Mother's Beliefs, Attitudes, and Decision Making Related to Infant Feeding Choices

Sharon Radzyminski, PhD, JD, RN
Lynn Clark Callister, PhD, RN, FAAN

ABSTRACT

All mothers at some point make a decision about whether to breast- or formula feed their infant. Marital status, education, age, culture, and confidence have all been identified as variables affecting this decision. Previous research has concentrated on the decision-making process in breastfeeding mothers. This qualitative descriptive study investigated the beliefs, attitudes, and decisions of both breast- and formula-feeding mothers. Four categories were identified influencing maternal decision making: (a) infant nutritional benefits, (b) maternal benefits, (c) knowledge about infant feeding, and (d) personal and professional support. Analysis of the data indicated that mothers differed in their choice depending on whether they were infant- or maternal-centered and that most women combine both methods of feeding.

The Journal of Perinatal Education, *25*(1), 18–28, http://dx.doi.org/10.1891/1058-1243.25.1.18
Keywords: infant feeding, breastfeeding, maternal decision making, qualitative descriptive study

The importance of breastfeeding in enhancing maternal and infant health has been well documented in the professional literature for several decades. Despite this increasing body of knowledge, breastfeeding rates remain below recommended standards endorsed by the American Academy of Pediatrics (2012), World Health Organization and United Nations Children's Fund (2009), and the United States Department of Health and Human Services (2011). Multiple variables are associated with the decision to breastfeed, initiation of breastfeeding, and maintaining breastfeeding for at least 6 months. A body of literature documents that knowledge and attitudes, sociocultural context, as well as personal and professional support are strong determinants of maternal infant feeding choices (Atchan, Foureur, & Davis, 2011; Britton & Britton, 2008; Brodribb, Fallon, Hegney, & O'Brien, 2007; Dubois & Girard, 2003; Fischer & Olson, 2014; Matias, Nommsen-Rivers, & Dewey, 2012; Maycock et al., 2013; Thulier, 2009). Demographic data that shows women in higher socioeconomic groups and who are more educated are more likely to choose breastfeeding (Li, Darling, Maurice, Barker, & Grummer-Strawn, 2005). The purpose of this study was to document maternal perceptions of the infant feeding decision-making process.

REVIEW OF THE LITERATURE

Studies have been done related to the mother's perspectives, experiences, and decision making

associated with breastfeeding. Early studies concentrated on demographics such as marital status, education, race/ethnicity, employment status, age, and socioeconomic factors. Women who choose breastfeeding are more often married, White or Hispanic, 30 years or older, college educated, and living in the Pacific Northwest or New England (Li et al., 2005). In addition to demographics, culture, family, and maternal confidence in the ability to breastfeed have been shown to influence maternal decision making. Avery, Zimmermann, Underwood, and Magnus (2009) found that mothers, who they labeled as "confident commitment," were usually successful at breastfeeding. These mothers believed in their ability to breastfeed no matter what the obstacles were regardless of race, family, or social support or common challenges such as sore nipples or newborns having difficulty latching on. Britton and Britton (2008) reported that mothers who continued to exclusively breastfeed had higher self-concept scores as compared to those exclusively formula feeding. Breastfeeding mothers had notably higher scores in self-satisfaction, moral worth, value as a family member, and physical appearance. Outcomes were not affected by maternal age, parity, marital status, family income, social support, or maternal employment. This is supported by a Canadian study which reported that family income, mother's employment status, or social status did not affect the woman's decision to breastfeed or continuing to breastfeeding for 4 months (Dubois & Girard, 2003). Fischer and Olson (2014) had slightly different results using both race and socioeconomic status as indicators of culture. They reported that differences were more prominent related to socioeconomic status than race. They also reported that a mother's intention to breastfeed was the single most significant factor predictive of her breastfeeding behavior.

There is some research available that investigates the effect of culture, social support, and maternal self-esteem on the decision to formula feed as well. Some researchers present the concept that the push to increase breastfeeding rates has produced a morality of mothering (Knaak, 2010; Ludlow et al., 2012). Mothers see themselves as having a moral and social responsibility to expose their children to as little risk as possible. Determinants of risk are often guided by the advice of health professionals who are viewed as the parenting experts (Knaak, 2010). Because breastfeeding is considered the superior source of infant nutrition, it would follow that mothers who choose formula feeding may have increased guilt or stress associated with that decision. This may help explain the lower self-concept scores in the Britton study. Ludlow et al. (2012) commonly found that mothers felt the need to defend their decision to formula feed and still be a good mother.

Maternal perceptions of entire pregnancy and birth experience was accumulated in a survey of 1,573 ethnically, racially, and socioeconomically representative American women by Childbirth Connection in partnership with Lamaze International in 2006. Although pregnancy and birth were the primary foci of this survey, it provided some limited insight into the breastfeeding decision as well (Declercq, Sakala, Corry, & Applebaum, 2006). The survey reported that prior to birth, 61% of mothers had decided to breastfeed, but only 51% were breastfeeding 1 week following birth. Mothers reported on the whole (66%) that the hospital staff encouraged them to breastfeed but were presented with conflicting behaviors such as giving their infant a pacifier (37%), formula or water supplementation in the hospital (29%), and formula to take home (49%).

Mothers' perceptions of hospital staff's attitudes were predictive of breastfeeding failure by 6 weeks. Mothers who reported that they perceived neutrality on the part of the hospital staff in relation to their decision to breastfeed were significantly more likely to wean early (DiGirolamo, Grummer-Strawn, & Fein, 2003). Taveras et al. (2004) reported that mothers who discontinued breastfeeding within the first weeks following birth had problems with infant latching on or sucking and reported that a health-care provider recommended formula supplementation. Mothers expected that their health-care provider would have the knowledge and skill to assist them with these common problems. However, they discovered that neither their obstetrician nor pediatrician assessed them during a breastfeeding session or tried to adequately diagnose the source of the concern. Instead, they were given commercial literature, a referral to a lactation consultant, or were advised to supplement with formula. A crucial finding in this study was that mothers who received breastfeeding advice from books and other print media were less likely to discontinue breastfeeding than those receiving information from health-care providers (Taveras et al., 2004). This was supported by Dillaway and Douma (2004) who found that mothers and health-care providers had very

Mothers felt inadequate if the health-care professional did not listen or did not try to understand their situation.

different ideas about what constituted breastfeeding support. Approximately 75% of mothers surveyed in this study reported at least two breastfeeding problems that led to early weaning. They reported that advice and encouragement of their health-care provider was superficial and insufficient. However, the mothers' physicians reported that they were highly supportive. Providers considered support as answering questions posed by mothers, providing written information, or making a referral to a lactation consultant, whereas the mother wanted praise and encouragement, accurate information, observation of the breastfeeding behavior, diagnosis of the problem, and a solution.

A significant amount of research has also been done outside the United States. Although there are distinct cultural differences, Kishi et al. (2010) found that there was a cross-cultural universality of perinatal experiences in all women and that general concepts could be applied to various populations. Bäckström, Wahn, and Ekström (2010) investigated Swedish women's experiences and reflections on receiving breastfeeding support compared to midwives' experiences and reflections on providing breastfeeding support. Results indicated the women needed confirmation about their breastfeeding competence and that challenges were normal. They felt better if a health professional was present when they breastfed and confirmed they were doing it correctly. Mothers felt inadequate if the health-care professional did not listen or did not try to understand their situation. Other international studies showed similar findings. Australian mothers chose breastfeeding because of infant health benefits and reported that family influences and advice from others played a primary role in their decision making. Conversely, they reported that women who decided not to breastfeed were more self-centered, and viewed breastfeeding limited their freedom (Brodribb et al., 2007).

Brown, Raynor, and Lee (2011) conducted a comparative study in the United Kingdom looking at health-care professionals and mothers' perceptions of factors influencing infant care decisions. Maternal factors included lack of knowledge and lack of professional support with breastfeeding challenges. Providers had a "clear perception of influences affecting early milk feeding choices" (p. 2001) but acknowledged that barriers for them included lack of time and resources to offer quality professional support.

In a qualitative study of 230 Chinese women living in Hong Kong (Kong & Lee, 2004), mothers' knowledge of breastfeeding was directly linked to their decision to breastfeed. The fewer mothers knew about breastfeeding, the more likely they were to formula feed. They also reported that Chinese women viewed breastfeeding to be socially limiting to their freedom and believe the mother should not be tied to the baby (Kong & Lee, 2004).

A review of the literature indicates that maternal decision making related to infant feeding is multifactorial. The influence of maternal age and educational level are consistent findings. Sociocultural context, maternal confidence, ability to solve feeding problems, and interactions with health-care providers also play a role in breastfeeding initiation and duration. Most studies concentrate on breastfeeding women, however, and do not investigate the decision-making process in formula-feeding mothers. Limited data are available specifically looking at maternal decision making from both perspectives. Therefore, the research question for this study was what are the perceptions of mothers regarding their infant feeding choices?

METHOD

Data Collection and Analysis

In this qualitative descriptive study, data were collected via interviews of the participants by the principal investigator or a research assistant. After institutional review board approval, study participants were approached by the researcher, informed consent was obtained, and demographic forms were completed. Researcher then interviewed participants in their private room prior to hospital discharge. The interviews were audio recorded and transcribed. The interview began with a general question, "Tell me why you decided to breastfeed or formula feed?" so that the study participants could direct the interview with relevant information. Respondents were then asked if they had ever considered the alternate feeding option. For example, breastfeeding mothers were asked if they had ever considered formula feeding; mothers who were formula feeding were asked if they had ever considered breastfeeding.

Data were analyzed by the principal investigator. Categories emerging from the data were identified and named. Additional study participants were recruited until saturation was achieved in each category and all characteristics of the category were present and identified. Categories were reexamined and those with similar characteristics were clustered together into a reduced number of categories. Each category was continually examined for instances that contradicted the characteristics defined by the category and reclassified (Tracy, 2013).

RESULTS

The sample consisted of 152 postpartum women who had given birth to a healthy term infant within the past 72 hours in a large tertiary medical center in the District of Columbia. Thirty-eight percent were exclusively breastfeeding, 16% were exclusively formula feeding, and 46% were combining breastfeeding with formula feeding (referred to as *combination feeders*). The women ranged in age from 17 to 39 years of age with a mean age of 26 years. Most women were high school educated, married, employed outside the home, and were born and raised in the United States. Fifty-four percent of the women were multiparous, and 46% were primiparous. The study participants self-identified as 42% White, 26% African American, and 32% Hispanic.

The results of this study are limited to the earlier mentioned population and the interview process for data collection. There is no determination of the social desirability of the answers provided. Mothers were interviewed privately in their hospital room by a researcher unknown to them but because of the sensitivity of the subject matter in relation to how the mother may interpret herself in the mothering role, some answers could have been provided that the subject thought were more socially acceptable.

Categories identified included (a) considering infant nutritional benefits, (b) considering maternal benefits, (c) gaining knowledge about infant feeding, and (d) describing personal and professional support. Descriptive data supporting these categories are described.

Considering Nutritional Benefits for the Infant

All of the breastfeeding women and combination feeders indicated they breastfeed because of the positive benefits to the infant. Two of the mothers who were formula feeding indicated that they chose formula because it was a healthy option for the infant because of their smoking or drug use. A breastfeeding mothers summed it up this way:

> *I chose to breastfeed because breastfeeding is the best option for me. This is my third son. My first, I gave the bottle and I noticed he got sick a lot—nothing too bad you know—just a lot of ear infections, colds, things like that. He also had colic for a while, so I was switching his formula a lot. My second son, I breastfed. My midwife said that maybe if I did that, he would not get sick like that. He is almost 8 years old now and is almost never sick, so I think breastfeeding is the way to go. I wish they would have told me about this when I got pregnant with my first one—they just asked me how I was going to feed the baby, and I said bottle because that was the only way I knew about.*

Combination feeders also mentioned that they thought breastmilk was best for their newborn. One mother commented, "I am doing both. I do bottle feeding because it is more convenient but I also breastfeed because it is healthier for the baby." This was a common theme and shared by many study participants as summarized by one mother, "I bottle feed and breastfeed. I breastfeed because it is healthier but bottle feed because it is easier."

Considering Maternal Benefits

Mothers in all three categories related their decision on infant feeding to some aspect related to them. Breastfeeding mothers cited maternal weight loss, more effective uterine involution, maternal–infant bonding, and cost-effectiveness as contributing to their decision to breastfeed. None of the mothers referred to any health risks associated with not breastfeeding. One mother said,

> *I decided to breastfeed because of the benefits. For me personally, it helps get my stomach down quicker . . . and you know it's cheaper—you don't have to go out and purchase bottles and all that kind of stuff or formula and you know that stuff is really expensive.*

Bonding with the infant was also considered a benefit to the breastfeeding mothers, as one mother stated,

> *Keeping that connection to her for me was really important . . . it's definitely important—the bonding.*

Being the age that she is, it is like one of those pure connections that you want as a new mom in my opinion.

Combination feeders and formula feeders felt the personal convenience and lack of being tied down to the infant was an important consideration. Formula feeders also commented that they wanted to avoid the pain associated with breastfeeding; others cited employment as contributing to their decision. One combination feeder commented, "I do breastfeeding so that my stomach goes down faster but I bottle feed him so he can go to daycare." Another mother described the importance of not being tied down,

When you bottle feed, you know the baby can go anywhere you want. The father or grandparents can keep him so you can go out and get your life back or get some sleep if you're tired. I don't think it's a good thing for a mother to feel she has to plan her life around her baby. All that does is spoil the baby and stress out the mother. The mother, you know, has to live too.

Nipple pain and after pains associated with breastfeeding was also a common theme among formula-feeding mothers,

I tried breastfeeding with my first son and it really hurt so you know by the second day, I stopped doing it. I am bottle feeding this one from the start because it just hurts too much the other way. You go through enough pain giving birth, you don't need to add more.

Another mother stated,

My roommate when I had my first baby was breastfeeding, and she was in such pain. The nurses had her rubbing her milk back into her nipple and they were putting cabbage leaves on her breasts because they got so hard. Really! Come on—that is really disgusting. Who would do such things just for some milk? Give the baby a bottle and everyone is happy.

Gaining Knowledge About Breastfeeding

All respondents were asked if they considered the alternate method of feeding when making their infant feeding decision. Most mothers indicated that they had at least thought about other feeding options based on knowledge they had or did not have. Breastfeeding mothers stated they decided against bottle feeding because they had learned about the benefits breastfeeding. One mother commented, "I went to prenatal classes and they had one on infant feeding. I learned so much on breastfeeding that I thought, 'who wouldn't do it once they knew how good it was for the baby?'"

Another mother said,

My midwife suggested I breastfeed so I read a book about it. I couldn't believe how much better it was for the baby. After that, I was hooked and I never looked back. I do say, however, that I am surprised at how many women don't know much about it. I attended prenatal classes and one day, we got to talking about how we were going to feed our babies. When I said I was going to breastfeed, one mother asked why I would want to do such a thing. I told her about the things I had read about and she said she had never heard any of that. She said everyone she knew was formula fed and they all turned out just fine. Now I don't want to be mean or anything but she looked like she was about 100 pounds overweight and her little girl that was with her was already huge. So I thought what do you mean by fine? You sure don't look fine to me. But I didn't want to be insulting so I just said that milk comes from what you eat and cows eat grass, hay, bugs in the grass and I don't think any baby is fine who eats things like that. I said I didn't think it was a good idea for a baby to grow up eating the same food that was meant to grow a cow. She didn't say anything but you could see the other women were thinking. I mean, I think this is really important information. Why don't other mothers know about it?

Another breastfeeding mother stated,

Yes, I did consider bottle feeding this time because I breastfed for 18 months with the first baby. She is 3 years old now. I mean, it is such a time commitment, and I wasn't sure I wanted to go through the whole thing again with a 3-year-old running around. But I was looking through all the stuff I got at the hospital and read the pamphlet on breastfeeding and I remembered all the good stuff about it. When I first saw his perfect little face, I knew he deserved the best too. I don't know about 18 months, but I will be doing this for a while.

Whereas breastfeeding mothers considered knowledge as a reason for not choosing formula feeding, formula feeders cited lack of knowledge or misinformation for not considering breastfeeding. One formula-feeding mother commented,

I never considered breastfeeding because my mother told me breastfed babies cry all the time and are up all night. She also told me my breasts would be sagging all the way to the floor before it was all over.

Another mother commented, "No, I never considered breastfeeding. I don't know anything about it. I just always thought the way to feed a baby was to give him formula." Another mother summed it up by saying, "There is no reason why I'm bottle feeding. I never really thought about it. I mean it's all the same stuff anyway. Milk is milk."

In the effort to better understand the role knowledge played in the decision-making process, mothers were often asked to expand on whether having the information changed their decision or only reinforced the decision they had already made. First-time breastfeeding mothers commonly stated they sought out information from family, friends, and health professionals, the literature, or Internet sites prior to making their decision. Breastfeeding mothers who had previously breastfed relied on their previous knowledge or experience. One breastfeeding mother stated,

I had to know everything there was to know about babies when I was pregnant. I don't know how many baby books I read or how many Internet sites I visited. I asked everyone I knew how they fed their baby. I was told everything from breastfeeding is hard and it hurts to breastfeeding is so easy. But everybody told me it was better for the baby. I couldn't find anything that said formula was better so . . .

Formula-feeding mothers tended to base their decision more on their perceptions of infant feeding rather than knowledge of the benefits of breastfeeding:

I got a lot of pamphlets and stuff from the doctor's office, but I never got around to reading any of it. I mean really, what's there to know? Today, you can just go to the store and buy the formula already in the bottles. You just take off the cap and feed the baby. It's not like the way my grandmother tells it, when you had to make the formula and sterilize the bottles.

Whereas breastfeeding mothers considered knowledge as a reason for not choosing formula feeding; formula feeders cited lack of knowledge or misinformation for not considering breastfeeding.

Another formula-feeding mother stated,

I always just figured I would bottle feed. I have to go back to work at 6 weeks and it would just be easier. My OB told me to think about breastfeeding, even for a little while, and gave me some things to read but I never did. I asked my pediatrician about it instead and he said it was totally up to me—babies end up healthy no matter which way you choose and he's the baby expert.

Describing Personal and Professional Support

Sociocultural context as well as personal and professional support are frequently cited in the literature as affecting the mother's decision to breast- or bottle feed. This study supported these earlier findings. One breastfeeding mother stated,

I did consider bottle feeding but breastfeeding was my first option. I wanted to try it and see what it was like. Some of the older generation don't really advise it too much. I wanted to be different and go against the grain. I read up on it and found out all about it and that was pretty much it.

Another mother commented,

I would feel funny, you know, going anywhere with the baby and breastfeeding him. My mother told me I was crazy to even think about it. She said, "You just can't hide something like that—even if you cover the baby with the blanket people know what you are doing. And what are you supposed to do if you have to go to church or go shopping or something. You gonna leave that baby screaming with someone who can't feed him." That's just not the proper way to care for a baby. I never really thought about things like that until my mother brought them up.

Several mothers felt that returning to work was not conducive to breastfeeding. One mother stated,

The secretary down the hall breastfed and that's all the men could talk about. They would make sucking sounds behind her back and make jokes about being careful what you took out of the refrigerator to put in your coffee. It was very crude and unprofessional but there is no way I'm going to be a target for that.

Others commented about the effects of personal support on their infant feeding choices. One breastfeeding mother said, "It was actually my husband that told me about breastfeeding. He was so proud of me for doing it." Another commented, "My husband was so happy when I decided to bottle feed; he was so afraid he was going to be left out." One combination feeder stated,

> *I come from a family of formula feeders, they think breastfeeding is disgusting. So I have the best of both worlds. When I want some alone time with the baby, I breastfeed, but whenever I am out or with others, I always have the bottle to fall back on.*

Women's comments regarding professional support were mixed. Several mothers credited their midwife or physician for suggesting they consider breastfeeding, whereas others felt their health-care provider was noncommittal. Mothers often commented that their physician left the decision entirely up to them. One mother explained,

> *This is my third baby. I had my first in California and had the most wonderful midwife. When I ran into trouble with breastfeeding, she was right there watching what I was doing and helping me. I didn't have my second one until 7 years later and I had forgotten a lot about how to do it. By that time, we had moved here and I had a different doctor. When I asked her for help she just gave me a pamphlet and referred me to La Leche League. She didn't examine me, watch me breastfeed, or try at all to figure out what the problem was. I really expected her to help me. I figured it out myself and gratefully it's going well with this baby. If I had had the doctor for my second son with my first [son], I probably would have ended up bottle feeding all three of [my children].*

DISCUSSION

The findings in this study support previous research that indicates maternal decision making related to infant feeding is multifactorial. Health of the infant, culture, social and family support, implications for the mother, and knowledge of infant feeding were consistent findings which have been identified in previous research. This study adds data regarding why mothers chose not to engage in alternative methods of infant feeding. Breastfeeding mothers reported similar answers to both questions. They cited health of the infant as the primary reason why they both chose to breastfeed and why they chose not to formula feed. Formula-feeding mothers, however, frequently could not identify a reason why they chose to bottle feed except that it was how they perceived an infant should be fed. Their decision-making process became much more apparent when they were asked if they had ever considered breastfeeding. It is also interesting to note that most mothers in this sample were in the combination feeder's category. These mothers identified themselves as breastfeeding but when the infant's feeding documentation was reviewed, these babies were being formula fed more often than they were breastfed. The range of formula feeding for these infants was 40% to 90% with a mean of 70% of the feedings being formula. In spite of the dominant use of formula, the mothers in this category strongly reported that they chose breastfeeding because it was healthier for the baby. This may be a reflection of the morality of mothering concept identified by Knaak (2010) and exemplified in the Ludlow et al. (2012) study.

Only two of the formula-feeding mothers reported that they chose formula because it was healthier for the infant because of their history of smoking or drug use. No formula feeding mother referred to any aspect of infant health in response to either why they chose formula feeding or did not choose breastfeeding. Several mothers said when they asked their pediatrician about the subject; they were assured that formula feeding was healthy for the infant. This was especially true when the mother had been encouraged to consider breastfeeding by family, friends, or other members of the health-care profession.

Further investigation is required to determine whether the mother was searching for validation of her decision from anyone or that her pediatrician carried more weight in the decision-making process. Several mothers commented that they valued their pediatrician's advice because he was the expert on infant health. This implies that these women were aware that infant formula is not the healthier choice because none of them (except for the two referenced earlier) chose formula because they believed it was more beneficial for the baby. This was supported by the responses of the combination feeders that were essentially formula feeding but referred to themselves as breastfeeding because it was healthier for the infant.

Formula-feeding mothers cited mainly maternal benefits when asked about their infant

feeding choice. Common themes were convenience, not being tied down to the infant, and fear of pain associated with breastfeeding. Breastfeeding mothers spoke of maternal benefits such as faster uterine involution, weight loss, and bonding with their infant. None of the mothers seemed aware of the risks associated with their own or their infant's health related to formula feeding.

The response to the second question was significantly different between the breastfeeding and the bottle-feeding mothers. The breastfeeding mothers and combination feeders said they didn't formula feed with short simple answers such as breastfeeding was healthier for the baby. This was true even for the combination feeders that were essentially formula feeding. Formula-feeding mothers, however, spoke at length as to their reason for not choosing breastfeeding. The tone of their voice was more aggressive and, in some instances, defensive. There was a sense that they were trying to convince the interviewer of the validity of their decision. These mothers included such statements as "You have to see this from my point of view," or "You have to understand that breastfeeding just didn't fit in with my life." On the other hand, breastfeeding mothers emphasized the need to be close to or bond to their infants. Formula-feeding mothers were more concerned with being tied down to the baby. Many mothers spoke of the need to get back to their life as soon as possible or to maintain a life apart from the baby. For example, one mother explained,

> *You have to understand. I am a person too. I just can't drop whatever I'm doing to go feed a baby, especially when there are other people around who can do it. I don't mean I'd ever let him go hungry—of course I would feed him but I think the father should share the responsibility. I mean, you know, the baby isn't going to be happy if the mother isn't happy. Babies can sense things like that.*

There were also significant difference in the answers breast- and formula-feeding mothers gave regarding their knowledge about infant feeding. Respondents were not asked directly about what they knew, but it was a reoccurring theme in their responses. Breastfeeding mothers were much more likely to seek out information, read the literature, or search the Internet for information on infant feeding. Most stated that what they learned about the benefits of breastfeeding influenced their decision. Formula-feeding mothers were more likely to state they did not read the literature on infant feeding or seek out information on their own. This may be associated with the tendency of breastfeeding mothers to be higher educated.

The importance of sociocultural context and personal and professional support were also identified. There were important differences between the breast- and formula-feeding mothers. Breastfeeding mothers were not as concerned with the opinion of others as bottle feeding mothers were. None of the breastfeeding mothers spoke about what it would be like to feed their infant in public or in front of others, whereas it was a common comment from the bottle-feeding mothers. They frequently stated that a reason for not choosing to breastfeed was "People knowing what you are doing" or "Breastfeeding in front of others would make them or the other person uncomfortable." Some felt that it was improper to breastfeed in front of their own young children or other family members. They commonly expressed concern that breastfeeding would isolate them from family and friends. Formula-feeding mothers were more likely to be influenced by the opinion of their own mother or close relatives. Breastfeeding mothers were more likely to be "confident committed," stating that this was their infant and their decision and everyone else would have to learn to accept it. Similar results were reported in the Ludlow et al. (2012) study. They also found that mothers needed to defend their decision to formula feed and often cited time commitment; interference with other activities; lack of support from partner, family, or friends; public exposure; and the belief that the baby was happier as their reasons to formula feed.

The responses of study participants were both infant centered and noninfant centered. Breastfeeding mothers tended to give more infant centered responses and formula-feeding mothers gave more noninfant-centered responses. As expected, combination feeders gave a combination of infant- and noninfant-centered responses. Mothers whose responses were infant centered seemed more at peace with their decision, speaking calmly, and defending their decision based solely on the health of their infants. Mothers whose responses were less infant centered were more defensive, stating infant feeding decisions were more appropriate for them rather than the infant. It is interesting to note that combination feeders had infant centered responses. They self-identified as breastfeeding mothers even though most of the time

infants were formula fed. This is consistent with the research by Knaak that suggested that women identify breastfeeding with a more positive image of mother.

IMPLICATIONS FOR PRACTICE AND RESEARCH

Perinatal education appears to be an influence in mother's decision to breastfeed. The health of the infant was a powerful motivator related to women choosing to breastfeed. In this study, most women perceived that providing any breastmilk was just as healthy as exclusively breastfeeding. Health benefits to the infant related to exclusive breastfeeding should be differentiated from "token breastfeeding" during educational sessions. However, formula-feeding mothers did not tend to rely on information provided by literature or newborn feeding educational sessions. The fact that this group of women did not discuss health benefits to the infant indicates that they are on some level aware that human milk is more beneficial to the infant. They were also less likely to read literature or attend informational sessions provided by health-care providers that would confirm breastmilk as the healthier choice. How to reach these women merits further inquiry.

Educating family members, especially the maternal grandmother, extended family, and the father of the baby may provide a better means of providing information and enhancing support. This group of women seemed especially sensitive to the opinions of others and how they are viewed by others.

Correcting the misinformation of family and friends may provide a better opportunity for support. Engaging fathers in perinatal education offerings is essential (Datta, Graham, & Wellings, 2012; Maycock et al., 2013). A Canadian quantitative study found that women who reported high levels of support from their partners scored significantly higher on the Breastfeeding Self-Efficacy Scale than those reporting ambivalent or negative partner support (Mannion, Hobbs, McDonald, & Tough, 2013). This study supports the review conducted by Meedya, Fahy, & Kable (2010) which identified those modifiable factors that positively influence the duration of breastfeeding at 6 months, including maternal intention, self-efficacy, and social support.

Educating family members, especially the maternal grandmother, extended family, and the father of the baby may provide a better means of providing information and enhancing support.

Women should be encouraged to invite their own mothers to infant care classes so that the grandmother-to-be can be encouraged to voice her opinion and dialogue with health-care professionals. Perinatal educators can provide education about the benefits of breastfeeding, encouraging fathers and extended family members to be active learners, and discuss strategies for the provision of personal support. Rempel and Rempel (2011) refer to "the breastfeeding team" which includes personal and professional support for women, and this is an important concept to convey in educational offerings. Information should be provided about pumping and storing breastmilk so that others can be actively involved in feeding the infant. This team approaches implicated in the Cochrane review of support for breastfeeding mothers. This review of 52 studies of 56,451 mother–infant dyads from 21 countries conducted by Renfrew, McCormick, Wade, Quinn, and Dowswell (2012) showed that all forms of extra support increases the duration of breastfeeding. This included support from family, lay, or professional individuals. Face to face support was the most successful especially when provided at all levels over time.

Health-care professionals also need to be consistent in the messages they are providing regarding infant feeding (Shealy, Li, Benton-Davis, & Grummer-Strawn, 2005). Many women indicated they wanted to formula feed but would have been willing to try breastfeeding, until their pediatrician told them that both were healthy choices. It is unknown whether it would have made a difference in the mother's decision if their pediatrician would have more actively supported breastfeeding. This merits further investigation. It has also been suggested that health professionals not only explain the benefits of breastfeeding but also the risks of formula feeding (Smith, Dunstone, & Elliott-Rudder, 2009). In this study, if the mother felt any hesitation on the part of her health-care provider, this validated her decision to formula feed.

The decision-making process related to infant feeding ranged from a complicated thought process to no thought at all. For many, it was a preconceived notion based on a traditional perception on how infants are fed. For others, it was a well-informed decision. Significant differences between breast- and formula-feeding mothers were consistent among all study participants regardless of age, parity, race, marital status, economic status, or educational background. Breastfeeding mothers were more informed,

more infant centered in their decision-making process, and more self-reliant. Formula-feeding mothers were more self-centered, more dependent on the opinions of others, and based their decisions more on perceptions than evidence-based information. Most women in this study, however, were combination feeders and fell somewhere between these two groups. These women were essentially formula feeders but identified themselves as breastfeeding. This group is consistent with the *Listening to Mothers II Survey* (Declercq et al., 2006) where one of every four mothers intended to give both breastmilk and formula. This group of women merits further study. They should also be identified separately when included in research data. Because they are so heavily dependent on formula supplementation, coding data reflecting their self-identified status as breastfeeding may be contributing to significant error in results.

The results of this study indicate that women who decide to breastfeed or bottle feed use a different decision-making process. Therefore, a single educational or care approach is unlikely to be successful in achieving the recommended goal of improving breastfeeding rates. This is supported by the Cochrane review of antenatal breastfeeding education (Lumbiganon et al., 2011). This review showed that no specific breastfeeding educational program was more successful than any other. Continued professional support remains imperative once the mother initiates breastfeeding to maintain breastmilk as the primary source of nutrition for the infant. It appears, at least from the participants in this study, that mothers are aware and understand the benefits of breastfeeding. They are less aware of the risks of formula feeding because few identified any risk to themselves or their infants from infant formula (Steube, 2009). They are willing to initiate breastfeeding but not commit to it. This is evidenced by the large percentage of mothers who fell into the combination feeder category. None of the mothers in this study indicated they were counseled against this practice. Health professionals caring for mothers and infants need to support and encourage the use of breastmilk as the major source of infant nutrition and be competent in providing assistance to support breastfeeding. Written materials or referrals do not appear to be sufficient as adequate personal and professional support. World consistent education, involvement of significant others, and support from health-care professionals are all necessary in the promotion of exclusive and sustained breastfeeding.

REFERENCES

American Academy of Pediatrics. (2012). Breastfeeding and the use of human milk: Policy statement. *Pediatrics*, *115*(2), 496–506.

Atchan, M., Foureur, M., & Davis, D. (2011). The decision not to initiate breastfeeding—Women's reasons, attitudes and influencing factors—A review of the literature. *Breastfeeding Review*, *19*(2), 9–17.

Avery, A., Zimmermann, K., Underwood, P. W., & Magnus, J. (2009). Confident commitment is a key factor for sustained breastfeeding. *Birth*, *36*(2), 141–148.

Bäckström, C., Wahn, E., & Ekström, A. (2010). Two sides of breastfeeding support: Experiences of women and midwives. *International Breastfeeding Journal*, *5*(20), 1–8.

Britton, J., & Britton, H. L. (2008). Maternal self-concept and breastfeeding. *Journal of Human Lactation*, *24*(4), 431–438.

Brodribb, W., Fallon, A. B., Hegney, D., & O'Brien, M. (2007). Identifying predictors of the reasons women give for choosing to breastfeed. *Journal of Human Lactation*, *23*(4), 338–344.

Brown, A., Raynor, P., & Lee, M. (2011). Healthcare professionals' and mothers' perceptions of factors that influence decisions to breastfeed or formula feed infants: A comparative study. *Journal of Advanced Nursing*, *67*(9), 1993–2003.

Datta, J., Graham, B., & Wellings, K. (2012). The role of fathers in breastfeeding: Decision-making and support. *British Journal of Midwifery*, *20*(3), 159–167.

Declercq, E. R., Sakala, C., Corry, M. P., & Applebaum, S. (2006). *Listening to Mothers II: Report of the second national U.S. Survey of Women's Childbearing Experiences*. New York, NY: Childbirth Connection. Retrieved from http://www.childbirthconnection.org/listeningtomothers

DiGirolamo, A., Grummer-Strawn, L., & Fein, S. (2003). Do perceived attitudes of physicians and hospital staff affect breastfeeding decisions? *Birth*, *30*(2), 94–100.

Dillaway, H. E., & Douma, M. E. (2004). Are pediatric offices "supportive" of breastfeeding? Discrepancies between mothers' and healthcare professionals' reports. *Clinical Pediatrics*, *43*(5), 417–420.

Dubois, L., & Girard, M. (2003). Social determinants of initiation, duration and exclusivity of breastfeeding at the population level: The results of the Longitudinal Study of Child Development in Quebec (ELDEQ 1998–2002). *Canadian Journal of Public Health*, *94*(4), 300–305.

Fischer, T. P., & Olson, B. H. (2014). A qualitative study to understand cultural factors affecting a mother's decision to breast or formula feed. *Journal of Human Lactation*, *30*, 209–216.

Kishi, R., McElmurry, B. J., Vonderheid, S., Altfeld, S., McFarlin, B., & Tashiro, J. (2011). Japanese women's experiences from pregnancy through early postpartum period. *Health Care for Women International*, *32*, 57–71.

Knaak, S. (2010). Contextualising risk, constructing choice: Breastfeeding and good mothering in a risk society. *Health, Risk & Society*, *12*(4), 345–355.

Kong, S., & Lee, D. (2004). Factors influencing decision to breastfeed. *Journal of Advanced Nursing*, *46*(4), 369–379.

Li, R., Darling, N., Maurice, E., Barker, L., & Grummer-Strawn, L. (2005). Breastfeeding rates in the United States by characteristic of the child, mother, or family: The 2002 National Immunization Survey. *Pediatrics*, *115*(1), e31–e37.

Ludlow, V., Newhook, L. A., Newhook, J. T., Bonia, K., Goodridge, J. M., & Twells, L. (2012). How formula feeding mothers balance risks and define themselves as 'good mothers.' *Health, Risk & Society*, *14*(3), 291–306.

Lumbiganon, P., Martis, R., Laopaiboon, M., Festin, M. R., Ho, J. J., & Hakimi, M. (2012). Antenatal breastfeeding education for increasing breastfeeding duration. *Cochrane Database of Systematic Reviews*, (9), CD006425.

Mannion, C. A., Hobbs, A. J., McDonald, S. W., & Tough, S. C. (2013). Maternal perceptions of partner support during breastfeeding. *International Breastfeeding Journal*, *8*(1), 4–14. http://dx.doi.org/10.1186/1746-4358-8-4

Matias, S. L., Nommsen-Rivers, L. A., & Dewey, K. G. (2012). Determinants of exclusive breastfeeding in a cohort of primiparous periurban Peruvian mothers. *Journal of Human Lactation*, *28*(1), 45–54.

Maycock, B., Binns, C. W., Dhaliwal, S., Tohotoa, J., Hauck, Y., Burns, S., & Howat, P. (2013). Education and support for fathers improves breastfeeding rates: A randomized controlled trial. *Journal of Human Lactation*, *29*(4), 484–490.

Meedya, S., Fahy, K., & Kable, A. (2010). Factors that positively influence breastfeeding duration to 6 months: A literature review. *Women and Birth*, *23*, 135–145. http://dx.doi.org/10.1016/j.wombi.2010.02.002

Rempel, L. A., & Rempel, J. K. (2011). The breastfeeding team: The role of the involved fathers in the breastfeeding family. *Journal of Human Lactation*, *27*(2), 115–121.

Renfrew, M. J., McCormick, F. M., Wade, A., Quinn, B., & Dowswell, T. (2012). Support for healthy breastfeeding mothers with healthy term babies. *Cochrane Database of Systematic Reviews*, (5), CD001141.

Shealy, K. R., Li, R., Benton-Davis, S., & Grummer-Strawn, L. M. (2005). *The CDC guide to breastfeeding interventions*. Atlanta, GA: Centers for Disease Control and Prevention.

Smith, J., Dunstone, M., & Elliot-Rudder, M. (2009). Health professional knowledge of breastfeeding: Are the health risks of infant formula feeding accurately conveyed by the titles and abstracts of journal articles? *Journal of Human Lactation*, *25,* 350–358.

Steube, A. (2009). The risks of not breastfeeding for mothers and infants. *Reviews in Obstetrics & Gynecology*, *2*(4), 222–231.

Taveras, E., Li, R., Grummer-Strawn, L., Richardson, M., Marshall, R., Rêgo, V. H., . . . Lieu, T. (2004). Opinions and practices of clinicians associated with continuation of exclusive breastfeeding. *Pediatrics*, *113*(4), 283–290.

Thulier, D. (2009). Breastfeeding in America: A history of influencing factors. *Journal of Human Lactation*, *25*(85), 85–94.

Tracy, S. J. (2013). *Qualitative methods*. Philadelphia, PA: Wiley.

World Health Organization and United Nation's Children's Fund. (2009). *Global strategy for infant and young child feeding*. Geneva: World Health Organization.

U.S. Department of Health and Human Services. (2011). *The Surgeon General's call to action to support breastfeeding*. Washington, DC: Author.

SHARON RADZYMINSKI *is a maternal-infant clinical nurse specialist and has more than 20 years' experience with breastfeeding infants and mothers. She has conducted research on breastfeeding and infant feeding for almost two decades.* LYNN CLARK CALLISTER *has conducted cross-cultural studies of childbearing women in multiple sociocultural contexts for nearly three decades. She is a member of the March of Dimes Nurses Advisory Council and Bioethics Council and the American Academy of Nursing Global Health Expert Panel. She is highly committed to improving the health of women and newborns throughout the world.*