. A purposeful sample using the inclusion criteria was used for this study, as deliberate and nonrandom sampling facilitated the selection of participants with various experiences, enhancing the probability of accurately describing the phenomenon. The inclusion criteria that guided the selection and nomination of participants are listed below:

1. Individuals that have received or donated human milk through online commerce-free networks within the past 2 years.
2. Able to speak and understand the English language.
3. Living within the Province of Ontario.
4. Able to provide verbal and written consent.
5. Access to a computer with Internet services.

**Recruitment.** Participants were recruited through an online posting on various Facebook websites that facilitate the sharing of human milk utilizing an online commerce-free approach (Appendix IV). Written permission to invite participants to participate was informally obtained from the founding members of the organizations through electronic correspondence. The online invitation was hyperlinked to a website which outlined the study information (Appendix V). In addition, a Facebook account was created for the research study entitled “Queen's Nursing Research Study: Sharing Human Milk”. The website and Facebook account created for the study included the researcher’s contact information; individuals interested in participating in the study were encouraged to contact the researcher. All potential participants that contacted the researcher received
a standardized response providing additional information regarding the study (Appendix VI). The recruitment process commenced in October 2012 and continued until January 2013. During the recruitment process, the online invitation was reposted on two occasions in an effort to enhance participation, one of these invitations specifically addressed participants that were recipients of DHM. A snowball technique was also implemented, as participants were encouraged to contact additional participants that may have been interested in participating in the research. According to Krippendorff (2004), it is necessary for content analysts to limit their research to a “manageable body of texts” (p.111). The sampling technique was terminated after 13 interviews as the data reached natural boundaries. As a token of appreciation, participants received a gift certificate to a coffee shop in the amount of five dollars.

Data Collection

Setting. The interviews were conducted using a mode of communication that was selected by the participant. Research participants were asked if they preferred to conduct the interview in person, over the telephone, or Internet using Skype™. The researcher traveled across Southern and Eastern Ontario to meet participants in person (N=5) in their natural setting. The interviews were conducted using a location that was convenient for the participants and researcher. The remaining participants requested the interview be conducted by telephone (N=5) or by the Internet using Skype™ (N=3).

Interviews. The researcher conducted in-depth interviews with the participants. The length of the interviews ranged from 29 minutes to 80 minutes, excluding the informal conversation that took place before and after the interview to establish contact.
and allow the participants to ask questions. The interviews were auditory recorded using a digital voice recorder (Philips digital device 9360). The use of auditory equipment was required as “human speech vanishes unless it is audio-recorded” (Krippendorff, 2004, p. 125).

The interviews were conducted utilizing a semi-structured guide (Appendix VII & Appendix VIII). In an effort to create a comprehensive written guide, the primary investigator personally corresponded with a number of published researchers and reviewed various tools used to collect data on sharing human milk. The questions generated for this research study were selected based on common topics explored in previous research as outlined in the literature review. The researcher asked open-ended questions in an effort to encourage the participants to articulate freely and share stories using their own words. The written guide was piloted with one participant and reviewed by experts on the research committee in an effort to increase the comprehension of the questions. The questions appeared in a logical sequence; however, the researcher occasionally altered the sequence of the questions if the participants volunteered information about questions that were later on the topic guide. The written guide was semi-structured which allowed the researcher to modify the questions to capture any emerging concepts or categories that developed among participant. According to Graneheim and Lundman (2004), “interviewing and observing is an evolving process during which interviewers and observers acquire new insights into the phenomenon of study that can subsequently influence follow up questions or narrow the focus for observation” (p.110).
Following the auditory recorded interview, the digital recording was reviewed by the researcher for audibility and completeness. The digit recording was then transcribed (Philips digital desktop 9750) verbatim by the researcher, including any nonverbal or background sounds. According to Graneheim and Lundman (2004), it is valuable to observe the participant’s behaviours such as silence, laughter, and gestures, as these can influence the underlying meaning. The researcher was cognizant of potential omissions that may have unintentionally changed the meaning of the data. The researcher reviewed each transcription produced by the digital voice recorder to cross-check for accuracy and to detect any need for elaboration or clarification.

The researcher made field notes immediately following each interview. The field notes included a description of the interview setting and the participant’s overall appearance, verbal or physical behaviours. The length of the conversation, flow, dialect, and tone of voice was documented. If more than one individual was present at the time of the interview, the relationship with the participant was described. Any interruptions during the interview were also accounted for in the field notes.

Following each interview, the researcher also participated in reflexive journaling. The researcher considered her personal reaction to the interview setting and any emotional reactions during the interview. The researcher was also mindful of her personal strengths and weakness by identifying any areas of improvement for future interviews. In an effort to enhance integrity, the researcher also peer debriefed with the thesis supervisor, Dr. Sears.
Data Analysis

Data. The making of data resulted from narratives recorded from the in-depth interviews with the participants. The unit of datum in this research study was the written transcription of the participants’ verbal communication.

Coding frame. A coding frame consisting of main categories and subcategories was developed in an effort to structure the data. The semi-structured interview guides served as a deductive framework to build part of the coding frame. Additional subcategories were inductively generated from the data. The categories represented a collection of content that shared commonality (Krippendorff, 2004). The pilot coding frame was trialed on several transcriptions and modified as required. Once the coding frame reached exhaustion and saturation, all transcripts were coded using the final coding frame. The coding frame was deemed exhaustive when each unit of coding was allocated to at least one subcategory (Schreier, 2012). Saturation of the coding frame was achieved when each subcategory was used during the analysis (Schreier, 2012). The comprehensive list of main categories and subcategories was reviewed by the thesis supervisor, Dr. Sears, and committee members, Dr. Edge and Dr. Wilson. The coding frame is illustrated in Appendix IX.

Units of coding. According to Schreier (2012), units of coding refers to parts of the data that can be “interpreted in a meaningful way” in relation to the categories and subcategories (p.131). The purpose of coding is to “bridge the gaps” that exist between units of data and “someone’s reading of them” (Krippendorff, 2004, p.84). Exact words were highlighted within the texts that appear to capture key concepts (Hsieh & Shannon,
Krippendorff (2004) considered texts not to be objective, but rather to have multiple meanings that do not need to be shared. Therefore, the researcher approached the text by making notes of initial impressions, thoughts, and analysis (Hsieh & Shannon, 2005). The researcher reviewed the data by extracting significant statements and organizing the data using codes. A code refers to the labeling of a meaningful unit which is understood in relation to the context (Graneheim & Lundman, 2004). The codes appeared as participants described the online sharing of human milk utilizing a commerce-free approach. Using a table format, the codes were sorted into emerging main categories and subcategories based on the relationship between different codes. The list of codes was reviewed by the thesis supervisor, Dr. Sears and committee members, Dr. Edge and Dr. Wilson. In an effort to enhance reliability, three of the interviews were also coded by Dr. Sears to assess the consistency of the coding across persons. Any differences between the researcher and thesis supervisor were discussed and modified accordingly. The comparison of coding ceased after three interviews as the primary researcher and thesis supervisor reliably reached high consistency of coding agreement (Appendix X).

**Main Analysis.** The number of participants that referenced each code within the coding frame was counted for frequency. Absolute frequencies demonstrated how often categories and subcategories were coded across the unit of analysis (Schreier, 2012). The findings from absolute frequencies are outlined in Appendix XI. Concepts were identified to thread together any underlying meanings within the codes or categories (Graneheim & Lundman, 2004). Important concepts that emerge were identified by the researcher, thesis supervisor, Dr. Sears, and committee member, Dr. Wilson.
Additionally, Dr. Edge and Dr. Wilson reviewed a transcribed interview and data analysis individually to confirm the emerging concepts and categories.

**Ethical Considerations**

Ethical approval was obtained from Queen’s University Health Science Research Ethics Board (Appendix XII) and adhered to the Tri Council Policy Statement regarding ethical conduct for research involving humans.

The research was guided by the principles of justice, beneficence, and autonomy (Orb, Eisenhauer & Wynaden, 2001). The selection of participants was directed by the inclusion and exclusion criteria. The research study demonstrated beneficence as there were no known risks associated with the study. The study demonstrated autonomy through the recognition of the participants’ rights. Participants were fully informed about the study through the use of the information sheet (Appendix XIII). The consent form and elements of the study were discussed with the participant prior to commencing the study. Informed consent was obtained from each participant (Appendix XIII). Participants were given the right to freely decide whether to participate, in addition to the right to withdraw from the study at any time without penalty. The researcher acknowledged the participants’ contributions to the study.

To maintain confidentiality, the names of participants were kept strictly confidential and not recorded with data in the interview. The semi-structured interviews were recorded using a digit voice recorder (Philips digital device 9360) and transcribed (Philips digital desktop 9750) verbatim by the researcher using a laptop that was password protected. The data were encrypted and stored on a Universal Serial Bus (USB) device that was password protected. The use of unique identifications linked participants
with demographic information (Appendix XIV) and consent forms. The uses of pseudonyms were implemented to protect the identity of participants in any discussion or publication of the research report. Participants were made aware of how the results would be published as the informed consent sought the approval to use any quotations for publication. Participants were able to request for a copy of the executive summary of the findings following completion of the research study (Appendix XV). The names of participants and demographic information were secured in a locked cabinet at School of Nursing located at Queen’s University, Kingston, Ontario. The primary researcher and thesis supervisor, Dr. Sears, were the only individual with access to the names of participants and demographic information. Seven years following the research study, the data will be destroyed.

**Trustworthiness**

The trustworthiness and integrity of this qualitative research project was embodied within each phase of the research. In qualitative research, trustworthiness has been described using the following concepts: credibility, dependability, and transferability (Graneheim & Lundman, 2004). In qualitative content analysis, reliability and consistency enhances the trustworthiness of the study.

**Credibility.** The intent of credibility is to assess the confidence between the focus of the research with the process of data analysis (Polit & Hungler, 1999). Qualitative content analysis was selected as the investigating methodology based on the recognition of the importance of obtaining a rich description. Due to the limited literature
available on the topic of sharing of human milk online, an inductive conventional approach to content analysis was appropriate.

The researcher established credibility through the technique of open-ended questions within the semi-structured interview guide. The trustworthiness of the research was enhanced through in-depth reflection in an effort to minimize personal biases, perspectives, and motivation. The use of reflexive journaling and peer debriefing following each interview heightened the researcher’s self-reflection in an effort to promote integrity (Lincoln & Guba, 1985). The data was collected by the researcher and shared with the thesis supervisor and committee members during regular meetings. Agreement was sought regarding the coding frame, units of coding, and main analysis.

In order to enhance trustworthiness, the researcher maintained a documented history and audit trail when developing and modifying the coding frame. The rigorously maintained history and audit trail served as a reference of research events and decisions, creating transparency in the researcher’s critical appraisal (Graneheim & Lundman, 2004; Polit & Beck, 2012). The research report conveyed authenticity by allowing the participants’ meaning to be accurately portrayed through the use of tone, feelings, experience, context, and language. The research report included a rich description of the findings with the use of quotations from the transcribed text in an effort to enhance credibility (Graneheim & Lundman, 2004).

**Dependability.** The purpose of dependability is to consider factors that may create instability or induce change over time (Graneheim & Lundman, 2004). The use of an interview guide facilitated the researcher inquiring about the same topics with all
participants. Due to the fact that the data collection extended over a period three months, participants provided written permission for the researcher to contact them again if any additional follow up was required.

**Transferability.** Transferability refers to the probability that the current research findings provide meaning to others in similar circumstances. In an effort to achieve transferability, a clear and concise description of the sampled population is described in the following chapters. A thorough explanation of the research design, sampling, recruitment, data collection, and data analysis was outlined in this chapter. Readers will have the opportunity to assess the potentiality of applying the current research findings to another context (Graneheim & Lundman, 2004).

**Reliability.** The intent of reliability is to evaluate the quality of an instrument, such as a coding frame (Schreier, 2012). The reliability of the coding frame was demonstrated through a comparison across persons, as the primary researcher and thesis supervisor used the same coding frame to independently analyze the same data generated by three interviews. The results yielded high percentages of agreement, thereby demonstrating intersubjectivity (Schreier, 2012).
Chapter Four

Findings

This chapter provides a description of sharing human milk utilizing an online commerce-free approach according to the participants. An overview of the participants’ characteristics is included. The findings from the data analysis consist of concepts, categories, and subcategories. The emerging concepts comprised of a commitment to human milk, virtual nature of relationships, and making the private public. The identified categories include: 1) infant feeding practices; 2) experience with sharing human milk; 3) selection of donor or recipient; 4) relationships among donors and recipients sharing human milk; 5) shared doctrine; 6) use of the Internet to share human milk; and 7) informing health care professionals and others regarding sharing human milk. In the following descriptions of the concepts, categories, and quotes from participants, pseudonyms have been used to protect confidentiality. Pseudonym names (Table 4.1) were randomly assigned from Mander (2003) analysis of a historical document from James Young Simpson’s data on wet-nurses.

Characteristics of Participants

Thirteen women within the Province of Ontario were recruited for this research study. Of the thirteen participants, the participants were categorized accordingly: donor (N=9), recipient (N=1), or donor and recipient (N=3).

The sample primarily consisted of Caucasian women whose age ranged from 26 to 41 years. All of the participants identified themselves as either married (n=12) or common law (n=1). The participants indicated their highest level of education according
to the following: secondary (n=1), postsecondary (n=9), and graduate (n=3). Their occupations included education (n=3), human services (n=3), business (n=3), health care (n=2), public services (n=1), and manufacturing (n=1). Seven of the participants were on leave from their employment at the time of the research study.

The total number of biological and adopted children is classified accordingly: one child (n=8), two children (n=2), and three children or greater (n=3). During the antepartum and postpartum period, the majority of participants’ health care providers included midwives (n=9). The participants shared about their most recent birth, 69% (n=9) of the participants had a vaginal delivery while 31% (n=4) had a non-elective cesarean delivery due to fetal malposition. Of the participants that had a vaginal delivery (n=9), 55% delivered at home under the care of midwives.

In accordance with the Queen’s University Health Sciences and Affiliated Teaching Hospital Research Ethic Board, considerations to enhance participants’ confidentiality were implemented. It is important to note that characteristics or unique circumstances that may identify any of the donors or recipients have not been included in the findings or discussion of this dissertation.
Table 4.1 Overview of Participants

<table>
<thead>
<tr>
<th>Pseudonym Names</th>
<th>Participant Category</th>
<th>Experience with Sharing Human Milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mrs. Brown</td>
<td>Donor</td>
<td>Donated to one recipient on more than one occasion.</td>
</tr>
<tr>
<td>Mrs. Davidson</td>
<td>Donor and Recipient</td>
<td>Donated to one recipient on one occasion. Received from one donor on one occasion.</td>
</tr>
<tr>
<td>Mrs. Finnie</td>
<td>Donor</td>
<td>Donated to three recipients on one occasion.</td>
</tr>
<tr>
<td>Mrs. Grant</td>
<td>Donor</td>
<td>Donated to two recipients on more than one occasion.</td>
</tr>
<tr>
<td>Mrs. Gillon</td>
<td>Donor</td>
<td>Donated to one recipient on one occasion.</td>
</tr>
<tr>
<td>Mrs. Hines</td>
<td>Donor</td>
<td>Donated to one recipient on one occasion.</td>
</tr>
<tr>
<td>Mrs. Hunter</td>
<td>Donor and Recipient</td>
<td>Previously donated to multiple recipients. Received from multiple donors, number of occasions was variable.</td>
</tr>
<tr>
<td>Mrs. Lumsdon</td>
<td>Donor</td>
<td>Donated to eight recipients on more than one occasion.</td>
</tr>
<tr>
<td>Mrs. Maben</td>
<td>Donor</td>
<td>Donated to one recipient on one occasion.</td>
</tr>
<tr>
<td>Mrs. Martin</td>
<td>Donor</td>
<td>Donated to one recipient on more than one occasion.</td>
</tr>
<tr>
<td>Mrs. Stewart</td>
<td>Donor</td>
<td>Donated to two recipients on more than one occasion.</td>
</tr>
<tr>
<td>Mrs. Tait</td>
<td>Recipient</td>
<td>Received from multiple donors, number of occasions was variable.</td>
</tr>
<tr>
<td>Mrs. Taylor</td>
<td>Donor and Recipient</td>
<td>Donated to two recipients on one occasion. Potential recipient from one donor.</td>
</tr>
</tbody>
</table>
Concepts and Categories

The findings from this study consist of the following concepts (identified in the shaded boxes) and categories (identified in italics) as illustrated in *Figure 4.1*.

**Figure 4.1 Concepts and Categories Diagram**
Commitment to Human Milk

A deep commitment to providing human milk was identified by all of the research participants and emerged as an overarching concept. The participants’ commitment to human milk was evident in their infant feeding practices and experiences with sharing human milk. This central concept serves as a foundation in the conceptual model of this research project and connects participants:

I think when you are in community with breastfeeding women; I think you understand the power of breast milk. So, it is something that resonates with all of us. (Mrs. Hunter)

Infant Feeding Practices

Infant feeding practices were divided into four subcategories: benefits of human milk, breastfeeding experience, milk supply, and breastfeeding support.

Benefits of Human Milk. The research participants identified numerous benefits to providing human milk that extended from the infant or child to the family. Primarily, the women acknowledged the multiple health benefits associated with breastfeeding and human milk. When discussing the motivating factors for breastfeeding, Mrs. Taylor and Mrs. Martin responded:

It is the healthiest thing for them. Healthy for mom [and] healthy for baby. (Mrs. Taylor)
There are a lot of benefits to breast milk. Breast milk is easier to digest for them and it is customized for them. Breast milk changes as they grow. (Mrs. Martin)

The emotional benefits of breastfeeding were also recognized and are illustrated in the following quotes:

[Breastfeeding is] the most rewarding thing I have ever done in my life. You bond with your child. (Mrs. Taylor)

[Breastfeeding] was just bonding for the two of us and I loved every minute of the breastfeeding I had with my daughter for sure. (Mrs. Hunter)

Mrs. Maben acknowledged the financial benefits of human milk while discussing the expense associated with providing artificial formula:

It is outrageous to feed your child formula a month. (Mrs. Maben)

Many of the participants described human milk as natural. Aside from the natural properties of human milk, the act of breastfeeding was also described as a natural element associated with motherhood:

…When I imagined having a baby, [I envisioned] holding a baby in my arms and nursing a baby. So, it was just a big part [of] that identity that I associated with motherhood. (Mrs. Davidson)

The participants spoke on their commitment to providing human milk through the exclusive use of human milk and resistance to providing artificial formula. Of the 13 participants, 69% of the women provided human milk exclusively for the infant’s first six
months of life. Of the remaining 31% that received artificial formula, supplementation was initiated based on medical recommendations from health care providers (n=4). Participants spoke of the personal distress that was evoked from the need to supplement with artificial formula:

I was running the halls, I would go back to my [hospital] room and pump, run down the hall [to the neonatal intensive care unit] because they were supplementing with formula and that was kind [of] against my birth plan too. So, I [really] felt the pressure to get as much milk through as quick as I could. (Mrs. Gillon)

I really did [not] want to give her formula because in my head if I started then I would end doing that instead of [human] milk. (Mrs. Davidson)

Giving her formula was not part of the equation. Like we did [not] have bottles in the house, we did [not] have formula in the house. I did [not] research formula. It just, it was [not] part of her upbringing really that I wanted…(Mrs. Lumsdon)

Participants spoke of the undesirable ingredients contained within artificial formula. Mrs. Tait and Mrs. Lumsdon explained:

I do [not] like what [is] put in formula, the artificial nature of it and just the combination of ingredients that are in there. [The ingredients] are [not] something that I would like my children to eat. (Mrs. Tait)
I did [not] want to give her formula, I read the ingredients on the package and I could [not] imagine putting this in my daughter’s mouth, I did [not] like the smell of it, I did [not] like mixing it. (Mrs. Lumsdon)

**Breastfeeding Experience.** The women shared about their personal journeys with breastfeeding. Many of the participants shared about their initial challenges associated with breastfeeding. The participants spoke of a wide range of difficulties such as improper latching, nipple trauma, blocked milk ducts, mastitis, thrush, and Raynaud’s Syndrome. The challenges with breastfeeding resulted in excessive weight loss or inadequate weight gain in some of the infants. Mrs. Lumsdon and Mrs. Grant shared about the physical pain associated with an improper latch:

> At the beginning I found it very hard and I found it very physically difficult. So every time she would latch, I would just curl my toes and oh my gosh, I cannot believe I have to do this every two hours… I was like this is horrible and I thought this is not a bonding experience, this is torture. (Mrs. Lumsdon)

> It was hard in the beginning...but it was just because he was not latching properly, like he just pretty much destroyed my nipple. (Mrs. Grant)

Mrs. Brown shared about the difficulties with latching her infant that was born prematurely. Her experience also attests to the emotional distress that resulted from these challenges:

> I got frustrated a lot of the times because I always tried to breastfeed him at least one a day at the beginning and at first it was not working and it was like, there
were lots of tears and you know, with all of the emotions and the hormones and everything, it was like so easy to give up… (Mrs. Brown)

The challenges associated with breastfeeding resulted in a traumatic experience for Mrs. Davidson; she described her struggles breastfeeding in the first few weeks postpartum as:

The worst experience of my life and I still have flashbacks. (Mrs. Davidson)

Despite the numerous challenges, participants demonstrated their commitment to human milk through their efforts to achieve successful breastfeeding. After several months of faithfully attempting to breastfeed, Mrs. Brown was able to successful latch her infant born prematurely:

…Then at around three and a half months, just like the lactation consultant said, he started to latch and I did [not] have to pump anymore. (Mrs. Brown)

Mrs. Hunter and Mrs. Taylor spoke of differences between breastfeeding their first child in comparison with subsequent children. Mrs. Hunter recalled:

Breastfeeding did not go well…so it was an extremely rough transition into motherhood. [With] the rest of [my children], not bad, I think I got the hang of it. (Mrs. Hunter)

Mrs. Taylor received breastfeeding support when learning to breastfeed her first child; this led to successful breastfeeding with her other children as well:

I had breastfeeding support at that time helping me with the latch and to figure out [my] supply and like you know, which side etcetera, those types of things…by the
time my second and third [children] came, it was old hat. You [do not] even have to think about it. (Mrs. Taylor)

While discussing their personal experiences with breastfeeding, each one of the participants shared about their journey with human milk expression. The participants’ motivation and rationale for using breast pumps to express human milk were often multifactorial. Many of the participants initiated breast pumping due to challenges with breastfeeding that often resulted in concerns with low milk supply:

She latched for the first twenty-four hours and then she did [not] latch, she latched a couple of times at the very beginning after that, but pretty much did [not] latch until three and a half weeks…I was pumping, I was not getting very much sleep, I almost lost my milk supply. (Mrs. Davidson)

He would [not] latch on to one side and so, they [referring to the hospital staff] told me I was to latch him on the side that he would latch on and to pump the other side. Well then he started getting the pumped milk out of a bottle and started to completely refuse the breast. So, for the first six weeks…every time he would eat, I would pump. So, I matched him feeding for feeding day and night. (Mrs. Maben)

In an effort to increase the amount of human milk produced, many of the women experienced a large increase in milk supply after routinely breast pumping. An oversupply of human milk often resulted in physical discomfort that was relieved by emptying the breast, therefore many of the participants continued to use breast pumps to relieve the symptoms associated with engorgement:
Often times I would have to get up in the middle of the night or early morning rather to pump because I had excess…I would wake up very engorged and need to pump for relief and then I would feed her…You get into the entire, the downward spiral…she eats and you pump because have excess but you have excess so [you] have to pump, so then you pump more and then you produce more and then you have the whole spiral so, I ended up having a whole lot. (Mrs. Hines)

Some of participants initiated breast pumping in preparation for being away from their infant. For some participants, geographical separation occurred during prolonged hospitalization in the neonatal intensive care units, while others were separated upon returning to employment:

I was pumping just because I wanted to be able to like have some bottles on hand for if my husband and I wanted to go on a date night or anything like that. Or even if my husband wanted to have a turn feeding her and I needed to shower you know, something like that. I was [not] pumping for anything specific. I am pumping now [in preparation] for returning to work...(Mrs. Martin)

Regardless of the rationale for human milk expression, the work involved with human milk expression was undeniable. The participants shared about their investment of time and resources when pumping:

The fact that I would rent the pump was really helpful [because] I know that not everyone can afford that. So it was good that I was just able [to] pay eighty bucks a month and [that I] had all of the attachments and I had already learned all of that at the hospital…I found it a little, it was a little hard when you wanted to go out
somewhere to plan...you know missed that [opportunity to] pump, so try to make up for it somewhere [else] in the day. (Mrs. Brown)

Mrs. Gillon described the work associated with human milk expression, storage and labeling:

We had been religious with [the] sterilization process and the storing process...Being really like scheduled and structured about it, so dedicated to it, renting the pump, and cleaning everything, and putting it in the bags, and labeling everything. (Mrs. Gillon)

The practice of cross-nursing was raised by some of the participants in comparison to cross-feeding. Of the thirteen women, two of the participants had previously engaged in cross-nursing. These cross-nursing relationships were isolated to the two participants; however, some of the participants did acknowledge that they would cross-nurse another infant or child in an emergency situation. Mrs. Stewart was willing to cross-nurse another infant; however, she was concerned with the emotional bonds that may occur:

I think I would [cross-nurse] anyone. My only fear would be just the whole bonding...that is where I think milk sharing is probably [beneficial], it is a win-win situation because you get your milk and not losing that opportunity because I mean a baby [will] eventually, if you are nursing a child and it is not your child, it is eventually going to naturally kind [of] gravitate [towards] you. (Mrs. Stewart).
**Milk Supply.** As the participants spoke of their infant feeding practices, the women shared about their ability to produce human milk to meet the needs of their children. The quantity of milk produced by the participant was described as an undersupply, adequate supply, or oversupply. Participants spoke of the changing nature of their milk supply, as some participants encounter abrupt fluctuations in their milk supply:

I basically had no supply, I had lost it. [A health care professional] gave me some information about some herbs and things to take [to stimulate milk production] … so, I started taking fenugreek [and] called my doctor about a prescription for domperidone…I had no problems with supply once I started getting it [reference to a proper latch] at that point in time. In fact, I took the herbs up until the day she latched and the day she latched my supply doubled. (Mrs. Davidson)

Despite attempts to increase their milk supply, some individuals were unable to produce a sufficient amount of human milk. Mrs. Hunter recalled her struggles with an undersupply of human milk:

I was domperidone. I was on the herbs. I was nursing, I was trying to use a SNS [supplemental nursing system]. I was doing everything I knew how and I still just was not producing after a number of weeks. I was just not producing a lot of milk. (Mrs. Hunter)

In comparison, Mrs. Lumsdon shared about her struggles with an oversupply of human milk:
I have been cursed and blessed with an abundant supply. If (daughter’s name) decides to skip one feeding a day, I can totally tell and it is something that I always have to work on… I remember talking to a lactation consultant at the very beginning saying you know when am I going to stop leaking all over the place? And she said oh, like when your body adjusts… I still leak all over the place. (Mrs. Lumsdon)

**Breastfeeding Support.** The participants expressed the importance of receiving sufficient breastfeeding support; sources of support included midwives, physicians, lactation consultants, nurses, and social groups. The participants’ commitment to human milk was evident in their personal quests to seek out individuals that provided beneficial breastfeeding support. Breastfeeding support was depicted as inadequate or adequate. Mrs. Finnie recalled the breastfeeding support she received:

I think it like two in the morning and a nurse came in the room and said are you going to pump? I said I do [not know], I guess. Like I did [not] know and we got very little support on how to do it, when to do it, or what kit to buy… We kind [of] floundered our way through it that night…(Mrs. Finnie)

Once I was discharged from the hospital, there was [not a] lactation consultant available in the NICU [neonatal intensive care unit]… but there [were] two nurses in the NICU that had qualifications… some nurses would cover for them so they could speak with me for five or ten minutes or they would come to me on their break to try to support me a little bit. (Mrs. Finnie)
Mrs. Maben spoke of the challenges with receiving inadequate breastfeeding support among her peers:

So to be the only one in the group [reference to group of friends] breastfeeding was very hard, so every time I would try and struggle and you know, feel like why am I doing this? [I] would have people say but you could just go buy it [reference to artificial formula] at the store, it is so much easier…It was really hard because [I] did [not] have [my] friends that [I] usually go to for support… So I had to go and find outside sources, so I [met with a] lactation consultant who told me then, you know you need to find a support group. So we actually joined [name of organization] and that was my biggest support group because I met other moms that were struggling and that actually understood what I was going through. (Mrs. Maben)

Mrs. Brown articulated the amount of positive breastfeeding support she received from multiple individuals:

Well first of all, the midwives [were] really supportive [of] breastfeeding in general, so I had my primary midwife and my secondary midwife both as go to if I had questions. (Mrs. Brown)

[A] lactation consultant [from the hospital] was then available to me to help with making sure my milk was coming in…I must say that I had a really positive, like a lot of positive role models at the hospital to really help…The nurses there were all pro, like here [is] the pump because they had a couple pumps obviously in the NICU [neonatal intensive care unit]…It was very obviously [a] pump friendly
and breast friendly environment. I never felt that they pushed the formula. (Mrs. Brown)

**Experience with Sharing Human Milk**

The experience with sharing human milk was divided into the following subcategories: motivation to donate and receive human milk and emotional response when donating and receiving human milk.

**Motivation to Donate Human Milk.** The donors revealed their motivation for donating human milk. Many of the donors communicated empathy as illustrated in the following quotes:

Some of the women that I have donated to…they have all been different situations…My heart goes out to these people that want the best for their kids and feel so strongly. And I cannot imagine wanting so much to give something to my baby and not being able to physically do it myself. (Mrs. Lumsdon)

I [was] sort of personalizing what she was going [through] and trying to imagine undergoing [treatment] with an infant that was the same age as my daughter [and] physically [not being] able to give what you wanted to give them [reference to human milk] at that time. I think that would have been so difficult, so I really felt, I felt for her. (Mrs. Gillon)

Mrs. Hunter shared of a time when she was moved with compassion to share some of the donated human milk she had received from donors with another woman. Mrs. Hunter spoke of the importance of giving to others even when in need herself:

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Her situation was so similar to mine that I contacted her and said I have milk. So we actually gave some of our donated milk to her because I just felt like it was the right thing to do. I felt compassionate to her. (Mrs. Hunter)

The desire to help others was also a strong motivation to donate human milk:

I thought it was a great way to help someone who [was unable to] feed their baby breast milk for whatever reason…I wanted to help someone else…you are giving the baby the best start possible. (Mrs. Martin)

It was [not] too much to provide someone else with the benefits that they were looking for [reference to human milk] and whenever we can help one another out, we should. That is just kind [of], I guess, my own mantra in a lot of ways. Yah, if you can do it, you might as well…(Mrs. Brown)

In the previous section under the subcategory of milk supply, participants described their ability to produce human milk. An oversupply of human milk was common among donors:

I just gave it [reference to human milk] away because I literally had so much…We had it in everybody else’s freezer; we had to get it out of everybody else’s freezer. So once we emptied the first freezer load, then we could go collect it from the [other] houses [where] we had it [stored]. (Mrs. Finnie)

As the women shared about the amount of work involved in human milk expression, many participants were determined to not allow the human milk to go to waste:
I had a chest freezer full of milk that I knew I was [not] going to touch, so all of that hard work, down the drain literally…I just thought of all of that work to pump all of that milk, it must have been for a reason. And if it was [not] for my son, then it must have been for somebody else. (Mrs. Finnie)

Like this is hard work [reference to breast pumping], I have gone through a lot to do this…I did [not] feel right about chucking it down the sink. I did [not] feel right about throwing it out. (Mrs. Lumsdon)

**Emotional Response to Donating Human Milk.** Many of the donors experienced similar emotional response when donating human milk. A sense of gratification was present among the donors:

I feel happy. I am doing something good for someone else, someone that I do [not] even know…I think those kinds of things [provide] you [with] some…soul, happiness, and peace. (Mrs. Grant)

It [is] the same feeling you would get through any altruistic act, you get happiness, [a] sense of purpose [and] a sense of well-being. It makes you feel good. (Mrs. Hines)

The donors also shared a sense of feeling fortunate and grateful for their personal experiences with breastfeeding:

I am so thankful that I am able to breastfeed my own children. (Mrs. Taylor)

I think it is just made me appreciate [the] whole experience and so much more; it has made me so thankful for persevering with [breastfeeding]. It has made me
for what I have been able to offer and [I] realize that it does [not] come easily to people. (Mrs. Lumsdon)

**Motivation to Receive Human Milk.** The recipients expressed their motivation for receiving human milk. The recipients experienced an undersupply of human milk and sought DHM as an alternative to artificial formula based on the identified health benefits. This is illustrated in the following quotes by Mrs. Tait and Mrs. Taylor:

I really did [not] want (daughter’s name) to suffer for what was happening to me, like you know. So, I wanted to give her the best kick at the can…that is why we wanted [her] to have breast milk. (Mrs. Tait)

We just kind [of] went through the thought process of well, which is going to be more beneficial to her?...Breast milk even though it is not mine or artificial formula? So, we kind [of] were willing to accept the risks of donor milk and go that route rather than artificial, you know rather than formula. (Mrs. Tait)

I know in my mind that it [is] better [reference to DHM], you know especially when you look at like the World Health Organization. You know, it is best to give milk at the breast first, then second is milk from the mother, from the mother in a bottle, and then third is you know, donated milk and then it is formula…I am giving my baby something better than formula. (Mrs. Taylor)

Hypothetical questions were utilized in the interview to illicit responses from the donors to assess their willingness and motivation to receive DHM. Although many of the donors acknowledged their willingness to utilize platforms that promote the online sharing of human milk, a few of the donors voiced hesitancy:
I have thought about, you know, would I use somebody’s breast milk? I do not know…until I have been in that situation, I cannot honestly say that if I needed milk when he was born because I could not breastfed, it would have been a really difficult decision…In terms of how casual it is and how, you kind of take their word for it, you know that they are giving you, for lack of a better term, a quality product…So I guess it would just be the fear that you know, that I am not getting what I am looking for…To get milk from a stranger, ah no, that would have been hard decision to have to make. (Mrs. Stewart)

**Emotional Response to Receiving Human Milk.** There was a range of emotional responses from recipients when exploring their feeling regarding receiving human milk. The recipients spoke of the initial grief they experienced when they recognized the need to supplement with DHM:

> There was a deep sadness for me. I had to grieve the loss because it was a loss for me. I had always anticipated that I would nurse all of my children. (Mrs. Hunter)

> That is probably the hardest part of this whole thing for me [reference to no longer breastfeeding]…The grieving process that I had to go through and [am] still going through. Not being able nurse has been the hardest, [because] I [really] advocated for breastfeeding and really believed in it…There [is] a combination of disappointment and disparity. [Still] to this day, it is very upsetting to me to think that, I mean she is still getting breast milk, it [is] not mine so I, it still is upsetting and I do [not] know if I will ever get over that part to be honest with you. (Mrs. Tait)
The recipients acknowledged that it was difficult to ask others for help; the women voiced feelings of guilt as a mother based on their dependency on others:

The most challenging thing I think [was] initially just reaching out and asking, [it] was very hard. (Mrs. Davidson)

I think for all women it is very difficult to ask for help. I think we all, it [is] something we struggle with as a core thing as women, we just feel like we should be able to do it ourselves…So posting [reference to utilizing the online commerce-free organizations] the first time especially as me and asking for [human] milk was, it was hard. It was like saying I can [not] do this and I need someone else to do it for me. And there is an inadequacy as a mother, you feel like I cannot even feed my own baby. It was really hard for me to say out loud. (Mrs. Hunter)

As recipients, the participants also verbalized the desire to be mindful of other’s time and resources:

When you are a regular recipient, you can feel very selfish about milk and you can feel like maybe you are depriving someone else’s baby of milk and you do [not] know. So, it is a delicate balance between not wanting to be the person who feels like yah, I [will] take [all of] the milk being offered out there and then there is nothing when other moms need milk…I am very cognizant of the fact that other moms need milk. (Mrs. Hunter)

I have contacted some [donors] in the past and they said, oh, it [is] already been spoken for, however, let me get back to you because I know like your situation…I
never wanted to take away from, like, if someone else had already contacted them, that [is] okay, you know…(Mrs. Tait)

Mrs. Hunter encountered times when donors apologized if they were unable to donate as much human milk as initially anticipated. Mrs. Hunter responded:

We are grateful for whatever milk you can give us for as long as you can, but here [is] what you need to understand, you are not responsible to feed our child. You are responsible to feed your child, so anything you give us is, it [is] huge [and] it [is] appreciated… Every ounce you give us is an ounce we did [not] have and we so grateful for that. (Mrs. Hunter)

Lastly, the recipients all shared a deep sense of appreciation and gratitude towards the donors’ willingness to share human milk. Mrs. Davidson was thankful for the single donation she received and the strength it provided her during a challenging time:

I know how when I was in that moment, how grateful I was for [the donated human milk] and it was only four ounces, but it made the world of difference. I really think that it gave me the strength to keep going at that point in time because a few days postpartum my brain was [not] working, so I really needed that support to get through. (Mrs. Davidson)

Mrs. Tait expressed appreciation for the kindness and generosity displayed by donors:

You know I am just thrilled that we are able to provide breast milk to her given our situation…To me it [is] just amazing…You know the generosity, like I said, [it] is just unbelievable, I cannot even describe how thankful we are…You know
that there are generous people out there but [this] is true generosity and true kindness…I have never really experienced it [before] to that extend that I have [now]. (Mrs. Tait)

Figure 4.2 Experiences with Sharing Human Milk Conceptual Model

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<tr>
<th>Donors</th>
<th>Recipients</th>
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<tr>
<td><em>Motivation to Donate</em></td>
<td><em>Motivation to Receive</em></td>
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<tr>
<td>Oversupply of Human Milk</td>
<td>Undersupply of Human Milk</td>
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<td>Value of Human Milk</td>
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<tr>
<td>→ Work of Human Milk Expression</td>
<td>← Not Wanting to Waste Human Milk</td>
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<td>← Not Wanting to Waste Human Milk</td>
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*Emotional Response to Donation* | *Emotional Response to Receiving* |
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<tr>
<td>Empathy</td>
<td>Grief</td>
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<td>Desire to Help Others</td>
<td>Dependency on Other</td>
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<tr>
<td>Fortunate</td>
<td>Guilt</td>
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<tr>
<td>Gratified</td>
<td>Appreciation</td>
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Figure 4.2 illustrates the participants’ experience with sharing human milk. A commitment to providing human milk was identified as an overarching concept. This conceptual model facilitates a comparison of the motivation and emotional response of donors and recipients.
Virtual Nature of Relationships

The virtual nature of relationships was divided into three categories: selection of donors or recipients, relationships among donors and recipients, and shared doctrine.

Selection of Donors or Recipients

The participants spoke of the process of selecting a potential donor or recipient when sharing human milk. Hypothetical questions were utilized in the interview to illicit responses from the donors on how they would select a potential donor if they were in need of human milk. Additionally, the recipients were questioned on how they would select a potential recipient if they were donors.

Accessibility. Despite the ability to network with individuals worldwide through the Internet, participants considered geographical location when selecting a potential donor or recipient. Given the logistics and costs associated with transporting frozen human milk, many of the participants selected individuals to share human milk with based on convenience:

I was really just looking for a mom that needed milk [who] was willing to come and empty my freezer, [who] did [not] want me to ship [the human milk] to her, that did [not] want me to drive it to her. (Mrs. Maben)

I wanted to be able to donate to somebody who was local, so that I would [not] have to mail my milk out anywhere. (Mrs. Hines)
Some of the donors initially considered donating their human milk to a milk bank, however, the personally acquired cost associated with shipping frozen human milk created a barrier:

I did think about [donating to] a milk bank but it was out in [province in Canada]…so the idea of like shipping it…Kind [of] made me think mmm no, you know, I [will] just hold on to it and then I came across the other option [reference to the online sharing of human milk utilizing a commerce-free approach]. (Mrs. Brown)

Mrs. Hunter shared her perspective as a recipient:

I will pick it up [reference to human milk]. I do [not] ask someone to deliver it to me…And if it [is] on my [driving] route, I usually say yes…We [are] already traveling back and forth, but we do make a point to stop and sometimes we go out of our way, sometimes we have gone significantly out of our way, an hour, an hour and a half outside of our way in order to get [the DHM]. (Mrs. Hunter)

**Needs assessment.** The donors occasionally mentioned allocating their DHM based on a needs assessment. Some of the donors considered the recipients’ circumstances and supply of human milk:

Had there been others posting or had I been in [location] where there were several postings, I would have [preferred] to give it [reference to human milk] to a younger baby or somebody with health reasons for needing the milk. (Mrs. Davidson)
I might have shared with someone else first just [because] I was feeling like, well
she already got milk from tons of people. (Mrs. Finnie)

When considering the needs of individuals, Mrs. Lumsdon and Mrs. Taylor spoke of the
ethical distress that may occur:

You feel a little bit like you are judging these people based on their stories and
you [are] judging the need almost. (Mrs. Lumsdon)

How do you say that one person needs it more than another?...I would probably
say I, rightly or wrongly, I did look at the circumstances… I would prefer to give
my milk to someone who I felt in my opinion needed it more. So, again rightly or
wrongly. (Mrs. Taylor)

**General Health.** The participants stated that the individual’s medical and
lactation history was important when selecting a donor:

I do ask questions of each donor. You know, did they receive regular prenatal
screening, including HIV [human immunodeficiency virus]. I know that you
[cannot] possibly be screened for everything that can be but [I ask] what is their
general health and if they take any medications. (Mrs. Tait)

I think that I would want to know that they have a well enough established milk
supply to [donate], that their baby is not suffering as a result of them donating
milk. (Mrs. Stewart)

**Lifestyle.** There were multiple lifestyle considerations that were listed among the
participants. The women placed a high priority on the avoidance of alcohol, tobacco, and
recreational drugs among donors. Other lifestyle considerations included limited use of medications and a healthy diet:

I want to know what their lifestyle is like and what, do they smoke and do they drink? And even not smoking and drinking but do they eat healthy? (Mrs. Finnie)

I think the criteria for me would revolve around their lifestyle, you know health, diet, choices, any consumption of alcohol, drugs [or] cigarettes. (Mrs. Gillon)

The exchange of information related to one’s general health and lifestyle is of a personal nature. Mrs. Hunter shared the following:

You feel awkward asking, you know, are you on any medications and do you have health issues that you are aware of? And you know, but these are questions that you need to ask. Do you drink alcohol? Do you smoke? …You know you feel intrusive asking those questions especially for someone who is willing to give you something. (Mrs. Hunter)

**Relationships among Donors and Recipients**

The relationships among the donors and recipients were explored and divided into three subcategories: modes of communication, frequency of communication, and interpersonal relationships.

**Modes of Communication.** The primary mode of communication among participants was through the Internet. The donors and recipients connected through public posts and private messages via Facebook. The use of electronic mail was also common among participants:
I went home and Googled share milk and I found it on Facebook. That is how I found it. So, that is how it started and I just found somebody, I found the [name of organization], so I just posted it on there. (Mrs. Finnie)

A few of the participants also communicated over the telephone. Mrs. Brown donated to an individual after they had an in-depth conversation over the telephone:

I think that [the recipient’s] screening method was to talk with me on the phone…We emailed a little bit and then we decided that we [would] call. She wanted me to call her, I cannot remember how it worked and we talked. And, yah, pretty lengthy conversation, like at least a half an hour. (Mrs. Brown)

According to the participants, face-to-face communication was isolated to times when the DHM was being exchanged:

If we went to pick it [up] [reference to DHM], we would often sit and chat for a while…then I would, I offer for them to see [daughter’s name] and stuff, just to see where it is going to. (Mrs. Tait)

**Frequency of Communication.** The frequency of communication among donors and recipients was variable. The frequency of communication was defined as either ongoing communication or isolated communication. Ongoing communication was used to describe the exchange of information on multiple occasions over a prolonged period of time. Isolated communication referred to brief interactions during a limited time frame.

Mrs. Lumsdon provides an example of the ongoing communication she has with one of the recipients:
You know we have kept in touch a little bit and if I do have extra milk, I will just email her and say next time you are in [the area], you can come and get more. (Mrs. Lumsdon)

In comparison, the following quote demonstrates isolated communication between the donor and recipient:

I have [not] talked to her or have [not] emailed her in a while but I wonder how she is and if she is still getting donated milk. (Mrs. Taylor)

**Interpersonal Relationships.** The women discussed the interpersonal relationships that developed from sharing human milk online. Participants spoke of the connection they felt with other donors and recipients:

It was neat with this one woman because our kids were [born] days apart…so we got to compare some stuff. We became friends on Facebook. (Mrs. Lumsdon)

We kind [of] had a little bit of a connection…We just felt like it would work, like it was just a good partnership. (Mrs. Martin)

While the vast majority of the participants acknowledged a connection with the other individual, very few individuals described their relationship as a friendship:

We are [friends] on Facebook with each other…we [are] kind [of] more acquaintance than anything. (Mrs. Maben)

We are still friends on Facebook now… it not a friendship by any personal means, but it is a little bit of a contact. (Mrs. Brown)
The participants alluded to a degree of separation that occurred with the online sharing of human milk. In the previous section, face-to-face communication was referenced. In some situations, the women did not exchange the DHM directly, but rather a partner, family member, or close friend assisted with the exchange. Of the 13 participants, nine of the women reported exchanging human milk indirectly. The follow quotes illustrates a degree of separation:

We went on vacation…it was a last minute vacation. I thought oh my gosh, I am supposed to do this milk transaction when this woman comes here from [location] and what am I going to do? So, I actually brought it over to my sister’s place and then I emailed this woman and said I am actually not going to be home, it [is] at my sister’s place… I did [not] even get to meet her. (Mrs. Lumsdon)

I had left the milk in [a] bag with my husband and daughter, I think I was at work at the time [when] she came and she picked up the milk. (Mrs. Hines)

And in some ways…you do [not] have to get to know the person. (Mrs. Finnie)

**Shared Doctrine**

The participants verbalized similar ideology on the topic of parenting, lifestyle, and milk sharing.

**Parenting Philosophy.** Many of the women shared similar beliefs regarding parenting, including the philosophy of attachment parenting:

I am an attachment parenter…I would [not] say I am an extreme attachment parenter, I am kind [of] a middle of the road attachment parenter…It means a
family bed, co-sleeping, nursing on demand, wearing your baby, and responding to your children’s needs as needs, not assuming that they have a want or will involve especially as babies. Responding to what their needs are when they give you those cues. (Mrs. Hunter)

I like to think that I follow William Sears’ philosophy on attachment parenting. Again another one of the reasons why I was so devastated that I could [not] give a home birth…Breastfeeding as long as you can and exclusively breastfeeding, to practice positive discipline, to wear your baby in a baby sling versus pushing it in a stroller for example, those would be some of the aspect that I held high in my value. (Mrs. Hines)

**Lifestyle.** As the participants described their lifestyle and personal choices, similarities were noted. The participants esteemed the following: avoidance of alcohol, tobacco and recreational drugs, limited use of medications, healthy diet, and physical activity. During pregnancy and lactation, women placed high value on the avoidance of alcohol, tobacco and recreational drugs. Mrs. Gillion shared about her desires to follow a healthy diet and be physically active:

So our meals are as close to, like we try to avoid all processed foods, um we have a local CSA [community supported agriculture] that we [are] a part of, so we eat organic [produce] as much as we can and can afford. We spend a lot of time outside, being active together especially now that she is getting older. (Mrs. Gillon)
Beliefs regarding Milk Sharing. Among the donors, accountability was identified as a common belief. The donors verbalized a sense of responsibility for the milk they were giving away. Mrs. Taylor demonstrated accountability by providing the recipient with a comprehensive health history:

Even though she did [not] ask for [the information], I included the…standard blood work that they do when you [are] pregnant, just because I would want to know that myself. Again she never asked for it but I just provided it so that, I think more than anything, I wanted for her to feel confident about giving her baby my milk as opposed to giving the milk and maybe second guessing herself and knowing I do [not] know who this girl is…I wanted her to receive the milk and go okay, it [is] good milk. (Mrs. Taylor)

Mrs. Hines spoke of accountability during the process of expressing and storing human milk:

I just would call it making sure that you did the due diligence of handling the milk as you would normally but being extra careful knowing that it was going to another baby. So, making sure that [the] bottles were clean and sanitized and you had clean hands, you were working on a clean surface, and all of the milk was frozen. (Mrs. Hines)

Another common belief was trust. The women spoke of the importance of trusting one another and having reassurance in the safety of the DHM.

I feel that women who are recently pregnant go through a lot of health testing and if they had something that was pretty scary, they would not donate it anyways,
like if they knew they had a disease, they would [not] do that. Like, why would they do that? Why would they donate? (Mrs. Brown)

Mrs. Hunter demonstrated trust as she recalled a recent conversation with a friend:

She said you know, do you ever worry about the safety of the milk? And I said never. It does [not] even cross my mind…I just believe that the women who step up to donate, that is their core motivation [reference to belief in breast milk] and I do [not] think any of those women ever would do anything harmful to another baby. (Mrs. Hunter)

Mrs. Tait also expressed reassurance in the safety of DHM:

I guess there is a little bit of comfort in knowing that if a mom is providing it to her own child that chances are, you know it [is] okay for my child as well. (Mrs. Tait)
Figure 4.3 displays the virtual nature of relationships among donors and recipients sharing human milk utilizing an online commerce-free approach. The conceptual model illustrates how participants selected potential donors and recipients, in addition to their modes of communication and relationships. The fundamental concept to sharing human milk online included a commitment to human milk. Accountability and trust were identified as common beliefs.
Making the Private Public

The concept of making the private public emerged as the participants shared about their experiences with using the Internet and social media platforms to share human milk. The concept was divided into two categories: online sharing of human milk utilizing a commerce-free approach and informing health care professionals and others regarding sharing human milk.

Online Sharing of Human Milk Utilizing a Commerce-Free Approach

The participants described their encounters with sharing human milk online by providing a description of the social media platforms. The women shared about their isolated or ongoing use of the online platforms. Lastly, the participants voiced their opinions on the commerce-free versus commerce approach to human milk exchange.

Mrs. Gillon articulated how the Internet has modernized the ancient practice of sharing human milk:

> It is funny because the Internet brought us together but yet we are doing something [reference to sharing human milk] that you know people have done since the beginning of time. So, it is kind [of] a neat full circle that happened.

(Mrs. Gillon)

Description of the Internet and Social Media Platforms to Share Human Milk. The participants provided descriptions of the organizations that facilitate the online sharing of human milk. Many of the women acknowledged that the social media platforms were easy to use:
It is easy, you can access it [reference to organization’s Facebook site] from virtually anywhere that there [is] a signal. (Mrs. Hines)

You just go to the site and post what you offer and people respond. So, you can check it daily if you want to see, you know, if there are any moms in your area that need milk. Like, it is just easy. (Mrs. Martin)

Participants described the typical customs when communicating online. The following citation demonstrates social etiquettes:

I find it like a friendly atmosphere generally speaking amongst the people, there seems to be a lot of like, pretty polite behaviour, it is not complete informal. [The donors and recipients]…do [not] talk with text language…they tend to be thorough in their description of their milk and how much they have. (Mrs. Brown)

The interactions online were also described as casual by many of the participants. Given the recommendation for personal inquiry about donor screening, some of the donors expressed curiosity related to the casual approach to screening:

The only thing I was expecting was more questions, like more, more questions for me about me and the milk. (Mrs. Finnie)

Mrs. Taylor recalled a discussion with a friend regarding the recipients’ responsibility to independently inquire about screening:

[Mrs. Taylor’s friend asked] Is there any like procedure to make sure…that you are healthy? And I [responded] nope, there is nothing in place. It [is] up to the
recipient to do their own homework and make sure that they are receiving milk from someone that they trust. (Mrs. Taylor)

In the previous section, the donors’ desire to be accountable was demonstrated, in addition to the recipients’ deep level of trust. The participants speculated that the casual approach to exchanging human milk online stemmed from the shared beliefs of accountability and trust.

I find that breastfeeding women give you more information than you want, much more than you even ask for…It [is] great because you do get, you definitely get the women who just spill as much as they can because they want you to know. And I think that [is why] it is so easy to trust because they are so forth coming about everything.

The practice of sharing human milk has been considered private and underground. The participants’ acknowledged this underground nature:

It still felt like I was doing some kind of back alley black market deal, like there was something, you know, wrong about it because [it] was [not] Government regulated…it does feel like you [are] some kind of secret society. (Mrs. Gillon)

It is like bootlegging [because] it not something that is openly discussed. (Mrs. Maben)

Mrs. Tait considered the underground nature of online milk sharing to be a hindrance, as some individuals were unaware of the option of donating online:
Not everybody knows about it…You hear a lot of stories of women having to throw out milk because they did [not] know where to donate it and what not; I am hearing that a lot, they did [not] know it was out there. (Mrs. Tait)

The use of the Internet initiated a movement in making the private public for individuals sharing human milk. The construct of social media provided participants with a means to network with a larger audience:

It [is] hard to find people, it is a very small subset of people who would be willing to do that [reference to sharing human milk] and I think that the Internet really allows you to connect with those few people who are out there. (Mrs. Davidson)

You reach a really wide variety of women. You are able to reach a huge group outside of your own network that would never have been able to reach without those. (Mrs. Hunter)

For some participants, the pursuit in making the private public has limitations. Given the sensitive nature of milk sharing, some participants were reluctant to use Facebook:

I think that it would be better if it was [not] on Facebook…One thing I discovered was that anything I posted on [name of organization] appeared on the newsfeed to all family and friends. So, they all knew that I was having problems nursing, which then made me actually pull down my initial post that I had made on the site. So, I think that there are definitely refinements in the ways that I would like this to be carried out or in Facebook’s privacy settings. (Mrs. Davidson)
Anytime I posted a little [online message] seeking milk for my 
[daughter]… because everyone [could] see it, I was a little bit reluctant to post a 
need because I was very embarrassed for other people reading it, I 
guess… Especially because you know all your friends on Facebook can see it. 

(Mrs. Tait)

However, Mrs. Tait also spoke of the advantages that resulted from her friends on 
Facebook viewing her online posts requesting human milk:

As much I was a bit reluctant to do it because of the publicity of it, it also helped 
us because people would see oh, you [are] looking for milk and you are going to 
pick up milk in [name of city], let me know…so I can pick it up for you. (Mrs. 
Tait)

**Frequency and Duration of the Internet and Platforms to Share Human Milk.** The majority of the participants acknowledged their frequent and ongoing use of 
the Internet to share human milk. For individuals that had donated or received human 
milk on an isolated occasion, many continued to receive Facebook updates regularly:

I do [not] visit [reference to organization’s website] but I still…like [reference to a 
Facebook plugin that allows content to be shared] the [Facebook] page so I still 
get updates occasionally…when they draw attention to people posting. (Mrs. 
Gillon)

I am still signed up for there [reference to organization’s Facebook page] so I still 
get their updates and I go on occasionally and look around. And I would say that I
do it maybe once a month just out of idle curiosity at this point in time. (Mrs. Davidson)

**Commerce Approach to Exchanging Human Milk.** During the interviews, the participants spoke of the benefits of sharing human milk utilizing a commerce-free approach:

I think most individuals who are altruistically posting the offer of their breast milk would honestly answer the questions and be willing to give answers because there is no monetary gain from it. There is no reason to lie. (Mrs. Hines)

I just think this is a humanity thing, this is not something that should be done for commerce…We give out of our abundance and I believe that is the way it should be. (Mrs. Hunter)

A few of the participants voiced their support in compensating the donors for the work involved with human milk expression, however, they still preferred a commerce-free approach:

If I could have made money doing it, that would have been awesome but I [am] just glad that I could help somebody to do it…I do [not] think that it is right that you should charge something that [is] free but at the same time, you know it takes time and effort on your part so, I suppose compensation for that. (Mrs. Martin)

The majority of the participants described the buying and selling of human milk as unethical and voiced concerns over the motivation and safety of the human milk:
I can [not] justify paying for something or someone selling something that costs them absolutely nothing to make it, nothing to produce. I just do [not] think it is right. (Mrs. Maben)

I think it’s riskier to buy breast milk because the motives are entirely different. Like, the motives are different and the mentality of a person selling their breast milk would be different than somebody who is donating it. (Mrs. Brown)

I feel fortunate that it is a not for profit thing because I do [not] know if um, both from a financial standpoint but also from the motivational thing, if there was money involved, then I would question the motivation of [the] moms wanting to donate. So, you know maybe the wrong moms would be donating…I am not saying that there would [not] be the excellent donors out there that would do it and [to] be reimbursed for what they are doing, I think it is an amazing thing that are donating their time, their body, like really, it is amazing…However, I would just question the motivation and that maybe the integrity of it would be lessened. (Mrs. Tait)

Informing Health Care Professionals and Others Regarding Sharing Human Milk

The participants in this study deliberated about their decisions to discuss milk sharing with health care professionals, family members, and friends.

Decision to Consult Health Care Professionals. The decision to consult health care professionals regarding the online sharing of human milk varied among the participants. Mrs. Lumsdon consulted her midwife’s office and a lactation consultant for
recommendations on human milk donation. She provided the following explanation regarding her decision to inform her family physician:

I guess it just has never come up…I would [not] keep it from her [reference to physician]…Yah I mean if it came up I would tell her, I certainly would [not] keep it from her but there is no, I certainly feel no reason to tell her. (Mrs. Lumsdon)

Mrs. Brown was also willing to discuss the online sharing of human milk with certain health care professionals:

I would tell the midwives and the lactation [consultant] ...Because they are open-minded, I think. They are more aware of the facts too, like I think, a lot of GP’s [general practitioners] are just not up to snuff on breastfeeding in general. I think they just really do [not] have the latest information and that is no fault of theirs necessarily because like how on earth do they learn all of the different things that they have to learn. (Mrs. Brown)

Mrs. Taylor communicated her knowledge surrounding the WHO guidelines regarding breastfeeding and provided the following rationale regarding her decision to not consult her family physician:

No, I would [not] feel the need to ask them [reference to family physician] any questions about it or I do [not] know [because] I know it is safe and I may even do like the flash pasteurization, but probably I would assume that they [may be] like, oh I do [not] know if you should do that. And I might get some resistance from them, so… I do [not] feel the need to get their permission and I know that
I might get met with like I said resistance if I was to tell them about it. (Mrs. Taylor)

**Decision to Inform Others.** All of the participants communicated their willingness to inform selected individuals regarding their decision to share human milk online. The selected individuals were often family members and friends:

I am very open about it…Most of my friends and family are very supportive of it. I mean they know me, so it does [not] surprise them at all. (Mrs. Gillon)

I kind [of] made it my little personal mission to make this website known to as many women as possible, so all of my friends that had babies or recently had babies, I let them know about the site. (Mrs. Hines)

**Actual or Anticipated Responses from Health Care Professionals and Others.**

The participants experienced a diverse and wide range of responses from health care professionals, family members, and friends when discussing the sharing of human milk online. The actual and anticipated responses ranged from disapproval to approval. Mrs. Maben shared the disapproval she felt when she discussed the topic with a health care professional:

I actually told… a nurse practitioner opposed to my family doctor. She kind [of] looked at me like I was a little crazy too when I told her I have donated breast milk…Which was completely not the reaction I was [expecting] because she is very pro breastfeeding…so that was a little startling and we just never discussed it again. (Mrs. Maben)
Some of the participants reported that individuals did not verbally respond while discussing their decision to share human milk online:

Now that I think about it, like people have [not] responded…Negatively or positively, they just kind [of] like, they almost pretend that they have [not] heard it. (Mrs. Stewart)

Mrs. Grant provides an example of the approval she received from health care professionals, along with family and friends:

They all think it [is] really cool. They often said it [is] really admirable that I am doing it and some other babies are getting the benefit of that milk. (Mrs. Grant)

I was a little bit surprised at how accepting at first everybody was, um and then it occurred to me oh, yah more people than just me realize that women have been sharing milk for centuries. (Mrs. Hines)
Figure 4.4 Making the Private Public

Figure 4.4 illustrates the process of making the private public as the participants described the online sharing of human milk. The conceptual model displays the participants’ description of the social media platforms used to share human milk. Participants deliberated about their decision to discuss milk sharing with health care professionals, family members, and friends. The participants experienced diverse responses when
discussing the sharing of human milk online; the wide responses ranged from disapproval to approval.

**Summary of Findings**

This chapter provided a rich description of the online sharing of human milk. The participants’ understandings of this phenomenon are illuminated through the use of their own words within the citations. The overarching concept of the commitment to human milk was embedded throughout the participants’ experiences. The women shared about the benefits of human milk, in addition to their journey breastfeeding. The participants also revealed their motivations and emotional responses to donating and receiving human milk.

The virtual nature of relationships emerged as participants described the process of selecting donors and recipients online. The women portrayed the relationships among donors and recipients, including their mode and frequency of communication. Many of the participants shared similar doctrine regarding parenting, lifestyle, and beliefs regarding milk sharing.

The concepts of making the private public developed from the participants’ description of the Internet and social media to share human milk. The research participants revealed their decisions and rationale to discuss milk sharing with health care professionals, family members, and friends.
Chapter Five

Discussion and Implications

The main findings generated from this research study provide a description of sharing human milk utilizing an online commerce-free approach. Within this chapter, the identified categories are discussed in relation to the existing literature on sharing human milk. The previous literature review was expanded in an effort to identify any recent publications within the past year and to explore additional topics that arose from findings identified within this research study. The discussion highlights any similarities and differences generated from this research study in comparison to previous findings. Previous publications have explored the practice of sharing human milk; however, this is the first study known to date that has exclusively investigated the practice of sharing human milk online utilizing an online commerce-free approach. The identified similarities and differences provide further understanding of how the development of social networks operating over the Internet has revolutionized cross-feeding. A summary of the research study’s strengths and limitations, in addition to implications to nursing research and health care practice is also included in this chapter.

Discussion of Demographics

In an effort to further understand human milk donation, researchers have assessed the demographic characteristics of donors utilizing milk banks. The intent of this research study was to explore the description of sharing human milk online utilizing a commerce-free approach; therefore, findings from this qualitative study are limited in their ability to compare to demographic characteristics generated from quantitative
studies. The identified similarities are interesting to note, however, the demographic findings are limited given the nature of this research study’s objective and methodology.

The age of the participants from this research study ranged from 26 years to 41 years. Results produced by Azema and Callahan (2003) indicated that human milk donors are of the average childbearing years. All of the participants within this study self-identified themselves as either married or common law. Similarly, Azema and Callahan (2003) identified that 97% of human milk donors were married or living with someone. This study consisted of human milk donors and recipients whose highest level of education ranged from secondary to graduate with occupations in education, human services, business, health care, public services, and manufacturing. Previous findings regarding human milk donors indicated donors were well-educated (Azema & Callahan, 2003; Osbaldiston & Mingle, 2007) with a relatively significant percentage of women not working outside of the home (Azema & Callahan, 2003). Of the human milk donors that did work outside of the home, one quarter were employed in the medical or social service fields (Azema & Callahan, 2003).

Discussion of Infant Feeding Practices

A deep commitment to providing human milk was evident in all of the research participants in this study. This topic of infant feeding practices was explored to identify any potential antecedents common among donors and recipients involved in the online sharing of human milk.

Benefits and Exclusive Use of Human Milk. Throughout the literature, human milk has been highly valued based on its life giving nourishment (Shaw, 2004). Participants from this research study spoke of the health, emotional, and financial benefits
associated with breastfeeding and human milk. Many of the women described human milk as natural. Aside from the natural properties of human milk, the act of breastfeeding was also described as a natural element associated with motherhood.

The participants spoke of their commitment to providing human milk through the exclusive use of human milk. Global guidelines recommend exclusive breastfeeding for the infant’s first six months of life; breastfeeding should continue for a minimum of two years and beyond (WHO, 2009). Among the participants, 69% of the women provided human milk exclusively for their infant’s first six months of life. In comparison to Canadian statistics, a survey at six month of life indicated that only 14% of mothers were exclusively breastfeeding (Public Health Agency of Canada, 2009). The WHO (2009) claims that on an international level, 35% of infants are exclusively breastfed for the first six months of life.

**Resistance to Artificial Human Milk Substitutes.** Many of the participants verbalized their desire to avoid the use of artificial formula, often related to the undesirable ingredients contained within commercial formula. A few of the participants supplemented with artificial formula based on medical recommendations from health care providers. These participants spoke of the personal distress that was evoked from the need to use artificial formula.

There are physiological and financial costs associated with the use of human milk substitutes (Riordan & Wambach, 2010). Commercial infant formula is bovine milk or soy extract that is modified to resemble the nutritional content of human milk. However, human milk contains many bioactive properties that cannot be replicated in artificial
formula (Riordan & Wambach, 2010). Human milk substitution can result in significant adverse effects in both the mother and infant (Spatz & Lessen, 2011). According to a systematic review of over 400 individual studies conducted by Ip et al. (2007), breastfeeding reduced the incidence of infection, sudden infant death syndrome, obesity, necrotizing enterocolitis, childhood cancer, asthma, diabetes, and dermatitis. According to a Cochrane review completed by Dempsey and Miletin (2010), the reported benefits of human milk within the preterm population include improved gastric emptying, earlier attainment of full enteral feeding, and enhanced motility and maturation within the gastrointestinal system.

Two recent systematic reviews reported a significantly higher risk of necrotizing enterocolitis in formula fed preterm infants (Boyd, Quigley & Brocklehurst, 2007; Quigley, Henderson, Anthony & McGuire, 2007). The Cochrane review conducted by Quigley et al. (2007) evaluated randomized controlled trials involving preterm and low birth weight infants. Findings from the meta-analysis suggest that one additional case of necrotizing enterocolitis occurs in every 33 infants fed artificial formula. The systematic review and meta-analysis conducted by Boyd et al. (2007) evaluated randomized control trials and observational studies comparing clinical outcomes in infants fed DHM and formula. Evidence indicated that the use of exclusive DHM reduced the risk of necrotizing enterocolitis by 79%.

**Breastfeeding Experience and Support.** The participants from this study shared about their personal experiences with breastfeeding. All of the participants spoke of various degrees of personal challenges associated with lactation; these challenges are outlined in the fourth chapter. However, the majority of the participants were able to
overcome the challenges with adequate breastfeeding support. Some of the donors were motivated to donate human milk as a testament of their ability to overcome challenge.

The challenges associated with breastfeeding were not unique to this study, as Osbaldiston and Mingle (2007) found that 58% of donors reported engorgement, 33% experienced cracked nipples, and 20% reported breast infections or mastitis. Difficulties associated with the donor’s infants included thrush, slow weight gain, and reflux. Osbaldiston and Mingle (2007) initially hypothesized that donors who reported more problems breastfeeding and pumping would donate less DHM. However, the authors of this study found that there were no statistically significant differences between individuals that donated to a milk bank and those that did not donate with regards to the occurrence of breastfeeding challenges.

**Human Milk Expression and Milk Supply.** While discussing their personal experiences with breastfeeding, each one of the women shared about their encounters with manual expression of human milk. The participants provided a diverse list of motivation and rationale for using breast pumps. Some of the women initiated breast pumping due to their infant’s inability to feed at the breast, concerns with milk supply, or physical barriers, such as geographical separation.

As the participants spoke of their infant feeding practices, the women shared about their ability to produce human milk. The women shared about the changing nature of their milk supply, as some participants experienced abrupt fluctuations. However, an antecedent to donation included an oversupply of human milk. Meanwhile, recipients of peer to peer milk sharing experienced an undersupply of human milk. These findings are
consistent with previous findings within the literature which are discussed in greater depth in a subsequent section.

**Cross-Nursing.** The operational definition of cross-nursing and cross-feeding was highlighted in the introductory chapter of this thesis. Many of the participants spoke of the difference between cross-nursing and cross-feeding. Of the thirteen women, one of the participants had previously engaged in cross-nursing partnerships with a few of her close colleagues. The participant breastfed her colleagues’ children when the other mothers were working; the relationship was also reciprocated. Another participant initially donated her human milk online to another mother, this lead to a connection that formed between the donor and recipient. A friendship later developed and the donor cross-nursed with the recipient’s infant on a few occasions while caring for the infant; this relationship was not reciprocated. These cross-nursing relationships were isolated to the two participants; however, some of the participants did acknowledge that they would cross-nurse another infant or child in an emergency situation.

The participants spoke of the vast emotional and physical differences between cross-nursing and cross-feeding. Long (2003) reported a community repugnance against directly breastfeeding another woman’s child, however, respondents were more accepting of the notion of feeding DHM by bottle. Consistent with the work of Zizzo (2009), some of the women in this study preferred the physical distance associated with cross-feeding in comparison to cross-nursing. The online sharing of human milk offers a further degree of separation which will later be discussed in greater depth.
Discussion of Experience with Sharing Human Milk

This study explored the motivation to donate and receive human milk, in addition to the emotional response when donating and receiving human milk.

**Motivation to Donate and Receive Human Milk.** Participants from this study communicated that they were motivated to donate based on empathy and the desire to help others. The donors from this research study experienced an oversupply of human milk. Many of the donors spoke of their desire to not waste the surplus of their milk supply based on the value of human milk, in addition to the work involved with milk expression, storage, and labeling.

**Empathy.** Participants from this study communicated that they were motivated to donate based on empathy; donors recalled circumstances that evoked a level of compassion for the recipients. The donors often experienced empathy upon reading about the recipients’ personal stories shared online using the milk sharing platforms. According to Vallor (2011), empathy can be understood as the capacity to feel with another individual, it involves co-experiencing the joys and suffering of another. The shared commitment to provide human milk evoked a sense of understanding and responsiveness among donors and recipients. Research by Pimenteria Thomaz et al., 2008 suggested that women were increasingly motivated to donate human milk once they receive information on the needs and use of DHM. These findings were validated in a non-experimental descriptive quantitative studies completed by Azema and Callahan (2003), as well as Osbaldiston and Mingle (2007). Findings from previous research corroborate how social networks operating over the Internet facilitates the motivation to donate, as participants are able to validate the needs and use of DHM among recipients.
Desire to Help Others. Participants within this research study demonstrated a strong desire to help others. According to Arnold and Borman (1996) the motivation of ideal human milk donors included the desire to help some other infant or young child survive or regain health. The desire to help others is consistent with the research conducted by Osbaldiston and Mingle (2007), Pimenteria Thomaz et al. (2008), and Thorley (2009; 2012). According to Shaw (2004), women’s actions are often based on the needs and interest of others. Women that cross-feed often have a sense of “being-for-others” (Shaw, 2004, p.295). Previous findings suggest that milk donors have altruistic and benevolent qualities (Azema & Callahan, 2003; Osbaldiston & Mingle, 2007).

Not Wanting to Waste Human Milk nor the Work Involved. Arnold and Borman (1996) provided anecdotal evidence that human milk donors did not want to waste the milk that they worked hard to express. This anecdotal evidence was validated by the participants within this research study, as numerous participants spoke of the desire to not throw human milk away due to its invaluable properties. The women in this study also acknowledged the time, effort, and financial commitment involved with using a breast pump. Similar to the participants in Osbaldiston and Mingle (2007) study, the donors often had an oversupply of human milk. The participants did not want to see their efforts go to waste and were willing to donate their surplus of DHM in hopes that it would benefit another infant or child. The feeling of remorse when wasting human milk was noted among participants in this current research study. According to Mackenzie, Javanparast, and Newman (2012), women with an excess supply of stored human milk felt deep regret when throwing it out, stating that it was a terrible waste.
Avoidance of Artificial Formula. Similar to the findings from Thorley (2009; 2012), recipients were motivated to provide their infant or children with human milk. The women from this research study demonstrated a commitment to human milk and sought DHM when faced with an undersupply or inability to produce human milk. Parallel to Thorley (2012), receiving DHM was done out of necessity. In the previous discussion regarding infant feeding practices, it was demonstrated that artificial formula cannot fully replicate human milk and there are potential risks associated with human milk substitutes. The recipients within this research study verbalized their desire to avoid artificial formula. These findings are also consistent with Thorley (2009; 2012).

Hypothetical questions were used in this research to assess the donors’ willingness and motivation to receive DHM. Many of the donors acknowledged their willingness to utilize online platforms to locate human milk if ever faced with the inability to breastfeed. However, a few of the donors voiced hesitancy and admitted that the decision to receive DHM online would be challenging due to potential risks. Many of the donors articulated stipulations on the screening techniques and conditions for which they would receive DHM.

Emotional Response to Donating and Receiving Human Milk. Similar to Bromberg Bar-Yam’s (2005), participants in this research study experienced a variety of emotional responses to donating and receiving human milk.

Gratification and Sense of Fortune among Donors. Online human milk donors from this study indicated that they experienced a sense of gratification. The sense of gratification was also noted in the work of Bromberg Bar-Yam’s (2005), as the donors
felt gratified when contributing to the welfare of another infant and family. Donors felt that any inconvenience associated with cross-nursing was outweighed by the ability to help a friend or family member in need. Thorley (2009; 2012) also found that the mothers from diverse cultural backgrounds felt optimistic about their experiences with cross-feeding, they were positive about the opportunity help others. Donors from Osbaldiston and Mingle’s (2007) study also experienced positive emotions while donating human milk to a milk bank.

Unique to this study was the donors’ sense of feeling fortunate and grateful for their personal experiences with successful breastfeeding. Exposure to the needs of the recipients created a sense of appreciation among the donors for their ability to provide human milk for their own children.

**Grief and Guilt among Recipients.** There was a range of emotional responses from recipients when exploring their feelings on receiving DHM. Feelings of grief were articulated when they recognized the need to supplement. For two of the recipients, their inability to breastfeed resulted in pronounced sadness. These two women shared about the grieving process associated with the personal loss of not being able to breastfeed.

Feelings of guilt rose when the women spoke of their identity as mothers. Some of the recipients spoke of a sense of inadequacy based on their inability to provide human milk for their children. Zizzo’s (2009) work on lesbian families and the negotiation of maternal identity through the unconventional use of breast milk corroborates how breastfeeding is integrated into the construction of a mother’s identity. According to the author, some mothers may experience feelings of failure based on their inability to
breastfeed. Zizzo (2009) claims that “breastfeeding is not simply a means of providing nutrition or forming a maternal-child bond; it also serves as a way for women to demonstrate their role as good, naturally maternal and selflessly nurturing mothers” (p.98).

Recipient’s Difficulty Asking for Help and Dependency on Others. The recipients from this study acknowledged that it was difficult to ask other women for help. Requesting human milk from other mothers created an internal struggle, as one participant claimed that it created a sense of inadequacy and formed a dependency on others. Requesting human milk online appeals to a large network of women; these women are often unknown to one another prior to exchanging human milk. Further research with recipients would be required to assess whether it is more difficult to ask online strangers for help in comparison to personal contacts. To date, there is no known research that has explored these findings.

Appreciation among Recipients. All of the recipients from this study shared a deep sense of appreciation and gratitude towards the donors’ willingness to share human milk. The recipients spoke of the kindness and generosity among the online milk sharing community. Many of donors spoke of the appreciation that was expressed by the recipients in the form of letters and small gifts, such as a homemade toy for an infant, mother’s milk tea, or flower. A sense of gratitude is consistent with the findings Bromberg Bar-Yam’s (2005), as the researcher noted that women who participated in cross-nursing were grateful for the help in times of emergencies.
Discussion of Selection of Donors and Recipients

Previous research regarding human milk sharing has focused on the partnership between women often in close relations, such as family members or close friends (Bromberg Bar-Yam, 2005; Thorley, 2009; 2012). Therefore, the participants often possessed a priori knowledge regarding the general health and lifestyle of the other participants (Thorley, 2009). Given the fact that the online exchange of human milk often occurs with women who have no prior knowledge of one another, the methods of selecting potential donors and recipients was of great interest.

Mutual Accessibility. Despite the ability to network with individuals worldwide over the Internet, the geographical location of individuals was significant when selecting potential donors and recipients. Eats on Feets hosts a chapter for Ontario residents and Human Milk 4 Human Babies has three separate community pages within Ontario based on geographical location. These community pages assist individuals in connecting with other individuals within a geographical region. Given the logistics and costs associated with transporting frozen human milk, many of the participants selected individuals based on accessibility and convenience.

Allocation Based on the Needs of Recipients. The donors occasionally mentioned allocating their DHM based on a needs assessment. Some of the donors considered the recipients’ circumstances, such as the age of the recipient’s infant, child, or medical history. Each one of the donors verbalized circumstances where women diagnosed with cancer were seeking DHM online; an increased level of empathy and willingness to donate to these recipients was noted. A few of the donors alluded to the ethical distress they experienced when selecting potential recipients. The primary
investigator is unaware of any publications on milk sharing that address the allocation of human milk based on needs.

**Screening of General Health and Lifestyle.** Discussion with the donors and recipients from this current research study indicated that considerations regarding the donors’ general health and lifestyle were important. Consistent with the findings of Bromberg Bar-Yam (2005), information regarding any transmittable diseases was often exchanged among donors and recipients. This information was often exchanged informally with very few recipients requesting written verification of screening. The recipients conducted their own risk-benefits analysis when comparing potential risks associated with peer to peer milk sharing and artificial formula.

Findings from this study also indicated that mothers that consumed a healthy diet and avoided potentially harmful substances, sought mothers with similar lifestyles when accepting DHM. These findings are consistent with Thorley’s work in 2009. According to Thorley (2012), women that engaged in cross-feeding often denied performing any formal screening when selecting potential donors. However, the participants from Thorley’s study often cited a list of criteria with which they would or would not select based on health and lifestyle.

**Discussion of Relationships among Donors and Recipients**

Previous research regarding cross-nursing and cross-feeding has focused on the partnership between women often in close relationships (Bromberg Bar-Yam, 2005; Thorley, 2009; 2012). This is the first research study known to date to examine the relationships and methods of communication among donors and recipients that exchanged
human milk online. This provides another distinguishing attribute in comparison to previous findings.

**Modes and Frequency of Communication.** Communication among the donors and recipients occurred through various methods and routes. The primary mode of communication was through the Internet. The women connected through public posts and private messages via Facebook, in addition to email. A few of the participants engaged in conversations over the telephone. According to the participants, face-to-face communications were isolated to times when the DHM was being exchanged.

The direct exchange between participants was measured by the length and frequency of communication between participants. The frequency of communication among the participants was variable, as some participants engaged in ongoing communication while others experienced isolated communication. To date, there are no known studies on milk sharing that facilitate a comparison of these findings.

**Connection among Acquaintances.** According to previous research, sharing human milk most commonly occurred among women who knew one another well. Bromberg Bar-Yam’s (2005) found that relationships among women sharing human milk often included family members or close friends. Thorley (2012) claimed that women rarely shared human milk through casual contacts. Shaw (2007) described cross-feeding as a relationship between women that are considered equal, which often led to friendship.

In contrast, very few participants in this study described their relationships as close friendships. The majority of participants acknowledged a connection that they felt with one another; however, they often described these individuals as acquaintances.
Many of the donors and recipients became ‘friends’ on Facebook. According to Vallor (2011), “Facebook is known for challenging conventional connotations of friendships by lumping all of ones’ social connections, including remote acquaintances, into one uniform friend category” (p.186). Research examining the topic friendships using social media networks such as Facebook provides further insight to the findings of this study.

The recent widespread and growing use of social media networks has provoked researcher, social scientists, psychologists, and philosophical analysis to examine the emerging forms of friendship that operate online (Vallor, 2011). Bryant and Marmo (2012) examined the rules of friendship that occur on Facebook through the use of qualitative findings from a focus group and quantitative conclusions from survey data. Participants from Bryant and Marmo (2012) research claimed that their Facebook network consisted of close friends, casual friends, and acquaintances. The number of acquaintances consisted of an extremely large number of individuals whom participants had only met on a few occasions; their interactions were primarily limited to Facebook use such as monitoring one another’s profile updates (Bryant & Marmo, 2012). Participants from Bryant and Marmo (2012) study accurately described the relations between acquaintances as commonly portrayed by the donors and recipients in this current study.

However, the participants also spoke of the connection that they felt with other donors and recipients. According to the women, many of the participants were able to relate to one another based on their child birthing experiences, parenting philosophies, infant feeding practices, lifestyles, and beliefs regarding milk sharing. The connection between donors and recipients was enhanced by the intimate exchange of human milk.
**Degree of Separation.** The women indicated that a degree of separation often existed among participants sharing human milk online. In the above section, face-to-face communication was referenced. However, not all participants exchanged human milk directly. Of the 13 participants, nine of the women reported exchanging DHM indirectly through a trusted partner, family member, or close friend. These individuals often assisted with the transport of the DHM. A greater degree of separation would be anticipated among individuals that donate or receive human milk utilizing a milk bank within North America, as these individuals remain anonymous to one another.

**Discussion of Shared Doctrine**

Thorley (2012) found that sharing human milk most commonly occurred between women with similar lifestyles and values. This is the first known study to examine self-reported parenting philosophies, lifestyle, and beliefs regarding milk sharing among research participants. These findings provide unique insight into some of the shared doctrine common among individuals that may participate in peer to peer milk sharing.

**Parenting Philosophy.** Many of the participants from this research study verbalized their beliefs in attachment parenting. Attachment parenting is a philosophy developed by Dr. William Sears which is based on the earlier work of John Bowlby. Attachment parenting is an approach to parenting that embraces responsive parenting. This philosophy provides tools that teach parents how to become increasingly sensitive to the cues of their infant in an effort to communicate and build trust. Common practices associated with attachment parenting include birth bonding, breastfeeding, baby wearing, bed sharing, and balance (Sears, 2013).
A commitment to human milk is evident within the doctrine of attachment parenting. Dr. William Sears (2013) provides a comparison between the benefits of breastfeeding and risks of formula feeding. Many of the research participants embraced exclusive breastfeeding and child led weaning. A few of the women also spoke of their decision to implement bed sharing in an effort to enhance bonding, maintain breastfeeding, and promote sleep.

**Lifestyle.** As the participants within this study described their lifestyle, similarities were noted. During pregnancy and lactation, women placed high value on the avoidance of alcohol, tobacco, and recreational drugs. The participants aspired to have a healthy diet and limit their use of medications. According to Thorley (2009), there have been inconsistent ideas regarding what constitutes a healthy diet during lactation. In respect to a healthy diet, some of the participants referenced the Canadian food guide. A few of the women had eliminated caffeinated beverages and dairy products from their diet in an effort to avoid any potential negative side effect in the infant while breastfeeding.

**Beliefs regarding Sharing Human Milk.** This research study explored the women’s opinion and viewpoints regarding sharing human milk. Similar to the findings of Bromberg Bar-Yam (2005), the women spoke of sharing human milk as a common practice in the past. The women expressed that the Internet allowed them to engage in traditions that have been promoted in societies where human milk is recognized as the norm. Participants in this research study acknowledged the importance of trust and accountability when sharing human milk; these principles served as a foundation among sharing human milk online.
**Accountability.** Among the donors, accountability was identified as a common belief, as the women expressed a sense of responsibility for the DHM. Accountability was demonstrated through the participants’ desire to provide the recipients with a comprehensive health history and using caution during the expression, handling, storage, and transport of human milk. Accountability is consistent with the mandate of Human Milk 4 Human Babies (2011), which states openness, honesty, and full disclosure are expected of all of the participants.

Accountability as demonstrated through openness, honesty, and full disclosure provides the participants with the opportunity to freely choose their actions to exchange human milk based on all of the disclosed information regarding the potential benefits and risks. Within the Western culture, informed consent has paramount value. Informed consent is founded on the principle of autonomy, which involves the respect of individual decision making (Shaw, 2007). Informed consent regarding the online sharing of human milk is demonstrated when competent individuals have access to all of the necessary information to accurately assess potential benefits and risks.

**Trust.** Both the donors and recipients in this study also spoke of the importance of trust. It was fundamental for the women to trust one another and have reassurance in the safety of the DHM. Similar to Bromberg Bar-Yam’s (2005) research, the research participants trusted that if an individual had any contraindications to human milk donation, they would not donate their milk. Shaw (2007) claims that relationships between cross-nursing arrangements were also based on trust.
Discussion of the Online Sharing of Human Milk utilizing a Commerce-Free Approach

Description of Internet Based Milk Sharing Networks. Participants described their encounters with sharing human milk online by providing their depictions of community milk sharing organizations and social media platforms. Internet based milk sharing networks were described as casual, convenient, and easy to use.

Casual. The interactions online were described as casual by many of the participants. Peer to peer milk sharing operates under the recommendations that participants independently inquire about screening. As one participant pointed out, it is the responsibility of the recipient to do their own “homework”. The term casual was often used in comparison to the formal screening that is required with human milks within North America. The participants speculated that the casual approach to exchanging human milk online stemmed from the shared beliefs of accountability and trust.

Convenient. Participants in this study also described the online exchange of human milk as convenient in comparison to other alternatives for sharing human milk. The discussion of donating to milk banks in comparison to exchanging human milk online was raised among donors in this current research study. Many of the donors listed numerous barriers to donating to a milk bank, including the time and financial cost assumed by the donor. It is important to note that at the time of the research study, the milk bank located in Ontario was still under development. Therefore, many of the participants had previously considered the barriers associated with shipping their frozen milk to British Columbia. In contrast to Mackenzie et al. (2013) study which is described
subsequently, not all women in this study would have preferred to use a milk bank in comparison to sharing human milk online.

A recent qualitative study by Mackenzie et al. (2013) explored mothers’ attitudes and knowledge towards milk banks. In-depth semi-structured interviews were conducted with 12 mothers from Southern Australia. Within this study, snowballing led to the recruitment of five women through Human Milk 4 Human Babies that had been involved in peer to peer milk sharing. In addition, two focus groups were conducted to discuss questions raised during the analysis of the individual interviews. Results from this study indicated that breastfeeding mothers would support donating their human milk to a milk bank provided that it would be easy and not overly time consuming. Of the participants within this study that engaged in informal milk sharing, most of these mothers stated they would have preferred to use a milk bank.

Thorley (2012) claims that one of the reasons for sharing breastfeeding or breast milk is also based on convenience. However, this author is referring to arrangements commonly seen in cross-nursing partnerships. In these arrangements, cross-nursing may consensually occur when a child is geographically separated from the biological mother and another lactating woman is caring for the child.

*Easy to Use.* Many of the women acknowledge that the social media platforms that operate through Facebook were easy to use. Many of the participants had Facebook accounts prior to locating Eats on Feets and Human Milk 4 Human Babies and were therefore familiar with the idiosyncrasies of Facebook. Some of the participants spoke of
social etiquette that was displayed among individuals when posting on Facebook; the
online environment was described as friendly and polite.

**Public View of an Underground Practice.** The concept of making the private
public emerged as the participants shared about their experiences using the Internet and
social media platforms to share human milk. The constructs of social media increased the
participants’ ability to network with a larger audience. The wider circulation and media
attention has potentially exposed many individuals that may not have known about or
engaged in the sharing of DHM (Bromberg Bar-Yam, 2005).

For some participants, the pursuit in making the private public carried limitation
as some individuals were reluctant to use Facebook given the sensitive nature of milk
sharing. One participant removed her initial posting online in response to the Facebook
newsfeed that appeared to her Facebook friends. Another participant accounted for times
when individuals approached her and asked her to post on their behalf using her own
Facebook profile. Despite these limitations, other participants voiced the benefits they
experienced from the public view of milk sharing. One participant shared about the
assistance she received from her Facebook friends regarding the transport of DHM for
multiple locations.

In previous findings, the informal sharing of human milk has been done in private
(Bromberg Bar-Yam, 2005; Thorley, 2008). Arrangements for sharing human milk often
challenge the boundaries of social norms, as it is often viewed as inappropriate or non-
conventional within Western culture (Shaw, 2004). Based on the white, heterosexual,
biological motherhood ideology, women are often forced to complete this work in
isolation from other women (Shaw, 2004). However, this ideology is currently being challenged. According to Akre et al. (2011), the sudden burst of publicity regarding peer to peer milk sharing over the Internet has been fascinating, as this topic was previously very private. According to these authors, the recent emergence into the public arena has resulted in unprecedented discussion among individuals and in the media. Outcomes generated from the recent publicity and changing nature of milk sharing are yet to be determined.

Commerce versus Commerce-Free Exchange of Human Milk. The practice of compensating donors at milk banks was common worldwide but gradually declined due to safety concerns (Jones, 2003). The current demand for human milk is so great that the internet has formed a black market, where women with additional human milk are selling their excess supply for profit (Vogel, 2011). Searches through classified advertisement on the Internet produce multiple venues for purchasing or selling human milk. Human milk is sold on the Internet from one dollar to ten dollars per ounce (Geraghty, Heier & Rasmussen, 2011). The market for human milk is often priced by volume; therefore it is unknown whether any potential harmful substances have been added to the milk to increase the volume (Geraghty, Heier & Rasmussen, 2011).

One of the distinct characteristics of cross-feeding is benevolence, as it involves the non-monetary exchange of human milk. Many of the participants felt it was beneficial to exchange human milk utilizing a commerce-free approach. Although the participants acknowledged the work and time involved with expressing human milk, the majority of women described the buying and selling of human milk as unethical. Similar to the findings of Mackenzie et al. (2013), participants were concerned about the
motivation of the donors if payment was provided. Zizzo (2009) argued that making human milk a commercial product may further inhibit individual seeking the product by eliminating those individuals who are not financially able to purchase it. The women in this current study were also concerned over the safety of human milk sold online. According to Zizzo (2009), the purchasing and selling of human milk could lead to the exploitation of women, particularly women who may be compelled into “commercial breast milk production as their only means of economic exchange” (p.106).

Discussion of Informing Health Care Professionals and Others Regarding Sharing Human Milk

Consulting Health Professionals. Findings from this study validated the work of Bromberg Bar-Yam (2005) and Thorley (2008), as many of the participants chose to not inform or consult their health care providers when participating in peer to peer milk sharing. Similarly to Bromberg Bar-Yam (2005) and Mackenzie et al. (2013), women in this research study often did not consult certain health care providers regarding cross-feeding due to fear of a negative reaction, as well as a perceived lack of support and knowledge. Akre et al. (2011) claims the condemnation among public health authorities regarding peer to peer milk sharing is notable in Canada, France, and the United States of America. According to Long (2003), family physicians, obstetricians, and some midwives reported concern regarding the sharing of bodily fluids; human milk was commonly viewed as a source of infection. According to Mackenzie et al. (2013), mothers participating in the informal sharing of human milk reported negative reactions from health care professionals due to safety concerns with the milk. However,
participants from Thorley research in 2009 indicated that the attitudes of medical doctors were generally positive in response to sharing human milk.

Interestingly, some of the participants from this study were willing to inform or consult certain health care professionals that they perceived to be supportive and knowledgeable regarding breastfeeding. The women from this study were more likely to consult their midwife, nurse practitioner, and lactation consultant. The recent work of Eglash and Hjertstedt from the University of Wisconsin School of Medicine and Public Health sheds light onto this finding. In 2011, the researchers presented a poster presentation on health professionals’ attitudes, knowledge and experience regarding wet nursing and human milk sharing. The researchers collected electronic surveys from 410 respondents invited through listserves on breastfeeding; the respondents included physicians, nurses, lactation consultants, La Leche League leaders, and midwives. The survey questions assessed the health care professionals’ demographic and medical specialty information, in addition to their attitudes regarding wet nursing and milk sharing. Conclusions from Eglash and Hjertstedt (2011) research indicated that health professionals who were knowledgeable about breastfeeding practices overwhelmingly supported the sharing of unpasteurized human milk or wet nursing for term healthy infants. The health professionals acknowledged the need for screening; they recommended that donors be screened using similar techniques as blood banks. According to the participants, donors should provide a serology sample, in addition to being interviewed and receiving instructions regarding safe milk handling and storage technique (Eglash & Hjertstedt, 2011).
Informing Others. The notion that individuals carefully selected which friends and family members they disclosed about cross-nursing has been dramatically altered through the use of social media platforms. Due to the public nature of Facebook, many of the participants’ friends and family members were aware of the participants’ involvement with sharing human milk. Initially some of the women were reluctant to use the social media platforms to donate or receive human milk due to the public nature, however, later all of the participants claimed to be open about it. In contrast, Bromberg Bar-Yam (2005) and Thorley (2012) found that participants were very selective about the individuals they chose to inform about their cross-nursing experience. The fear of negative reactions from individuals inhibited their willingness to tell others, contributing to the quiet and secret nature of cross-nursing (Bromberg Bar-Yam, 2005). Mackenzie et al. (2013) also found that potential donors to milk banks would also be selective in the individuals they informed; they felt that they would not tell anyone about their decision to donate if they perceived that individual to be unsupportive.

Responses of Health Professionals and Others Regarding Milk Sharing.

Women who contributed their experienced to this study described a wide range of responses from health professionals, family members, and friends. The responses ranged from approval to disapproval. Some of the participants also described responses that indicated indifference or disbelief. The mixed responses from others are consistent with the work of Thorley (2009; 2012) and Mackenzie et al. (2012).

Summary of Discussion

The discussion highlighted the similarities and differences generated from this research study in comparison to previous findings. This is the first study known to date
that has exclusively investigated the practice of sharing human milk online utilizing an online commerce-free approach. The identified similarities and differences provide further understanding of how the development of social networks operating over the Internet has revolutionized cross-feeding. The concept of participants’ commitment to human milk appear consistent with previous findings, however, novel findings were noted among the concepts embedded in the virtual nature of relationships and making the private public.

**Strengths and Limitations**

The practice of sharing human milk has been previously explored; however, the methods of sharing human milk have been revolutionized within the past few years. The developments of social networks that operate over the Internet have expanded the boundaries of cross-feeding. The strength in this study lies in being the first known study to solely examine the phenomenon of sharing human milk online. In addition, this is the first research study that has examined the sharing of human milk from a Canadian perspective.

The nature of the research study led to purposeful sampling. The sampled population was homogenous with regards to the following: gender, ethnicity, age category, and marital status. Participants’ educational background ranged from secondary to graduate degrees. The participants’ areas and current state of employment varied. Despite efforts to obtain a sample that equally represented the number of donors and recipients, the sample reflects a larger proportion of donors. The difficulties recruiting additional recipients may indicate a reluctance of women to explore their description of
receiving DHM online. Therefore, the study requires caution when interpreting the findings.

Despite the fact that the online sharing human milk operated internationally, the findings from this study were generated from one province within Canada. Therefore, the findings cannot speak to women in other jurisdictions.

Implications for Health Care Practice

Supporting Optimal Feeding Practices. Global guidelines recommend exclusive breastfeeding for the infant’s first six months of life and sustained breastfeeding up to two years or beyond (WHO, 2009). Supporting optimal infant feeding practices is one of the most effective interventions for health outcome (WHO, 2009). Breastfeeding support needs to be aimed at establishing and maintaining lactation. As the participant from this study recalled their personal challenges associated with breastfeeding, many of the women spoke of the importance in receiving adequate breastfeeding support. For individuals that are unable to provide their infants or children with their own human milk, support needs to be focused on securing safe alternatives to artificial formula.

Health Care Professionals. Findings from this study validated the work of Bromberg Bar-Yam (2005) and Thorley (2008), as many of the participants choose to not inform or consult health care providers when donating or receiving human milk. Similarly to Bromberg Bar-Yam (2005), women often did not consult their health care providers regarding cross-feeding due to fear of a negative reaction, as well as a perceived lack of support and knowledge. Therefore, health care professionals are encouraged to routinely engage clients in open discussions regarding infant feeding practices and provide non-judgmental counseling. The findings generated from this study
provide further understanding of the concept of cross-feeding, thereby, cultivating health care professionals’ knowledge and ability to work in partnership with the families. It is essential that health care professionals appropriately counsel families regarding the online sharing of human milk.

**Health Care Policy.** Policy objectives need to be aimed at reestablishing breastfeeding as the cultural norm in Canada. The limited exclusive breastfeeding rates within Canada demonstrate the unrealized needs and opportunities for improvement. There is increasing evidence that states that “the presence or absence of breastfeeding affects the economics of the family, the community, and the country at large” (Riordan & Wambach, 2010, p.63). When infants receive human milk, the health care system saves with a reduction in expenditures. Interventions need to be aimed at providing increased access to DHM using safe and ethical venues. The reinstitution of additional DHM banks within Canada can complement existing public policies supporting breastfeeding. Collateral benefits of DHM banks may result in increased breastfeeding awareness in communities, thus, creating greater benefits to the larger population (CPS, 2010).

Health authorities should provide guidance on peer to peer milk sharing by informing parents on ways to manage and minimize potential risks (Gribble & Hausman, 2012). According to Akre et al. (2011), the online sharing of human milk involves an initiative formed by well-informed and highly motivated women. “The public health community has a choice: stay on the side-lines or move to engage, to assist those who are involved in milk sharing to make it as safe as possible” (Akre et al, 2011, p.3).
Implications for Future Nursing Research

**Benefit and Risk Assessment of Infant Feeding Practices.** Recent publications have focused on a risk assessment comparing peer to peer milk sharing with artificial formula (Gribble & Hausman, 2012). However, it is important to consider the potential benefits and risks associated with all infant feeding practices. Additional research is required to provide a comparison between the infant’s sources of nourishment: human milk directly from the mother, human milk indirectly from the mother, DHM obtained from a milk bank, DHM acquired through peer to peer milk sharing, and artificial formula. Findings from this research would enhance parent’s ability to make informed choices regarding infant feeding practices and mitigate potential risks.

**Assessment of Safety Measures and Precautions with Peer to Peer Milk Sharing.** Additional research is required to accurately assess the safety measures and precautions individuals take when sharing human milk. Recommendations from the founding members of Eats on Feets, Walker and Armstrong (2012) have been made regarding informed choice, personal inquiry about donor screening, safe handling, and home pasteurization. Guidelines regarding the expression and transport of human milk are available through HMBANA. Future research could be aimed at assessing the participant’s knowledge and attitude surrounding donor screening, safe handling of human milk, and home pasteurization.

**Further Exploration of the Description of Sharing Human Milk Online.** Additional research is required to capture the description of sharing human milk online from a global perspective, as organizations such as Eats on Feets and Human Milk...
Human Babies operate on an international level. In addition, further research focusing on the recipients’ description of receiving human milk online would complement the findings generated from this research study.

**Conclusion**

This study was conducted to explore the description of sharing human milk utilizing an online commerce-free approach. Outcomes generated from the research study resulted in concepts and categories that describe the sharing of human milk over the Internet. The emerging concepts from the data analysis consisted of the following: commitment to human milk; virtual nature of relationships; and making the private public. The identified categories include: 1) infant feeding practices; 2) experience with sharing human milk; 3) selection of donors or recipients; 4) relationships among donors and recipients sharing human milk; 5) shared doctrine; 6) use of the Internet to share human milk; and 7) informing health care professionals and others regarding sharing human milk.

Findings from this study provide an increase in understanding regarding the concept of cross-feeding which can assist health care professionals in working in partnership with the participants involved to provide non-judgmental counseling. It is essential that health care professionals cultivate knowledge and skill to appropriately counsel families regarding the online sharing of human milk. Further research is required to manage and minimize potential risks associated with all infant feeding methods. An in-depth review of the safety measures and precautions would assist public health authorities with the development of health care policies.
References


Retrieved from


Appendix I

Canadian Community Health Survey on Breastfeeding Duration

Definition: The breastfeeding duration rate indicator estimates the proportion of mothers age 15-55 years who breastfed (not exclusively) their last baby (born within the past five years) for a duration of six months or more.

<table>
<thead>
<tr>
<th>Peer Group</th>
<th>Public Health Unit</th>
<th>Breastfeeding Duration</th>
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<tbody>
<tr>
<td>Rural Northern Regions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Northwestern Health Unit</td>
<td>48% E</td>
</tr>
<tr>
<td>2</td>
<td>Porcupine Health Unit</td>
<td>33% E</td>
</tr>
<tr>
<td>Mainly Rural</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>The Eastern Ontario Health Unit</td>
<td>35%</td>
</tr>
<tr>
<td>4</td>
<td>Elgin-St. Thomas Health Unit</td>
<td>44% E</td>
</tr>
<tr>
<td>5</td>
<td>Grey Bruce Health Unit</td>
<td>53%</td>
</tr>
<tr>
<td>6</td>
<td>Haldimand-Norfolk Health Unit</td>
<td>49% E</td>
</tr>
<tr>
<td>7</td>
<td>Haliburton, Kawartha, Pine Ridge District Health Unit</td>
<td>43%</td>
</tr>
<tr>
<td>8</td>
<td>Huron County Health Unit</td>
<td>45% E</td>
</tr>
<tr>
<td>9</td>
<td>Leeds, Grenville and Lanark District Health Unit</td>
<td>54%</td>
</tr>
<tr>
<td>10</td>
<td>Oxford County Health Unit</td>
<td>53%</td>
</tr>
<tr>
<td>11</td>
<td>Perth District Health Unit</td>
<td>39% E</td>
</tr>
<tr>
<td>12</td>
<td>Renfrew County and District Health Unit</td>
<td>31% E</td>
</tr>
<tr>
<td>13</td>
<td>Simcoe Muskoka District Health Unit</td>
<td>50% †</td>
</tr>
<tr>
<td>Sparsely Populated Urban-Rural Mix</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>The District of Algoma Health Unit</td>
<td>46% E</td>
</tr>
<tr>
<td>15</td>
<td>North Bay Parry Sound District Health Unit</td>
<td>45% † E</td>
</tr>
<tr>
<td>16</td>
<td>Sudbury and District Health Unit</td>
<td>38%</td>
</tr>
<tr>
<td>17</td>
<td>Thunder Bay District Health Unit</td>
<td>44%</td>
</tr>
<tr>
<td>18</td>
<td>Timiskaming Health Unit</td>
<td>F</td>
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<tr>
<td>Urban/Rural Mix</td>
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<td></td>
</tr>
<tr>
<td>19</td>
<td>Brant County Health Unit</td>
<td>35% E</td>
</tr>
<tr>
<td>20</td>
<td>Chatham-Kent Health Unit</td>
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<td>21</td>
<td>City of Hamilton Health Unit</td>
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<tr>
<td>22</td>
<td>Hastings and Prince Edward Counties Health Unit</td>
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<tr>
<td>23</td>
<td>Kingston, Frontenac and Lennox and Addington Health Unit</td>
<td>56%</td>
</tr>
<tr>
<td>24</td>
<td>Lambton Health Unit</td>
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</tr>
<tr>
<td>25</td>
<td>Middlesex-London Health Unit</td>
<td>55%</td>
</tr>
</tbody>
</table>
Notes: † - An amalgamation occurred in these health units during the period for which data is shown
E - Warning of high variability associated with estimates
F - Estimates of unreliable quality and could not be reported

Data Source: Canadian Community Health Survey Cycles 2.1, 3.1 and CCHS 2007

Initial Report on Public Health, August 2009 Public Health Practice Branch, MOHLTC

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<thead>
<tr>
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<tr>
<td></td>
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<td>42%</td>
</tr>
<tr>
<td>26</td>
<td></td>
<td></td>
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<tr>
<td>27</td>
<td>Peterborough County-City Health Unit</td>
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<td><strong>Urban Centres</strong></td>
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<td>Halton Regional Health Unit</td>
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<tr>
<td>30</td>
<td>City of Ottawa Health Unit</td>
<td>63%</td>
</tr>
<tr>
<td>31</td>
<td>Peel Regional Health Unit</td>
<td>49%</td>
</tr>
<tr>
<td>32</td>
<td>Waterloo Health Unit</td>
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<td>Wellington-Dufferin-Guelph Health Unit</td>
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<td>Windsor-Essex County Health Unit</td>
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<td>35</td>
<td>York Regional Health Unit</td>
<td>54%</td>
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<tr>
<td>36</td>
<td>City of Toronto Health Unit</td>
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<td><strong>Metro Centre</strong></td>
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<td>38</td>
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<tr>
<td>39</td>
<td><strong>Ontario Minimum</strong></td>
<td>31%</td>
</tr>
<tr>
<td>40</td>
<td><strong>Ontario Maximum</strong></td>
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</tr>
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## Phases of Search Strategy

<table>
<thead>
<tr>
<th>Phase One</th>
<th>Initial search of the literature</th>
<th>Selection of database:</th>
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<tbody>
<tr>
<td></td>
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<td>Medline</td>
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<td>Include articles addressing the research topic and question</td>
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<td>Critically appraise applicable articles</td>
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<td>Grey Literature</td>
<td>Search Google based database using keywords</td>
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Appendix III

Search Strategy Results

Records identified through database searching Medline (n=340), PsychINFO (n=115), CINAHL (n=153) Total (n=608)

Additional records identified through other sources (n = 22)

Number of articles included (n = 44)

Records screened Medline (n=77), PsychINFO (n=8), CINAHL (n = 40) Total (n=125)

Records excluded (n = 103)
Appendix IV
Recruitment Websites

Eats for Feets Ontario http://www.facebook.com/eatsonfeetsontario

Human Milk 4 Human Babies Eastern Ontario
http://www.facebook.com/HM4HB.EasternON

Human Milk 4 Human Babies Northern Ontario http://www.facebook.com/hm4hbNorON

Human Milk 4 Human Babies Southwestern Ontario http://www.facebook.com/HM4HB
Appendix V

The Online Sharing of Human Milk: A Content Analysis Website

The following website was created by the primary researcher with the assistance of Robert Stevenson, Information System Analyst and Consultant for Queen’s University, School of Nursing. The uniform resource locator (URL) for the website was https://qshare.queensu.ca/Users01/adp6/www/.
The Online Sharing of Human Milk: A Content Analysis

The purpose of this study is to gain a further understanding of the online sharing of human milk through a content analysis.

Taking part in this study will involve participating in an interview with the nurse researcher, Alicia Papanicolaou. The researcher may contact you to conduct an interview which will take approximately one hour to complete. This interview can take place at a location that is negotiated between yourself and the researcher. Following the interview, the researcher may ask you to speak with her again if the she needs to clarify any of the information.

Eligibility Requirements

- Received or donated human milk through an online commerce-free network within the past 2 years
- Able to speak and understand the English language
- Living within the province of Ontario
- Able to provide verbal and written consent
- 18 years of age and older
- Access to a computer with Internet services

If you are interested in participating in this research study, please email adp6@queensu.ca

As a token of appreciation, a gift certificate in the amount of $5.00 will be given to participants.
Appendix VI
Letter to Potential Participants

Project Title: The Online Sharing of Human Milk: A Content Analysis

Overview of Study: You are being invited to participate in a research study directed by the principal investigator, Alicia Papanicolaou, Masters of Science student at Queen’s University. The purpose of this research study is to explore the description of sharing human milk utilizing an online commerce-free approach. This study has been reviewed for ethical compliance by the Queen’s University Health Sciences and Affiliated Teaching Hospitals Research Ethics Board.

Details of the Study: The purpose of this study is to gain a further understanding of the online sharing of human milk through a content analysis. Taking part in this study will involve participating in an interview with the principal investigator, Alicia Papanicolaou. The researcher may contact you to conduct an interview which will take approximately one hour to complete. This interview can take place at a location that is negotiated between yourself and the researcher. If you would like to stop the interview for any reason at any point in time, you may do so. Following the interview, the researcher may ask you to speak with her again to ensure that she has understood the information which you have shared with her.

Benefits: While you may not benefit directly from this study, results from this study may improve the understanding of sharing human milk utilizing an online commerce-free approach.

Risks: There are no expected risks to you, but some questions may be of a personal nature which may make you uncomfortable. If you would like to stop the interview for any reason, you may do so. It is your personal right to refuse to answer any questions and withdraw from the study at any point in time without penalty. If required, the researcher can assist you with an appropriate referral.

Inclusion Criteria:
1. Individuals that have received or donated human milk through online commerce-free networks within the past 2 years.
2. Able to speak and understand the English language.
3. Living within the Province of Ontario.
4. Able to provide verbal and written consent.
5. 18 years of age and older.
6. Access to a computer with Internet services.

Confidentiality: If you do decide to take part, your name will be kept strictly confidential and will not be recorded with your answers in the interview. The interviews will be recorded using an auditory device. All data will be kept in a secured location and computer files will be password protected. The data will be available only to Alicia Papanicolaou, faculty supervisors, and Queen’s University Health Sciences and Affiliated Teaching Hospitals Research Ethics Board. All information obtained during the course of this study is strictly confidential. If you take part in the research study, we may use direct quotations from the interview in the research report. You will not be personally identified in any discussion or publication of the research report as use of participant identification numbers will be implemented to protect your identity.

Voluntary nature of study: Your decision to take part in this study is entirely your own. You are free to change your mind and withdraw from the study at any time. You may refuse to answer any specific question and will be free to stop the interview at any time.

Acknowledgement: If you decide to participate in the interview, you will receive a gift certificate in the amount of $5.00 to a coffee shop as a token of appreciation.

There is no personal, commercial or financial interest in this study by any research team members.

Thank you for your interest in this research project.

Alicia Papanicolaou, RN, IBCLC
MSc Student
Queen's University
School of Nursing
92 Barrie Street
Kingston, ON
K7L 3N6
Email: alicia.papanicolaou@queensu.ca
Appendix VII

Semi-structured Interview Guide for Donors

1. Can you share with me some information regarding your health during each pregnancy?

2. How would you describe your labour and delivery?

3. Can you express for me what the first six weeks were like after you delivered?

4. Can you describe the general health of your child(ren)?

5. How would you define your ideals or beliefs regarding parenting?

6. If applicable, what lifestyle modifications have you made during pregnancy or lactation?

7. When did you decide that you wanted to breastfeed your child(ren)?

8. Can you tell me about your experiences with breastfeeding?

9. Are you currently breastfeeding?
   If currently not breastfeeding, at what age did you wean your child(ren) from breastfeeding?
   If currently still breastfeeding, at what age do you plan on weaning your child(ren) from breastfeeding?

10. Can you describe with me how you made the decision to wean?

11. Within your child(ren)’s first six months of life, did you supplement with donor human milk? Artificial formula? If so, can you describe what factors lead to that decision?

12. At what moment did you become interested in donating your breast milk to another individual?
13. Can you describe for me how you made the decision to donate your breast milk?

   What were the circumstances that led to the donation of your breast milk?

14. What options did you explore when looking for resources of where and how to donate your breast milk?

15. Can you share with me your story regarding your decision to use the Internet to exchange human milk?

16. Can you recall your first experience donating to someone else?

17. Have you donated your milk to more than one individual? If so, how many? How much milk do you think that you donated?

18. How would you describe your relationship with the recipients of your donor milk?

   Do you remain in contact with the recipients?

19. How would you describe the typical interactions between yourself and individuals when exchanging human milk?

20. How do you determine which individuals you give your breast milk to?

21. If you were a recipient in need of breast milk, how would you select a potential donor?

22. Have you talked about donating your breast milk with your health care provider?

   If so, what was their reaction? If not, why?

23. Have you talked about donating your breast milk with your support system, such as family, friends, or community groups? If so, how would you describe their reactions?

24. Can you recall a reaction from someone that surprised you?

25. Can you share with me what it is like to use the Internet and commerce-free organizations to donate your breast milk?
26. How much time or how often do you visit their Facebook community websites?

27. What are your thoughts on the buying or selling of human milk on the Internet?

28. Are there particular things that you find challenging with donating breast milk?

    Donating over the Internet?

29. Are there particular things that you like with donating breast milk over the

    Internet?

30. How does donating human milk make you feel?

31. Has your life changed since using the Internet to donate breast milk? If so, how?
Appendix VIII

Semi-structured Interview Guide for Recipients

1. Can you share with me some information regarding your health during each pregnancy?

2. How would you describe your labour and delivery?

3. Can you express for me what the first six weeks were like after you delivered?

4. Can you describe the general health of your child(ren)?

5. How would you define your ideals or beliefs regarding parenting?

6. If applicable, what lifestyle modifications have you made during pregnancy or lactation?

7. When did you decide that you wanted to provide breast milk your child(ren)?

8. Can you tell me about your experiences with breastfeeding?

9. Are you currently breastfeeding?

10. If currently not breastfeeding, at what age did you wean your child(ren) from breastfeeding?

11. If currently still breastfeeding, at what age do you plan on weaning your child(ren) from breastfeeding?

12. Can you describe with me how you made the decision to wean?

13. Within your child(ren)’s first six months of live, did you supplement with donor human milk? Artificial formula? If so, can you describe what factors lead to that decision?

14. At what moment did you become interested in receiving donor breast milk from another individual?
15. Can you describe for me how you made the decision to receive donor breast milk? What were the circumstances that led to the use of donor breast milk?

16. What options did you explore when looking for resources of where and how to locate donor breast milk?

17. Can you share with me your story regarding your decision to use the Internet to exchange human milk?

18. Can you recall your first experience receiving donor human milk from another individual?

19. Have you received donor human milk from more than one individual? If so, how many? How much milk do you think that you received?

20. How would you describe your relationship with the donors? Do you remain in contact with the donors?

21. How would you describe the typical interactions between yourself and individuals when exchanging human milk?

22. How do you determine which individuals you receive donor breast milk from?

23. What information about yourself do you share when requesting donor human milk? What information do donors share with you?

24. Have you talked about using donor breast milk with your health care provider? If so, what was their reaction? If not, why?

25. Have you talked about using donor breast milk with your support system, such as family, friends, or community groups? If so, how would you describe their reactions?

26. Can you recall a reaction from someone that surprised you?
27. Can you share with me what it is like to use the Internet and commerce-free organizations to receive donor breast milk?

28. How much time or how often do you visit their Facebook community websites?

29. What are your thoughts on the buying or selling of human milk on the Internet?

30. Are there particular things that you find challenging with receiving donor breast milk over the Internet?

31. Are there particular things that you like with receiving breast milk over the Internet?

32. How does receiving donor human milk make you feel?

33. Has your life changed since using the Internet to receive donor breast milk? If so, how?
Appendix IX

Coding Frame

i) **Category: Infant Feeding Practices**
   
   (1) Subcategory: Benefits of Human Milk
       (a) Health Benefits of Human Milk
       (b) Emotional Benefits of Breastfeeding
       (c) Financial Benefits of Human Milk
       (d) Natural
       (e) Belief in the Exclusive Use of Human Milk
       (f) Resistance to Providing Artificial Formula
   
   (2) Subcategory: Breastfeeding Experiences
       (a) Challenges with Breastfeeding
       (b) Successful Breastfeeding
       (c) Cross-Nursing
       (d) Rationale for Human Milk Expression
       (e) Work of Human Milk Expression, Storage, and Labeling
   
   (3) Subcategory: Milk Supply
       (a) Undersupply of Human Milk
       (b) Adequate Supply of Human Milk
       (c) Oversupply of Human Milk
   
   (4) Subcategory: Breastfeeding Support
       (a) Adequate Breastfeeding Support
       (b) Inadequate Breastfeeding Support

ii) **Category: Experience with Sharing Human Milk**

   (1) Subcategory: Motivation to Donate Human Milk
       (a) Empathy
       (b) Helping Others
       (c) Oversupply of Human Milk (overlap)
       (d) Not Wanting to Waste Human Milk
       (e) Work of Human Milk Expression, Storage, and Labeling
   
   (2) Subcategory: Motivation to Receive Human Milk
       (a) Belief in the Exclusive Use of Human Milk (overlap)
       (b) Resistance to Providing Artificial Formula (overlap)
       (c) Health Benefits of Human Milk (overlap)
       (d) Undersupply of Human Milk (overlap)
       (e) Conditional Willingness to Receive Human Milk
   
   (3) Subcategory: Emotional Response to Donating Human Milk
       (a) Gratification
(b) Fortunate

(4) Subcategory: Emotional Response to Receiving Human Milk
   (a) Grief
   (b) Difficulty Asking for Help
   (c) Dependency on Others
   (d) Guilt
   (e) Consciousness
   (f) Appreciation

iii) **Category: Selection of Donor or Recipient**
   (1) Subcategory: Accessibility
       (a) Convenient Geographical Location
       (b) Inconvenient
   (2) Subcategory: Needs Assessment
       (a) Allocation of Human Milk Based on Needs
   (3) Subcategory: General Health
       (a) Medical History
       (b) Lactation History
   (4) Subcategory: Lifestyle
       (a) Avoidance of Alcohol, Tobacco and Recreational Drugs
       (b) Limited Use of Medications
       (c) Healthy Diet
       (d) Physical Activity

iv) **Category: Relationship among Donors and Recipients**
   (1) Subcategory: Modes of Communication
       (a) Communication via the Internet
       (b) Communication via the Telephone
       (c) Face to Face
   (2) Subcategory: Frequency of Communication
       (a) Ongoing Communication
       (b) Isolated Communication
   (3) Subcategory: Interpersonal Relationship
       (a) Friendship
       (b) Connection
       (c) Acquaintance
       (d) Degree of Separation

v) **Category: Shared Doctrine**
   (1) Subcategory: Parenting Philosophy
       (a) Attachment
(b) Child Led Weaning
(c) Co-sleeping

(2) Subcategory: Lifestyle
(a) Avoidance of Alcohol, Tobacco and Recreational Drugs (overlap)
(b) Limited Use of Medications (overlap)
(c) Healthy Diet (overlap)
(d) Physical Activity (overlap)

(3) Subcategory: Beliefs Regarding Milk Sharing
(a) Trust
(b) Accountability

vi) Category: Online Sharing of Human Milk utilizing a Commerce-Free Approach
(1) Subcategory: Description of the Internet and Social Media Platforms to Share Human Milk
(a) Casual
(b) Easy to Use
(c) Social Etiquette
(d) Public
(e) Underground

(2) Subcategory: Frequency and Duration of the Internet and Social Media Platforms to Share Human Milk
(a) Frequent and Ongoing
(b) Infrequent and Limited

(3) Subcategory: Commerce Approach to Exchanging Human Milk
(a) Concerns Over the Motivation and Safety
(b) Rightful Compensation
(c) Unethical

vii) Category: Informing Health Care Professionals and Others Regarding Sharing Human Milk
(1) Subcategory: Decision to Consult Health Care Professionals Regarding Sharing Human Milk
(a) Open to Consult Health Care Professional
(b) Reluctant to Consult Health Care Professional

(2) Subcategory: Decision to Inform Others Regarding Milk Sharing
(a) Open to Inform Others
(b) Reluctant to Inform Others

(3) Subcategory: Actual or Anticipated Responses from Health Care Professionals and Others Regarding Sharing Human Milk
(a) Indifferent
(b) Approval  
(c) Disapproval  
(d) Disbelief

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**Internal Coder Reliability**

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**Percentage of agreement calculation (Schreier, 2012)**

\[
\text{Percentage of agreement} = \left( \frac{\text{Number of units of coding on which the codes agrees}}{\text{Total number of units of coding}} \right) \times 100 = \% \text{ of agreement}
\]
Appendix XI

Absolute Frequency of Participants Referencing Codes

The research participants were identified by the following categories:

Donor (N=9)
Recipient (N=1)
Donor and Recipient (N=3)

Total Percentage = \( \frac{\text{Total Number of Participants that Referenced Codes}}{\text{Total Number of Participants (N=13)}} \)

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<td>Codes</td>
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<tr>
<td>Health Benefits of Human Milk</td>
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<td>N=7  N=1  N=3  84.6%</td>
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<tr>
<td>Emotional Benefits of Breastfeeding</td>
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<td>N=1  N=1  N=2  38.5%</td>
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<td>Financial Benefits of Human Milk</td>
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<td>N=3  N=0  N=0  23.1%</td>
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<tr>
<td>Natural</td>
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<td>N=6  N=1  N=2  69.2%</td>
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<td>Belief in the Exclusive Use of Human Milk</td>
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<td>N=5  N=1  N=1  53.8%</td>
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<td>Resistance to Providing Artificial Formula</td>
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<tr>
<td>N=6  N=1  N=3  76.9%</td>
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<p>| Category                                    |
| Infant Feeding Practices                    |
| Codes                                       |
| Challenges with Breastfeeding               |
| N=9  N=1  N=3  100%                         |
| Successful Breastfeeding                    |
| N=7  N=1  N=3  84.6%                        |
| Cross-Nursing                               |
| N=4  N=0  N=2  46.2%                        |
| Rationale for Human Milk Expression         |
| N=7  N=0  N=3  76.9%                        |
| Work of Human Milk Expression, Storage, and Labeling |
| N=5  N=1  N=3  69.2%                        |</p>
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<td>Helping Others</td>
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<td>Oversupply of Human Milk</td>
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</tr>
<tr>
<td>Not Wanting to Waste Human Milk</td>
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### Experience with Sharing Human Milk

#### Emotional Response to Donating Human Milk

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<td>Fortunate</td>
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#### Emotional Response to Receiving Human Milk

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<td>Difficulty Asking for Help</td>
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<td>Dependency on Others</td>
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<td>N=1</td>
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<td>N=1</td>
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<td>30.8%</td>
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#### Selection of Donor or Recipient

##### Accessibility

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<th>Donor and Recipient</th>
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##### Needs Assessment

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##### General Health

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<tr>
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<td>---------------------------------</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Donor and Recipient</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidance of Alcohol, Tobacco and Recreational Drugs</td>
<td>N=7</td>
<td>N=1</td>
<td>N=3</td>
<td>84.6%</td>
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<tr>
<td>Limited Use of Medications</td>
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<td>N=1</td>
<td>N=2</td>
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<td>Physical Activity</td>
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<td>Donor and Recipient</td>
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<td>Approval</td>
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Appendix XII
Delegated Review Clearance Letter

QUEEN'S UNIVERSITY HEALTH SCIENCES & AFFILIATED TEACHING HOSPITALS RESEARCH ETHICS BOARD-DELEGATED REVIEW
August 03, 2012
Mrs. Alicia Papanicolaou
School of Nursing
Queen’s University

Dear Mrs. Papanicolaou

Study Title: NURS-280-12 The Online Sharing of Human Milk: A Content Analysis
File # 6007175 Co-Investigators: Dr. R. Wilson, Dr. K. Sears, Dr. D. Edge

I am writing to acknowledge receipt of your recent ethics submission. We have examined the protocol, reference list, website advertisement, recruitment websites, budget, semi-structured interview guide (12/07/15), demographic information form (12/07/15) and revised information/consent form (12/07/15) for your project (as stated above) and consider it to be ethically acceptable. This approval is valid for one year from the date of the Chair's signature below. This approval will be reported to the Research Ethics Board. Please attend carefully to the following listing of ethics requirements you must fulfill over the course of your study:

Reporting of Amendments: If there are any changes to your study (e.g. consent, protocol, study procedures, etc.), you must submit an amendment to the Research Ethics Board for approval. Please use event form: HSREB Multi-Use Amendment/Full Board Renewal Form associated with your post review file # 6007175 in your Researcher Portal (https://eservices.queensu.ca/romeo_researcher/)

Reporting of Serious Adverse Events: Any unexpected serious adverse event occurring locally must be reported within 2 working days or earlier if required by the study sponsor. All other serious adverse events must be reported within 15 days after becoming aware of the information. Serious Adverse Event forms are located with your post-review file 6007175 in your Researcher Portal (https://eservices.queensu.ca/romeo_researcher/)

Reporting of Complaints: Any complaints made by participants or persons acting on behalf of participants must be reported to the Research Ethics Board within 7 days of becoming aware of the complaint. Note: All documents supplied to participants must have the contact information for the Research Ethics Board.

Annual Renewal: Prior to the expiration of your approval (which is one year from the date of the Chair's signature below), you will be reminded to submit your renewal form along with any new changes or amendments you wish to make to your study. If there have been no major changes to your protocol, your approval may be renewed for another year.

Yours sincerely,
Chair, Research Ethics Board
August 03, 2012

Investigators please note that if your trial is registered by the sponsor, you must take responsibility to ensure that the registration information is accurate and complete.
QUEEN'S UNIVERSITY HEALTH SCIENCES & AFFILIATED TEACHING HOSPITALS
RESEARCH ETHICS BOARD

The membership of this Research Ethics Board complies with the membership requirements for Research Ethics Boards and operates in compliance with the Tri-Council Policy Statement; Part C Division 5 of the Food and Drug Regulations, OHRP, and U.S DHHS Code of Federal Regulations Title 45, Part 46 and carries out its functions in a manner consistent with Good Clinical Practices.

Federalwide Assurance Number: #FWA00004184, #IRB00001173

Current 2012 membership of the Queen's University Health Sciences & Affiliated Teaching Hospitals Research Ethics Board:

Dr. A.F. Clark, Emeritus Professor, Department of Biochemistry, Faculty of Health Sciences, Queen's University (Chair)

Dr. H. Abdollah, Professor, Department of Medicine, Queen's University

Dr. R. Brison, Professor, Department of Emergency Medicine, Queen's University

Dr. M. Evans, Community Member

Dr. S. Horgan, Manager, Program Evaluation & Health Services Development, Geriatric Psychiatry Service, Providence Care, Mental Health Services, Assistant Professor, Department of Psychiatry

Ms. J. Hudacin, Community Member

Dr. B. Kisilevsky, Professor, School of Nursing, Departments of Psychology and Obstetrics and Gynaecology, Queen's University

Mr. D. McNaughton, Community Member

Ms. P. Newman, Pharmacist, Clinical Care Specialist and Clinical Lead, Quality and Safety, Pharmacy Services, Kingston General Hospital

Ms. S. Rohland, Privacy Officer, ICES-Queen's Health Services Research Facility, Research Associate, Division of Cancer Care and Epidemiology, Queen's Cancer Research Institute

Dr. B. Simchison, Assistant Professor, Department of Anesthesiology and Perioperative Medicine, Queen's University

Dr. A.N. Singh, WHO Professor in Psychosomatic Medicine and Psychopharmacology, Professor of Psychiatry and Pharmacology, Chair and Head, Division of Psychopharmacology, Queen's University
Appendix XIII

Information Sheet and Consent Form

Project Title: The Online Sharing of Human Milk: A Content Analysis

Overview of Study: You are being invited to participate in a research study directed by the principal investigator, Alicia Papanicolaou, Masters of Science student at Queen’s University. The purpose of this research study is to explore the description of sharing human milk utilizing an online commerce-free approach. Alicia Papanicolaou will read through this consent form with you and describe procedures in detail and answer any questions you may have. This study has been reviewed for ethical compliance by the Queen’s University Health Sciences and Affiliated Teaching Hospitals Research Ethics Board.

Details of the Study: The purpose of this study is to gain a further understanding of the online sharing of human milk through a content analysis. Taking part in this study will involve participating in an interview with the principal investigator, Alicia Papanicolaou. The researcher may contact you to conduct an interview which will take approximately one hour to complete. This interview can take place at a location that is negotiated between yourself and the researcher. If you would like to stop the interview for any reason at any point in time, you may do so. Following the interview, the researcher may ask you to speak with her again to ensure that she has understood the information which you have shared with her.

Benefits: While you may not benefit directly from this study, results from this study may improve the understanding of sharing human milk utilizing an online commerce-free approach.

Risks: There are no expected risks to you, but some questions may be of a personal nature which may make you uncomfortable. If you would like to stop the interview for any reason, you may do so. It is your personal right to refuse to answer any questions and withdraw from the study at any point in time without penalty. If required, the researcher can assist you with an appropriate referral.

Inclusion Criteria:

1. Individuals that have received or donated human milk through online commerce-free networks within the past 2 years.
2. Able to speak and understand the English language.
3. Living within the Province of Ontario.
4. Able to provide verbal and written consent.
5. 18 years of age and older.
6. Access to a computer with Internet services.

**Confidentiality:** If you do decide to take part, your name will be kept strictly confidential and will not be recorded with your answers in the interview. The interviews will be recorded using an auditory device. All data will be kept in a secured location and computer files will be password protected. The data will be available only to Alicia Papanicolaou, faculty supervisors, and Queen’s University Health Sciences and Affiliated Teaching Hospitals Research Ethics Board. All information obtained during the course of this study is strictly confidential. If you take part in the research study, we may use direct quotations from the interview in the research report. You will not be personally identified in any discussion or publication of the research report as use of participant identification numbers will be implemented to protect your identity.

**Voluntary nature of study:** Your decision to take part in this study is entirely your own. You are free to change your mind and withdraw from the study at any time. You may refuse to answer any specific question and will be free to stop the interview at any time.

**Acknowledgement:** If you decide to participate in the interview, you will receive a gift certificate in the amount of $5.00 to a coffee shop as a token of appreciation.

There is no personal, commercial or financial interest in this study by any research team members.

I have read and understand the consent form for this study. I have had the purposes, procedures and technical language of this study explained to me. I have been given sufficient time to consider the above information and to seek advice if I chose to do so. I have had the opportunity to ask questions which have been answered to my satisfaction. I am voluntarily signing this form. I will receive a copy of this consent form for my information.

If at any time I have further questions, problems or adverse events, I can contact

**Primary Investigator**
Alicia Papanicolaou, RN, IBCLC
MSc Student
Queen’s University
School of Nursing
92 Barrie Street
Kingston, ON
K7L 3N6
Email: alicia.papanicolaou@queensu.ca
Supervisor
Kim Sears RN PhD
Assistant Professor
Queen’s University
School of Nursing
92 Barrie Street, Room 218
Kingston, Ontario    K7L 3N6
Telephone: (613) 533-6000, ext. 78763
Fax: (613) 533-6770
Email: kim.sears@queensu.ca

If I have questions regarding my rights as a research participant, I can contact

Dr. Albert Clark
Queen’s University Health Sciences and Affiliated Teaching Hospitals REB
Office of Research Services
Level 3, Fleming Hall – Jemmett Wing
Queen’s University
Kingston, Ontario K7L 3N6
Telephone: (613) 533-6081
Fax: (613) 533-6806
Email: clarkaf@queensu.ca

By signing this consent form, I am indicating that I agree to participate in this study.

_______________________    _____________________
Signature of Participant     Date

STATEMENT OF INVESTIGATOR:

I have carefully explained to the participant the nature of the above research study. I certify that, to the best of my knowledge, the participant understands clearly the nature of the study and demands, benefits, and risks involved to participants in this study.

Alicia Papanicolaou
_______________________
Signature of Principal Investigator     Date
Appendix XIV

Demographic Information Sheet

Note: Demographic information to be collected verbally from the participants at the time of the initial interview. Data will be documented by the principal investigator.

1. Gender
   - □ Female
   - □ Male
   - □ Prefer not to answer

2. Relationship status
   - □ Single
   - □ Common law.married
   - □ Separated
   - □ Widow/widower
   - □ Prefer not to answer

3. Participant’s age __________

4. Number of children __________
   If applicable, number of biological children __________
   If applicable, number of adoptive children __________
   If applicable, number of singleton/multiples __________
   If applicable, number of infants born premature (less than 38 weeks) __________

5. Residence within Ontario (city/town) __________

6. Level of Education
   - □ Secondary
   - □ Postsecondary (College or university)
   - □ Graduate (Masters or Doctoral)
   - □ Prefer not to answer

7. Do you currently work outside of the home?
   - □ No
   - □ Yes

8. Occupation/professional background __________
   If applicable, return to work date (months postpartum) __________

9. Ethnicity/cultural identity __________
Appendix XV

Request for Executive Summary

Project Title: The Online Sharing of Human Milk: A Content Analysis

Executive Summary: Upon completion of the research project, an executive summary of the findings will be made available to participants and other individuals. Participants will not be personally identified in any discussion or publication of the research report as the use of participant identification numbers will be implemented.

Please send a copy of the executive summary to the following address:

______________________________________________
______________________________________________
______________________________________________

By signing this request form, I am indicating that I wish to receive a copy of the executive summary.

__________________________  _________________
Signature of Participant  Date

Note: The following information will be secured in a locked cabinet at School of Nursing located at Queen’s University, Kingston, Ontario. The primary researcher and thesis supervisor will only have access to the names of participants and demographic information.