

OBESE WOMEN'S EXPERIENCES BREASTFEEDING AND
HEALTH PROFESSIONALS' EXPERIENCES PROVIDING BREASTFEEDING CARE

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Obese women breastfeed for a shorter time than normal-weight women, but little is known about how obese women experience breastfeeding or how health professionals (HPs) experience providing breastfeeding care for them. Also, problems have been identified in breastfeeding care in previous research, but little is known about how women and HPs experience receiving and providing breastfeeding care across the continuum.

Two qualitative studies were conducted in upstate New York. Thirty-four HPs who provided care during different periods of the continuum each participated in a single qualitative interview. Twenty-two normal-weight and obese women were followed longitudinally with serial interviews from pregnancy through postpartum. Interviews were audio-recorded, transcribed, and qualitatively analyzed using ATLAS.ti software. Peer-debriefing, and member-checking enhanced validity.

Among HPs, obesity was not a salient risk factor for poorer breastfeeding outcomes, although nearly all HPs identified physical or psychosocial challenges they perceived as more common among obese women. HPs' own challenges in providing breastfeeding care for obese women emerged; caring for obese women were perceived as more time-consuming and more physically

demanding. Among women, obese mothers experienced more physical, medical, and social challenges for breastfeeding. Some challenges were unique to obesity, such as management of neonatal hypoglycemia, while others were exacerbated by obesity, such as positioning.

HPs described breastfeeding care for all women as disjointed across the continuum with “no captain of the ship.” This was attributed to HPs’ lack of time and skills, gaps in care, and reliance on others to provide breastfeeding care. Women described analogous experiences receiving breastfeeding care, calling it a “gray area” for care. Women also believed their HPs were “in favor of” breastfeeding, but felt inadequately supported stating that HPs’ “actions speak louder than words.”

This research identified key challenges experienced by obese breastfeeding women and the HPs who provide them with breastfeeding care. We suggest intervention strategies to address these challenges in each period of the continuum. Additionally, this research identified that both HPs and women perceived breastfeeding care as disjointed and inadequate. Improving skills among HPs and increasing access to breastfeeding care among women may positively affect women’s breastfeeding experiences.

BIOGRAPHICAL SKETCH

Christine Dieterich Garner completed her Bachelor of Science in Dietetics at Iowa State University in 2004. Her experiences there as a Research Assistant sparked her interest and desire to work in research and women's health. She matriculated at Cornell University in 2005 to begin her Master of Science in Nutritional Sciences. During her thesis research her interests grew to encompass maternal and child nutrition. She conducted 2 pilot interventions at the Mary Imogene Bassett Hospital in Cooperstown, New York that aimed to improve breastfeeding duration among obese women.

Through her early experiences conducting research she became aware of the importance of clinical settings, knowledge and skills in human health research. This awareness led her to complete a year-long dietetic internship to gain in-depth clinical experience at the University of California, San Francisco (UCSF) Medical Center in 2008. Upon completion, she was immediately hired at the UCSF Children's Hospital as a Pediatric Dietitian. She worked in this position for 2 years on the services of Gastroenterology and Hepatology, Neonatology, and Adolescent Medicine, giving her well-rounded experiences and complicated cases in both physiology and psychology in clinical nutrition. She was also the Pediatric Research Dietitian providing nutrition services to several clinical trials. She was grateful for her clinical experiences but was ready and eager to return to research, where she felt she could make a bigger impact.

In 2010, Christine returned to Cornell University to begin her doctorate in Nutritional Sciences as a recipient of a National Institutes of Health Pre-doctoral Training Grant in Maternal and Child Nutrition. While the results from her previous research provided the starting point for her doctoral investigations, her clinical experiences provided new insights, skills, and motives to develop and approach research questions.

Beyond graduate school, Christine plans to continue a career in maternal and child nutrition with a particular focus on breastfeeding. Her overall goal is to improve breastfeeding rates in the U.S. through multiple avenues by identifying and addressing barriers, especially those through care provided from health professionals and in the healthcare setting.

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INTRODUCTION

Public health authorities around the world have declared breastfeeding as the best way to feed infants (1). Increasing breastfeeding rates and duration in the United States (U.S.) is a public health goal (2, 3) because of the numerous positive health effects for both mothers and infants (4, 5). Unfortunately, most mother-infant dyads fall short of the recommendations to breastfeed exclusively until 6 months with continued breastfeeding along with complementary foods until at least 1 year (6). Currently, only 19% and 27% of infants are being fed according to these respective recommendations (7).

At the same time, obesity has increased to epidemic proportions in the U.S. where more than a third of women of reproductive age are obese [body mass index (BMI) ≥ 30 kg/m²] and 8% are extremely obese (BMI ≥ 40 kg/m²) (8, 9). The adverse effects of obesity on reproductive health and breastfeeding are of particular concern given the long-term and short-term consequences for both mothers and their children (10-12). In mothers, these include gestational diabetes, cesarean delivery, and failure to initiate or sustain breastfeeding (13, 14). Maternal obesity also increases children's risks for congenital anomalies, large or small size for gestational age at birth, and later development of obesity and metabolic syndrome (12).

Breastfeeding, however, provides a unique opportunity to improve and protect the health of obese mothers and their infants. Breastfeeding is associated with reduced postpartum weight retention (15), decreased breast cancer risk (16), and lower risk for type 2 diabetes (17) and cardiovascular disease (18, 19) in the mothers. In infants, breastfeeding is associated with lower risk of infections (5), asthma (5), and later development of obesity (20). For these health reasons and to meet national breastfeeding goals, it is important to improve breastfeeding outcomes among obese women and their infants.

High pre-pregnancy BMI has been consistently associated with poor breastfeeding outcomes in observational studies. This association has been found in the U.S. (21-24), Canada (25), Australia (26), Denmark (27, 28), France (29) and the U.K. (30), and other countries (31, 32). In a systematic review, Amir and Donath (32) found that in 9 out of 10 studies obese women were less likely to initiate breastfeeding than normal-weight women, and subsequent studies reported similar findings (29, 33). Moreover, obesity is associated with shorter duration of exclusive or full (22, 23, 27, 29) and any breastfeeding (24, 26, 27). In a study among women in a rural area of New York, overweight and obese women were 3 times less likely to successfully initiate BF than were normal-weight women, and they had a 73% greater risk of discontinuing BF earlier than normal-weight women (21). These associations persisted after adjusting for socioeconomic status, education, and parity. Similarly, in a study of 764 women in Australia, obese women were only half as likely as normal-weight women to continue breastfeeding at 6 months, after adjusting for multiple factors including breastfeeding intentions, smoking, and maternal age (34). The associations between maternal obesity and breastfeeding initiation and duration have not been found, however, among African Americans for reasons that remain unclear (22, 24).

Potential Biological and Physical Mechanisms

Several biological and anatomical factors have been recognized that may partially explain the links between maternal obesity and poor BF outcomes (14). In production animals, it is well established that excessive fatness is detrimental to milk production (35, 36). Although the exact mechanisms of the effects of over-fatness on lactation are unclear, impaired mammary development and lower milk production have been observed in cows raised with a “high feeding

level” (37). In experimental species, these associations have been confirmed. Feeding a high-fat diet to mice before conception resulted in incomplete myoepithelial lining development and excessive collagen deposition around ductules in the mammary gland before conception (38) as well as decreased branching and alveolar development in pregnancy (39). Further support for the biological mechanisms comes from a study in obese rats in which the expected maternal metabolic changes in insulin levels after birth were blunted, and the lack of milk production on day 1 after delivery resulted in death of pups in the litter (40).

In women, many investigators have observed a delay in the onset of the secretory phase of lactation (defined by copious milk production occurring more than 72 hours post-delivery, previously referred to as lactogenesis II) among obese women (41-43). Delayed onset of copious milk production is a recognized predictor of early breastfeeding cessation (44, 45). Rasmussen and Kjolhede (46) explored the biological basis for delayed milk secretion in obese women by measuring the hormonal response to suckling in the first days after delivery. In their study, overweight and obese women had a blunted prolactin response to nursing their infants compared to normal-weight women in the first 48 hours after delivery. This may explain part of the delayed onset of milk production that is often observed in heavier women. More recently, Nommsen-Rivers et al. (47) investigated prenatal markers of metabolic health and timing of milk production. They discovered that higher insulin and adiponectin levels, hormones that are typically higher in obese women, were associated with delayed onset of milk secretion.

Anatomical challenges resulting from excess weight may also play a role in early breastfeeding cessation. Women who are obese more commonly have large breasts and large or flat nipples, which can make a proper latch for breastfeeding more difficult to achieve (42). Improper latch can result in painful or cracked nipples and may cause a woman to stop

breastfeeding earlier. Additionally, having larger breast size or flat nipples has been associated with delayed onset of milk production (42, 48). A possible mechanism for this association is that improper latch results in ineffective suckling and, thus, limits the expected hormonal response to suckling. Furthermore, the larger size of the body itself can make positioning for breastfeeding more difficult, a problem that becomes more challenging with increased adiposity (48). These physical challenges could be problematic for establishing good breastfeeding techniques and could negatively impact breastfeeding outcomes. Modified positions and techniques may be required for obese women to be successful at breastfeeding (48).

Preliminary Interventions Designed to Improve Breastfeeding among Obese Women

Based on our knowledge of the biological mechanisms and physical difficulties described above, we designed two interventions (49) that we believed would be feasible in a clinical setting to improve breastfeeding duration among obese women. For each study, we included obese women who intended to breastfeed. In one intervention [Bassett Improving Breastfeeding Study (BIBS 2)], we aimed to address the biological mechanisms, specifically the blunted hormonal response and delayed onset of milk secretion, contributing to poor breastfeeding outcomes among obese women. In this study, we randomized women to either receive a manual pump or an electric pump or to receive usual care (no pump). Women in the pumping groups were instructed to pump 5 times every day from birth until either their milk came in or their infants were 5 days old. We hypothesized that the increased stimulation at the breast would increase milk supply and improve breastfeeding duration. However, no such improvement was observed.

In the other intervention (BIBS 1), we aimed to address the physical difficulties that obese women encounter. To do this, we randomized women to receive additional breastfeeding

support provided by the hospital's lactation consultants or to receive usual care. Women in the targeted-care group received one phone call before delivery to assess knowledge and expectations, and to review practical points about breastfeeding. These women also received phone calls at 24 and 72 hours after discharge from the hospital during which the lactation consultants asked questions and addressed issues based on their own clinical judgment. General scripts for the intervention calls were developed collaboratively by the experienced lactation consultants and investigators (50). Unfortunately, not all of the phone calls were made, and the actual content of the phone calls was not documented. We believed that this extra attention and support would better prepare obese women for breastfeeding and assist them with problems in the immediate postpartum period which would prevent earlier breastfeeding cessation. However, the duration of breastfeeding among the women receiving targeted-care was not different from that in the usual-care group.

A third intervention that was larger and more intensive aimed to improve breastfeeding outcomes among obese women through peer counselors was recently reported (51). Peer counselors have been effective at improving breastfeeding outcomes in other populations (52). In this study, women who received targeted care from peer counselors received up to 3 visits prenatally, in-hospital visits daily, and up to 11 postpartum home visits in the first 6 months. The peer counselors who carried out the intervention received specialized training in obesity and breastfeeding. Women in the intervention group received personalized education and anticipatory guidance prenatally, and individualized assistance at postpartum visits. Unfortunately, the intensive peer counseling intervention had no significant effect on exclusive breastfeeding rates in the first 6 months. A small increase in breastfeeding at 2 weeks was

observed, which the researchers speculated as attributable to improvement in breastfeeding self-efficacy. However, this difference disappeared beyond 2 weeks.

To our knowledge, these are the only interventions that have been conducted with the aim to improve breastfeeding duration among obese women, and none produced their desired effects. There are several possible explanations for their lack of effect. BIBS 1 and BIBS 2 were preliminary studies that had small sample sizes, thus, failed randomization to achieve balance between groups or inadequate power to see an effect if one had actually been present may have been problematic. Additionally, these experiments were designed to be low-cost and to require minimal labor resources for feasibility in a clinical setting. It is possible that conducting similar biomedical studies with a larger budget and a larger sample may have produced positive results. However, a larger, more intensive intervention also failed to produce improvements in breastfeeding rates. Thus, it is likely that obese women experience barriers to breastfeeding that have not been addressed by these interventions and that are potentially not yet identified or understood. To move forward, it is necessary to explore other possible causes underlying shorter BF duration observed among obese women.

Potential Barriers and Influences to Explore

Although the biological mechanisms may in part explain the observed association between obese women and early breastfeeding cessation, psychosocial aspects also likely play a role. The act of breastfeeding involves both biology and culture (53). In certain sub-populations with either very low or high breastfeeding rates, obesity has not been associated with breastfeeding outcomes (22, 54, 55). This indicates that cultural factors are playing a role, and

that biological problems may be overcome. Psychosocial aspects of breastfeeding among obese women have been minimally explored.

One psychosocial construct that is strongly associated with breastfeeding behaviors is breastfeeding intention (56-58). In a study in rural New York, fewer obese women intended to initiate breastfeeding than normal-weight women, and they intended to breastfeed for a shorter duration than normal-weight women (59). More recently, however, in a larger national sample of women, breastfeeding intentions did not differ between obese and nonobese women (23). In Canada (33), researchers found that while breastfeeding intentions predicted breastfeeding initiation among all women, the association between intentions and initiation was weaker among obese women, indicating that, among obese women who did not initiate breastfeeding, the failure to initiate was not consistent with their plans. Thus, the authors suggested that the power of prenatal intentions may be lower for obese women. The reasons for differences in breastfeeding intentions between normal-weight and obese women, if they exist, have not yet been investigated and remain unknown, and reasons for greater inconsistencies between intentions and behaviors remain unexplored.

It is possible that body self-consciousness may also play a role (60). Greater body dissatisfaction has been observed among obese pregnant women than non-obese pregnant women (61), and women who were particularly concerned about their bodies were less likely to intend to breastfeed (62). More recently, Hauff and Demerath (63) found that body dissatisfaction mediated the association between obesity and breastfeeding duration. It is possible that body self-consciousness or dissatisfaction may be exacerbated if obese women experience more difficulty with being discreet while breastfeeding and discomfort with breastfeeding in public and warrant further exploration.

Differences in self-efficacy, a strong predictor of breastfeeding duration (64), are also possible between obese and normal-weight women and may contribute to the disparities in breastfeeding duration. If obese women require modified positions and techniques for breastfeeding, this may run counter to women's beliefs that they must have the "perfect" latch or position to be successful (65). Greater difficulties with positioning and latching and delayed milk production may leave them feeling less confident in their abilities to breastfeed. Furthermore, because of the domain-linked nature of self-efficacy (66), previous efforts to control or change their bodies, such as through weight-loss, could affect their self-efficacy to use their bodies for breastfeeding. Interestingly, Hilson et al. (59) measured maternal confidence prenatally and found no difference in breastfeeding self-efficacy between normal-weight and heavier women, but they did observe shorter intended BF duration among heavier women. Conversely, Hauff et al. (23) found that maternal confidence was lower among obese women and associated with duration of any and exclusive breastfeeding, but breastfeeding intentions did not differ.

There is a wealth of research linking social support with health and health-related behaviors (67), and both informal and formal sources of support have shown to improve breastfeeding outcomes (68). Research about social support among obese persons is inconsistent. Some research suggests that obese individuals may have less social support than non-obese while others have found no differences (69). In one study (70) among overweight and obese postpartum women, gaining weight after delivery was associated with having inadequate social support, which indicates that body weight or weight gain and social support are intertwined. It is reasonable to believe that social support among obese women may be unique and important because of the close relationships between social support and self-esteem (67), stress (71), and postpartum depression (72).

Social support plays a crucial role in breastfeeding success (73), and a mother's beliefs and attitudes about breastfeeding are shaped by interactions with friends and family (74). Specifically, support from significant others, such as husbands, friends, or mothers, can have a great effect on breastfeeding, whether positive or negative. It is unknown whether social support, in general and for breastfeeding specifically, is provided or perceived differently among obese mothers compared to normal-weight women. It will be important to understand how breastfeeding support from friends and family may be unique among obese women.

Finally, health professionals play a key role in providing education to mothers about breastfeeding, and assisting them when they start breastfeeding because of their frequent interactions with them in the first hours and days post-partum. Breastfeeding failure among women with larger body size could be a result of discrimination in health settings (75), inappropriate technical breastfeeding assistance or support that is perceived as unhelpful (49). Understanding what obese women experience in health care settings and what support obese mothers perceive as helpful will be essential for development of effective strategies to improve obese women's breastfeeding rates.

Exploring the Roles of Health Professionals – Formal Breastfeeding Support

Many organizations of health professionals (HPs) including the American Academy of Pediatrics (6), the American Congress of Obstetrics and Gynecology (76), the American Academy of Family physicians (77), as well as associations of nurses (78) and midwives (79) call on their members and fellows to support breastfeeding. HPs are in a unique position to provide both social support and technical assistance for breastfeeding because of their training in counseling, expertise in technical aspects of breastfeeding, and their timing and frequency of

interactions with mothers before and after delivery. Thus, they have the opportunities to assist with support and proper breastfeeding techniques, two major factors that affect breastfeeding outcomes (80-82). Therefore, it is not surprising that systematic reviews (68, 83, 84) conclude that interventions that use HPs to provide support to mothers are effective at improving breastfeeding outcomes.

In typical care settings HPs' provision of breastfeeding care (or the lack of it) also affects breastfeeding initiation and duration, however, the effects can be either positive or negative (85, 86). In a review of qualitative studies (87) mothers reported that health professionals generally did not provide good support for breastfeeding. Problems with breastfeeding support have been identified that included a lack of availability of HPs, lack of guidance, and conflicting messages and which can be improved through continuity of care (87, 88). Cross-Barnet et al. (89) also reported that low-income mothers received inadequate breastfeeding care from HPs. It is important to understand how HPs themselves experience providing breastfeeding care in general, because of their potential to affect breastfeeding outcomes, but this issue has not yet been explored.

Two previous studies surveyed HPs to identify their understanding of the effects of obesity on breastfeeding. In the U.S., HPs inconsistently recognized obesity as a risk for early breastfeeding cessation, and they reported that large breasts are a greater problem (90). Conversely, in Denmark, where breastfeeding is the cultural norm, not only did most HPs acknowledge obesity as problematic for breastfeeding initiation and continuation, but they also distinguished obesity-related problems from those related to large breasts (91). Furthermore, they believed that the most difficulties arose when the two problems co-occurred. Even if or when obesity is recognized as problematic, HPs may not know how to address such problems because

techniques used to help obese women breastfeed are not widely known. Finally, targeting care for obese women may have inherent challenges due to the culturally pervasive stigma towards obesity that exists in the healthcare community (92-94). Nyman et al. (94) found that obese pregnant women often felt they were targets of discrimination due to their body size. It is possible that such feelings may be the result of inadequately tailored care and recommendations for this group of women. Bick (95) called for HPs to tailor their interactions with obese women to minimize feelings of discrimination. In our previous intervention that provided additional lactation consultant support to obese women, it is possible that the HPs had too little time, the content of the interventions were inadequate or inappropriate, or that it was delivered in a way that women felt was unhelpful or discriminatory. To provide appropriately tailored care it is necessary to understand from the HPs' perspectives their interactions about breastfeeding care with obese women.

A Qualitative Investigation of Obese Women's and Health Professionals' Experiences

Based on the results of this review of the literature, the aims of this doctoral research were twofold. First we aimed to explore and understand how HPs perceived breastfeeding among obese women and how they experienced providing breastfeeding care in general. Second, we aimed to explore how obese women perceived and experienced breastfeeding to identify barriers and supports, and to understand how women experienced receiving breastfeeding care from health professionals.

The research described in the following chapters involves two qualitative studies that addressed these aims. The first is a study with HPs who provided care for women during the prenatal, perinatal, and postnatal periods in Central New York. This study included physicians

and nurse practitioners that specialized in obstetrics, pediatrics, and family medicine, as well as nurses, lactation consultants, and midwives. Health professionals described their perceptions about obese women's challenges with breastfeeding as well as their own challenges in providing care for them. Based on themes that emerged from the initial interviews, it was clear that HPs' challenges providing breastfeeding care for all women within the healthcare system were substantial and underlying their experiences providing care for obese women. Thus, these experiences were explored in-depth.

Our second study was a longitudinal investigation that was carried out among new mothers who were either normal-weight or obese before pregnancy. In-depth qualitative interviews were conducted with each woman during pregnancy, and postpartum at 7-10 days, 6 weeks, 3 months, and 6 months. Women described their perceptions about and expectations for breastfeeding prenatally, and their experiences with the physicality of breastfeeding and situations that affected breastfeeding (either positively or negatively) postpartum. They also described their experiences receiving breastfeeding care and support from health professionals.

Two main topics are covered in this dissertation, each explored from the perspectives of health professionals and of pregnant and breastfeeding women. Perceptions about and experiences with breastfeeding among obese women are found in Chapters 1 and 4 for HPs and women, respectively. Experiences of HPs providing and mothers receiving breastfeeding care are found in Chapters 2 and 3, respectively.

This research was innovative because it applied qualitative methods in a novel context, and this methodology facilitated collection of data and provided insights that could not have been obtained from survey research. The challenges that obese mothers experienced as well as those experienced by their HPs when providing breastfeeding care to obese women were identified.

This is significant because it contributes unique evidence to the body of knowledge from which future interventions will be developed to help obese women breastfeed longer. This research also shed light on how breastfeeding care is perceived both by those who provide it and those who receive it within the healthcare system. These findings contribute to the knowledge base about breastfeeding care in general, and provide a greater understanding of the context in which interventions take place and for which policy changes may be warranted.

CHAPTER 1

HEALTH PROFESSIONALS' EXPERIENCES PROVIDING BREASTFEEDING-RELATED CARE FOR OBESE WOMEN

Christine D. Garner, Stephannie L. Ratcliff, Carol M. Devine,
Loralei L. Thornburg, and Kathleen M. Rasmussen

ABSTRACT

Background: Obese women are at high risk of early breastfeeding cessation, and health professionals have a unique opportunity to provide them with breastfeeding support. Our objective was to describe health professionals' (HPs) experiences providing breastfeeding care for obese women during the prenatal, peripartum, and postpartum periods.

Methods: In-depth, qualitative interviews were conducted with 34 HPs (including obstetricians, midwives, pediatricians, nurses and lactation consultants) who care for pregnant or lactating women. They were recruited from a variety of settings in central New York. Interviews were audio-recorded, transcribed, verified for accuracy and then analyzed qualitatively.

Results: HPs identified obesity in multiple ways, some of which were consistent with standard cutoffs while others implied extreme obesity. Nearly all HPs discussed ways they perceive obese women have challenges with breastfeeding. Some HPs described challenges as specific to obese women (e.g. limited mobility) while others described challenges as universal but more likely to occur among obese women (e.g. difficulties positioning the infant to breastfeed). Across professions, HPs described providing breastfeeding care for obese women as requiring more time and physical work, and as being more challenging. HPs acknowledged stigma around obesity, and discussed treating obese women with dignity and the same as other women. Strategies were suggested for improving breastfeeding support for obese women.

Conclusion: HPs identified multiple challenges that obese women encounter with breastfeeding, as well as their own challenges with providing care. Comprehensive strategies are needed to assist obese women with breastfeeding, and to alleviate strain on HPs who provide their care.

INTRODUCTION

Obesity has reached epidemic proportions in the United States; more than a third of reproductive age women are obese [body mass index (BMI) ≥ 30 kg/m²] and 8% are extremely obese (BMI ≥ 40 kg/m²) (8). Nearly 20% of pregnant women are obese before conception (96). Obesity presents multiple risks and complications for childbearing, including delayed onset of lactogenesis and failure to initiate or sustain breastfeeding (14, 43, 60). In a systematic review, 9 of 10 studies demonstrated that obese women were more likely to fail breastfeeding initiation than normal weight women (odds ratios ranging from 1.38 to 3.09) (60). Among those who did initiate breastfeeding, obese women were at higher risk of discontinuing breastfeeding early, even after adjusting for confounding factors (60). These poor breastfeeding outcomes are a concern because both obese women and their infants could benefit from breastfeeding. In women, breastfeeding has been associated with reduced risk of breast cancer, metabolic syndrome, hypertension, and type 2 diabetes (97). In children, longer duration of breastfeeding is associated with reduced risk of becoming obese, as well as lower rates of infection, sudden infant death syndrome, pediatric cancers, and asthma (4).

Health professionals (HPs) are in a unique position to provide support for breastfeeding. Despite ample evidence that obese women breastfeed for a shorter time, preliminary data suggest that obesity is not widely recognized as a risk factor for breastfeeding difficulties among HPs in the U.S. (90). Conversely, in Denmark, where breastfeeding is the cultural norm and obesity less prevalent, HPs recognized obesity as problematic (91).

Little is known about HPs' experiences providing breastfeeding-related care for obese women. Our principal research objectives were to understand how HPs across the continuum of care perceive breastfeeding among obese women and how they experience providing their care

to identify potential barriers and ways to improve breastfeeding-related care. Previous research investigating this issue relied on surveys, limited to a narrow set of questions and answers (90, 91). We used a qualitative design for this study to capture information beyond what could be obtained from a survey (98).

METHODS

Health professionals who provide care during the prenatal, perinatal, and postnatal periods were recruited from practices in 2 central New York counties. Recruitment emails identifying the researcher as a dietitian were sent through listservs to HPs in obstetrics, midwifery, family medicine, and pediatric practices. Additional recruitment occurred through flyers in hospital staff areas and chain-referral, through which community-based HPs were reached. Recruitment materials included the statement “some women have more difficulty breastfeeding than others,” and stated that the purpose of the study was to understand HPs’ experiences providing care for these women. Some emails also included a statement that “obese women are less likely to start or continue breastfeeding.” Purposive sampling was used to select professionals from a variety of practice types and who provided care in different periods across the care continuum. Interviews were conducted between August 2011 and February 2013, with written informed consent before each interview. This study was approved by the Institutional Review Board at Cornell University and also the Rochester General Hospital Research Institute.

A semi-structured, in-depth interview with each participant was conducted by CDG, a female doctoral student who had previously worked as a pediatric dietitian, and had no relationships with participants prior to this study. An interview guide, tested before beginning this study, was used (Table 1.1). To facilitate collection of information that could not have been

Table 1.1. Excerpt of interview guide questions for health professionals about obesity and breastfeeding

What is your role in working with women who breastfeed/plan to breastfeed?

What is your experience working with obese women who breastfeed/plan to breastfeed?

What do you consider 'obese'?

How do obese women differ from women of normal body weight?

What are some of the problems/challenges obese women encounter [for breastfeeding]?

What kinds of advice or support do you offer for obese women?

What approaches do you use with obese women who want to breastfeed?

Are there any approaches that you feel *could* be useful to help obese women?

What are some of the ways you feel *you* might be able to help obese women with breastfeeding?

obtained in a strict question-answer format interviews were largely participant-driven. Probing was used to explore ideas that emerged.

Interviews took place in locations that participants chose, typically in private areas at workplaces, homes or coffee shops, and averaged 53 (range 30 to 110) minutes. Participants' demographic information was obtained by questionnaire after each interview. Field notes about the interview setting, participant actions and body language that could affect interpretation of transcripts were recorded immediately after each interview. Interviews were audio-recorded with permission, transcribed verbatim and checked to ensure accuracy.

Content analysis of transcripts was conducted by two of the authors (CDG and SLR). Each transcript was analyzed iteratively using a combination of predetermined and emergent codes, shown in this analysis as the primary themes (99). ATLAS.ti 7 (Berlin, Germany) was used to manage qualitative analysis. Regular peer-debriefing(100) meetings were held to discuss analysis, come to agreement about coding, and identify ideas to explore further in subsequent interviews. Findings were also discussed with a physician similar to those who participated. Data collection ceased once data saturation was reached – the point at which no new information was observed in additional data, and once a minimum number (2 to 4) of each type of HP had been enrolled. The final analysis represents a joint interpretation of the data by the authors.

RESULTS

Participants

Interviews were conducted with 34 HPs (Table 1.2), aged between 31 and 84 years; 30 were white, 1 black, 2 mixed race, and 2 Hispanic. HPs had been in their current professions from <5 to >30 years. Practice settings were diverse and included HPs from private practice

Table 1.2. Number of health professional participants by profession and gender.

Type of Health Professional	Number	
	Total	Women
Physicians		
Obstetricians	4	2
Pediatricians	4	3
Family Medicine	3	2
Certified Nurse Midwives	5	5
Nurse Practitioners	2	1
Registered Nurses	8	8
Lactation Consultants	8	8
TOTAL	34	29

prenatally and postpartum as well as hospital, public-health and community settings. Participants identified as lactation consultants primarily provided lactation-related care, but had other training as nurses, social workers, and physician's assistants. One certified nurse midwife and two registered nurses had additional training in lactation counseling, but did not work in that role. Both nurse practitioners and all three family medicine physicians provided prenatal and postnatal care. The HPs' patient populations included rural, small town, suburban and urban residents.

Theme 1: Identification of obesity

HPs identified obesity in many ways including external and internal definitions, and a combination of the two. About half of all HPs described obesity using an external definition of the World Health Organization (WHO) cutoff, $BMI \geq 30 \text{ kg/m}^2$. Some HPs described BMI cutoffs other than the WHO, such as "...a BMI of over 40 – that's obese," while others said they would "have to look it up." A few HPs, usually lactation consultants, said that they "look in the chart and see what the doctor determines" in the problem list. The internal definitions used to describe obesity varied, but were usually consistent with extreme obesity. Typically, such definitions included specific weights, such as "300 pounds," or a visual body assessment: "...somebody who is as tall as they are fat, I guess. You know when you look at somebody they have fat hanging..." Those who provided care postpartum, such as pediatricians, relied on their visual assessments, "way over 250 pounds, you know... they're obviously obese."

Many HPs used both an internal and an external definition, which were often not in agreement. Some cited the WHO BMI cutoff, but then talked about "a true obese patient." A few were consciously aware of a discrepancy between external and internal definitions: "...I think a

BMI of 30 is pretty normal for a lot of people.” Furthermore, some HPs tended not to use the word obese, and instead used “heavy,” “a big girl,” “large” or “overweight” in place of obese.

Theme 2: Health Professionals Perceive Challenges for Obese Women

Initial responses about obesity and breastfeeding fell into 3 main categories: more difficulty, “the same as everyone else,” and “never thought about it before.” Interestingly, regardless of their initial response, nearly all participants identified ways that obese women have more challenges or require more breastfeeding help (Table 1.3). Some identified challenges specific to obese women (e.g. extra body tissue) and others believed that the “reasons [for breastfeeding difficulties] are universal” but obese women are more likely to have them (e.g. latching difficulties).

Physical challenges. Physical challenges, either specific to the mechanics of breastfeeding or general challenges of obesity, were most commonly discussed. Large breasts, especially “huge, pendulous breasts,” were the most widely discussed physical challenge. Flat nipples or an inability to see the nipples posed additional challenges, especially for latching. Additionally, positioning the baby at a large breast could require help from others.

Excess breast and body tissue to manipulate and handle was described as problematic. Some HPs believed obese moms are concerned they will smother the baby with excess tissue. Although some physicians were also concerned about this, most lactation consultants believed that this was a problem that could be overcome with proper positioning. Excess body tissue was described as challenging for getting comfortable to breastfeed.

Impaired mobility resulting from obesity was described as a challenge that impacts breastfeeding because movement in general is difficult. It takes “extra work to move around,”

Table 1.3. Subthemes and categories that emerged in Theme 2, Health Professionals Perceive Challenges for Obese Women, with example quotations

Sub-theme	Category	Example Quotations
Physical challenges	Problematic breasts / nipples	“The nipple is pointing way down like that, so it’s almost like you’ve got to hold up the breast and hold the baby. It’s just awkward.” (05RN)
	Excess tissue	“She's probably over 300 pounds and tried to breastfeed but this poor little baby, you know, you try and nurse a little tiny baby and their nose is right next to their mouth, like truly was smothered by this woman's breasts. And I think the effort that it would go into for her to breastfeed was just too much.” (21MD)
	Limited mobility	“I would say mostly it's just an effort for somebody who’s very heavy to try to get themselves into position. It just takes more time and they tire more quickly.” (26MD)
	Uncomfortable	“...she’s got so much of a panis, and breasts are huge, that she’s just uncomfortable.” (21MD)
	Need extra help	“It takes two hands to hold her breast, so dad holds the baby, and that works, too.” (10LC)
	Health conditions	“But the other thing is I know that diabetes can decrease your, um, your milk supply. It can, it can delay your milk supply and decrease the—the volume that you are able to produce.” (12LC)
Psychological barriers	Everything is harder	“... and I think sometimes when you’re obese, like, it’s harder to do things, and things require more effort and they seem overwhelming to you. And I just feel like they feel like it would be easier to bottle feed.” (11MD)
	Self-conscious	“... larger women don’t even want to expose any part of their body, let alone their breast. ...you can’t be as private or discreet when you have larger breasts, larger body.” (04LC)
	Lack confidence / motivation	“So, if I had a theory it would be that the person who’s overweight, um, might be somebody who has a lower pain threshold, a lower perseverance, um, push-through—kinda go-to personality.” (24RN)
Social barriers	--	“When I put those three together [obesity, socioeconomic status, and African-American], those are my groups of women who tend not to breastfeed.” (13MD)

especially for women immediately postpartum when breastfeeding is initiated. This extra work is problematic because “you need stamina” to breastfeed. Moreover, “they can’t get their baby, and then they have to call for help.” Cesarean deliveries, more common among obese women, exacerbate such problems, and with decreased mobility there was concern of infections: “...once somebody is sick, you can forget about breastfeeding.”

Physiological challenges for lactation were mentioned by few HPs. Primarily HPs with some lactation training identified obesity-related health conditions, such as polycystic ovarian syndrome and infertility as “red flags,” because these are related to “a hormonal inability to successfully breastfeed.” Also, a history of diabetes, and thyroid disease were described as “milk production concerns.” Obesity itself, however, was infrequently mentioned. Only 3 HPs considered possible involvement of progesterone or prolactin due to obesity:

“I’ve often suspected, um, that women that were larger didn’t make that shift so well. Um, that there was so much progesterone that the prolactin couldn’t take over. I don’t know, this is my own theory.” (04LC)

Psychological barriers. Many HPs identified psychological barriers or attitudes that may affect breastfeeding, often using the phrase “just speculating.” HPs described that physical challenges can make daily living activities difficult, thus contributing to obese women’s breastfeeding attitudes.

Self-consciousness was widely discussed by HPs. Although many HPs were “just speculating” about obese women’s self-consciousness, others were more certain that self-consciousness played a role, noting barriers to breastfeeding discreetly. HPs described that self-consciousness and “modesty” created challenges for assisting with breastfeeding because of obese women’s “embarrassment” about removing clothing.

Lack of confidence was perceived as a reason that obese women breastfeed less; “obese women are less likely to give breastfeeding a good try” because they “lack confidence in their body’s ability to do what it needs to do.” Although they were “totally generalizing,” a few believed that obese women tend to have lower motivation to breastfeed. Importantly, however, most who suggested low motivation also discussed an “everything is harder” sentiment, suggesting that breastfeeding is just not a priority for women faced with many medical and physical challenges.

Social barriers. Many HPs talked about obesity being intertwined with complex social circumstances affecting breastfeeding success including low socioeconomic and education levels, culture or race and ethnicity. Especially among those who primarily provided care for women of lower socioeconomic status, it was difficult for them to distinguish between social factors and obesity as causes of poor breastfeeding outcomes. Although some HPs could not distinguish obesity from other social circumstances, some believed that social circumstances were more important barriers than obesity. Furthermore, HPs believed that there was lower social support among women from low socioeconomic status and certain race/ethnicity groups, indirectly linking obesity to lower social support for breastfeeding.

Theme 3: Challenges for Health Professionals

Obese patients require “more.” Across professions HPs talked about providing care to obese women as involving “more” – more time, physical effort and challenges (Table 1.4). Caring for obese patients was described as “hugely time-consuming.” One midwife talked about spending extra time because of “a lot of comorbidities and other problems that need attention and you can’t ignore.” Because of the extra time needed to address obesity-related comorbidities,

Table 1.4. Subthemes and categories that emerged in Theme 3, Challenges for Health Professionals, with example quotations

Sub-theme	Category	Example Quotations
Obese patients require “more”	Time consuming	“Breastfeeding takes a back seat to comorbidities in pregnancy so the breastfeeding becomes a little bit less important...” (16MD)
	Physical effort	“It’s more work for the mom, more work for the nurse... physically more work.” (15CNM) “...your back is breaking because you’re leaning over them... it’s more difficult for the healthcare worker when [women are] obese, too, because it’s strenuous on our bodies, the positioning, the work we have to do.” (02RN)
	More challenging	“And you just have to keep trying different things... because I remember one not too long ago, it was ‘oh my gosh, how do I get this to work?’” (12LC) “...It’s a little bit easier to have a patient who is not attempting to breastfeed and they’ve got enormous pendulous breasts and you’ve got positional, you know, issues with the patient.” (05RN)
Awareness of stigma & need for sensitive care	Stigma awareness	“...obese people often start to pull back from the medical world because there’s so much discussion about the weight loss.” (03LC)
	Normalizing/minimizing obesity	“Well, if the breasts are a little bit larger and they’ve got challenges with their nipples, I’ll say like ‘Oh my gosh, a lot of women have that problem,’ you know... but I guess normalizing. I use that technique a lot.” (05RN)

breastfeeding discussions were sometimes not a priority. This was particularly true among providers who cared for higher-risk patients, where “sometimes breastfeeding takes a back seat.”

HPs who provided care for women in the hospital or peripartum talked about obese women requiring more physical effort, which causes a “strain on healthcare,” and may require “extra hands” to provide care. The extra physical work to assist was “more work for the mom, more work for the nurse... physically more work.”

Providing care for obese women was described as more challenging: “we dread those patients” because “it’s so hard to take care of them.” Similar sentiments were expressed about providing breastfeeding care. Helping obese women breastfeed was challenging because it required “more tweaking” and more trial and error to find successful positions for breastfeeding. Providing breastfeeding assistance for obese patients who were self-conscious posed further challenges.

Awareness of stigma and sensitive care. HPs described either explicitly or implicitly an awareness of obesity stigma. Explicitly, they described that obesity causes discomfort in the patient-provider relationship. Implicitly, awareness of obesity stigma was evident in the way HPs talked or responded to certain questions. Some initially hesitated in answering questions about their experiences with obese patients, seemingly from fear of sounding discriminatory. Also, many HPs were very careful in their language and verbally noted when they were “generalizing” when they talked about characteristics of obese women, their challenges or level of commitment to breastfeeding.

It was clear that HPs were aware of general strategies to use with obese patients.(101) “I treat them the same” was a widely used approach, as well as “not acting like they’re different” or not making obesity an issue. Some expressed awareness of “modesty” and were sensitive to

“using gentle language and asking permission to touch.” Language that normalized obesity and minimized obesity’s relationship to challenges was also used.

Theme 4: Improving breastfeeding care for obese women

In discussing how breastfeeding-related care for obese women could be improved, many HPs weren’t sure what to do and felt they needed more education. HPs believed they could learn more about how breastfeeding benefits obese mothers and strategies to help them:

“...we don’t often separate out the obese women in our counseling. And maybe we should, maybe there’s more data out there that we should know about, or ways that we could help them.” (07CNM)

In addition to their own education, HPs thought breastfeeding care for obese women could be improved by preparing women better during pregnancy. Nurses and lactation consultants thought that prenatal breast exams would be helpful to “look at women’s shape of their breasts and the shape and size of their nipples” and address flat nipples before delivery. They also thought obese women could be taught specific positions before delivery that might work better for them, “because if they’re trying the standard things and they’re not working [on the day baby is born]... that’s a day where it’s stressful.” In some cases, such as women who have undergone breast reduction, HPs suggested establishing care with a lactation consultant before delivery. Other HPs suggested obese women would benefit from postpartum home visits, to assist with physical aspects of breastfeeding “... because you think, gee, when they get home, how are they gonna be able to, to do this?”

DISCUSSION

This study identified many challenges for breastfeeding that HPs perceive as more common among obese women, and challenges that they themselves face when providing care. Some challenges identified here have been reported previously, including large breasts, flat nipples, and difficulties with positioning and latching (48). HPs also described challenges, which have not been previously identified, including general physical difficulties related to mobility. Limited mobility impacts breastfeeding both directly by posing positioning challenges, and indirectly by increasing physical exertion and exhaustion. Mobility problems that are present before pregnancy and delivery not only persist but are often compounded by high rates of cesarean delivery [60% higher for obese and 200% higher for morbidly obese (BMI ≥ 35 kg/m²) women] (13).

Challenges that HPs encountered with obese women also affected breastfeeding care. HPs felt that caring for obese women required more time and work in a setting with limited resources, a theme similar to challenges identified in maternity settings (102) and reflective of additional considerations required for providing their maternity care (103). HPs also felt obese women were more difficult to care for because of their complex medical issues and difficulties with finding successful breastfeeding positions. The combination of an obese woman's concern for exposing her body, general exhaustion, and a difficult postpartum course posed more challenges. Despite HPs' best efforts, weight-stigmatizing attitudes were still evident and seemed to result in part from the extra work required. These findings help explain why Mulherin et al. (104) found that even maternity care providers with few weight stigmatizing attitudes had less positive responses to obese patients.

Surprisingly, HPs defined obesity in different ways. Typically, descriptions that were not in accord with standard cutoffs were consistent with extreme obesity. Thus, some HPs seem

similar to the general population, where perceptions of normal have shifted towards higher BMIs (105). Discrepancies in obesity identification are important because not only *obese* but also *overweight* women are at high risk of early breastfeeding cessation. Duration of breastfeeding decreases in a dose-response relationship above the normal weight category such that extremely obese women have the shortest duration (27). Use of tools to help clarify the degrees of obesity (106) and large breasts (91) that HPs discuss as problematic could help to clarify this understanding.

Varying levels of understanding about the impact of obesity on breastfeeding were present. This could be attributed to low saliency about the challenges obese women face or HPs' attempts to avoid generalizing problems. It could also result from the lack of awareness about current evidence of shorter breastfeeding duration among obese women, and obesity-related delayed lactogenesis II, a well-established risk factor (43). Regardless of the reasons, these HPs did not frame breastfeeding as a medicalized phenomenon – obesity was not broadly discussed as a risk factor for poorer breastfeeding outcomes. This is contrary to the framing of obesity in pregnancy, which has been highly medicalized (75). Indeed, HPs easily listed many obesity-related pregnancy or delivery problems. However, when it came to breastfeeding, the sentiment that “[obese women] can be just as successful as anybody else” occurred frequently. This lack of medicalization is potentially both beneficial and detrimental – beneficial because a lack of preconceptions that obese women are more prone to failure could facilitate more positive interactions, and detrimental if obese women are not receiving targeted care that could increase their breastfeeding success. The latter effect deserves attention given the ample evidence that obese women are less likely to continue breastfeeding (14, 27, 60). In fact, the Academy of Breastfeeding Medicine's recently revised “Going Home Protocol” now lists obesity as a risk

factor that should be assessed to anticipate breastfeeding problems (107). Interventions to date have been unsuccessful at improving breastfeeding outcomes (49, 51), thus, more research is needed to determine what targeted care for these women should include.

Sociodemographic circumstances were widely noted by our participants as risk factors for early breastfeeding cessation and consistent with an ample body of evidence that women of low socioeconomic status, low education, certain ethnicities – especially African-Americans have lower breastfeeding rates (22, 108). Complicating the picture, obesity is also higher among these groups (109). Notably, however, disparities in obesity rates by socioeconomic status have narrowed over recent decades, as the prevalence has increased faster in higher income and socioeconomic groups (110). Distinguishing between the barriers for obese women that we identified from risk factors specific to some sociodemographic groups will facilitate better targeting of breastfeeding care (111). Additional studies to distinguish barriers to breastfeeding that obese mothers themselves experience would be helpful.

The qualitative design of this study facilitated collection of new information. Given the range of practice settings, our findings contribute to better understanding of care for obese women who choose to breastfeed. Furthermore, the inclusion of a variety of HPs provided a broader view for understanding the diversity of challenges and strategies in providing breastfeeding-related care for obese women throughout the care continuum. We did not have enough of each type of HP to identify specific barriers for each type of HP, nor was this our aim. However, determining HP-specific challenges and strategies could facilitate better educational targeting.

CONCLUSION

In summary, many HPs may not recognize obesity as a risk factor for delayed onset of milk production or early breastfeeding cessation despite their ability to identify multiple challenges that obese women have with breastfeeding. Importantly, HPs identified challenges that they themselves encountered in providing care prenatally and intra- and postpartum with strains on and constraints in the healthcare system related to time and resources as central issues. Education for HPs about breastfeeding among obese women could increase awareness of the significant risk of poorer breastfeeding outcomes for women with BMIs above the normal-weight range. Comprehensive strategies are required in the healthcare system to address the challenges of time and resources for providing breastfeeding-related care to obese women.

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CHAPTER 2

DISCONTINUITY OF BREASTFEEDING CARE:

“THERE’S NO CAPTAIN OF THE SHIP”

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ABSTRACT

Background: Breastfeeding rates in the United States are suboptimal. Health professionals (HPs) have a unique opportunity to support breastfeeding because of the frequency and timing of their visits with mothers and infants as well as their call by professional organizations to do so. The objective of this study was to understand HPs' perceived roles and experiences with providing breastfeeding-related care.

Methods: In-depth, qualitative interviews were conducted with 34 HPs (obstetricians, midwives, pediatricians, nurses, and lactation consultants) who care for pregnant or lactating women. Interviews were audio-recorded, transcribed, and verified for accuracy; content analysis was used to identify themes using a grounded theory approach.

Results: The overarching theme was discontinuity in breastfeeding care across the continuum. Most HPs relied on other HPs to provide breastfeeding care, resulting from and contributing to problematic gaps in care. A minority of HPs attempted to bridge gaps in breastfeeding care or improve continuity. Contributing to the discontinuity were a lack of time, lack of skills, inconsistent messages, and low communication across stages of care. HPs were unsure whether or not their help was effective and whether or not required follow-up was completed.

Conclusions: Despite HPs' recognition of breastfeeding as the best choice for infant feeding, breastfeeding care in the current healthcare system is disjointed and may be a barrier to achieving breastfeeding recommendations. These problems should be investigated and systemically addressed in future research so that maternal-infant dyad breastfeeding care can be improved.

INTRODUCTION

Breastfeeding is the recommended way to feed infants. Current U.S. recommendations are to breastfeed exclusively for 6 months with continued breastfeeding until 12 months (6). Unfortunately, only 19% and 27% of babies are breastfed according to these recommendations, respectively (7). Breastfeeding rates are well below national goals (2) and a cause for concern because of the numerous detrimental short- and long-term health effects of not breastfeeding for both mothers and children (4, 6).

Health professionals (HPs) have a unique opportunity and responsibility to provide breastfeeding support. Both the American Academy of Pediatrics and the American Congress of Obstetrics and Gynecology strongly support breastfeeding and advocate for their members to be at the forefront of providing such support (6, 76). Previous studies have cited barriers to HPs providing breastfeeding care, in particular a lack of skills or training and too little time among physicians (112, 113). Across the prenatal to postpartum continuum many HPs have contact with mothers and their infants, and each interaction presents an opportunity to educate about or assist with breastfeeding. Breastfeeding is a dyadic behavior, but the U.S. healthcare system typically separates care for the mother and infant; the obstetrician provides care for the mother and the pediatrician for the infant. These and other HPs, such as nurses and lactation consultants, interact with the dyad during different periods across the continuum.

Previous research among women and health professionals has suggested that gaps exist and continuity of care is lacking for maternal care postpartum, which negatively affected how mothers experienced recovery and body changes after delivery (114). This research did not specifically investigate breastfeeding care. Other research has indicated inadequacies in breastfeeding care at prenatal visits (115) and postpartum (89) from the mothers' perspectives,

but there is little understanding about how HPs themselves experience providing breastfeeding care. Thus, our aim was to understand from HPs' perspectives their experiences providing breastfeeding care across the continuum, barriers they may encounter, and how they manage breastfeeding care within the often-complex context of the U.S. healthcare system.

METHODS

Data presented here came from a previously described qualitative study (116) with HPs who provided care during the prenatal, perinatal, and postnatal periods that had two aims: 1) to understand HPs' experiences providing breastfeeding care for obese women and 2) to understand HPs' experience providing breastfeeding care to all women within the settings and systems in which they practiced. Here we present the results for aim 2 with key methodological details.

HPs were recruited in 2 central New York counties via flyers and emails sent to HPs in obstetrics, midwifery, family medicine, and pediatric practices' listservs. Recruitment materials indicated that the goal was to learn about HPs' experiences providing care to pregnant and breastfeeding mothers to develop strategies to help them breastfeed longer. Chain-referral was used to reach community-based HPs. Purposive sampling was used to select professionals from a variety of practice types who provided care at different periods across the care continuum. CDG conducted a semi-structured, in-depth interview with each participant with written informed consent before each interview. An interview guide (key questions relevant to this study in Table 2.1) with exploratory probes facilitated data collection, but interviews were largely participant-driven. The institutional review boards at Cornell University and at the Rochester General Hospital Research Institute approved this study.

Table 2.1. Excerpt of interview guide questions for health professionals about experiences providing breastfeeding care

What do you see as your role in caring for women who breastfeed or who plan to breastfeed?

To you, what does ‘successful breastfeeding’ mean?

What kinds of advice or support do you offer to women?

What are some of the ways you affect a mother’s decision or ability to continue breastfeeding?

How effective do you feel you are with helping mothers to breastfeed?

Are there any approaches that you feel could be useful to help women breastfeed?

What are some of the ways you feel you might be able to help women breastfeed longer?

Interviews were conducted by CDG, took place in locations that participants' chose and averaged 53 (30-110) minutes long. The interviewer collected demographic information about the HPs via questionnaire, and recorded field notes about interview details immediately after each interview that were used to provide context when coding transcripts. All interviews were audio-recorded with permission, transcribed verbatim and checked to ensure accuracy. CDG and SLR independently conducted analysis of transcripts using a grounded theory approach and ATLAS.ti 7 (Berlin, Germany) to assist with the iterative coding process. The coders used regular peer-debriefing (100) to discuss and come to agreement about coding and analysis, and data collection ceased once data saturation – the point at which no new information was obtained with additional data collection – was reached. The final analysis represents a joint interpretation of the data among the authors.

RESULTS

Participants

Thirty-four HPs, including 29 women, were interviewed. They were 31 to 84 years old and had spent <5 to >30 years in their current professions. Participants were primarily white (30), 3 black or mixed race, and 2 Hispanic. Practice settings were diverse, including prenatal, perinatal and pediatric care within hospitals, public-health and community settings, and a mix of rural, small-town, suburban and urban settings (Table 2.2). Participants identified as lactation consultants had other training as nurses, social workers, and physician's assistants. Both nurse practitioners and all 3 family physicians provided prenatal and postnatal care for mothers.

Table 2.2. Care periods during which health professionals provided care for women

Type of Health Professional	Total	Prenatal	Perinatal	0-6 wk Postpartum	After 6 wk Postpartum
Physicians (MD)					
Obstetricians (Ob)	4	4	4	-	4
Pediatricians (Ped)	4	-	-	4	4
Family Medicine (Fam)	3	3	3	3	3
Certified Nurse Midwives (CNM)	5	5	5	-	5
Nurse Practitioners (NP)	2	2	-	-	2
Registered Nurses (RN)	8	1	7	2	2
Lactation Consultants (LC)	8	1	5	3	3
TOTAL	34	16	24	12	23

Discontinuity of Care

The overarching theme that emerged from these interviews was a discontinuity in breastfeeding care. The most salient subthemes were gaps within the healthcare system structure and reliance on other HPs to provide breastfeeding care. Gaps in the system contributed to HPs' reliance on others, and reliance on others also led to gaps in breastfeeding care. HPs' perceived lack of time and skills to provide breastfeeding care also contributed to gaps in care and their reliance on others. Together these circumstances resulted in breastfeeding care discontinuity, including HPs' report of inconsistent breastfeeding messages and possible missed opportunities to provide breastfeeding care for mothers and infants (Figure 2.1). The subthemes related to discontinuity of care are described below.

Gaps within Healthcare System Structure

HPs perceived that the structure of the healthcare system contributed to the discontinuity in breastfeeding care. The most commonly discussed problem was the gap in care after delivery (Table 2.3). HPs who provided prenatal care for women typically did not see women again until 6 weeks postpartum [quotation 1 (Q1, NP)], and pediatric care providers felt that their visits were too infrequent to support breastfeeding adequately (Q2, MD). Thus, a critical period was missed when women encountered difficulties with or stopped breastfeeding (58, 117). Lactation consultants recognized that women also needed support beyond the first few weeks postpartum (Q3, LC), and talked about the important roles of lactation consultants in pediatric offices and WIC breastfeeding peer counselors. HPs expressed further breastfeeding care as a "hope" because each HP often did not communicate with the mother's next provider.

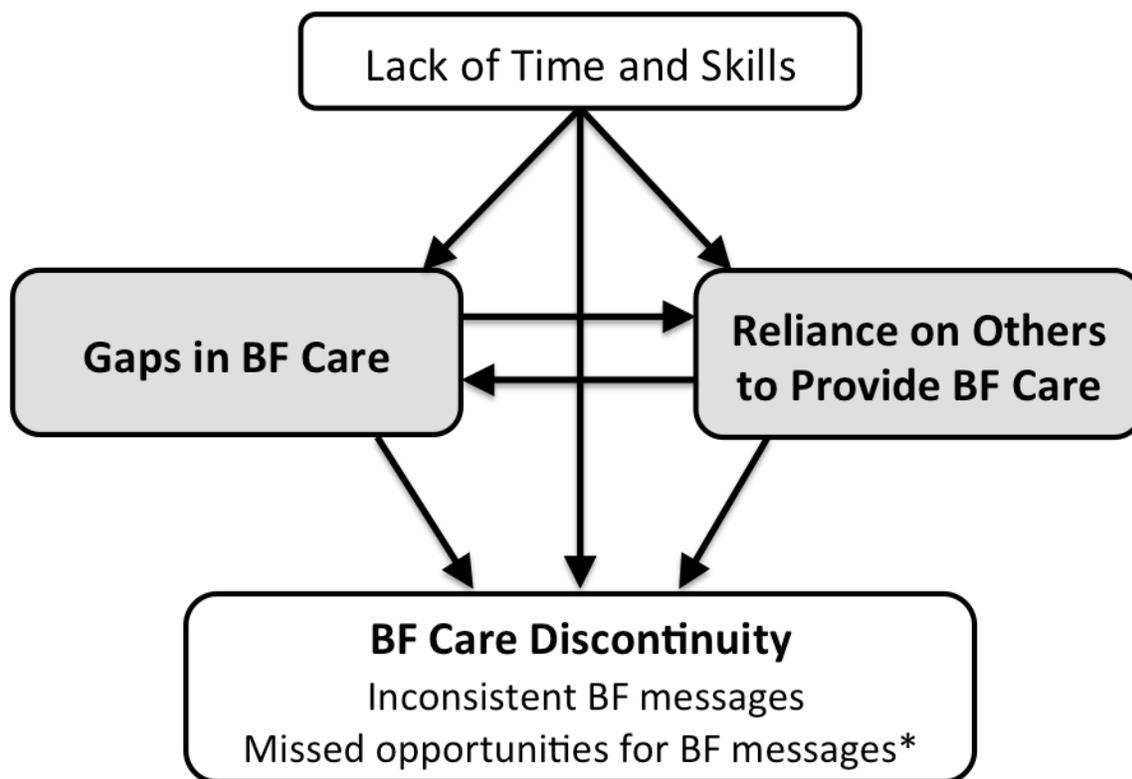


Figure 2.1. Discontinuity of breastfeeding care resulted from gaps in care, health professionals’ reliance on others to provide breastfeeding care, and lack of time and skills among HPs.
 * indicates an idea inferred by data in the themes and subthemes; BF—breastfeeding

Table 2.3. Categories with example quotations regarding ‘Gaps in Care’

Category	Example quotations
Postpartum gap	Q1 “... [But] unless they have a breast infection, it’s not like we would bring them in to see them. So where’s that patient going if she’s having trouble? Who is she calling?” (08NP)
	Q2 “... [Y]ou know, the first couple of days, I see the mom a lot, I see the baby a lot. That’s a time when I may make some difference. But then between day five and day fourteen, I don’t tend to see them. That’s the most common time to stop nursing.” (23MD)
	Q3 “... [S]ometimes moms need some extra support with when they [the mothers] go back to school [or work]... So I’m hoping there’s a continuum of still teaching and care when they go home.” (09LC)
Multiple providers	Q4 “Doctors do not do those visits... So we do the intake and then, you know, the patient has a right to see only doctors from that point on... or to see a mixture of doctors and midwives or to just see midwives.” (02CNM)
Gaps in hospital care	Q5 “I don’t keep track of... anything related to the baby. When baby’s with mom, I help mom with breastfeeding... but I don’t do anything with the baby. I’m totally focused on the mom.” (05RN)
No feedback loop	Q6 “I think I’m pretty effective, but I don’t, um, you know, I always wonder, you know... we [can] help moms in the hospital, but that doesn’t mean that they’re still breastfeeding a month from now, or three months from now.” (06RN)
Bridging gaps	Q7 “... [A]nd then giving her our phone number for the support follow-up, and then offering to call and... they like knowing that they can call.” (07LC)

This lack of continuity was perceived to arise not only from gaps in care across time, but also from gaps within each stage of the care continuum. HPs who provided prenatal care discussed that often times a patient might see multiple providers, such as in a group practice (Q4, CNM). Few HPs perceived this as problematic, but one suggested that “perhaps continuity [of providers] would help our patients breastfeed” (08NP). In the hospital, a lack of continuity was evident, particularly with nursing care across time (with shift changes) and across nursing specialties. This occurred when different staff members provided care for mothers and their infants (Q5, RN).

Some HPs felt unable to assess their own effectiveness in providing breastfeeding care. Their uncertainty about their effectiveness resulted from not seeing the patients again or knowing their outcomes. This was especially true for hospital-based HPs, who did not have relationships with patients before admission or after discharge (Q6, RN), and for HPs who provided prenatal care but did not see patients until six weeks postpartum.

Continuity for the breastfeeding dyad was perceived as more intact when care was provided by family physicians, as they established relationships with women prenatally and provided follow-up care post-discharge. Hospital lactation consultants reported trying to help bridge gaps in care with services women could call for breastfeeding help (Q7, LC).

Reliance on Other Health Professionals

One of the main contributors to discontinuity was that no HP was in charge of breastfeeding care across the entire care continuum.

“The problem with breastfeeding is there's no captain of the ship... And it's—there's just nobody that takes that, takes the lead on it.” (26MD)

The “no captain of the ship” theme was most clearly presented as HPs who relied on other HPs to assist with providing breastfeeding care (Figure 2.2). For example, prenatal care providers relied on instructors of prenatal classes, intake nurses, lactation consultants, nurses in the hospital, and pediatricians. Hospital nurses relied on lactation consultants, who in turn relied on pediatric offices and community resources. Pediatric providers felt that prior providers should have done more prenatally and in the hospital. Each type of HP relied on others across time and across disciplines because of constraints within the healthcare system structure as well as HPs’ own skills in breastfeeding care and beliefs about their roles in providing it.

Time: Limited or Not the Right Time

Time with patients was a key barrier (Table 2.4) and a major reason that HPs relied on other HPs across the care continuum. Prenatal care providers discussed the limitations of time at prenatal visits, when much needed to be covered in a short time (Q1, CNM; Q2, MD). Time challenges at pediatric visits were also barriers to breastfeeding care, especially because this time would not be reimbursed (Q3, MD; Q4, MD). HPs in the hospital setting also discussed a lack of time to address breastfeeding, including during hospital rounds. The nursing staff also felt this time crunch in in-patient care (Q5, RN).

Some HPs believed that the times of their interactions were not right to provide breastfeeding information, because there were either more important things to be addressed or other barriers existed. For example, prenatal care providers believed that focus on the pregnancy and delivery took priority over breastfeeding (Q2, MD). On the other hand, hospital-based nurses and lactation consultants discussed the mothers’ “postpartum fog” and exhaustion as barriers to

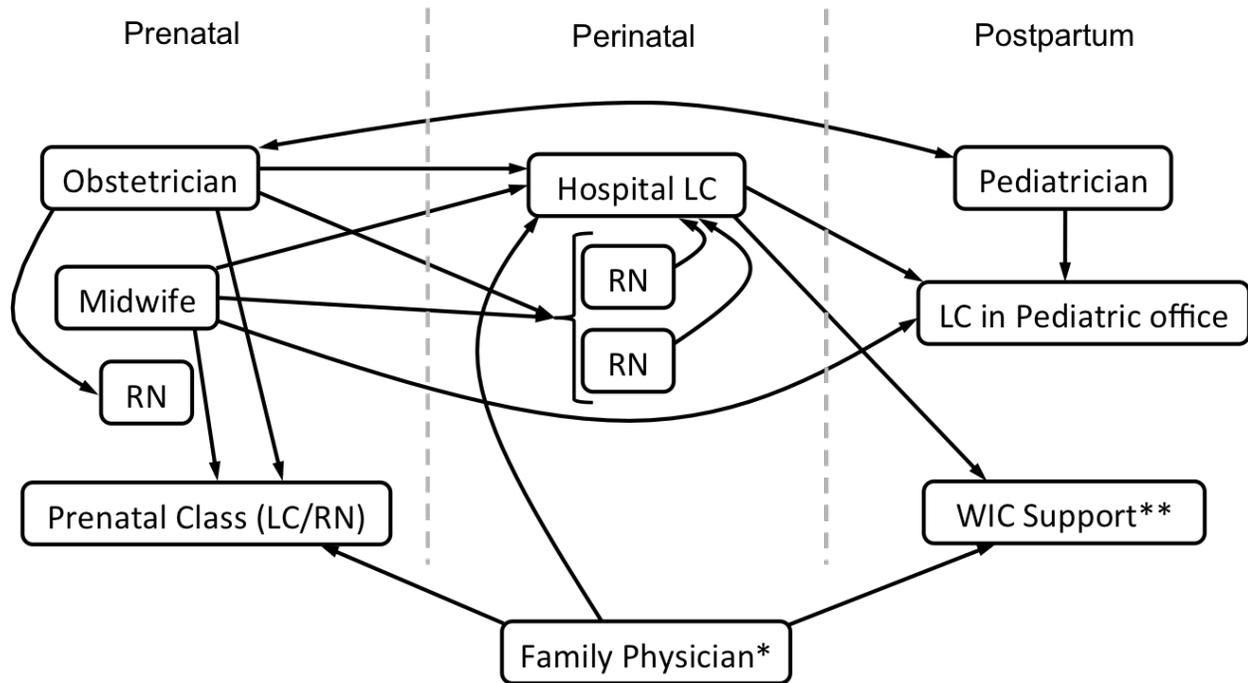


Figure 2.2. HPs relied on each other to provide breastfeeding care (relationship indicated by arrows). *Family physicians provided care across the continuum. **No WIC employees participated in this study. RN—registered nurse; LC—lactation consultant; WIC—Supplemental Nutrition Program for Women, Infants, and Children.

Table 2.4. Categories with example quotations regarding ‘Time’

Category	Example quotations
Limited prenatally	Q1 “And in the practicalities of healthcare, we pretty much have like 10 minutes to do a lot of stuff... So on one hand, you could be like ‘oh that’s horrible, you should tell everybody about breastfeeding and how to do it.’ On the other hand, we have pages of stuff we have to cover...” (01CNM)
	Q2 “I don’t talk a lot about, you know, the mechanics of breastfeeding before babies are born ‘cause it just sort of feels—one, I don’t have the time, but also feels like an overwhelming amount of information... I mean there’s a lot of other things that are happening in those [prenatal] visits.” (20MD)
Limited postnatally	Q3 “...[I]f [mom and baby] are having difficulty and I work with them for the latch-on, that is at least 10-15 minutes of time that’s totally unreimbursed, and makes me late for the next patient.” (20MD)
	Q4 “... [W]e don’t have time. You know, we’re seeing sick kids every 10 minutes...” (21MD)
Limited in the hospital	Q5 “... I immediately [get] a lactation consult... [so that] they can get reinforcement. Because the bedside nurses are really busy. I wish I could spend more time on it, but I really can’t because I usually got four or five other patients.” (05RN)
Not the right time	Q6 “I get moms when they’re exhausted. Like, I really try and not make things complicated for them because, you know, either they’ve just had their baby and they’re exhausted, or I get them the second night where they’ve had their baby, stayed up for a while... I get them at that point that they’re ready to melt down.” (06RN)
	Q7 “But basically it has to start in the OB office or the midwife office. By the time they get here it says on their chart that they are either breast- or formula-feeding and we rarely see any mom that’s formula feeding.” (10LC)

providing adequate information and assistance (Q6, RN). Furthermore, it was perceived that women's breastfeeding decisions were better addressed before hospital admission (Q7, LC).

Lack of Skills or Not Their Role

HPs also relied on others because they perceived they lacked the right skills or because they did not consider it part of their role (Table 2.5). With the exception of lactation consultants, HPs endorsed a general sense of breastfeeding as either a shared responsibility by all HPs (Q1, MD) or as someone else's responsibility (Q2, MD). Pediatric providers generally perceived breastfeeding care as their role, but varied in their perceived skills.

Hospital nurses usually believed that helping with breastfeeding was part of their role, but they also perceived varying abilities to do so. Some nurses perceived themselves as the "first line" to help with breastfeeding, and if they ran into challenges they would call in lactation consultants for assistance. Other nurses felt less confident in their ability to provide help, and perceived their role was to guide new mothers to know what questions to ask the lactation consultants (Q3, RN).

Inconsistent Messages

The lack of continuity in care across time and across disciplines could relate to inconsistencies in breastfeeding messages (Table 2.6). There was awareness of how different opinions about and approaches to breastfeeding care could be confusing to patients and detrimental to their success with breastfeeding (Q1, LC), as well as to patient-HP relationships (Q2, MD). One example of inconsistencies was that some HPs believed it was better for the mother to send her baby to the nursery (Q3, MD), while others encouraged rooming-in (Q4, LC).

Table 2.5. Categories with example quotations regarding ‘Lack of skills’

Category	Example quotations
Breastfeeding as shared responsibility	Q1 “So, if you have that time it’s good, but we also don’t have the training of a lactation consultant, and so I think my goal is to provide resources.” (21MD)
Not my role	Q2 “... [B]ut then I’ll have some of my private patients who are elsewhere in the hospital and I’ll go see them alone. And when I go see those few women, I’ll talk to them more about breastfeeding than necessarily I would on rounds with the residents. Because I don’t think that’s—it’s not always something that the obstetrician does.” (26MD)
My role, but lacking skills	Q3 “... [T]he lactation consultants have much more knowledge in those different techniques than I do... So I’ll kind of help them and lead them into what they should be kind of asking the lactation consultant.” (03RN)

Table 2.6. Categories with example quotations regarding ‘Inconsistent Messages’

Category	Example quotations
Detrimental to breastfeeding	Q1 “...[Y]ou will have, depending on how many nurses you have during your stay, all these different philosophies. ... So by the time the poor moms get out of there, they’ve heard five different opinions and nothing’s working.” (04LC)
Detrimental to patient-provider relationship	Q2 “... We [health professionals] run into some problems about disagreements... and then it just creates distrust. You know they [the patients] have to pick sides, they have to decide who they want to believe.” (16MD)
Rooming-in versus sending baby to the nursery	Q3 “...[A]nd just encourage women to, you know, again, drink fluids and rest, and also to, you know, send the baby to the nursery... Generally, I think people go home more rested if the babies can—I always say ‘pretend you’re really rich and you have this amazing nanny’ (laughs).” (26MD)
	Q4 “It’s not just nurses but doctors also, the OB-GYNs are encouraging moms ‘send your baby out to the nursery, get a good night’s sleep.’ Well, it doesn’t always work that way because most moms are not gonna sleep well with their baby out in the nursery.” (12LC)
Avoiding guilt while encouraging breastfeeding	Q5 “I mean some people can’t breastfeed, you know. And I do try to tell people that... because I don’t want them to feel bad, so I will tell them that. I’m like, ‘You know, we do feel it’s the best option for the baby,’ then I do tell them, I’m like, ‘but you’re not a bad mom if you can’t or you don’t breastfeed.’ I do say that. I don’t know whether that’s considered supportive of their decision to not breastfeed...” (11MD)
	Q6 “Nurses don’t feel comfortable. They think they’re gonna lay guilt, and they think mothers are gonna be mad. I have never had a mom get mad at me yet. It’s all the way you say it.” (25LC)

Inconsistent messages were also possible from a single HP. The most salient instances of this were about the balance of encouraging breastfeeding while “not setting them up” to feel guilty if mothers ceased breastfeeding (Q5, MD; Q6, LC).

Potential Strategies to Improve Continuity

There was general agreement that HPs needed to provide more education and preparation prenatally for women to breastfeed (Table 2.7). Prenatal care providers said “it doesn’t come up as often as it should.” Some stated that they asked about plans to breastfeed in the first trimester, but then did not bring it up again either until the third trimester or in the hospital (Q1, CNM). Nurses and lactation consultants also stated that women needed to be better prepared for breastfeeding before hospital admission, and suggested more prenatal teaching through lactation consults, breastfeeding classes or prenatal La Leche League meetings.

Better follow-up postpartum was also discussed as being necessary. HPs suggested that home visits or postpartum phone calls would help bridge gaps (Q2, LC). Many of the lactation consultants already provided postpartum phone calls to women, and believed that this was helpful. Home visits were perceived by some, including the one home visiting nurse who participated, as a better solution than phone calls alone. Barriers to more women receiving home visits, however, included cost and the perception that many home-visit nurses are not well-trained in providing breastfeeding assistance (Q3, MD). Additionally, it was suggested that pediatric care providers also needed more training in breastfeeding support to avoid providing information and advice that was counterproductive (Q4, LC).

Table 2.7. Categories with example quotations regarding ‘Potential Strategies’

Category	Example quotations
More prenatal preparation for breastfeeding	Q1 “And so a lot of my counseling is done in the hospital... and perhaps it is a missed opportunity over several visits when I haven’t had that discussion with them. So, you know, I guess on my end it has to be a commitment to giving them the counseling over their entire pregnancy, sort of like we do with smoking.” (14CNM)
Better postpartum follow-up	Q2 “Well, the great thing about the postpartum [home] visit is I’m in their home and I’m there for as long as I need to be. ...I can be there for as short as an hour, up to two hours if I need to be. ... So very different than the doctor’s office where maybe they have a 15-minute visit...” (08LC) Q3 “Well, I haven’t found [home nurses] to be super helpful for breastfeeding... they’re not so great at providing breastfeeding support, ‘cause that’s not really part of their job criteria.” (20MD)
Better training for postpartum care providers	Q4 “Our pediatricians and pediatric nurse practitioners... don’t have the knowledge base to answer the questions properly or to push them forward in the right direction. Um, [they’re] actually defeating everything that I’ve been trying to do.” (25LC)

DISCUSSION

Discontinuity of breastfeeding care emerged in this study as an overarching barrier for providing adequate breastfeeding care within the healthcare system in central New York. Given that most HPs relied on other HPs to provide breastfeeding care, the concern truly may be “who is the captain of the ship?” Breastfeeding care was largely presented as disjointed with gaps in care and discontinuity between providers and specialties across time. Postnatal gaps in care may be at the root of some aspects of discontinuous breastfeeding care. The current system provides frequent maternal care prenatally, but less so to the new dyad postnatally when breastfeeding support may be essential. Our study confirmed and built on the findings of Martin et al. (114) that the postpartum gap in care is problematic and that few HPs are providing care or know what care is provided during this time. Also consistent with prior research (115), there was general consensus among our participants that better prenatal breastfeeding care is needed to prepare women before labor and delivery.

It is clear that the most effective breastfeeding support interventions include components of care coordinated across the continuum (68). Ideally, women should have a consistent HP with whom a trusting patient-provider relationship develops during pregnancy and continues postnatally for provision of breastfeeding support, but this is atypical in the Central New York healthcare system. Obstetricians and midwives have the opportunity to develop such relationships, but these end abruptly after delivery. Meanwhile, pediatricians provide key support for the breastfeeding infant after discharge, but they often have no previously established relationship with the mothers and, thus, have not established trust. Family physicians who provide both prenatal and pediatric care may be a better model, but are not suited to every situation, particularly with increasing numbers of high-risk pregnancies and deliveries (118).

Moreover, the proportion who provide such care has declined substantially, with only 6% of prenatal care being provided by family physicians in the U.S. (119). As increasing patient- and family-centered care becomes a major focus, breastfeeding represents an important opportunity to develop systems that provide continuity across pre- and postnatal healthcare to support the mother-infant dyad.

Our study confirmed prior research findings (112, 113, 120) that HPs continue to experience the primary barriers of lack of time and knowledge or skills to manage breastfeeding. Suboptimal training has been well documented in medical and nursing curricula (121-123) and textbooks (124-126). Importantly, this lack of time and skills was identified across disciplines, with the exception of lactation consultants who reported adequate knowledge but inadequate time. These barriers are problematic to patients if omission of breastfeeding conversations conveys that breastfeeding is not important, and if the information and assistance provided are inconsistent or incorrect. It has been reported that despite pediatricians' improved confidence levels in providing breastfeeding care, many defer breastfeeding questions to other HPs whose knowledge and training are unknown, possibly because of time constraints (113, 127). Although HPs generally believe they are supportive of breastfeeding, relying solely on other HPs to provide breastfeeding care may be insufficient.

Targeting training during residency with a single curriculum has been shown to improve knowledge, breastfeeding management practices, and confidence in providing such support among pediatricians, obstetricians/gynecologists, and family medicine physicians (123). Use of this curriculum was also associated with an increase in institutional exclusive breastfeeding rates (123). Implementation of such a program has the potential not only to improve knowledge and care provided by each physician, but also to improve continuity of care through exposure of

different medical specialties to the same training curriculum. Future research should explore the effect of a single curriculum on continuity in messages and the effect of improved knowledge on reliance on other HPs to provide breastfeeding care. Results of such research may separate the effects of insufficient training from those of having insufficient time on breastfeeding outcomes, which could inform future needs and strategies to address the barrier of insufficient time.

Expanding lactation services to improve the quality and continuity of breastfeeding care is also now a feasible option as coverage of lactation services is mandated under the Affordable Care Act (128). This legislation mandates coverage of services “during pregnancy and/or in the postpartum period.” There is evidence that provision of such services across the continuum would be of greatest benefit (68), and should, thus, be available both prenatally and postpartum. Expanding lactation services with Internationally Board Certified Lactation Consultants (IBCLCs) to provide breastfeeding care for all women through home visits and consultations in clinical settings has the potential to streamline breastfeeding care through the identification of an HP as the “captain of the ship” across the continuum. Assigning each woman to a lactation consultant, or at least to a specific lactation service, would reduce confusion of who was providing the care and would decrease the inconsistent messages being provided. Research is needed to develop strategies on structures and implementation of such services that would reach the largest population.

All 3 hospitals at which our participants worked participate in a state-sponsored hospital-based breastfeeding initiative and tout that they are committed to breastfeeding support, yet HPs discussed substantial problems with breastfeeding care in these settings. Thus, even in hospitals that support breastfeeding, discontinuity of care and inconsistent messages exist. The Baby Friendly Hospital Initiative improves continuity of breastfeeding care through training and

implementation of policies that support breastfeeding (129), and, if adopted, could remove some hospital-based problems encountered by our participants, such as conflicts regarding rooming-in.

Although U.S. healthcare typically separates care for the dyad, other countries have models in which continuity is more likely. For example, in Canada, 42% and 55% of family physicians provide prenatal and well-child care, respectively (130). In fact, in a recent study, Canadian family physicians were more likely to observe the dyad breastfeeding than were pediatricians, a finding postulated to be a result of their stronger relationships with the mothers (131). However, fewer than half of these physicians believed it was their responsibility to evaluate breastfeeding (131).

In the U.S., the interdisciplinary clinics implemented at Kaiser Permanente, which are staffed by obstetrics, pediatrics, neonatology, lactation services, and other ancillary services for the dyad post-discharge, are one example of efforts to improve continuity. Although data have not been published, internal reports showed that these clinics resulted in improved breastfeeding outcomes and cost savings (C.L. Wade, MD, oral communication, January, 2015).

Discontinuity disproportionately affects women in low socioeconomic groups, certain racial and ethnic groups, or those with low social support, all of whom are at higher risk of poorer breastfeeding outcomes (114, 132, 133). In our study, physicians noted that time providing breastfeeding care may not be reimbursable, which may be an important barrier, particularly for those who care for a high proportion of women of low socioeconomic status and work in busy clinics. Furthermore, one physician reported that he primarily provides breastfeeding care for his private patients. National data show disparities in access to maternity care practices that support breastfeeding that are consistent with our findings (134). Improving

continuity for these high-risk women may help to avoid increasing disparities in breastfeeding rates.

This study provided a broad range of perspectives across the continuum of care and included participants from a variety of practice settings (3 different hospitals, 11 different outpatient practices, and community-based professionals). By including 2 regions in Central New York with diverse populations, we obtained a sample that is likely similar to other regions in the U.S. Generalizability is not possible with the qualitative research approach, nor is it the goal.

To identify the unique needs of each type of health professional to improve breastfeeding care would require a larger number of participants than is used in qualitative studies such as this. We did, however, include an adequate number who provide care in each period of the care continuum to attain data saturation for each period in the continuum.

CONCLUSION

In this study, we identified discontinuity of breastfeeding care as a major barrier to providing the type of care that could help us attain our national breastfeeding goals. To improve breastfeeding care for mother-infant dyads, the challenges of inadequate training, gaps in care, and reliance on others must be addressed in our system in which no HPs are in charge of breastfeeding across the continuum. Increasing and improving training of HPs will be critical to improve care. Expanding lactation services has the potential to streamline breastfeeding care, and incorporating these services into interdisciplinary prenatal and postpartum clinics is also likely to be effective. Interdisciplinary collaborations are needed to develop and implement strategies to structure improved breastfeeding care services within the healthcare system and to identify and

allocate the resources that will be necessary improve continuity of breastfeeding care across the prenatal to postnatal continuum.

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CHAPTER 3

“ACTIONS SPEAK LOUDER THAN WORDS”:
MOTHERS’ INTERACTIONS WITH HEALTH PROFESSIONALS ABOUT
BREASTFEEDING IN A LONGITUDINAL, QUALITATIVE STUDY

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Loralei L. Thornburg, Kathleen M. Rasmussen

ABSTRACT

Background: Women in the United States are not meeting national breastfeeding goals. Women interact with numerous health professionals from pregnancy through postpartum. The aim of this study was to understand how women perceive breastfeeding support and breastfeeding-related interactions with health professionals across the continuum.

Methods: Women in central New York (n=26) were enrolled during their third trimester of pregnancy. A longitudinal, qualitative design with in-depth semi-structured interviews was used to follow women through 3-6 months postpartum. Interviews were audio-recorded, transcribed, and verified for accuracy. Data were analyzed using a grounded-theory approach.

Results: Although women believed that their health professionals supported breastfeeding, those who encountered challenges felt that health professionals' actions were not as supportive as their words. It was unclear to women which health professionals were in charge of breastfeeding care, a "gray area," and they felt that those who could help them the most were not available or accessible across the continuum of care. Women received conflicting information from health professionals and observed conflict between health professionals about breastfeeding. Prenatal conversations about breastfeeding were lacking, and particularly among women who encountered breastfeeding challenges support in the hospital and postpartum was inadequate. Women believed that better preparation prenatally, and more help postpartum would have helped them with breastfeeding.

Conclusions: Women need encouragement and support from HPs that is backed by their actions. Mothers want more accurate, accessible, and continuous breastfeeding support across the continuum from pregnancy through postpartum, and strategies are needed to provide such care.

INTRODUCTION

Breastfeeding is a public health goal because of the many positive long- and short-term health outcomes for both mothers and infants (2, 4-6). Unfortunately, women in the United States (U.S.) are not meeting national goals (7). Only 19% and 27% of infants are breastfed according to the recommendation to breastfeed exclusively for 6 months, and to any extent for 1 year, respectively (7). These poor rates are cause for concern because the lack of breastfeeding is associated with higher rates of breast cancer, cardiovascular disease and diabetes in women, and higher rates of infection, sudden infant death syndrome, and development of pediatric cancers and obesity in their children (4).

Mothers have frequent interactions with health professionals (HPs) during pregnancy, delivery and postpartum. Interactions with HPs affect breastfeeding initiation and duration, and breastfeeding interventions that include HPs to provide support are effective at improving breastfeeding outcomes (68, 85, 86). Mothers place high value on breastfeeding advice and assistance from HPs. However, they also report that the counseling they receive is inadequate, and breastfeeding duration is not discussed in many prenatal or early postpartum visits (87, 89, 135).

Women interact with a variety of types of HPs from pregnancy through postpartum and HP organizations call on their members and fellows to support breastfeeding. The American Congress of Obstetrics and Gynecologists (ACOG) states that “the initial prenatal visit is an optimal time to encourage and reinforce the decision to breastfeed” and that “it is important for pregnant women to come to the hospital for delivery with a good foundation of knowledge gained during the antepartum period” (136). The American Academy of Pediatrics states that pediatricians also have a “critical role” in breastfeeding support and that they should “serve as

breastfeeding advocates and educators and not solely delegate this role to staff or nonmedical/lay volunteers” (6). Similarly, the American Academy of Family Physicians (77), American College of Nurse-Midwives (79), and Association of Women’s Health, Obstetrics, and Neonatal Nurses (137) also have position statements calling on their members to support breastfeeding.

Unfortunately, many HPs lack the necessary breastfeeding knowledge and training to provide assistance (113, 135), and they cite lack of time as a barrier to providing such support (87, 135). These barriers to adequate breastfeeding care have been discussed in specific periods of care, but until recently (Chapter 2) had not been explored in the broader continuum.

In our previous research among HPs, we identified discontinuity of breastfeeding care across the continuum from pregnancy through postpartum as an overarching barrier to providing adequate support for breastfeeding (Chapter 2). At the level of the healthcare system, gaps in care (particularly postpartum) and lack of time and training to address breastfeeding issues contributed to discontinuity. System-wide problems resulted in HPs’ reliance on others to provide breastfeeding care. This resulted in a lack of feedback to HPs about the adequacy of the care that they did provide, which further contributed to discontinuity. Previous studies with mothers have investigated their experiences with HPs at discrete times, such as in the hospital and immediate postpartum periods (138) or have retrospectively investigated women’s experiences (89, 139), with results indicating that women receive inadequate and conflicting information about breastfeeding. Few studies have attempted to understand women’s experiences with breastfeeding support from HPs longitudinally across the entire period when women are making decisions about and planning breastfeeding, through its initiation and continuation. The aim of this study was to understand how women perceive breastfeeding support and

breastfeeding-related interactions with HPs across the continuum from pregnancy through 3 to 6 months postpartum.

METHODS

Pregnant women who intended to breastfeed were recruited in central New York using flyers and brochures placed in obstetrics, midwifery and family medicine practices, maternity ward tours in hospitals, birthing classes and prenatal care programs as well as using chain-referral. Women in their third trimester of pregnancy with a singleton fetus, who intended to breastfeed, had no history of breast surgery, spoke English and were either obese (BMI ≥ 30 kg/m²) or normal-weight (BMI 18.5-24.9 kg/m²) before pregnancy were eligible to participate. Women in these BMI categories were chosen to facilitate understanding differences between normal-weight women and obese women, who are known to have poorer breastfeeding outcomes (60). Women who delivered preterm (<37 weeks gestation) or had severe medical complications of delivery that resulted in prolonged separation from or death of the infant were excluded. Purposive sampling was used to obtain a diverse sample by parity, socioeconomic status, race or ethnicity, and planned work status. Informed consent was obtained from each participant before enrollment, and women received a \$20 gift card to a grocery or big box store of their choice at the end of each interview. Institutional review boards at the University of Rochester and Cornell University approved this study.

A series of semi-structured, qualitative interviews were conducted in person by a single interviewer (CDG) with each participant at locations that the participants chose, usually their homes, at the following times: during pregnancy, at 7 to 10 days, 6 weeks, and 3 months postpartum, with an optional phone follow-up at 6 months postpartum. If a woman stopped

breastfeeding before 3 months, a final interview was conducted after breastfeeding ceased. Each woman completed between 2 and 5 interviews from February 2013 through August 2014. Interview guides (Table 3.1) that had been tested and revised to address problem areas were used at each time to assist with data collection. Interviews were largely participant-directed, however, and probes were used to explore ideas with participants as they arose. Interviews were audio-recorded, transcribed verbatim, de-identified and verified to ensure accuracy. Field notes were recorded immediately after each interview to note body language, sarcasm, and environmental circumstances that could affect interpretation of the transcripts. One participant refused audio-recording of the interviews, thus, detailed notes were taken during the interviews, and comprehensive field notes were written immediately following. For this participant, field notes were used for analysis. Transcripts were coded iteratively using a grounded theory approach and ATLAS.ti 7 (Berlin, Germany). A team of 4 researchers (including CDG and LES) completed coding and analysis and met weekly to discuss emerging themes, and CDG managed and checked coding to ensure accuracy.

RESULTS

Participants

Twenty-six women were enrolled and completed the pregnancy interview. After delivery, 4 women were excluded because of preterm delivery, severe maternal medical complications, or severe infant medical complications, including one infant death. This left 22 women in the longitudinal sample. Table 3.2 provides participant characteristics. The women in our study delivered at 5 hospitals; 4 hospitals participated in a state-based program that supports breastfeeding, but none met the Baby Friendly Hospital Initiative criteria (140). Only 1 woman

Table 3.1. Excerpt of interview guide questions for mothers about how they experienced breastfeeding care

Pregnancy	<p>What types of health professionals do you see/interact with? What have your health providers told you about breastfeeding? How have they affected your breastfeeding decisions? Who? (physician, nurse, NP, LC)? What are some of the things they have said? Supportive? Unsupportive? Have they referred you to any other classes or programs (WIC, La Leche League, etc.)?</p>
7-10 days postpartum	<p>What was it like feeding your baby in the hospital? What help or guidance did you have for breastfeeding? What was that like? (helpful, unhelpful, frustrating) Was that the kind of guidance you expected/wanted? Was there something that would have been more helpful? What have your conversations been with health professionals about breastfeeding since we last met? How do you feel talking to your health professional(s) about breastfeeding? What have your health professionals told you or taught you about breastfeeding? How have health professionals affected whether or how you breastfeed?</p>
6 weeks and 3 months	<p>What types of health professionals have you interacted with since we last met? How do you feel talking to [health professional] about breastfeeding? What have your conversations with health professionals been like about breastfeeding since we last met? How have they affected your plan/ability to continue breastfeeding?</p>
At final interview	<p>What types of health professionals have been the most important or influential for your breastfeeding? What are some of the things they did that were helpful/important? What are some of the things they did that were not helpful?</p>

Table 3.2. Participant characteristics of mothers in the total and final samples

Characteristics	Total enrolled n=26	Final sample n=22
Age, n		
<30 years	9	8
≥30 years	15	14
Parity, n		
Nulliparous	16	14
Multiparous	10	8
BMI, n		
18.5-24.9 kg/m ²	13	9
≥30 kg/m ²	13	13
Race, n		
White	19	17
Black	4	4
Other	3	1
Marital status, n		
Married	16	14
Partner, unmarried	8	6
Single	2	2
Education, n		
< College	11	10
≥ College	15	12
WIC participation, n	8	7
Delivery type, n		
Cesarean	-	8
Vaginal	-	14
Delivery location, n		
Hospital	-	20
Home birth	-	2

delivered at the hospital that did not participate in the breastfeeding program. Two women delivered at home, one of whom immediately went to the hospital for infant monitoring. All of the women initiated breastfeeding, and 4 of the 22 women stopped breastfeeding before 3 months, and, thus, conducted their final interview at or before 3 months. Seven reported that their infants received formula in the hospital, 15 reported that their infants received formula within the first 3 months, and 21 women used a breast pump within the first 3 months. The women received prenatal care from obstetricians and midwives, and pediatric care from pediatricians, family physicians, and nurse practitioners. In total, 103 interviews were completed, 90 of which were conducted from pregnancy through 3 months averaging 83 (range 20 to 130) minutes, and 13 were at 6 months averaging 43 (range 20 to 90) minutes long.

Presentation of Themes and Data

In this section, the crosscutting themes and subthemes are described first, followed by time-dependent ones. The examples and quotes below provide women's perceptions about the breastfeeding care they received. It is recognized that HPs who provide breastfeeding care do so within healthcare systems' and hospitals' policies, thus, examples provided also reflect how women experienced these policies. No differences were observed by women's BMI category for these themes and subthemes.

Crosscutting Themes

Breastfeeding care as a “gray area” and separation of the dyad

Each woman interacted with a variety of HPs, including obstetricians, midwives, nurse practitioners, or a combination of these prenatally; nurses, lactation consultants, pediatricians,

obstetricians and midwives in the hospital; and pediatricians or family physicians postpartum, with the typical 6-week follow-up visit with a maternal care provider. Most women received care from more than one type of provider in any period. For example, women who received prenatal care at large practices saw several midwives and/or obstetricians rather than the same one at each visit. The same was true for pediatric care, but the continuity in providers was slightly better postnatally. Some women wished that they could have seen a single provider, and felt this would have facilitated care that was more individualized. The few women who did have continuity of care in either prenatal or pediatric care described that they had positive relationships with their providers.

One woman felt that her pediatrician was her go-to person for breastfeeding and received the majority of technical assistance and advice from her.

“I called her when we were having trouble with her latching on, um, so I came in. [Pediatrician gave some advice and said] ‘Well, give it a couple of days.’ ... And then, um, I came back and she helped me latch her on without the nipple shield...” [Emma, 10 d]

Most women, however, expressed ambivalence or uncertainty about who was in charge of care related to breastfeeding or to whom they should ask their questions.

“It seems like [breastfeeding] falls between those two as far as who I talk to. ... so I guess that is where a little gray area is... But yeah, it’s like, who do you talk to? Because when you really think about it the OB is for baby growth development inside, and then the pediatrician is for afterwards.” [Beth, pregnancy]

There was a common belief that breastfeeding care fell somewhere in between the realms of care for the mother and that for the infant. The dyadic breastfeeding behavior was perceived to not fit into the scope of either of these types of care. Thus, care for the dyad was separated. Women felt that the role of pediatricians was to make sure the infant was healthy and safe, but they did not perceive that breastfeeding was necessarily part of this equation. Referrals that women received from one HP to the next for breastfeeding supported the idea that breastfeeding was a “gray

area.” One woman who had to change family physicians between the times when her first child and second child were infants was frustrated that she felt passed around when she had questions about breastfeeding.

“...everyone passes you off... it’s like no one is trained in... it doesn’t seem like there is a doctor very well versed in family care from a woman’s female health, through pregnancy, delivery and breastfeeding.” [April, 3 mo]

Some women felt that lactation consultants and nurses were in charge of breastfeeding care. The lactation consultants were perceived as most helpful with the technical aspects of breastfeeding, but the nurses were more consistently available, and thus, also very important.

“... [My] doctors were kind of focused on me, the pediatrician focused on the baby, and the nurses, you know, were good at filling in the gaps on the interactions between us. (chuckles) So I got most of my direct advice from them.” [Holly, 9 d]

However, lactation consultants and nurses were generally not available prenatally, aside from prenatal classes that a few women attended, and minimally available after hospital discharge. Only one woman had consistent access to a lactation consultant across the continuum, because she was well connected with a local birth network. Women also reported that among the nursing staff there seemed to be a gray area as to who was in charge of addressing breastfeeding. This was particularly true when the care for the mother and baby was provided by separate nurses.

“A nurse would come in and I’d ask them a question, and sometimes I’d get an answer, sometimes I’d get this whole, ‘I’m not the baby’s nurse, I’m your nurse. You need to ask her this question.’ And I’d get the baby’s nurse back, and I’d say, all right, this is the question I have, and I’d get either...a straight answer... [or] if they didn’t know, that was it.” [Allison, 9 d]

One exception to this theme was a participant who had challenges with latching, cracked and sore nipples, and low milk supply early postpartum. She was a single mother and described how her HPs had been very supportive, helpful, and influential with breastfeeding. She was in a program that provided a home visiting nurse who

visited her prenatally, in the hospital and shortly after she returned home. This nurse examined her breasts to assess for potential problems prenatally, provided her with a nipple shield postpartum and showed her how to use it, which helped to decrease the pain, and provided a hand pump to try to increase her milk production. Then at her early postpartum visits, her pediatrician watched her baby's latch and provided help and feedback, as well as recommended things she could do to increase her milk supply. She also called her pediatrician's office when she had concerns or questions about breastfeeding. Her questions were either answered over the phone or she was scheduled for an appointment to be seen in the office within a very short time.

Actions speak louder than words

Women in our study believed that their HPs were supportive of breastfeeding, but when it came to providing support, women felt that HPs' actions were less supportive than their words. Participants in our study stated that the HPs they encountered across the time continuum were "in favor of breastfeeding," generally "supportive of it," or said it was "a really good choice." Women who encountered no problems or challenges with breastfeeding reported similar statements across their postpartum course. On the other hand, women who encountered challenges with breastfeeding or whose infants had less than ideal weight gains felt that HPs were less supportive than they had previously believed. These women used phrases such as "supposedly pro-breastfeeding" to describe their health professionals, but went on to describe how their HPs were not providing support. One woman felt that her pediatrician had supported her plan to breastfeed at her prenatal consultation, but felt less supported after the baby was born. First, while in the hospital, she and her baby had finally achieved a good latch, but then her

pediatrician arrived and insisted on interrupting to examine the baby. Then postpartum she felt that the pediatrician dismissed her concerns about her breastfeeding challenges:

“... but actions speak louder than words and we didn't have a good feeling about her [my pediatrician] after the hospital incident, and then our office visit didn't really go a whole lot better...” [Natalie, 10 d]

Another woman chose her pediatrician's practice in part because it was known as being supportive of breastfeeding. At the 6-week visit, she was told that her baby had not gained enough weight, and she felt that the pediatrician's recommendations were not supportive of breastfeeding.

“...it seems like every time that there's something that's not quite fitting his charts or that, you know, he's a little concerned about, the first solution he comes up with is, 'well let's give up breastfeeding for a while.’” [Rose, 6 wk]

Health professionals don't understand breastfeeding well enough

Women felt that many HPs did not understand breastfeeding well enough, and that this led them to make recommendations that unintentionally undermined breastfeeding or interfered with it. The suggestion to supplement with formula was perceived as a recommendation that undermined breastfeeding. At the prenatal pediatric consultation, one primiparous woman who had planned to breastfeed for a year described how the pediatrician told her that formula was an acceptable way to feed an infant:

“But the, the pediatrician... he was like ‘Oh, don't view formula as evil. Formula is okay.’ ... And I guess, if anything, it just made me feel a little more confused about the whole idea of like using formula and breastfeeding...” [Laura, pregnancy]

Several women were advised to supplement with formula because of concerns about infant weight gain. For one of these women, the pediatrician wanted to assess the baby's suck by feeding her with a bottle of formula, rather than assessing the baby's suck some other way or assessing the latch at the breast.

“[The pediatrician] wanted to give her an ounce of formula and, you know, and just to watch her suck on the bottle to see if she had a good suck or if the tongue was getting in the way.” [Sandra, 9 d]

Two women whose babies had poor weight gains, one at 6 weeks and one at 4 months, were advised by their pediatricians to pump and feed their babies only from a bottle to measure how much the women were producing and how much the babies were consuming. The women believed, however, that this was an inadequate solution because pumping alone would not maintain their milk supplies and the pump was less effective at milk removal. Thus, such a recommendation, although well-intentioned for the health of the baby, was perceived as undermining breastfeeding.

“And, it seems like he doesn’t realize or understand, or believe that, um, when you stop breastfeeding [at the breast], even for a day or a week here and there, that it really undermines [our] ability going forward... And, I was really concerned ‘cause I don’t want to have to spend my whole life pumping and feeding out of a bottle when the whole idea is that this is supposed to be easier.” [Rose, 6 wk]

Some women were advised either at discharge from the hospital or within the first weeks postpartum to feed their babies on a schedule, which sometimes interfered with breastfeeding and resulted in babies that were either difficult to feed or fussy because they were either not ready to feed or too hungry. Women who attempted to feed on the schedule also felt more stressed and sleep deprived than other new mothers. Women whose babies had lost too much weight were often given a maximum amount of time to allow between feedings, usually 3 hours, which was typically perceived as a manageable and effective way to feed the baby. A few women, however, received more rigid feeding schedule instructions, such as “make sure he’s eating every two hours,” which was not perceived as feasible.

“[The hospital staff] were concerned about his weight and to make sure he’s eating like every two hours, but if he takes an hour to feed and then he sleeps, you know, that only gives him... You can kind of get to where your feedings are starting to run into one

another (chuckles) and, you know, maybe he's not getting enough time to sleep in between and [I'm] certainly not..." [Holly, 9 d]

Although the women did not perceive feeding schedule recommendations as harmful, feeding on a schedule is counter to the general recommendation of feeding on demand. One woman, who was exhausted in the first week postpartum from a bout of cluster feeding, was advised to feed the baby only every 3 to 4 hours, which is less frequently than is appropriate for the newborn.

One instance occurred where a pediatrician directly interfered with breastfeeding in the hospital. This is another aspect of the situation described above by the participant who stated that actions speak louder than words:

"And the pediatrician was like, 'well, I'm here right now and I need to meet with her, I don't have a lot of time.' Yeah. So she, I mean, basically pulled her off [the breast]." [Natalie, 10 d]

Conflicting information and conflict

Conflicting information from different HPs was commonly reported among our participants, and women were confused and frustrated by it. They reported receiving information that conflicted between nurses, pediatricians and nurses, nurses and lactation consultants, and midwives and lactation consultants.

"[What the pediatrician said] was almost exactly the opposite of what the lactation consultant was saying, and in fact, the lactation consultant was like, 'Oh, doctors don't know...' ... I was like, okay, well I don't really know who to believe. Like, I'm just a little confused here..." [Laura, pregnancy]

The topics about which women reported receiving conflicting information included formula use, feeding frequency, positioning for breastfeeding, and use of nipple shields and pumps. This typically occurred during the hospital stay, when they interacted with the greatest number of HPs.

“... some of them are like, ‘Eh, just as long as they’re feeding, feed them.’ ... and the one nurse, she was like, ‘Don’t feed her the formula.’ And it’s like the other one is like, ‘Well you just can’t starve ‘em, you gotta give ‘em formula because she’s not getting enough breast milk.’ You know, so it’s like, okay. (short laugh) [Colleen, 7 d]

One woman talked about receiving advice from the pediatrician that she knew was outdated. She was aware of the AAP recommendations for infant feeding, and was planning to feed only breast milk until her baby was 6 months old. However, her pediatrician recommended starting solids at 4 months.

“We just sort of went with, okay, that’s what you recommend, okay, we’ll do what we do. We’re trying not to be confrontational with him as much as possible... it was kind of weird that his information was so out of date.” [Rose, 6 mo]

A few women also discussed observing conflict between HPs about breastfeeding. In one such situation, a mother described a pediatrician at a prenatal consult undermining the lactation consultants in the hospital by advising her not to listen to them because they’ll “make you feel bad” [Natalie, pregnancy]. Another woman described a conflict between her own nurse and the baby’s nurse in the hospital.

“... [the newborn nurse was] making sure that they fed her and stuff until *my* nurse yelled at the newborn nurse, you know, that it’s just, ‘Don’t come in here again.’ ‘Cause she was in every hour and a half, ‘Did you feed her? What’s she doing? She needs to come back to the nursery.’ ...I’m like, ‘What does she need to come back there for?’ You know.” [Beth, 10 d]

Time-Dependent Themes

Inadequate preparation for breastfeeding prenatally

During the pregnancy interview, which took place in the third trimester, most women reported that their HPs had only asked if they were planning to breastfeed and had not discussed it beyond the yes/no question (Table 3.3). Some women were surprised that they had not had

Table 3.3. Breastfeeding care issues raised by mothers in time-dependent themes by period

Period	Positive/ Negative	Issues related to breastfeeding care
Prenatally	-	Health professionals only asked if planning to breastfeed (yes/no)
	-	Minimal discussion about breastfeeding duration, challenges, or concerns by the third trimester
	-	Focus primarily on pregnancy and delivery
	-	Women desired more preparation for breastfeeding prenatally
	+	Prenatal breast exams
In Hospital	+	Women breastfed within one hour of delivery
	-	Needed advocates to protect against hospital staff feeding formula
	-	Not enough assistance with breastfeeding
	-	Nursing staff too busy
	-	Lactation consultants not available at all times
	-	Nurses encouraged/offered to take baby to the nursery
	+	Lactation consultants and nurses provided valuable help
+	Women did not receive formula samples at discharge	
Postpartum	-	Not enough support early postpartum
	-	Not enough support from pediatric providers
	-	Minimal breastfeeding discussion (yes/no)
	-	Few pediatric providers observed a latch
	+	Pediatric offices provided space for mothers to breastfeed at visits
	-	Not enough access to lactation consultants

more in-depth conversations about it, and others believed it had not been discussed because they had no questions about it, but that they would probably discuss it sometime soon.

“They just asked me sort of in passing, like ... ‘Are you planning on breastfeeding?’ and I said yes. And they haven’t really said anything other than that, which I was kind of surprised, ‘cause in my experience midwives are usually more encouraging...” [Marion, pregnancy]

One woman felt that asking about breastfeeding prenatally was supportive because the question was asked “like an indirect suggestion” that she should and could breastfeed [Jan, pregnancy].

Women attributed the minimal discussion about breastfeeding during pregnancy to HPs’ focus on pregnancy and delivery, and among those with complications, issues such as gestational diabetes. Several women did not recall any discussion with their obstetricians or midwives about breastfeeding, but expected it to be covered in future prenatal classes.

A few women had more in-depth conversations about breastfeeding with their prenatal care providers. One woman’s obstetrician brought up breastfeeding and encouraged her to get a good nursing bra. For two women the prenatal breast exam was the opener for the breastfeeding conversation, one with an obstetrician, and the other with a home visiting nurse. Both were assured that there were no anatomical concerns that would interfere with breastfeeding, which was reassuring to them.

After their babies were born, women wished that they had been better prepared for breastfeeding. Those who encountered challenges wished they had been aware that it could be challenging in the beginning.

“So maybe if I had [known] about some things that women go through and why it’s difficult for them maybe would’ve mentally prepared me to be a little less frustrated.” [Holly, 9 d]

Advocacy and support in the hospital

Women reported some important positive experiences in the hospital (Table 3.3). The majority of women (n=16) put their babies to the breast within one hour after delivery. Some women with cesareans even held their babies on the way to or in the recovery room. Six women, however, were separated from their babies immediately after delivery because of maternal bleeding, concerns about the baby's health or cesarean deliveries. Additionally, no mothers reported receiving formula samples from the hospital, although one reported that she took some formula even though she knew she was not supposed to. Among the seven women whose babies received formula in the hospital, one baby was fed formula by cup, and one was fed formula without the mother's knowledge or consent.

Overall, women tended to either be disappointed with or feel neutral about their hospital stays. Some women felt they needed advocates to help manage the hospital nursing staff and to ensure their babies breastfed and did not receive formula, especially among those who had a cesarean delivery. Some women felt lucky to have supportive husbands or doulas in the hospital.

“[After the C-section] when I was recovering, [my partner] and the doula expressed milk or colostrum to take to him. ... when [my partner] went in with [the colostrum] they were like ‘oh we don't need that, we have formula.’ And he was like ‘no, you need this.’ And then one of the other nurses was like ‘yeah, here's how you do it.’” [Regina, 8 d]

One woman who delivered via cesarean and whose baby required blood sugar monitoring felt it was unnecessary for her baby to be kept in the nursery, but the nurses told her it was hospital policy to do so. She felt she had no one to advocate for her and had to “battle” the nurses and hospital staff to get to see and breastfeed her baby, otherwise the nurses insisted on taking the baby to the nursery.

“So I now know next time what I will do... be more of a jerk about it. Because when I was being an absolute jerk about it, I finally got to [breastfeed]. I know if my mom had been able to come, things would have been so much different because she knows, she would've been the one to fight the battles...” [Allison, 3 mo]

Some women stated that the most important help with and information about breastfeeding they received was from the nurses and lactation consultants in the hospital. However, many women felt that they did not get the assistance or information that they wanted, such as one woman whose baby was in the NICU and had assistance latching only once during the course of her hospital stay.

“I thought they’d be, from the way it was presented to me, they would be in my room every day wanting to be right there with me when I nursed. That never happened. ... there was one lady in the NICU who could help with that... but other than that, they came in and they just dropped off, um, a chart on how to keep record of what side she nursed on, how long, you know.” [Beth, 10 d]

Typically, women who were unsatisfied with the breastfeeding help that they received attributed problems to the nursing staff being too busy and to needing help at times when lactation consultants were unavailable. One woman referred to a “huge list of things that the nurses are supposed to teach you,” but noted that these were things that she had not learned while in the hospital and wished that she had [Whitney, 9 d]. Lactation consultants were generally not available at night, which for one woman resulted in receipt of nipple shields that were the wrong size the night her baby was born. In most hospitals, lactation consultants worked during the daytime hours on most days or every day. In one hospital, lactation consultants were only on staff 3 days per week.

Other women were satisfied with the help they received. These women felt that the nurses were “very helpful” and that they could call for the lactation consultant whenever they needed help. Many women stated that these were the most influential HPs in their ability to begin and continue breastfeeding. Some women even commented that they were grateful to have the nurses take the baby to the nursery, even if it was just once, during the hospital stay, so that they could get some sleep.

Women tended to prefer rooming-in during the hospital stay. Even though it was challenging while they recovered, they liked having their babies close to them. Several women stated that the nurses offered, sometimes in a “pushy” way, to take the baby to the nursery so that they could get rest, and some women “gave in.” Sometimes the babies were kept in the nursery for longer than they should have been.

“And they said, ‘if you really want to get some rest, we’d really recommend that you, you know, let us take her for a couple hours...’ But she was gone for about three, three and a half hours, so I woke my husband up and said, you know, ‘Go get her. She’s in the nursery, they haven’t brought her back yet.’” [April, 10 d]

Needed more support postpartum

“I can see why a lot of moms stop breastfeeding” was a very common statement among the women. Women wanted more support and help with breastfeeding, especially in the first weeks after delivery (Table 3.3). One woman even noted that “I can see why a lot of moms end up bottle-feeding, because that after-care is just not there.” Similar to prenatal care when HPs “only asked” about breastfeeding, women felt conversation was sometimes missing postpartum. Women often reported that they were asked at the pediatrician’s office how they were feeding their babies, but that was the end of the conversation if the baby was gaining weight well.

“...a doctor does say ‘breast is best,’ but how many doctors, how many pediatricians are really, really making that effort with each mom, each new baby to say, how are you doing, do you need help, are you coming across any problems?” [April, 3 mo]

Two women reported that their pediatric providers watched them latch the baby and assessed a feeding in-person. Several women reported that when they needed to feed their infants in the pediatric clinic, they were able to do so privately in an exam room. These experiences were highly valued by the mothers.

Many women, however, received much of their breastfeeding support from friends and family because their health professionals did not or were not available to address breastfeeding issues. One woman had a difficult time latching her baby because her nipples were flat, but this was not addressed in the hospital, so her mother and sister tried to help her figure out what to do once she was home:

“Me, my mom and my sister have been like scouring the internet trying to figure this out... we found like, um, a YouTube where like, if you try a different position and have most of your breast weight this way... then your nipple will come out. Yeah, mine don’t. ... so, I mean we’re trying all different things.” [Beth, 10 d]

One woman whose pediatric providers recommended formula supplementation because of her infant’s weight loss several months postpartum received her most influential advice from her sister:

“I used to feed her the formula and then I’d breastfeed her, but then she was sometimes full from the formula and wouldn’t want to breastfeed. And I talked to my sister and I found out that my sister had a hard time with her supply... she said that like, you know, ‘what you need to do is like breastfeed always first and then, then give the formula.’” [Laura, 6 mo]

In addition to more general breastfeeding support from pediatric providers, many women wanted more help from lactation consultants. Several women telephoned services provided by lactation consultants in the hospitals. They found these services helpful, but felt that information provided over the phone was not as good as in-person help. Because of the challenges of leaving home with a newborn while still recovering from delivery, it was believed that home visits from a lactation consultant would have been the most helpful.

“...people start going to the new mom’s group probably when everybody’s maybe two months, a little before, a little after, so by that point, you are either getting the hang of breastfeeding, or you’ve given up. So it’s that whole getting *out* of the house to *get* assistance. And I think the idea would be either to have people able to come to *you*...” [Suzanne, 3 mo]

Many women were unaware that lactation consultants could be hired to do home visits or could not afford home visits. Among the 3 women who did hire lactation consultants to come to their homes, there were challenges when it came to paying for or obtaining reimbursement for care. One woman was told there were no in-network lactation consultants available. One mother found very little would be reimbursed by her insurance; and one found that insurance would not cover lactation consults after 6 weeks postpartum.

Although a few women reported that lactation consultants were in the pediatric offices, the women who attended these offices often did not see the lactation consultants during their visits or did not find them helpful. One of these women suggested that more breastfeeding help incorporated into pediatrician visits would be the most useful because women already take their babies to these appointments.

“But you are exhausted, emotional, so like, going out of your way to call a lactation consultant, or you know, go to a class, or get some education on it is not going to be your first priority. So I feel like it would be the pediatrician that [is] going to be the most effective point person to incorporate what you are already having to do.” [Natalie, 3 mo]

Longitudinal effects of BF care

Nearly all women experienced care at some time across the continuum that was unsupportive of breastfeeding or counter to recommendations, and many experienced unsupportive care in more than one period. In few situations, however, did this care seem to influence the women’s decisions or ability to initiate or continue breastfeeding, possibly because most women in our study were highly motivated to breastfeed: “I’m very gung ho about doing this, whatever it takes...” [Sandra, pregnancy]. However, many dyads that might have otherwise exclusively breastfed received formula based on HP suggestions: “And so I allowed [formula] the one time, and was really, really upset about it,” [Sidney, 10 d]. Women who felt that their

HPs were not supporting them with breastfeeding sought assistance from friends, family and paraprofessionals such as doulas, or if feasible, they changed prenatal or pediatric care providers:

“...when we tried to talk to the pediatrician about it, he ... kept telling me it was my breast milk and it was my fault. So... I found another doctor we're gonna be seeing ... for her six-month appointment.” [Allison, 6 mo]

Those who expressed lower confidence or motivation to breastfeed, however, did not seek out other care, and continued formula supplementation after discharge or began formula supplementation within 6 weeks. Women who had breastfed previous children usually did not feel that they needed as much support either prenatally or postpartum as women who were primiparous or had not breastfed a previous child; however, they were grateful for assistance in the hospital while learning to navigate a new breastfeeding relationship (Harriet, Marion, Kara, Suzanne, April).

“... you know, the milk's not there and she's still learning and I'm re-learning... they said call, call the nurse if she comes off and you can't get her to latch again. And I had to a couple times and they came right back in and helped get her re-latched and get her on again. So that was good.” [April, 10d]

Women tended to receive little prenatal breastfeeding preparation, thus it was unclear how this affected their breastfeeding outcomes because there is no comparison group. One woman, whose obstetrician discussed breastfeeding beyond a yes-or-no question, wished postpartum that she had taken the prenatal advice to get a good nursing bra more seriously, as ill-fitting bras and clothing were her biggest frustrations. Most dyads who encountered challenges during their hospital stay, such as cesarean delivery, multiple feedings of formula, or dyad separation, were determined to breastfeed after discharge from the hospital. The women who encountered such challenges and had expressed confidence in their ability to breastfeed prenatally worked diligently on breastfeeding and tended to stop using formula within 1 to 2 weeks:

“... yesterday, I sort of took her and I’m like, you know what? We’re gonna spend the whole day at home... we’re gonna learn how to get back on doing breastfeeding, and by the end of the day she’s doing really well again.” [Rose, 10 d]

These women tended to rely on their own social support networks for breastfeeding support. Importantly, women who encountered challenges and expressed lower confidence prenatally, had lower social support or had multiple health problems in addition to breastfeeding challenges tended to continue formula supplementation after returning home from the hospital. Few women had professional support for breastfeeding postpartum. Several women who felt that their pediatricians were not supportive moved to different practices to seek better support. For other women, changing pediatricians was either not an option due to accessibility, or undesirable because the pediatrician had other good qualities.

One exception was Emma, who had breastfed her previous child for a very short time, and had not done so exclusively. Emma was unique because she had home visits from a nurse during pregnancy, and then a visit from the same nurse in the hospital and post-discharge. The nurse addressed breastfeeding prenatally and assisted early postpartum. Postpartum, her pediatrician took over providing breastfeeding care, and gave advice and assistance that Emma found to be valuable. Despite low confidence, nipple pain and supply concerns early on, she was able to exclusively breastfeed until she returned to work around 8 weeks postpartum.

DISCUSSION

Mothers felt and reported that HPs’ actions were inconsistent with their proclaimed support for breastfeeding. The lack of breastfeeding discussion prenatally, inadequate support in the hospital and postpartum, as well as advice and recommendations that undermined or interfered with breastfeeding, and the conflicting messages about breastfeeding that these women

received reinforced that breastfeeding care was not a priority. This was especially true among mothers who encountered challenges with breastfeeding or their infants' weight gains. A similar sentiment was identified in a previous qualitative synthesis of 26 studies that HPs' "positive attitudes to breastfeeding were not always reflected in how the new mother was cared for or supported" in breastfeeding (87). Contrary to our expectations, experiences did not differ by BMI category among our participants and, overall, women's perceptions of breastfeeding care were poorer than we anticipated.

The mothers in our study found their breastfeeding care to be a "gray area," disjointed across the continuum, and were unsure where to access or were unable to access breastfeeding care prenatally and especially after discharge from the hospital. In our previous research with HPs, we identified gaps in care across the continuum and reliance on other HPs that resulted in "no captain of the ship" for breastfeeding care (Chapter 2). Based on our findings with women in this study, it is evident that women experienced the "no captain of the ship" environment of breastfeeding care as a "gray area" for obtaining care, a topic area for which no HP was in charge across the continuum. The lack of discussion about breastfeeding prenatally and postpartum could result from their HPs' expectations that someone else would cover this information or that the mothers received assistance elsewhere or did not need it. Breastfeeding support interventions from HPs are most effective when they include care components across the continuum (68). Interventions that span the continuum may provide women with consistent access to breastfeeding care, and women's perceptions of the adequacy of such strategies could be investigated.

Mothers' breastfeeding outcomes differed based on their confidence prenatally. Women who were less confident were also less likely to recover from unsupportive breastfeeding care

from HPs. This indicates that there is a possible interaction between confidence level and vulnerability to breastfeeding care from HPs. The women in our study who recovered from unsupportive breastfeeding care did so by seeking out support elsewhere or through their own determination to breastfeed. Women, however, who had low social support or socioeconomic status were less likely to recover from unsupportive breastfeeding care, a finding similar to previous research (114, 132). This demonstrates the importance of targeting breastfeeding care for women who lack confidence or who are otherwise at risk of poorer breastfeeding outcomes.

Our participants received conflicting information from HPs as well as advice that was inconsistent with current recommendations (6) as others (88, 89, 141) have reported. Our participants received advice that was outdated, such as to breastfeed newborns on a schedule and introduce solid foods at 4 mo (rather than 6 mo) (6). Formula supplementation was recommended to many of the breastfeeding dyads, usually for clinical indications of poor weight gain, but sometimes even prior to delivery or without such indications. Conflicting information and inappropriate recommendations may be a result of lack of skills or knowledge among the HPs, or system-wide policies that differ between healthcare practices, hospitals, and nationally recommended guidelines. Perceived conflicting information, however, may also be due to busy clinical situations where care is fragmented with little opportunity for forming relationships (88). Indeed, the mothers in our study described poor communication with HPs in hectic clinics and hospitals. It has been suggested that more relationship-based care may facilitate improved communication and individualized breastfeeding care (87, 88). An intervention that implemented a training curriculum for providing breastfeeding care improved physician knowledge as well as exclusive breastfeeding rates (123). When implementing such training curricula, it also would be

worthwhile to assess mothers' perceptions of the breastfeeding care they receive in conjunction with breastfeeding outcomes.

Women tended not to have many questions about breastfeeding prenatally because they did not know what to ask—even those who were aware that breastfeeding could be difficult. Our findings are consistent with previous findings (142, 143) that women felt unprepared for breastfeeding, or that their concerns about breastfeeding were not addressed prenatally. These findings are also consistent with research with HPs that identified infrequent and brief breastfeeding discussions prenatally (115, 135), as well as a need to better prepare women for breastfeeding (143). The patient-centered care approach provides patients with care that is consistent with their values, needs, and desires and is achieved when patients are involved in healthcare discussions and decisions (144-146). Such a model in its strictest form may be inadequate prenatally for women who do not know what questions to ask or what help they may need, such as nulliparous women or those without social networks in which women commonly breastfeed or discuss breastfeeding. However, there are common concerns about which women could be probed or prompted to ask questions, such as inadequate milk supply, anxiety or embarrassment, and ability to return to work or school (143). There is also potential for women to benefit from a more patient-centered approach to breastfeeding care peri- and postnatally. Many women desired to room in with their infants or exclusively breastfeed, but HPs provided recommendations and suggestions that did not facilitate patients' choices. Research and development about patient-centered breastfeeding care is warranted.

Women also wanted better follow-up care for breastfeeding after delivery. We (Chapter 2) and others (114) identified this gap in postpartum care previously. After delivery, women generally felt that the focus of doctor's visits was on the baby and that this focus on the baby did

not necessarily include breastfeeding. Implementation of full-time lactation consultant coverage for neonatal and pediatric clinic visits has been shown to increase exclusive breastfeeding rates through 6 months (147, 148). It was unclear why the few women in our study who reported that their pediatric offices had lactation consultants did not necessarily see the lactation consultants at clinic visits. It is possible that these lactation consultants had other responsibilities in the clinic rather than providing full-time lactation services (147). It is also possible that the women did not seek out such consults, consistent with findings from a recent review that breastfeeding support is likely to be ineffective if women must seek it out (149).

Importantly, women reported barriers to accessing breastfeeding care postpartum. Clinics that specifically provide breastfeeding care have been successful with helping new mother-infant dyads (150). However, the most commonly discussed barrier among our participants was the difficulty of leaving home while recovering from delivery and caring for a newborn. Research with HPs also identified that home visits from trained lactation consultants would be ideal for improving breastfeeding care (Chapter 2). Another barrier discussed among the women who were aware that lactation consultant home visits were possible was the cost of such visits. In August 2012, women's preventive services of the Affordable Care Act went into effect requiring that insurance companies cover "lactation counseling" among other items that support breastfeeding, but leaves the particulars to the insurance companies (128). Our participants reported challenges with getting insurance coverage for lactation consultant visits. Research is needed that investigates how and how much women access insurance coverage for breastfeeding care as well as the extent to which they experience barriers to obtaining and using this coverage.

The longitudinal nature of this study allowed us to understand women's experiences with HPs from pregnancy through several months postpartum. Additionally, we included women with

a variety of backgrounds and characteristics to obtain a broader perspective, and which may be similar to women in other locations. The results of this study, however, are not generalizable, as is the case for most qualitative investigations. All of the women in our study intended to breastfeed, and most were highly motivated to do so. Thus, our findings do not indicate how women who were not committed to breastfeeding would have responded to the breastfeeding care experienced by the women in our sample.

CONCLUSION

Women need encouragement and support from HPs that is backed by their actions to support breastfeeding. Women experienced suboptimal breastfeeding care across the continuum from pregnancy through postpartum, and were unsure where or how to access breastfeeding care. Women who had low confidence were particularly vulnerable to unsupportive care. To improve breastfeeding outcomes, mothers need more consistent, accurate, and accessible breastfeeding support across the continuum, including better prenatal preparation and more continuous support postpartum. Strategies are needed within the healthcare system to provide mothers with this support during pregnancy, and peri- and postnatally.

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CHAPTER 4

OBESE WOMEN EXPERIENCE MULTIPLE CHALLENGES WITH BREASTFEEDING THAT ARE EITHER UNIQUE OR EXACERBATED BY THEIR OBESITY: DISCOVERIES FROM A LONGITUDINAL, QUALITATIVE STUDY

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ABSTRACT

Background: Obese women are at risk for poorer breastfeeding outcomes, including failure to initiate and shorter duration of breastfeeding. There is biological evidence that at least partially explains this association, however, interventions based on this information have not been effective. Little is known about how obese women experience breastfeeding.

Objective: The aim of this study was to understand obese women's perceptions about and experiences with breastfeeding.

Methods: Women in upstate New York, who were either obese ($n=13$; $BMI \geq 30 \text{ kg/m}^2$) or normal-weight ($n=9$; $BMI 18.5-24.9 \text{ kg/m}^2$) before conception and intended to breastfeed, were enrolled in their third trimester of pregnancy. A longitudinal, qualitative study was conducted with semi-structured interviews during pregnancy, and at specific times postpartum through 3 months or until breastfeeding ceased, whichever came first. Interviews were audio-recorded, transcribed, and analyzed using ATLAS.ti 7 software and a grounded-theory approach. Emergent themes were compared between obese and normal-weight women.

Results: Differences emerged between obese and normal-weight women's experiences with breastfeeding. Prenatally, obese women were hesitant in setting breastfeeding goals and had lower confidence in their abilities to meet these goals. Postpartum, obese women and their infants had more health issues after delivery that affected breastfeeding, such as low infant blood glucose. They also encountered more challenges with latching their infants due to flat nipples. Positioning their infants to breastfeed required more time, more hands, and more props and pillows, and they remained limited in how and where they could breastfeed for a longer time. Obese women had additional challenges finding nursing bras. Obese women required more tangible social support, such as help with things around the house, postpartum.

Conclusion: Obese women experienced more challenges than normal-weight women; some challenges were similar to those of normal-weight women, but were experienced to a greater degree or for a longer duration, and other challenges were unique. Obese women could benefit from targeted care prenatally and during the hospital stay, as well as continued support postpartum to improve breastfeeding outcomes.

INTRODUCTION

Maternal obesity is associated with adverse outcomes for the health of both mothers and their infants (11, 13). One such outcome is poorer breastfeeding outcomes among obese women (14, 31, 60). High pre-pregnancy body mass index (BMI) has been consistently associated with shorter duration of exclusive or full (22, 23, 27, 29) and any (22, 24, 26, 27) breastfeeding, except among African American women (22, 24). A dose-response association has been observed such that breastfeeding duration decreases as BMI increases (27). Some findings indicate lower rates of initiation among obese women, although these results have been mixed (26, 33, 60). Associations between obesity and poor breastfeeding outcomes have been found in the U.S. (21, 151), and other countries (26, 27, 29, 30), and, importantly, have persisted after adjusting for potential confounders such as socioeconomic status, education, and parity (60). Poorer breastfeeding outcomes among obese women are a concern because obesity prevalence has increased, now affecting more than a third of reproductive age women (8), and because breastfeeding provides a unique opportunity to improve and protect the health of the obese mother and her infant (4).

There are biological factors that may partially explain the links between maternal obesity and poor breastfeeding outcomes. Obese women tend to have delayed copious milk production (41-43), an established predictor of early breastfeeding cessation (44). Additionally, Rasmussen and Kjolhede (46) identified that obese women had a blunted prolactin response to breastfeeding their infants early postpartum. Furthermore, women who are obese may have larger breasts or flat nipples, which have been identified as more problematic for proper latching (48). Previous biomedically-based interventions were developed to address these known biological and physical factors through providing extra support from lactation consultants or pumping (49).

Unfortunately, they failed to improve obese women's breastfeeding outcomes. Another intervention that provided specialized peer counseling support also had no impact on exclusive or any breastfeeding duration (51). The failure of these interventions, which have been successful among non-obese women and which had biomedical basis, suggests that obese women experience barriers to breastfeeding that have not yet been fully understood or addressed.

It is largely unknown how obese women experience breastfeeding or what they perceive as barriers to and supports for breastfeeding. In our previous research, we identified challenges that health professionals perceived obese women encountered (116). Only one previous study used qualitative methods to explore obese women's perceptions of their breastfeeding experiences by interviewing women after they stopped breastfeeding (152). Our aim was to understand obese women's experiences with and perceptions about breastfeeding longitudinally, with a normal-weight comparison group, beginning in late pregnancy and continuing through 3 months postpartum, to identify key experiences and barriers that are unique to or more common among obese women and that could be addressed in future interventions.

METHODS

Pregnant women who intended to breastfeed were recruited using flyers and brochures placed in obstetrics and family medicine practices, maternity ward tours in hospitals, birthing classes and prenatal care programs in two regions in Upstate New York, as well as through chain-referral. The research was advertised as a study to "understand how moms experience breastfeeding in our society." Although some recruitment materials indicated that we were looking for "pregnant women with a variety of body sizes," none of the materials indicated that this study was about obesity nor did they suggest that breastfeeding might be more difficult for

obese women. This was done to avoid influencing how women described their experiences during the interview.

Women interested in participating contacted the researchers either by phone or email. Subsequently, a screening questionnaire was administered over the phone to determine eligibility. Women who were in their third trimester of pregnancy with a singleton fetus, intended to breastfeed, had no history of breast surgery, spoke English and were either obese (BMI ≥ 30 kg/m²) or normal weight (BMI 18.5-24.9 kg/m²) were eligible to participate. Women who delivered preterm (<37 weeks gestation) or had severe medical complications of delivery that resulted in prolonged separation from the infant were excluded. Purposive sampling was used to obtain a sample that was diverse in characteristics that are known to affect breastfeeding outcomes, including parity, socioeconomic status, race, and planned work status. Informed consent was obtained from each participant before enrollment, and approval of this study was obtained from the institutional review boards at the University of Rochester and Cornell University.

A series of semi-structured interviews were conducted by CDG with each participant, between 2 and 5 times depending on breastfeeding duration: i) during pregnancy, and postpartum at ii) 7 to 10 days, iii) 6 weeks, and iv) 3 months, with v) an optional 6-month phone call. Participants were encouraged to choose interview locations that were private to facilitate discussion of sensitive issues. Interviews usually took place in women's homes, and a few took place in local coffee shops. Women received a \$20 gift card to a grocery store or big box store of their choice at the end of each interview. Interview guides (Appendix) that had been tested and revised to address problem areas were used at each time to assist with data collection, however, interviews were largely participant-directed. The Interpersonal Support Evaluation Survey

(ISEL-12) (153), a validated questionnaire that measures 3 types of social support, was completed by participants at the beginning of their first interview, and at the end of each subsequent interview.

Interviews were audio-recorded, transcribed verbatim, de-identified and double-checked to ensure accuracy. Field notes were recorded immediately after each interview. Transcripts were analyzed iteratively and concurrently with data collection to allow for exploration of ideas that emerged. A combination of predetermined and emergent codes was used with ATLAS.ti 7 (Berlin, Germany) to assist with analysis. A team of 4 researchers (including CDG and SAM) completed coding. Differences between obese and normal-weight women that emerged through coding were discussed by the team in weekly meetings where the researchers came to agreement on analysis. Each theme was organized into subthemes and categories, and influential circumstances were identified that related to the themes. Social support themes that emerged were categorized into advice/information support, tangible support or help with “doing things,” and emotional support received, as well as types of support of which they wanted more or support that was perceived as negative or had a negative influence on breastfeeding. The presence and absence of these codes in transcripts allowed us to categorize women by the social support that they experienced. The ISEL-12 results were used to validate how social support was coded in qualitative interviews; however, the ISEL-12 results are not presented here.*

RESULTS

Participants

* A table of the ISEL-12 results is included in an Appendix to this dissertation

Twenty-six women were enrolled, and 22 women were followed longitudinally; 13 were obese, 9 were normal weight, and the two groups were similar in important social characteristics except that more obese women had low socioeconomic status as determined by their participation in the Supplemental Nutrition Program for Women Infants and Children (Table 4.1). Women delivered in 5 different hospitals. All 22 women initiated breastfeeding, and 18 continued breastfeeding to some extent at 3 months. More than half of the obese women (7 of 13) supplemented with formula, compared to 2 of the 9 normal-weight women, in the hospital or within the first 10 days. All 4 women who stopped breastfeeding before 3 months were obese. In total, 103 interviews were completed, 90 of which were conducted from pregnancy through 3 months averaging 83 (range 20 to 130) minutes, and 13 were at 6 months averaging 43 (range 20 to 90) minutes long.

Presentation of Themes

Obese women's experiences and challenges with breastfeeding were often similar to those of normal-weight women, but challenges were experienced to a greater degree or for a longer time; only a few experiences were unique to obese women. Themes emerged in which obese and normal-weight women differed including breastfeeding plans and confidence in making plans, health issues after delivery for both mothers and infants that affected breastfeeding, difficulty or ease with which women positioned and latched their babies, challenges of finding nursing bras, and social support (Table 4.2).

Individual women's stories will be used to illustrate the themes. The experiences of 3 obese mothers, Colleen, Allison, and Jana, and one normal-weight mother, Natalie, are described in detail. The obese women were selected because, together, their experiences illustrate the major

Table 4.1. Participant characteristics of obese and normal-weight women

Characteristics	Total n=22	Obese n=13	Normal-weight n=9
BMI prepregnancy, kg/m ²			
Mean	32.2	39.5	21.6
Range	18.8-68.5	29.2-68.5	18.8-23.8
Age, n			
<30 years	8	5	3
≥30 years	14	8	6
Parity, n			
Nulliparous	14	8	6
Multiparous	8	5	3
Race, n			
White	17	9	8
Black	4	3	1
Other	1	1	0
Marital status, n			
Married	14	7	7
Partner, unmarried	6	5	1
Single	2	1	1
Education, n			
< College	10	7	4
≥ College	12	6	5
WIC participation, n	7	6	1
Delivery type, n			
Cesarean	8	6	2
Vaginal	14	7	7
Breastfeeding at 3 mo, n			
Exclusive	12	5	7
Any	18	9	9

Table 4.2. Comparison of experiences between obese and normal-weight women in themes and subthemes

Themes	Obese	Normal-weight
Breastfeeding plans and confidence	Goals ranged 6 wk to 2 yr Several women had no goals Lacked confidence prenatally	Goals ranged 6 mo to 2 yr All women had goals Confident prenatally
Delivery experience	Long, difficult labors (several were 3 or more days) Several labor inductions Cesarean deliveries	Few long, difficult labors Most were vaginal deliveries
Management of health issues pose breastfeeding challenges	Infant low blood glucose Formula supplementation Separation from infant Complicated feeding regimens Pumping to stimulate	Formula supplementation Pumping to stimulate
Positioning and latching	“Awkward” Nipple shield use for flat nipples Pumping for flat nipples Inflexible positioning Need for pillows and props Need extra hands or help Pushing on breast tissue so baby can breathe Holding breast while breastfeeding	A “learning curve” Nipple shield use for nipple pain More and earlier flexibility with positioning
Nursing bras	Frustration with finding large sizes and with enough support Had to order online Sometimes cost prohibitive Paired nursing bras with nursing tanks	Easy to find in stores Inexpensive styles provided enough support Nursing tanks worked well
Social support	Higher need for tangible support	
Other social support factors related to socioeconomic status		

challenges identified among all obese women in our sample. The normal-weight woman was selected because she had a cesarean delivery, something that was more common among our obese women, and thus, had some challenges that were more similar to the obese women. Yet, aside from the cesarean, she was quite similar to other normal-weight women and, thus, she provides a comparison to illustrate the uniqueness of breastfeeding challenges among the obese women. A comparison of cases and summary of findings in the full sample within each theme is provided after the cases.

Colleen: “Awkward” positioning to “failure of breastfeeding”

Colleen was 38 years old, pregnant with her first child, and reported a prepregnancy BMI of 58.7 kg/m². She was white, married, and had some college education, but was not employed. Previously, she worked in home health care. She was a WIC participant, received SNAP benefits, and money was tight. They lived in a trailer home in a rural area and had to drive a long distance for medical appointments. Her family and her husband’s lived nearby.

Colleen wanted to breastfeed because she heard that it was healthy for her baby and for herself. She also felt that receiving foods from the WIC program was an incentive for breastfeeding. Most of Colleen’s friends had not breastfed. She read online that breastfeeding can be difficult but that it gets easier. She was “nervous” about breastfeeding and was concerned because her breasts had not changed during pregnancy. Colleen planned to breastfeed for a year, did not want to feed formula, and anticipated starting work at 3 months.

Hospital stay: low blood sugar, and not enough milk

Colleen's obstetrician attempted to induce her labor "because of my [blood] sugar" using 4 different methods over the course of 4 days, but they were unsuccessful and Colleen was exhausted so she "insisted on the C-section." In the recovery room, Colleen first breastfed her baby girl, Maya, which Colleen described as "awkward."

In the hospital, Maya received formula both because she had "low blood sugars," and because Colleen did not want to let her baby "starve." Colleen had difficulty getting Maya to the breast and latching before she was too hungry to feed. Colleen felt encouraged to breastfeed even though she also had to feed Maya formula. A lactation consultant suggested that Colleen pump before latching to pull out her nipples. Colleen was also encouraged to pump between feedings to stimulate production, which was difficult because it took so much time. She was feeding at the breast, pumping, feeding colostrum with a syringe, and giving formula. Colleen described that when her milk came in, it wasn't enough.

"And then I just finally kept on pumping and then one day I started getting the little bit of milk and I'm like, 'Oh! The milk's coming in!' and then, just frustrated that it's not coming *enough* (short laugh)." [Colleen, 7 d]

Seven days postpartum: "awkward" positioning, and complicated feeding regimen

When Colleen and Maya returned home from the hospital, they continued breastfeeding and feeding formula. Colleen also attempted to pump between feedings as the hospital staff had instructed her, but she was "frustrated that it's not coming in enough."

At home, Colleen found "it's awkward getting in position, because I'm a big woman." Her incision made it difficult to breastfeed in bed, so she usually sat on the couch. She used a modified football hold with her baby vertical along the side of her body and a pillow for support. Once latched, Colleen had to "pull the boobie down so she can breathe" by pushing on her breast next to Maya's nose. If latching didn't work Maya would get an ounce of formula. She would

then either try latching again, or she would get a second ounce of formula if Colleen was too exhausted. She attempted to find a nursing bra, but she could not find any that fit.

“...it’s hard enough for me with my size to find a bra that fits right anyways. So, and I’m like trying to figure out how I’m gonna find a breastfeeding one that’s gonna fit right, and where do I go to get it? And can I afford it?” [Colleen, 7 d]

Colleen had little support for breastfeeding. Her cousins told her ‘ah, you should just keep on bottle-feeding,’ and her aunt scared her about rolling onto and smothering her baby. Her husband occasionally helped her with positioning and pumping. He also made bottles of formula, and was concerned that Colleen wasn’t producing “enough to make a mouse happy.”

Six weeks postpartum: “health issues” leave less energy for breastfeeding

At 4 weeks postpartum, Colleen’s doctors discovered that she had a skin infection and an abscess at the site of her cesarean incision. These health issues made her exhausted and left less energy to put into breastfeeding. By 6 weeks, Colleen was giving Maya more formula and breastfeeding less. She became very frustrated that she was not producing enough milk, and blamed herself for not breastfeeding and pumping more. At night, she fed formula because she was afraid of falling asleep and rolling over onto her baby.

“I told [my WIC peer counselor]... ‘cause I’ve just been so tired, and I think it’s from this infection and stuff, too, that I’d fall asleep at night when I’m feeding her. And I said, ‘oh, my God, if I had her on my boob, I’d roll over and mush her.’” [Colleen, 6 wk]

Colleen had multiple doctors’ appointments and 2 CAT scans after which she was told either to not breastfeed or to pump and dump for 24 hours because the dye in her body was unsafe for breastfeeding. Colleen’s husband and mother-in-law fed Maya formula when Colleen was away at appointments. She did not take her baby with her to appointments because “it’s easier just to leave her here with [my husband].”

Colleen's husband often needed rides to different places throughout the day and asked her to run errands for him because they had only one car. This gave her even less time to breastfeed or pump.

Three months postpartum: "pumping it out and dumping it out" and "failure"

Over the next 4 weeks, Colleen continued to have multiple appointments and CAT scans for her abscess and infection, as well as periods where she could not breastfeed due to the dye. Thus, her pumping and breastfeeding frequency continued to decrease:

"...it's like, well, I have to pump it out and dump it out, and I might as just leave it in there or whatever, and then I...got less and less milk." [Colleen, 3 mo]

At 10 weeks postpartum, Colleen was admitted to the hospital for one week of intravenous antibiotics, at which time she stopped breastfeeding and pumping altogether because she did not have access to a pump – the hospital staff did not offer her one – and because Maya was not allowed to visit her. Additionally, Colleen felt that breastfeeding was not a priority – she needed to focus on getting well. Colleen was very disappointed that she could not keep up with breastfeeding and pumping, and continued to blame herself for her "failure of breastfeeding."

Allison: From "they kept taking her away from me" to "we made it through"

Allison was 29 years old, pregnant with her first child, and reported a prepregnancy BMI of 32.8 kg/m². She was white, married, had a graduate degree, and worked as an education specialist in a library. She planned to return to work full-time around 2 to 3 months postpartum. She and her husband lived in a mobile home park in a small town and were looking into buying a house. She had some family nearby, but most of them lived a couple hours away; her husband's family lived farther away. Breastfeeding was the norm in both families.

Allison planned to breastfeed because it was healthier for the baby, and she knew that it could benefit her. She didn't have a plan for how long she would breastfeed because she didn't want to be upset if she couldn't reach her goal:

“So I figure if I kind of leave it as open-ended, we're going to see what happens, I won't be as stressed about it and I won't be upset if something goes wrong, if that makes sense.” [Allison, pregnancy]

Allison's mother, who was an OB nurse, and sister, who was breastfeeding her second child at the time, were her major sources of information about breastfeeding.

Hospital stay: “they kept taking her away from me”

Allison's labor lasted for 3 days and left her exhausted, and eventually she had a C-section. She first breastfed her baby girl, Jacey, in the recovery room about an hour after the birth. Allison was amazed at how Jacey wiggled her way to the breast and latched on. But Jacey had low blood sugar, so they were allowed to breastfeed for only a short time:

“And then I got really bummed because she was only able to stay on me for a couple minutes. The nursery came and got her because her blood sugar levels were low and they were worried about her.” [Allison, 10 d]

Allison described the hospital's protocol for infants with low blood sugar as “directly to formula, they don't let the mother breastfeed.” She was not able to breastfeed Jacey again for more than 12 hours when “I pretty much threw a fit about it” and “the lactation consultant stepped in.” Allison was upset because “they kept taking her away from me,” and because no one brought her a pump. Allison's pediatrician eventually allowed her to keep Jacey in her room as long as she supplemented with formula after each time they breastfed. Breastfeeding was uncomfortable in the hospital because she only had one pillow and no other way to prop her baby up.

Ten days postpartum: “nest” of pillows and “heavy-duty” bras

Allison stopped feeding formula when her milk came in at 4 days, the day after she went home from the hospital. Breastfeeding at home was easier. To position, Allison held her breast and used the cradle hold along with a Boppy, “the greatest thing ever,” and a “nest” of pillows. They breastfed on the couch or sitting up in bed. She still had some challenges with breastfeeding, but planned to continue until Jacey self-weaned, as most of her family had done.

Allison was not happy with the bras she had because they were not supportive enough, and she felt like “everything is falling out.” For breastfeeding she needed something more supportive and “heavy-duty.” Allison’s friend offered to measure her and take her shopping for bras, which she planned to do “once I’m able to really move again.”

Allison’s husband helped take care of Jacey by changing her diapers and by doing things around the house like cooking. Allison’s mother gave her positioning and latching advice, and her aunt and in-laws provided emotional support.

Six weeks postpartum: “we made it through”

Allison continued breastfeeding Jacey. There were “times I really wanted to give up, I was just almost done with it... but we made it through those.” Now she said, “I truly love it.” Breastfeeding was easier because Jacey did some of the positioning and latching herself. Allison continued holding her breast while breastfeeding.

“I still have to hold my breast for her, ‘cause it pops out easier if I don’t. But if I can manage it, with just hold the breast, and she just eats... she knows what positions she like lying in.” [Allison, 6 wk]

She was sometimes nervous that Jacey buried her face into her breast and might not be able to breathe. They continued using the Boppy, and Allison wanted to work on breastfeeding without it so she could breastfeed away from home more easily.

Allison's family and in-laws continued to support her. She felt that her husband played an important role and that his help in lots of little ways was the "reason I didn't give up." He continued to help with Jacey and take care of Allison by preparing meals. Her mother and sister provided a lot of breastfeeding advice and emotional support.

Three months postpartum: "finally figured out a position" away from home

Allison returned to work full-time around 2 months postpartum. She worked 5 days per week and her coworkers were "very understanding." Jacey continued to be exclusively fed breast milk, and Allison fed Jacey at the breast whenever they were together. Although she still often used the Boppy, she had "finally figured out a position" without it that worked.

"...so that makes life even easier when we're out somewhere... I don't always need the Boppy now. I can just use a random cushion... or armchair." [Allison, 3 mo]

She was frustrated that she couldn't find nursing bras in stores that fit her, so ended up ordering a brand of nursing bras that her sister recommended online.

Allison's family remained supportive and comfortable with her breastfeeding around them. Her husband switched to working a night shift so that he could care for Jacey while Allison worked. He sometimes took the baby to her in the middle of the day to breastfeed.

At 6 months, Allison continued breastfeeding and started feeding Jacey some solids. Allison planned to continue breastfeeding until Jacey self-weaned.

Jana: From "small steps" to "getting it over with"

Jana was 36 years old, reported a prepregnancy BMI of 39.4 kg/m², and was pregnant with her second child. Her first child was 16 years old. She was African American, single, had some college education, and was not currently working, but had previously worked in “home care.” She planned to work part-time and begin school after her baby was born. She participated in WIC, received SNAP benefits, and participated in other programs for low-income pregnant women and mothers. Her family lived nearby; some were very supportive of breastfeeding and others were not.

Jana had not breastfed her first child, but decided to do so “now that I’m older and more mature” because it was more “natural,” and healthier for herself and the baby. She was concerned that breastfeeding could lead to a “super-bond” that could make it difficult to leave the baby with others. Jana made step-wise goals for breastfeeding:

“So I figure okay we’ll do small steps. We’ll go 6 weeks, 6 months, and then a year. So just to kinda, I don’t wanna set myself up for high expectations and then it doesn’t work and then I feel bad...” [Jana, pregnancy]

Hospital stay: breastfeeding went “surprisingly well”

Jana had a vaginal delivery that “happened really quick.” She first breastfed her baby girl, Alani, in the delivery room. A nurse showed Jana how to express milk so the baby could find her breast, and Alani latched right on and “did surprisingly well.” Jana had difficulty with the cradle hold so a nurse showed her how to do a cross-cradle hold that required lifting her breast. She used a pillow under each arm and under the baby for support. Jana developed sore nipples because her baby “wasn’t latching on properly,” and was taught some tricks to help Alani open her mouth wider.

Ten days postpartum: “attached” but “exhausted” wanting her to take a bottle

Early postpartum, Jana liked breastfeeding because she felt “attached,” but she also felt “exhausted,” that breastfeeding was “demanding,” and that “trying to get her in the right position seemed like it was more work than it would’ve been if I had just had a bottle.” However, she kept breastfeeding because she wanted to “give it my all before I give up on it.” Breastfeeding at home was not as easy as breastfeeding in the hospital because she didn’t have help and because the head of her bed didn’t rise. She held her breast with her hand to breastfeed, and she found that propping herself up with pillows gave her “more control.”

Jana started pumping when her baby was a week old to help produce more milk and to give pumped milk in a bottle. She wanted Alani to take a bottle when they were away from home and so that others could feed her. Jana wore her “normal clothes” for breastfeeding and purchased sports bras because they were cheaper than nursing bras.

Jana’s older daughter was her biggest supporter, “my savior!” because she helped take care of the baby. Her friends and cousins provided advice about managing breastfeeding, and her grandmother advised her not to wait too long to offer a bottle. Alani’s father “teases me all the time: ‘Every time you turn around you got your titty whipped out.’”

Six weeks postpartum: breastfeeding is “demanding” and “getting it over with”

At 5 weeks postpartum, Jana started working a couple days a week doing “home care,” so she was away from Alani for several hours at a time. By 6 weeks, Alani was still being fed breast milk exclusively, but it was “frustrating” for Jana because of the many demands on her time.

“... you know, being busy, having stuff to do, it’s *demanding*. It can be a little frustrating because it’s like, oh, my goodness...I have to stop right now what I’m doing to feed you, you know, versus if she was bottle-fed, if there was someone else around, you could say, ‘can you feed her really quick for me?’” [Jana, 6 wk]

Despite this, Jana also “liked” breastfeeding because of “the bond.” She continued breastfeeding on-demand, and Alani was fed pumped milk when they were not together. Breastfeeding became easier because “she [Alani] does what she needs to do, we get it over with.” Jana learned to breastfeed with one hand so that she could do other things around the house at the same time. Jana was confident with her milk supply, but not confident that she could continue breastfeeding when she began school. Since she made it to her 6-week breastfeeding goal, “[we will] shoot for the six months... but it’s day by day.” Jana fed her baby formula once “just to see if she would take it,” which she did with no problem. Jana received formula from WIC “to have a supply just in case... because eventually I may need it.”

Some of Jana’s family members remained generally supportive, but for the most part they didn’t say anything. Her older daughter continued to help with doing things around the house and caring for the baby. Alani’s father continued to tease her about breastfeeding.

Three months postpartum:

By 3 months, Jana was breastfeeding Alani half the time and giving formula half the time. The amount of formula gradually increased as Jana worked more hours and had appointments to prepare for school. She mostly fed formula when they were away from home because formula was easier to prepare than frozen breast milk and because she didn’t feel as bad throwing out formula that the baby didn’t take. Jana still preferred breastfeeding Alani because of the convenience, but “not knowing how much she’s getting” began to bother her.

Around 4 months postpartum, Jana started school and was exhausted from breastfeeding at night, so she began giving formula instead. This, along with not being able to pump at school, led to a decrease in her milk production so she stopped breastfeeding entirely.

“I just wish that I could’ve, you know, been able to pump more and nurse her... but I’m so busy, so it [formula] works out.” [Jana, 6 mo]

Natalie: “Pushing through the pain” to “the best thing in the world”

Natalie was 30 years old, pregnant with her first child, and reported a prepregnancy BMI of 20.4 kg/m². She was white, married, had a college degree and worked part-time as a technician at a medical practice. She and her husband owned their own home and were financially secure. Her husband’s family lived in the area and her own lived far away

Natalie looked forward to breastfeeding for her baby’s health as well as her own, and she expected it to be a “beautiful thing.” Natalie had heard, however, that “breastfeeding doesn’t come easy” and she expected she would have to persevere. She planned to breastfeed for 9 to 12 months, and planned to return to work around 2 months for 1 day per week.

Hospital stay: A “traumatic” labor and delivery and “excruciatingly painful” breastfeeding

Natalie described her 40-hour labor and delivery as “traumatic” including a “cascade” of interventions starting with an epidural and ending with a cesarean. Natalie first breastfed her baby girl, Hazel, in the recovery room, with the help of the nurse. Natalie felt that Hazel “wasn’t very good at latching,” and when she did latch it was “excruciatingly painful.” In the hospital, she fed at the breast, which resulted in lots of pain and cracked, bleeding nipples. She also gave some formula “to make sure she was getting enough.” Natalie was provided a pump, which she used only a couple of times, and a nipple shield to reduce pain while breastfeeding, which she felt didn’t work. The nurses instructed her to pump for 10 minutes after breastfeeding to provide extra stimulation and to drain the breast fully when she was discharged from the hospital.

Ten days postpartum: pain and frustration “I just want to be able to feed my baby”

For the first couple of weeks, Natalie gradually decreased formula-feeding and increased breastfeeding. She found that “recovering from the C-section is really hard when you’re trying to breastfeed” because “you can’t get in and out of bed very easily.” She continued pumping to stimulate milk production because her milk came in late, around 5 or 6 days postpartum, and she fed the small amount she pumped to her baby.

“I think that’s probably every method of feeding your baby. Like, I think I’ve gotten to experience all of it, you know... it would be really easy to give up in the beginning, ‘cause I was just like I don’t wanna pump, I don’t want to do this... Like, I just want to breastfeed, I don’t want to do all these other things.” [Natalie, 10 d]

Natalie was exhausted from constantly feeding and pumping. Despite these challenges and painful latching, Natalie and Hazel “figured out how to breastfeed wherever [they were]” – in a chair, on the sofa, or sitting up in bed. Initially, she used a Boppy or pillows, but her need for these had decreased.

Early postpartum, Natalie had a lot of support. Her friends organized a “meal train” and her mother-in-law stayed with them and helped with things around the house. Her husband supported her with breastfeeding by making sure she was pumping. Natalie felt that because other people were taking care of her, her “one job of the day” was to breastfeed.

Six weeks postpartum: “Pushing through the pain” to enjoyable breastfeeding

By 2 to 3 weeks, Natalie stopped feeding Hazel formula, and by 4 weeks she no longer had pain when breastfeeding. By 6 weeks she even “enjoyed” it.

“I think we were watching TV and I wasn’t looking at her and I couldn’t even feel her breastfeeding, which is like huge change... Like that’s how much easier it’s gotten.” [Natalie, 6 wk]

She believed she was successful because she “pushed through” the pain in the first two weeks, and believed that she would be able to breastfeed as long as she wanted. Natalie stopped using the Boppy after 2 weeks because “it’s just an encumbrance to have to find all your little tools to breastfeed to put the baby on.” She continued to breastfeed wherever they were – sometimes sitting at the table eating dinner, on the ground in a park sitting cross-legged, or when out running errands. She sometimes held her breast to get the latch, but sometimes let Hazel do it on her own. She used a nursing bra that she bought at Target that she felt worked well.

By 6 weeks, most of her extra help was gone, and she resumed doing the laundry and cooking. Her husband took care of Hazel for a half hour when he arrived home from work, but “he doesn’t really help out with chores” anymore. Her friends provided emotional support.

Three months postpartum: breastfeeding is the “best thing in the world”

At 9 weeks, Natalie returned to work 1 to 2 days a week and provided pumped milk to the daycare for Hazel. By 3 months, Natalie felt she had no more challenges with breastfeeding and called it “the best thing in the world.” She fed only at the breast when she was with Hazel and used only one arm, which left one hand free. They remained flexible with breastfeeding positions and locations – Natalie described breastfeeding Hazel at daycare:

“I just sat Indian-style and, you know, fed her. But that might be different for other people, too, like depending on your physical, uh, condition.” [Natalie, 3 mo]

Most of Natalie’s friends who provided emotional support breastfed, and she had many friends with babies around the same age as Hazel.

Until 6 months, Natalie and Hazel continued breastfeeding exclusively with no problems or changes: “It’s just what we do...part of life.”

Comparison of cases

All of the women enrolled in our study intended to breastfeed, however, obese women, particularly those who were primiparous women or had no prior successful breastfeeding experience, tended to be less confident prenatally in their ability to do so. Colleen, Allison, and Jana were similar to other obese women in the study; all three lacked confidence about breastfeeding prenatally. Colleen planned to breastfeed for 1 year, but was “nervous” about it, and expected she might have difficulties. Jana made step-wise goals so that she wouldn’t be disappointed if she didn’t reach a higher goal, and Allison did not set a goal at all so as to not be disappointed. In fact, several obese women did not set goals to avoid disappointment. Multiparous obese women who had successfully breastfed previous children were more confident about their breastfeeding plans. Two obese women who became more confident about breastfeeding postpartum had a great deal of support at home and family who breastfed. Natalie, on the other hand, was similar to other normal-weight women in our sample; all had a goal for breastfeeding duration, and only 2 were not confident about their plans prenatally.

Obese women experienced more health challenges that affected breastfeeding. Four of the 5 women whose infants had problems with low blood glucose were obese. The normal-weight woman was a unique case because her infant was being monitored for other reasons, which led to the monitoring of other common neonatal issues. Both Colleen’s and Allison’s infants had problems with low blood glucose after birth. These women delivered in different hospitals that managed the treatment of this problem differently. Colleen’s infant was managed by breastfeeding and supplementing with formula; she felt encouraged to breastfeed despite supplementing with formula, and her baby was in her room most of the time. Allison, however, was separated from her baby for many hours at a time so that her infant could be monitored in

the nursery, which caused distress. Her infant received formula *instead* of breastfeeding. She was never provided with a pump in the hospital despite asking for one, but through her persistence she was eventually permitted to breastfeed as long as she supplemented with formula afterward. Notably, all infants except one (born to a multipara who had breastfed previously) who were monitored for low blood glucose received supplemental formula at the several different hospitals in which they were delivered.

More obese than normal-weight women had cesarean deliveries, after which their mobility was impaired during healing. Colleen, Allison, and Natalie had challenges just getting around as well as with caring for their infants and positioning for breastfeeding around their incisions. Several obese women, including Colleen, and one normal-weight woman, Natalie, had complicated feeding regimens for their infants following their cesarean deliveries. These regimens included feeding at the breast, pumping, feeding pumped milk, and feeding formula. It is notable that the initial reasons for formula-feeding differed between the obese women and the normal-weight woman. Complicated feeding regimens were perceived as infeasible to sustain and left women even more exhausted. Natalie was able to gradually decrease the formula she was giving as her milk production increased. However, many of the obese women who started complicated feeding regimens were never able to reduce or eliminate the formula from their feeding regimens.

Colleen was one the two women in our sample who developed a severe infection from her cesarean incision, which affected breastfeeding. These two women were the heaviest in our sample. Both began complicated feeding regimens in the hospital and were unable to maintain breastfeeding. Colleen's infection left her too exhausted to keep up with breastfeeding and pumping, and her appointments and treatments led to separation from her infant and disruptions

in breastfeeding. The other woman who developed an infection was admitted to the intensive care unit (ICU) for sepsis for 2 weeks, and hospitalized for a total of 4 weeks. Her sister and husband pumped her breasts for her in the ICU, but she later ceased pumping when she understood that she would be on medications incompatible with breastfeeding for many months.

Although women of all sizes described a “learning curve” for breastfeeding, obese women tended to have more challenges with positioning and latching their infants to feed at the breast. Colleen, Allison, and Jana all experienced more difficulties with positioning for breastfeeding. Colleen, who was by far the heaviest of these women, struggled to get her baby to the breast, and especially with doing so before her baby was too hungry to feed. Some obese women, including Colleen, had difficulties with latching their infants because of flat nipples. Pumping before latching was challenging because women could not always anticipate when their babies would be hungry, and nipple shields were perceived as a hassle. One woman was initially provided with a nipple shield that was too small from a nurse, which was corrected the next day by a lactation consultant, but resulted in nipple pain for several days. Most women used these devices either only in the hospital or for less than 2 weeks. None of the normal-weight women experienced this challenge or used these devices for latching problems. The 4 normal-weight women who used nipple shields did so to address pain.

Obese women had a tendency to require modified positions and were less flexible with how or where they positioned to breastfeed. Many were concerned about smothering their babies and pushed on their breast tissue to create more space by the baby’s nose for them to breathe. Some also had to hold their breast while breastfeeding. One obese woman commented that other women who did not have to hold their breast made breastfeeding look easy. Allison felt that positioning took some work; it took her 3 months to gain enough flexibility to breastfeed without

pillows. Like Allison, Jana initially had to hold her breast for her baby to breastfeed, but by 6 weeks had become much more flexible with how and where she breastfed. Colleen, however, used a uniquely modified position to get her baby to the breast, pushed on her breast tissue, and she never gained flexibility in positioning. This is different from normal-weight women, such as Natalie, who was flexible with where and how she breastfed by 10 days. Inflexible positioning made it more difficult for obese women to breastfeed while away from home or to do other things at the same time, such as computer work, housework, or shopping while breastfeeding. Additionally, several obese women talked about the need for extra help to position or pump.

Obese women, including Colleen, Allison, and Jana, tended to have frustrations and challenges with finding nursing bras that fit. While 7 obese women expressed these frustrations, only one normal-weight woman mentioned challenges with finding nursing bras; she was large-breasted. Obese women, on the other hand, experienced difficulty with finding large enough sizes in stores that were supportive enough and that fit well, and some felt that they were simply not available. Others, like Allison, could only find bras online that fit well and provided enough support. Women who obtained bras online were frustrated because they could not try on the bras before purchasing them, and paying for shipping and returning bras was bothersome. A couple of women, including Jana, felt that nursing bras that would fit them were cost-prohibitive. Normal-weight women, such as Natalie, were able to find their sizes in stores and purchase inexpensive nursing bras that worked for them.

Social support *needs* differed between obese women and normal-weight women, especially early postpartum. All women described the importance of tangible support; however, obese women needed more tangible support than normal-weight women. Allison was among the few who had a great deal of support initially that also continued throughout her postpartum

course. This is different from the other women who either had less support throughout or support that decreased after the first couple of weeks. Allison believed that because of her husband's tangible support, she was able to continue breastfeeding exclusively. Natalie, had tangible support early on, but this tapered off quickly; she also had fewer challenges than Allison.

The social support *available* from their networks did not differ between obese and normal-weight women. Among the obese women, however, lower general and tangible social support was available for women with lower SES (n=6) than higher SES (n=7). Because low SES was minimally present in our normal-weight group (n=1), we cannot determine whether SES influenced social support among normal-weight women or in the sample more broadly. The lower social support available for low SES, obese women amplified the effects of their challenges because their higher tangible support needs were addressed inadequately. Notably, all of the Black women (n=4) in our study had low SES, had less available general and tangible support, and all stopped breastfeeding before 6 months.

DISCUSSION

Obese women experienced some unique challenges with breastfeeding, such as managing flat nipples and infants with low blood glucose. These were particularly problematic in the early postpartum period. Importantly, they experienced challenges that normal-weight women also encountered, but to a greater degree or for a longer time. For example, although normal-weight women had some early challenges with learning to position and latch their infants to breastfeed, these issues were typically resolved by 6 weeks. Among obese women, however, these challenges were more difficult to overcome or persisted for many weeks and sometimes months if they resolved at all before breastfeeding ceased. Furthermore, obese women experienced a

larger number of breastfeeding challenges than normal-weight women, and thus had more barriers to overcome. Together, our results suggest that the multiple challenges, their degree and duration, experienced by obese women may help to explain the shorter breastfeeding durations observed among them.

Results from previous research indicate that breastfeeding intentions and confidence or self-efficacy are significant predictors of breastfeeding duration (33, 58, 154). In our study, primiparous obese women expressed low confidence in their ability to breastfeed, and among some, confidence was so low that they hesitated to make breastfeeding plans or goals. These findings support those from a national U.S. sample that obese women had lower confidence than normal-weight women (23). However, our findings about breastfeeding intentions contradict those from the national sample in which breastfeeding intentions did not differ by BMI (23), perhaps because of the structuring of the survey questions. Interestingly, Verret-Chalifour et al. (33) suggested that breastfeeding intentions may have less power among heavy women because they found weaker associations between intentions and outcomes among overweight/obese than normal-weight women. Our findings support this suggestion as all of the women in our study intended to breastfeed, but obese women stopped sooner. The women in our study who did not set goals for breastfeeding duration expressed that they did not want to be disappointed if they did not reach their goals. It is possible that poor body image (63) or past failures to control their bodies (such as by losing weight) may affect obese women's confidence or self-efficacy. Unlike obese primiparous women in our study, the obese multiparous mothers who had successfully breastfed previous children expressed more confidence in their breastfeeding plans. This is consistent with findings from Kronborg et al. (28) that parity and previous breastfeeding experience affected the association between high BMI and breastfeeding duration. These results

suggest that obese women without prior breastfeeding experience may benefit from interventions to improve self-efficacy prenatally.

Obese women in our study described more difficulties with positioning and latching their infants to breastfeed. This is consistent with health professionals' perceptions (116) as well as results from a survey study that more obese women than normal-weight women reported breastfeeding difficulties and use of nipple shields while in the hospital (29). Previously, research has indicated that women who experienced breastfeeding problems in the first week were at significantly higher risk of stopping breastfeeding before 10 weeks (58), and that obese women more frequently had early breastfeeding problems than other women (28). Our study indicates that in addition to problems with latching and use of nipple shields, use of pumps to pull out nipples was perceived as burdensome and took too much time. Furthermore, positioning strategies for obese women required more effort; many obese women in our study felt they had to hold their breast tissue while breastfeeding and/or push on their breast tissue so that their infants could breathe. Large breasts have been identified previously as posing potential breastfeeding difficulties (48, 91). The obese women were also more dependent on use of pillows and props to support themselves and their babies while breastfeeding, and they depended on these tools longer than normal-weight women. These findings suggest that obese women could benefit from continued lactation support after hospital discharge to help them develop positions that allow them to breastfeed more comfortably and with fewer props, especially after the onset of copious milk secretion. Given the number and degree of challenges obese women experience, such support may best be provided by International Board Certified Lactation Consultants, the most highly trained HPs to assist with and manage breastfeeding. Ideally, this support would take

place in women's homes so as to provide help in a setting in which the women spend much of their time (Chapter 3).

One challenge that was unique to the super-obese women, and experienced by two such women in our study, was severe infection after cesarean delivery that negatively affected breastfeeding continuation. Previous studies have identified that obese women are at risk of more complications both during pregnancy and delivery (13). Jarlenski et al. (155) identified maternal illness as a more common reason for not initiating breastfeeding among obese women than among non-obese women, but they did not identify this as a reason for discontinuation. Both women in our study who developed infections initiated breastfeeding, albeit with formula supplementation, but ceased breastfeeding early because of the subsequent treatment and separation. Our study demonstrates that women who develop such health complications experience significant challenges with breastfeeding continuation. With more women of similar size ($BMI > 50 \text{ kg/m}^2$) giving birth, such complications may be more common than they once were (103). Avoidance of cesarean delivery may positively affect breastfeeding outcomes, but this may be difficult because not all of the various factors that result in their 50% cesarean rate can readily be removed (103).

The infants of obese women were monitored and treated for low blood glucose. Obese women have a higher prevalence of diabetes (13), a risk factor for low infant blood glucose (156, 157). Maternal obesity itself, however, is not an established risk factor for low infant blood glucose (156, 157), although this was a screening criterion in one report (158). We did not collect detailed clinical data from our participants, but it is evident that not all hospitals' practices aligned with current recommended protocols (157). Some women were separated from their infants for extended times for monitoring and treatment of low blood glucose.

Recommended protocols, however, state that hypoglycemia risk can be reduced by early and continued breastfeeding and skin-to-skin contact, which stabilizes infant body temperature and reduces energy expenditure (157). Moore et al. (159), in their review, found that infants who received skin-to-skin contact had higher blood glucose levels at 75-90 minutes after delivery than infants who did not. Skin-to-skin contact established after cesarean is also feasible and beneficial for infant physiology and breastfeeding outcomes (160). Thus, interventions that increase skin-to-skin contact among obese mothers and their infants along with frequent breastfeeding could help manage infant hypoglycemia and facilitate improved breastfeeding outcomes.

Social support has been previously identified as an important factor for breastfeeding success (68, 84). Our findings suggest that more tangible social support may be particularly important for obese women, especially following cesarean delivery. The extra effort and time it took them to position their infants for breastfeeding added up over the course of a day and left less time for other things. This was worse for women with complicated feeding regimens. In a qualitative study with postpartum women, Negron et al. (161) identified instrumental (tangible) support as key to fulfilling their basic needs for dealing with physical and emotional postpartum stressors. Obese women with lower SES had less social support available to them from their own social networks. In the setting of maternal obesity, low SES may then create a wider gap between women's needs and the availability of social support. This gap may be wider still among Black women, as breastfeeding rates are lower and breastfeeding is less supported among them (111, 162). However, some research indicates that breastfeeding rates do not differ by BMI among Black women (22). Together, our findings suggest that obese women could benefit from involvement of their significant others in breastfeeding preparation education in which they

could learn how to provide support for breastfeeding. Among lower SES women, however, it is likely that additional strategies for providing social support may be warranted, such as through home health visitors in the postpartum period. Continued research is also needed to develop effective strategies that support breastfeeding among Black women.

To improve breastfeeding duration among obese women, ongoing support from health professionals may be needed. Our findings indicate that obese women do not receive tailored breastfeeding information prenatally. This is consistent with our previous research with health professionals (116). Tailoring prenatal breastfeeding information may help obese women prepare for the realities they may face, such as infant low blood glucose and positioning difficulties. Care must be taken, however, to build women's confidence and self-efficacy simultaneously.

Strengths and Limitations

This study's longitudinal design was a major strength. It allowed us to build trust, understand women's perceptions prenatally, and then follow women's breastfeeding experiences from initiation through the first several months postpartum. This provided a broader perspective of women's expectations, challenges, and supports. We also used peer debriefing and member checking to enhance credibility and assess accuracy of interpretation of on-going analysis. Additionally, we included women with a variety of characteristics, which may be similar to women in other regions. We did not measure breastfeeding self-efficacy using a standard questionnaire; this limits our ability to make conclusions about the differences that emerged. Although overweight has also been associated with poorer breastfeeding outcomes (27), we included only obese with normal-weight women to provide the greatest comparison. It would be worthwhile to study experiences of overweight women to identify how they may differ.

CONCLUSIONS

Obese women experienced more breastfeeding challenges than normal-weight women. They experienced many similar challenges, but these were experienced to a greater degree or lasted longer among obese women, such as difficulties with positioning. Obese women were also less confident about their plans to breastfeed prenatally and experienced some unique challenges, such as flat nipples and health issues. Obese women could benefit from more breastfeeding support prenatally to prepare them for challenges and build confidence, and postpartum for continued assistance with positioning. Obese women and their infants could also benefit from hospital policies and protocols that support breastfeeding while managing infant blood glucose and post-cesarean health concerns, as well as staffing to provide adequate breastfeeding support. To be successful, future interventions to improve breastfeeding among obese women should, if possible, address the challenges identified here.

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Appendix. Excerpt of key interview guide questions

Pregnancy

Intentions, commitment, expectations [If previously breastfed] What has your experience been with breastfeeding?
Earlier (over the phone) you mentioned that you plan to breastfeed. What are some of the things that made you decide that?
Probe: Good things/bad things? Difficult /Easy? How do you think it will go?
How would you describe the importance of breastfeeding for you and your baby?
How long do you plan to breastfeed? What are some of the things that might affect how long you breastfeed? Do you expect to have any difficulties with breastfeeding? What are some of the reasons you feel that way?
How do the people close to you feel about your plan to breastfeed? What kind of support do you expect you'll need for breastfeeding? What are some of the things or people that have encouraged/discouraged breastfeeding? Do you feel like you have people who support you in general?

7-10 days postpartum

Initial breastfeeding experiences What was it like the first time you fed your baby?
What was it like feeding your baby after the first time (the rest of the time) while you were in the hospital?
Probe: Feeding at breast? Pumped milk? Formula? Positioning? Props? Difficulties?
What has it been like feeding your baby since you have been home?
How are you feeding your baby now (breast, pumped milk, formula, anything else)? What are some of the things that led you to choose feeding your baby that way?

Positioning Tell me what it looks like when you feed your baby. Where are you usually? Who else is there? How do you make yourself comfortable?
Probes: Position, type of hold, pillows, props, clothing, baby's comfort
How long do you want to breastfeed now? What are some of the reasons that you want to breastfeed for that amount of time?

Social support How do the people close to you react or feel about you breastfeeding? Do you feel like you have people that support you for breastfeeding?
What are some of the things they do that support you for breastfeeding?
Probe: Assistance with breastfeeding – advice or information; assistance with “doing things”; emotional support
Is there something that would help you more?
Do you feel like you have people close to you who are supporting you in general?

6 weeks and 3 months

Breastfeeding experiences since last visit	Tell me about your experiences feeding your baby since we last met. How are you feeding your baby now? (breast, pumped milk, formula, other) What are some of the things that led you to choose feeding your baby that way? Probe: difficulty/challenges; importance/unimportance; convenience/freedom; return to work
Positioning	Who has influenced how you are feeding your baby? Tell me what it looks like when you feed your baby. Where are you usually? Who else is there? How do you make yourself comfortable? Probes: Position, type of hold, pillows, props, clothing, baby's comfort What has changed about the way you breastfeed since we last met? Probes: schedule, how often, how much, pain, more difficult/easier, positioning, latching Tell me about what led to those changes. Tell me about what happened as a result of those changes. How do you feel about breastfeeding your baby now? What do you enjoy/no enjoy about breastfeeding your baby? How long do you want to continue breastfeeding now? What are some of the things that will influence your decision about when to stop?
Social support	Do you feel like you have people close to you who are supporting you in general? How do the people close to you react or feel about you breastfeeding? Do you feel like you have people that support you for breastfeeding? What are some of the things they do that support you for breastfeeding? Probe: Assistance with breastfeeding – advice or information; assistance with “doing things”; emotional support Is there something that would help you more? Has anyone or anything discouraged you from breastfeeding? Who or what discouraged you?

At final interview

If still breastfeeding	What has changed about how people are supporting you with breastfeeding? Who had the biggest effect on your breastfeeding? What has had the biggest effect on your breastfeeding?
If stopped breastfeeding	I'd like to know more about the time when you decided to stop breastfeeding. What are some of the things that led you to decide to stop? What was the biggest reason that you stopped breastfeeding? Probe: pain, difficulty, time-consuming, no support, return to work, etc. What would you have needed to breastfeed longer?

CHAPTER 5

CONCLUSIONS

The findings of the two qualitative investigations in this doctoral research contribute to our understanding of how health professionals (HPs) experience providing breastfeeding care within the U.S. healthcare system for women in general and for obese women, specifically. This research also contributes to our understanding of how women experience receiving breastfeeding care across the continuum from pregnancy through several months postpartum as well as how women perceive and experience breastfeeding itself across this continuum, highlighting specific differences between obese and normal-weight women.

Summary of research findings

Findings from both studies with HPs and mothers indicated that, overall, inadequate breastfeeding care is being provided and received. Many results in the two studies were parallel. Gaps in breastfeeding care and HPs' reliance on other HPs to provide breastfeeding care corresponded to our findings among mothers that breastfeeding was a "gray area" for receiving care. In both studies, multiple HPs provided breastfeeding care, but who provided the care changed across periods and within each period of the continuum, such as when physicians relied on nurses or made referrals to lactation consultants. Women experienced this as not knowing who was in charge of breastfeeding care across the continuum, and thus, did not know to whom to turn for help. Lactation consultants were viewed by both HPs and mothers as the best sources of breastfeeding care; however, mothers felt lactation consultants were inconsistently available across the continuum. Additionally, inadequate breastfeeding education and preparation prenatally and inadequate assistance with breastfeeding postpartum were identified among both HPs and mothers as problematic. The combination of these issues led women to feel unsupported

by HPs despite HPs' beliefs that they supported breastfeeding. Moreover, women who experienced challenges with breastfeeding were particularly vulnerable to poor breastfeeding support.

Our qualitative studies provide unique insights about how obese women experience breastfeeding across the continuum and how HPs experience providing breastfeeding care for them. In our longitudinal study with mothers, we found that obese women have more breastfeeding challenges than normal-weight women. Many of these challenges were similar to those experienced by normal-weight women, but experienced to a greater degree or for a longer duration. For example, all women had a learning curve for positioning and latching, but obese women experienced more difficulties with the mechanics left them less flexible with how and where they breastfed their infants for a longer time. Obese women also experienced challenges that were unusual among normal-weight women and affected breastfeeding, such as flat nipples and low infant blood glucose, the management of which was often detrimental to breastfeeding or a burden for mothers. These challenges, in addition to low prenatal confidence, indicate that obese women are in greater need of assistance and breastfeeding care across the continuum, particularly in the hospital and postpartum.

In our study with HPs, many who provided breastfeeding care for obese women did not recognize obesity as a risk factor for poor breastfeeding outcomes. At the same time, HPs identified many ways that obese women had more challenges, indicating a lack of saliency for breastfeeding challenges or attempts to avoid discriminating against obese women. Importantly, HPs themselves experienced increased challenges when providing breastfeeding care to obese women because of the extra time and physical work required for these patients. Together, these studies indicate that obese women could benefit from additional and targeted breastfeeding care and that to provide this care, HPs require education about how to support obese women and adequate staffing is needed in hospitals and for postpartum care for obese women.

Implications for breastfeeding care for all women

In Chapters 2 and 3, we showed that breastfeeding care is perceived as disjointed and inadequate by both the women who receive the care and by the HPs who provide it. This was evident in the discontinuity theme that emerged from HPs and in the perception of breastfeeding care as a “gray area” among women. These findings demonstrate clearly that continuity is lacking in breastfeeding care across the care continuum, an idea previously suggested by retrospective and cross-sectional studies among mothers (89, 138, 139). Specifically, both HPs and women in our studies identified the prenatal and early postpartum periods as times during which preparation for and assistance with breastfeeding was particularly inadequate, yet previous research has identified these periods as crucial for breastfeeding success (58). Both women and HPs believed that more prenatal support and more access to HPs after hospital discharge could improve breastfeeding outcomes and experiences for mother-infant dyads. Additionally, we discovered that during the hospitals’ HP staffing structures, policies and practices also led to discontinuity in care. Therefore, these findings suggest that improvements in breastfeeding care continuity are needed in the hospital setting as well as prenatally and post-discharge, areas that have gained less attention (i.e. not addressed by the Baby Friendly Hospital Initiative) on a national or policy scale. Potential interventions to bridge gaps in care should be multidisciplinary, but may also identify a particular type of HP to ensure that breastfeeding care is initiated early and that follow-ups and referrals are carried through.

Although HPs believe that they are supportive of breastfeeding and women believe that their HPs are “in favor of” breastfeeding, we found a disconnect between the declaration and the demonstration of such support. This disconnect seems to be related to the lack of time and skills that HPs have to address to breastfeeding, which are barriers identified in this research (Chapter 2) and previously by others (112, 113). In our research, HPs discussed that a lack of time and

skills for providing breastfeeding care led them to rely on others or resulted in missed opportunities to provide such care. Women also recognized HPs' lack of time, particularly in the hospital setting, as well as their lack of skills and knowledge for providing breastfeeding care. The disconnect between proclaimed and actual support was experienced by women as "actions speak louder than words." Breastfeeding conversations were either minimal or omitted, or HPs' actions or recommendations in the face of breastfeeding challenges interfered with or disrupted their actual support for breastfeeding. For example, HPs sometimes suggested supplementing with formula rather than assessing or addressing latching issues or recommended sending infants to the nursery so that mothers could get rest. Women of low SES may be particularly vulnerable to poor breastfeeding care. The women in our study sought support from non-HPs when breastfeeding care was lacking or unsupportive, but women in our study of low SES tended to have less social support available.

HPs may attempt to overcome barriers of inadequate time and skills by referring women to other HPs or to classes for breastfeeding information, as they did in our studies. However, it seems from our data that systems are lacking to ensure that referrals are carried out or that other HPs are covering breastfeeding care. Furthermore, many women in our study did not attend breastfeeding classes. The few who did felt they were not useful, and even when they were useful to women, breastfeeding classes did not provide ongoing support. These findings indicate that providing more breastfeeding training for HPs as well as providing them with planned or dedicated time to address breastfeeding could help HPs provide better breastfeeding care, thereby benefiting women and their infants. Dedicating time to addressing breastfeeding may be feasible if such time is reimbursed by health insurance companies and Medicaid.

It was noteworthy that both HPs and women felt that breastfeeding care for the mother-infant dyad was largely absent after discharge from the hospital, a critical time for establishing breastfeeding (58). Maternal care consisted of a single visit at 6 weeks postpartum. Pediatricians

were mostly concerned with the infant. Hospital lactation consultants attempted to fill this gap in care by making phone calls to women in the first days or weeks post-discharge. Unfortunately, these phone calls may be inadequate because the timing of the calls isn't optimal, there is a lack of previously established relationships between these lactation consultants and the mothers, or the mode of contact is inadequate for this purpose. Women were sometimes provided with a phone number to call if they needed help or had questions about breastfeeding, but services in which women must initiate contact are unlikely to be fully effective at improving breastfeeding duration (149). Thus, better strategies are needed to provide functional breastfeeding care in the first days and weeks after hospital discharge. Such strategies will likely require recognition of breastfeeding care as a reimbursable activity provided by a variety of types of HPs (namely physicians and lactation consultants) to be feasible on a large scale. Furthermore, strategies are needed to ensure referrals and follow-up among HPs who provide breastfeeding care.

It is clear that women need better and more consistent breastfeeding support from HPs across the continuum. To improve this support, it is evident that HPs across professions require more training and continuing education to stay up-to-date on policies and recommendations and current in knowledge. Obstetricians and midwives must incorporate breastfeeding conversations more consistently into prenatal visits beyond a yes/no question of intention, and pediatricians must be able to assess breastfeeding and address concerns for mother-infant dyads. Physicians' provision of breastfeeding care is known to be affected by their own breastfeeding experiences (163, 164). Unfortunately, many physician-mothers encounter work-related challenges that lead early breastfeeding cessation (165). In earlier studies, it appeared that physician-mothers had even lower breastfeeding rates than Black, non-Hispanic women, who are generally considered at high risk of early cessation (165). In more recent studies (163, 166), researchers have reported slightly better breastfeeding rates. However, physician-mothers still ceased breastfeeding earlier than planned. Improving physicians' breastfeeding experiences through breastfeeding-friendly

workplace policies and/or longer and paid maternity leave may also improve their breastfeeding care and advocacy efforts. Improvements in training and workplace breastfeeding friendliness for HPs are necessary and important, however, these things alone may not completely address problems in the current environment with a lack of time to provide such care.

In this research, we also identified women's desire for more consistent and continuous access to lactation consultants across the continuum. HPs also believed that women could benefit from improved breastfeeding preparation and follow-up with knowledgeable HPs, such as lactation consultants. Increasing women's access to lactation consultants is one potentially feasible way to improve breastfeeding care and continuity. Since the adoption of an amendment to the Affordable Care Act (ACA) (128) in August of 2012, coverage is mandated for "comprehensive lactation support and counseling by a trained provider during pregnancy and/or in the postpartum period." This mandate provides an excellent opportunity to increase breastfeeding care for women across socioeconomic strata by the HPs who are most highly trained to assist with and manage breastfeeding problems. However, insurance companies vary with how they implement this vague language, leaving many visits uncovered or unreimbursed [Chapter 3, (167)]. Furthermore, many women are unaware that lactation consults should be covered through insurance, and others still are not aware that lactation consultants can be hired for assistance with breastfeeding at home. Regardless, this mandate presents an opportunity to improve breastfeeding care through expansion of lactation consulting services through different avenues, although more specific guidelines about how much and for how long insurance companies must provide coverage for these services would be beneficial. Interventions and programs could be developed to provide home-visiting lactation consultants through county health departments, similar to those that provide home-visiting nurses to pregnant women. Another potential strategy would be to create or expand existing lactation services in hospitals and pediatric practices to provide more postpartum services and home visits in particular. If these

options are successful at improving breastfeeding care and become a widespread reality, more lactation consultants will be needed to provide such care to all women who need and could benefit from these services.

Currently there are only 3.5 lactation consultants per 1,000 live births in the U.S. (7). According to Mannel and Mannel (168), each dyad in a hospital mother-baby unit required 99 minutes of lactation consultant time, and each dyad in a neonatal intensive care unit (NICU) required 330 minutes. Assuming that 7% of infants are admitted to the NICU, consistent with the most recent available data (169), 1.5 full-time lactation consultants would be needed per 1,000 dyads to provide in-hospital breastfeeding care. However, we believe that this is an underestimate of actual needs for hospital settings given our findings that breastfeeding care in the hospitals was perceived as inadequate. In the outpatient or home-visiting setting, according to Bonuck et al. (170), providing prenatal and postnatal lactation consults would require 111 minutes and 139 minutes per dyad, respectively (170). This totals 250 minutes per dyad of lactation consultant time outside of the hospital setting. It is unknown how many contact hours are possible per full-time lactation consultant in this setting. If we use the number of contact hours (1292) (168) suggested for the inpatient setting to approximate that for the outpatient setting, 3.2 lactation consultants would be needed per 1,000 dyads. Thus, to provide lactation consultants both in (1.5) and out of hospital (3.2), a total of 4.8 lactation consultants per 1,000 dyads would be needed. Importantly, although this is an increase compared to the current number of lactation consultants available, this is likely an underestimate for the reasons stated above as well as the increases in extreme obesity (171) and rates of cesarean delivery (172), and breastfeeding initiation (7) since these data were published.

Problems we identified with breastfeeding care in general may particularly affect obese women. Obese women often need a higher level of care during pregnancy and delivery because

of the risks that obesity imposes (13). Thus, obese women likely see more specialists prenatally and have more care providers in total, which potentially reduces the continuity of their care. Also, their medical situations, such as cesarean delivery and infant admission to the neonatal intensive care unit, are likely to interfere further with care continuity for the dyad. These circumstances produce two possibilities. First, it is possible that obese women may receive more breastfeeding messages because they interact with more HPs, thus providing more opportunity for inconsistent and conflicting breastfeeding messages. Second, and more likely, it is possible that obese women's HPs are focused more on their immediate health issues, such as diabetes or hypertension, while breastfeeding conversations "take a back seat," which results in minimal breastfeeding conversations if they are present at all. Our discoveries in Chapter 3 that women with any breastfeeding challenges are at risk for receiving unfavorable breastfeeding care have important implications for obese women who experience multiple breastfeeding challenges. This leaves obese mothers and their infants at particular risk for receiving treatments and care that are actually detrimental to breastfeeding.

Implications for improving breastfeeding outcomes among obese women

In Chapters 1 and 4, we found that obese women encounter more challenges with breastfeeding, and we identified psychosocial, physical, and medical barriers that affected their planning, initiation, and sustainment of breastfeeding. Discussed below are some of the specific barriers, how these barriers are currently managed and how they could be managed differently, and what research, training and policies are needed to improve breastfeeding outcomes among obese women.

Obese women could benefit from targeted care prenatally and postpartum. Breastfeeding conversations with HPs, both prenatally and postpartum, are inadequate if not absent. Prenatal breastfeeding care is especially important for obese women, and particularly those with no prior

successful breastfeeding experiences, because they are less confident and more hesitant to make breastfeeding plans, a situation compounded by the extra challenges they encounter postpartum. Importantly, obese women are not less motivated to breastfeed, contrary to the perceptions of health professionals. Personalized attention prenatally could help to improve their confidence and also help with practical planning for breastfeeding, both of which could improve their ability to manage breastfeeding postpartum. Two interventions (49, 51) that attempted to improve breastfeeding outcomes among obese women included prenatal components. Our intervention (49) focused primarily on practical preparation and early support for breastfeeding and the other intervention (51) focused on both building knowledge and preparation for breastfeeding, but neither aimed, specifically, to build confidence and neither was successful in extending the duration of breastfeeding. Specific strategies are needed to help obese women plan for challenges while concurrently building confidence. Postpartum, although breastfeeding is inadequately addressed after hospital discharge among all women, it is likely particularly problematic for obese women because of their challenges with positioning and latching. Improved targeting of care could benefit obese women, but it is also crucial that this care is provided in settings where policies are fully supportive of breastfeeding.

Obese women experience barriers to breastfeeding that result from hospitals' or HPs' preferences or practices related to monitoring and treatment of infant low blood glucose and prescription of complicated feeding regimens after difficult deliveries or cesareans. These must be addressed through hospital policies and staff training. The Academy of Breastfeeding Medicine (ABM) provides guidelines (157) for protocols to monitor, assess, and treat infant hypoglycemia. They provide blood glucose level thresholds based on time since birth and distinguish between the acceptable low thresholds (28 mg/dL in the first 2 h after birth) for infants who exhibit no signs of hypoglycemia, from that at which infants should be treated (36 mg/dL), and from the therapeutic threshold (45 mg/dL). They also emphasize the importance of

frequent feedings and skin-to-skin contact for 1 h after birth and its continuance as much as possible for maintaining the infant's body temperature and conserving energy, which in turn improves maintenance of blood glucose. Based on our interviews with mothers, it is clear that these guidelines are not being implemented as intended or in all hospitals where our subjects delivered. Incorporating these recommendations into hospital policies would help to facilitate breastfeeding for the mother-infant dyad with blood glucose concerns. Furthermore, research is needed to determine whether maternal obesity without the presence of other risk factors should be an indication to screen for neonatal hypoglycemia.

Maternal obesity has not been identified by the ABM (157) or the American Academy of Pediatrics (156) as an indication for screening, but it has reportedly been used by others (158). Additionally, research is needed to determine how much glucose is needed to raise infant blood glucose levels, and in what form (formula, colostrum, or glucose gel). Some researchers are exploring the possibility of prenatal pumping to store colostrum to feed to infants at risk after birth and to promote earlier milk secretion (173). Randomized controlled trials are needed, however, to determine whether such practices are both safe and effective.

Complicated infant feeding regimens were common among obese women and normal-weight women who delivered via cesarean (Chapter 4). The aim of complicated feeding regimens is to preserve and promote breastfeeding through feeding at the breast, pumping and feeding pumped milk while addressing infant concerns (weight loss or blood glucose) with formula. However, these regimens are exhausting for mothers because they must continuously feed, pump, or prepare to feed (e.g. by cleaning pumps, pump parts, and bottles, etc.) their newborns. Thus, these regimens are largely impractical to carry out, as the mothers are left with little time to sleep or do other infant and self-care activities. These regimens also may also have the unintended effect of discouraging breastfeeding because they lead to a belief that breastfeeding is complicated, expensive and time-consuming. Research is needed to determine

what feeding regimens may facilitate and protect breastfeeding while also managing infant weight and blood glucose concerns in such a way that is feasible for the mothers.

Comprehensive breastfeeding interventions for obese women are urgently needed to support them to breastfeed longer. Based on our findings, we hypothesize that the most effective interventions would include intervention components during each period of the continuum from pregnancy through at least 2 months postpartum. Additionally, to be effective interventions are also likely to require more resources than the studies previously reported (49, 51), which failed to improve obese women's breastfeeding outcomes. We hypothesize that intervention components during pregnancy that increase confidence as well as prepare women for the physical aspects of breastfeeding would positively affect on breastfeeding outcomes. Such preparation would ideally be individualized, provided in person by HPs, and reinforced over several prenatal contact points. Women would receive education but also be encouraged to set goals for breastfeeding and their concerns would be addressed, thereby building confidence.

We also hypothesize that hospital-based intervention components that focus to increase skin-to-skin contact both immediately after delivery and continuously as much as possible may help stabilize infant blood glucose, promote frequent breastfeeding, thereby improving breastfeeding outcomes. Furthermore, infant blood glucose monitoring should be carried out so that breastfeeding is disrupted as little as possible, following the ABM guidelines (157). Additionally, feeding regimens that protect breastfeeding and take into account the mothers' needs should be used. Complicated feeding regimens should be minimized and, if used, simplified before discharge home to make them manageable for exhausted mothers who may also be caring for a cesarean incision in addition to a newborn and possibly other children.

Finally, we hypothesize that post-discharge interventions that provide assistance for managing the ongoing physical challenges of latching and positioning that obese women experience and that are exacerbated by cesarean incisions and mobility limitations would

improve breastfeeding outcomes. Given the number and severity of challenges that obese women encounter postpartum, they are likely to benefit from frequent home visits from International Board Certified Lactation Consultants (IBCLCs), HPs who are highly trained to manage breastfeeding problems, during at least the first month postpartum. This type of intervention would provide a higher level of care than the intervention by Chapman et al. (51) that used peer counselors to provide home visits or our intervention (49) in which IBCLCs provided support through 2 phone calls in the first week after discharge. Through home visits, IBCLCs would provide continued help with positioning and latching, assistance with and ongoing evaluation of the need for props (pillows) and devices (nipple shields and pumps), and guidance for weaning off of these devices to support more flexibility with breastfeeding positions and location. These regular home visits would provide ongoing support and assistance during a time when obese mothers are particularly likely to stop breastfeeding (21).

Interventions should also be developed to provide continuous, day-to-day tangible support to address obese women's greater need for tangible support. One possible intervention could involve and incorporate husbands, partners or other significant support persons into prenatal preparation and breastfeeding counseling sessions to help them understand what they can do to best support the breastfeeding mothers. Among low-SES, obese women, other strategies to provide adequate social support may likely be necessary. Low SES women in particular had less social support available to them. Thus, a potential intervention strategy to provide adequate tangible support for these women is to incorporate home visits from health visitors or postpartum doulas to assist with such tangible support needs. Postpartum health visitors improve parent-infant interaction and infant development outcomes among other high-risk populations (174), and recent legislation supports funding of Maternal, Infant, and Early Childhood Home Visiting Programs (175). Obese mother-infant dyads, particularly in low-SES

groups, would be logical to target for such programs because of their high risk for poor breastfeeding outcomes and other perinatal health concerns.

Finally, an intervention component that assists women with finding nursing bras in sizes that are large enough and that fit well would be of benefit. Appropriately fitting nursing bras have the potential to be important for improving women's breastfeeding experiences (Chapter 4) and outcomes (176), as we identified ill-fitting nursing bras as a frustration of breastfeeding (Chapter 4), and others (176) identified restrictive bras as a risk factor for mastitis. Thus, arguments could be made that nursing bras are "breastfeeding equipment" and could be considered in inclusion for coverage under the ACA (128).

Training the HPs who provide breastfeeding care will be crucial both for those carrying out interventions and for those who provide breastfeeding care in typical practice settings. HPs who provide care for obese women in all periods across the continuum must first recognize that obese women are at higher risk for early breastfeeding cessation and may encounter more challenges. They must also be trained to provide care in a manner that is sensitive and not stigmatizing as well as encouraging yet practical. Training for preventing weight bias among HPs, such as the programs provided by the Rudd Center (101), may be beneficial. Such training may help to reduce the belief among HPs that obese women are less motivated to breastfeed, as we found that motivation did not differ by BMI. Additionally, such principles could be incorporated into programs that train HPs to provide obese women with breastfeeding care, specifically. These programs should also include training, especially for hospital staff and postpartum HPs, to assess and ensure proper sizing and fit of devices such as nipple shields and pump flanges, as improper fit has the potential to lead to early breastfeeding cessation. Finally, they will require training on updated hospital policies and the reasons for changes in policies related to managing breastfeeding for the obese maternal-infant dyad.

Strengths and limitations

This research had three major strengths. First, in this research we obtained data both from HPs who provided breastfeeding care and from women who received it in a single region. Designing these two studies concurrently and conducting analysis and data collection in tandem allowed us to adjust our data collection to explore themes that emerged among HPs among the women. This design gave us the opportunity to draw parallels between the perspectives of HPs and mothers. It also allowed us to understand how barriers reported by one group were perceived by the other, and what affect this had on breastfeeding care and breastfeeding itself. Overall, using both groups increased the confidence with which we report findings that portray current breastfeeding care unfavorably, as we would have been hesitant to do so without such complementary findings.

Second, this research provided us with an understanding of breastfeeding care and breastfeeding experiences across the continuum by including a variety of types of HPs and by following women longitudinally from pregnancy through the postpartum period. In the study with HPs, we gained an understanding of how HPs perceive and provide breastfeeding care in different periods. For example, we identified that prenatal providers “support” breastfeeding, but often did not bring it up more than once prior to delivery. Both they and providers during other periods recognized that better prenatal preparation was needed. Among mothers, the longitudinal design was critical for understanding how their experiences with breastfeeding challenges and breastfeeding care changed over time. This design allowed us to identify, for example, that obese women experience positioning challenges for a longer time than normal-weight women. If we had conducted only one interview with each woman, it is likely that we would have concluded that there were no differences because all women experienced some positioning challenges while they were learning to breastfeed.

Third, we used multiple strategies to establish trustworthiness of our findings from this qualitative research. In both studies, peer debriefing and member checking were used to enhance credibility and validity of findings. A research team and collaborators participated in peer debriefing, posing questions about the analysis, completeness, and informing ideas for exploration in further data collection and analysis. Participants in the studies were presented with summaries and interpretations of data previously collected to ensure accuracy of emergent themes. In the study with mothers, prolonged engagement was an additional strategy employed to increase credibility. This allowed the investigator to build trust with study participants, and to more fully understand the context within which each participant experienced breastfeeding. Finally, inclusion of two types of sources – health professionals and mothers – allowed for triangulation of interpretations and findings; parallel themes that emerged in these studies indicate that findings are likely to be credible.

As a result of the nature of inquiry and methods used, sample sizes and the area from which participants could be obtained, were limited, as is the case with all qualitative research. Thus, the generalizability of our findings is also limited. This is particularly pertinent for our findings related to breastfeeding care, both among HPs and among mothers. It is unclear how similar healthcare systems and structures for perinatal care are in other areas of the country and, thus, it is unclear how well our findings reflect the circumstances of other regions. In the mothers study, additional limitations exist because of our sampling strategy and sample obtained. We only included women who planned to breastfeed, thus, our findings do not identify reasons for possible differences between normal-weight and obese women for intention to breastfeed. Also, a lack of low SES women in the normal-weight group limits interpretation and separation of the roles of SES and obesity in women's breastfeeding experiences.

In conclusion, our findings from HPs and from mothers indicate that breastfeeding care is inadequate because of a lack of continuity across periods of the continuum and across HPs, and that women experience the care they receive as inconsistent with HPs' words that support breastfeeding. Thus, the current state of breastfeeding care is unlikely to facilitate reaching national breastfeeding goals without substantial system-wide changes. To support our public health goals for breastfeeding, changes are needed that address the barriers for HPs to provide adequate care, especially adequate training and resources. We also conclude that obese women experience a greater number of breastfeeding challenges across the continuum, but that HPs do not consistently recognize obesity as a risk factor for poorer breastfeeding outcomes and that they experience challenges in providing care for obese women. Improving breastfeeding outcomes among these women is crucial because obese women and their infants account for a substantial portion of our population and both are particularly likely to benefit from breastfeeding. To improve breastfeeding outcomes among obese women and their infants, interventions must be developed that address their psychosocial and physical challenges, HPs need training to provide appropriate targeted care, and hospital policies must be consistent in supporting and protecting breastfeeding in the face of medical challenges.

APPENDIX A

HEALTH PROFESSIONALS' STUDY MATERIALS

Document A.1. Recruitment flyer posted in staff areas of hospitals and obstetric and pediatric practices.

Health Professionals:
Do you work with pregnant or breastfeeding women?



Some women have more difficulty breastfeeding than others. Our goal is to develop strategies to assist these women... and you can help.

Physicians
Nurse Practitioners
Nurses
Midwives
Lactation Consultants

We want to hear about your experiences
in a 30-45 minute interview scheduled at your convenience.

For more information or to volunteer for this study, please tear off a contact sheet below.

You will receive a gift card as a thank you for your participation. This research study is being conducted by researchers in the Division of Nutritional Sciences at Cornell University.

Please contact Christine Dieterich, MS, RD: cmd76@cornell.edu or 415-609-5438.

For more information or to participate,
contact: Christine Dieterich, MS, RD
cmd76@cornell.edu or 415-609-5438

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contact: Christine Dieterich, MS, RD
cmd76@cornell.edu or 415-609-5438

Document A.2. Recruitment email distributed through the Greater Rochester Practice-Based Research Network.

Dear Greater Rochester PBRN Staff,

Christine Dieterich, MS, RD, a researcher from the Division of Nutritional Sciences at Cornell University, wants to learn more about your experiences with pregnant and breastfeeding mothers to help obese women to breastfeed longer.

She is conducting a qualitative research study with health professionals including:

Physicians
Nurse Practitioners
Nurses
Midwives
Lactation Consultants

Your participation would involve one 30-45 minute interview, at a place and time of your convenience. You would receive a \$25 gift card in appreciation for your time.

If you are interested in participating, or have questions about the study contact her at:

Christine Dieterich, MS, RD
cmd76@cornell.edu
415-609-5438

The Greater Rochester PBRN encourages participation based on the relevance of topic for primary care, and the value placed on physician input.

Karen Vitale, MEd
Network Coordinator
Greater Rochester PBRN
Center for Community Health
46 Prince St.
Rochester, NY 14607
(585) 224-3085

Document A.3. Interview guide for HP Study.

Interview Guide to be used with Health Professionals (HPs).

[Following informed consent] Now we can get started. I'd like to have a conversation with you about what your experiences and opinions are. I will ask you some questions, but there are no right or wrong answers to them. I just want to know what you think.

1. *First I'd like to know a little about you and your role as a health professional.*
 - a. What do you see as your role in working with women who breastfeed or who plan to breastfeed?
 - b. To you, what does "successful breastfeeding" mean?
2. *Now I'd like to know about your experience as a nurse/midwife/... working with different types of women.*
 - a. How often do you encounter patients/clients in your practice who are obese?
 - b. What do you consider "obese"?
Probing as necessary: What range of obesity do you encounter?
What is your average sized obese patient? Largest?
 - c. What characteristics are common among these women?
 - i. Probe: Social, physical, psychological (e.g. confidence), health
3. *Experience working with obese women who breastfeed or who plan to breastfeed.*
 - a. What is your experience working with obese women who breastfeed (or plan to breastfeed)?
 - i. How do they differ from women of normal body weight?
 - ii. How are these women different from obese women who don't breastfeed?
 - b. What are some of the unique problems/challenges might/do they commonly encounter?
 - i. Physical:
Probes: positioning, latching, delayed LG, large breasts
 - ii. Social:
BF in public, support from family/friends/public, self-consciousness (body size/large breasts)
 - iii. Personal:
Probes: confidence, attitudes
 - iv. What are some **specific examples** of patients/clients that have had such challenges?
 - c. Do you notice any specific beliefs that your obese clients have in regards to BF? Misconceptions?
 - i. How do you address these?
4. *Next I would like to know what advice and guidance you provide for obese women who are breastfeeding.*
 - a. In your experience, what are some of the ways that obesity affects a mother's decision or ability to BF (if at all)? (easier/more difficult, why?)
 - b. What kinds of advice or support do you offer that is specific to obese women? or different from what you provide for other women?
 - c. What approaches do you use with obese women who want to BF?
 - i. Physical/technical assistance
 - ii. Information/education
 - iii. Emotional support/encouragement
 - iv. How is support given? ... written, verbal, to mom, to partner or family
 1. What are some **specific examples**?
 - d. What are some of the ways you affect a mother's decision to continue breastfeeding?
 - e. How effective do you feel you are with helping mothers to breastfeed?
 - f. Are there any approaches that you feel **could be useful** to help women breastfeed?

- g. Are there any approaches that you feel **could be useful** to help **obese** women breastfeed?
 - h. What are some of the ways you feel you might be able to help women breastfeed longer?
 - i. What are some of the ways you feel you might be able to help obese women breastfeed longer?
5. Is there anything else that you would like to say?

Document A.4. Demographics questionnaire completed by each health professional at the end of his/her interview.

Health Professionals' Experiences Working with Obese Women Who Breastfeed

Thank you for participating in this interview!

Please answer the following questions that pertain to characteristics about you.

1. What is your occupation?

- | | |
|--------------------------|----------------------------|
| a. Physician, Obstetrics | d. Certified Nurse Midwife |
| b. Physician, Pediatrics | e. Lactation Consultant |
| c. Registered Nurse | f. Other _____ |

2. For how many years have you been practicing in your current occupation?

- | | |
|----------------------|---------------------|
| a. Less than 5 years | d. 20 to 29 years |
| b. 5 to 10 years | e. 30 years or more |
| c. 10 to 19 years | |

3. Are you a Certified Lactation Counselor (CLC)?

- a. Yes
- b. No

4. Are you an International Board Certified Lactation Consultant (IBCLC)?

- a. Yes
- b. No

5. If you are a CLC or IBCLC, for how many years have you been certified? _____ years

6. Is your practice in an urban, suburban, small town, or rural setting?

- | | |
|-------------|------------------|
| a. Urban | c. Small town |
| b. Suburban | d. Rural setting |

7. What is your age? _____ years

8. What is your gender?

- a. Female
- b. Male

9. Do you have any children?

- a. Yes If yes, how many? _____
- b. No

10. If you are female, have you yourself ever breastfed?

- a. Yes
- b. No

11. What is your race/ethnicity?

- | | |
|------------------------|------------------------|
| a. White, non-Hispanic | d. Asian |
| b. Black, non-Hispanic | e. Other or mixed race |
| c. Hispanic | |

We recognize that your time is valuable, and appreciate your time and help with this study!

APPENDIX B

MATERIALS FOR LONGITUNIDAL STUDY WITH MOTHERS

Document B.1. Recruitment flyer placed in exam rooms at obstetrics and family medicine practices.

Considering breastfeeding?

Understanding how moms experience breastfeeding will help us to help more mothers meet their breastfeeding goals.

You can help!

We are looking for **pregnant women** with a **variety of body sizes** to participate in this study.



If that's you, we would love to hear about **your story** during your pregnancy and after your baby is born.

You will receive a **\$20 GIFT CARD** after each visit as a thank you for participating.

For more information, please tear off a sheet and get in touch!

This research study is being conducted by researchers in the Division of Nutritional Sciences at Cornell University and the Department of Obstetrics and Gynecology at the University of Rochester. Please contact Christine Dieterich, MS, RD: cmd76@cornell.edu or 415-609-5438.

For more information or to participate, contact: Christine Dieterich, MS, RD cmd76@cornell.edu or 415-609-5438	For more information or to participate, contact: Christine Dieterich, MS, RD cmd76@cornell.edu or 415-609-5438	For more information or to participate, contact: Christine Dieterich, MS, RD cmd76@cornell.edu or 415-609-5438	For more information or to participate, contact: Christine Dieterich, MS, RD cmd76@cornell.edu or 415-609-5438	For more information or to participate, contact: Christine Dieterich, MS, RD cmd76@cornell.edu or 415-609-5438	For more information or to participate, contact: Christine Dieterich, MS, RD cmd76@cornell.edu or 415-609-5438	For more information or to participate, contact: Christine Dieterich, MS, RD cmd76@cornell.edu or 415-609-5438	For more information or to participate, contact: Christine Dieterich, MS, RD cmd76@cornell.edu or 415-609-5438
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Document B.2.a. Outside of recruitment brochure placed in waiting rooms at obstetrics, midwifery, and family medicine practices, distributed in hospital tour packets, and by county Department of Health nurses.

Pregnant?

Share your story!

We are looking for **pregnant women** with a **variety of body sizes** who are **considering breastfeeding** their babies.

We would love to hear from you **before you deliver!**

To find out more...

Get in touch and contact

Christine Dieterich, MS, RD
415-609-5438 or
cmd76@cornell.edu



For more information,
get in touch with

Christine Dieterich, MS, RD
Cornell University

415-609-5438
cmd76@cornell.edu

Considering breastfeeding?

You can help

by sharing
your story!

Understanding how moms experience breastfeeding in our society will help us to help more mothers meet their breastfeeding goals.



Study Title & Info:
Exploring Experiences and Perceptions of Mothers who Breastfeed
Principal Investigators:
Christine Dieterich, MS, RD
Loralei Thornburg, MD
Kathleen M Rasmussen, ScD, RD

RSRB-University of Rochester-Approval
RSRB No. 44666
Expires November 29, 2013
- nr 12/6/12-

UNIVERSITY of ROCHESTER
MEDICAL CENTER
Department of Obstetrics & Gynecology





How you can help...

We want to hear about your story by talking with you once during your pregnancy, and at different times after your child is born.

We know you are busy, so **we will come to you!**

Our visits will last about 90 to 120 minutes each.

What's in it for you?

You will receive a **\$20 GIFT CARD at each visit** to thank you for your time.

If you feel you need some extra support, we can help you find it.

Why this matters...

Many women do not breastfeed as long as they want to. We are trying to understand how mothers feed their babies and experience breastfeeding in our society.

This research will help us develop programs that help mothers meet their breastfeeding goals.

Who we are...

This study is being conducted by researchers in the Division of Nutritional Sciences at Cornell University, and the Department of Obstetrics and Gynecology at the University of Rochester.

Get in touch!

For more information or to participate, contact

Christine Dieterich, MS, RD
415-609-5438 or
cmd76@cornell.edu

or

Complete the section below and leave it at the front desk of your provider's office.

Name _____

Phone _____

Email _____

Due date _____

Document B.3. Screening questionnaire conducted over the phone after women indicated interest in participating in the study.

ORAL CONSENT / SCREENING / TELEPHONE INTERVIEW SCRIPT
Exploring Experiences and Perceptions of Mothers who Breastfeed

Hi, my name is [state your name].

If Christine calling: I'm a researcher from Human Ecology at Cornell University who is studying moms and babies, working on a study on breastfeeding being conducted with Dr. Thornburg from the University of Rochester's Department of Ob/Gyn. I am calling because you indicated that you would be interested in learning more about this study.

If Dr. Thornburg calling: I am researcher and physician from the University of Rochester's Department of Ob/Gyn working on study regarding breastfeeding. I am calling because you indicated that you would be interested in learning more about this study.

Do you have a few minutes to discuss the study?

- If **yes**, continue below.
- If **no**, because this is a bad time:
Is there a better time to call you? _____ a.m. / p.m.
- If **no**, thank them for their time.

We are inviting you to take part in this study because you are currently pregnant and planning to breastfeed. The purpose of this study is to try to understand how moms relate to babies and how they experience breastfeeding in society.

If you decide to take part in this study, this would involve in-person conversations with you about your breastfeeding experiences during the last part of your pregnancy, as well as just after your baby is born, and then at 6 weeks, 3, and 6 months postpartum. Each interview will last about 1-2 hours. We would also ask you to complete a short questionnaire at each visit.

We estimate that about 30 women will take part in this study. If you choose to participate, this would involve a total of up to 5 interviews over a period of about 6 months. You would receive a gift card after completing each interview, and a small gift at the end of your participation.

Does this sound like something you'd be interested in participating in?

- If **yes**, continue below.
- If **no**, thank them for their time.

Thank you so much for your interest in the study. Before we can get you enrolled, we need to be sure that you are eligible to participate. To do that I need to ask you several questions:

1. How did you learn about the study? _____
2. What was your age at your last birthday? _____ years
3. How do you plan to feed your baby? ____ Breastfeed ____ Formula feed ____ Combination
4. Are you expecting to deliver more than one baby? ____ Yes ____ No
(i.e. twins, triplets, etc)
5. How far along are you in your pregnancy? _____ wk gestation
What is your due date? ____ / ____ / ____
6. Have you ever had surgery on your breasts? ____ Yes ____ No
If yes, what type of surgery was it? _____
7. In what town do you live? _____
Do you plan to move either before or shortly after your baby is born? ____ Yes ____ No
If yes, do you plan to move out of the Rochester / Ithaca area? ____ Yes ____ No
8. How tall are you? ____ ft ____ in / _____ m
9. How much did you weigh when you became pregnant? _____ lb / _____ kg
[calculate BMI _____ kg/m²]

[If one of first 5 participants, skip this page---- questions #10-18]

10. How much schooling have you completed?
(circle): High school / some college / college / post-college
other _____
11. What is your current marital status?
(circle): Single / Married / Partner unmarried / Separated / Divorced
Living together or living apart?
12. How many pregnancies have you carried to term? _____
Did you breastfeed any of these children? _____ Yes _____ No
How many of these children did you breastfeed? _____
13. Are you working now? _____ Yes _____ No
Occupation? _____
14. Do you intend to work / return to work after your baby is born? _____ Yes _____ No
15. How would you describe your money situation in your household right now? Would you describe it as:
_____ Comfortable with some extras
_____ Enough but no extras
_____ Have to cut back
_____ Cannot make ends meet
16. Are you participating in WIC? _____ Yes _____ No
17. Are you participating in the Food Stamp Program? _____ Yes _____ No
18. What is your race/ethnicity?
_____ White, non-Hispanic
_____ Black, non-Hispanic
_____ Hispanic
_____ Asian
_____ Other or mixed race

Based on this information, you _____are / _____are not eligible to participate in this study.

If not eligible:

Thank you so much for agreeing to be screened. Unfortunately, you are not eligible for our study. We thank you for your interest, and we appreciate you taking the time to speak with us. The screening form that we used today will be shredded to protect your privacy. Thank you again.

If not currently eligible:

Thank you so much for agreeing to be screened. Unfortunately, we are not currently taking women with your characteristics, but it is possible that we could include you in the future. Would you like to be contacted again if we can include you?

- Yes: Thank you. We will keep your information confidential and on file until the study is completed, and shred your information if you do not participate. Thank you again for your time.
- No: Thank them for their time. Thank you again, the screening form that we used today will be shredded to protect your privacy. We appreciate your time.

If eligible:

Participating in this study would involve talking with me (the researcher) once before you deliver, and then up to 4 times after your baby is born. I realize this is a busy time for moms, so I would come to you, and we could meet in your home or another place that is comfortable and familiar for you. Your participation in this study is completely voluntary. You are free not to participate or to withdraw at any time, for whatever reason. No matter what decision you make, there will be no penalty or loss of benefit to which you are entitled.

Do you have any questions? Do you agree to participate in this study?

- Yes:
- No: Thank them for their time. Can I ask why you are not interested?

Thank you again, the screening form that we used today will be shredded to protect your privacy. We appreciate your time.

Thank you! We will include this screening form as baseline information for the study. When we meet for the first time, I will ask you a few more questions, and have you complete a consent form. I would like to meet with you once before your baby is born (before 37 weeks gestation). When would be a good time for you to meet?

Schedule 1st visit on date: _____ time: _____ location: _____

OR

(circle preferred method) Call / Email/ Text to set up visit:

Home number: _____ Ok to leave message? (circle): Yes No

Cell number: _____ Ok to leave message? (circle): Yes No

Email: _____

Document B.4. Interview guide used at interviews conducted in the 3rd trimester of pregnancy.

Interview #1: Pregnancy Interview Guide

[Following informed consent & ISEL-12] Now we can get started. I'd like to have a conversation with you about what you know and have heard about BF, what your plans are for BF, and some things in your life that may influence BF. I will ask you some questions, but there are no right or wrong answers to them.

1. Beliefs/attitudes about breastfeeding

- a. If previously breastfed: What has your experience been with BF?

- b. What are some of the things you've heard about BF?
 - i. Good things? Bad things?
 - ii. Where / from whom / how did get your information? (e.g. friends, internet, HP, books)
 - iii. What have you heard from your friends or family about their personal experiences with BF?
Probe: What do you think about that?
 - iv. Prenatal classes? BF classes?
 - v. Have you talked to your health provider (HP) about things that you've heard? How did your HP respond?

- c. Earlier (over phone or in person) you mentioned that you plan to breastfeed. What are some of the things/reasons that made you decide that?
 - i. Good things / Bad things?
 - ii. Difficult vs easy?
 - iii. How do you think it will go?
 - iv. How would you describe the importance of BF for you and/or your baby?

2. BF Intentions and commitment / Expectations

- a. How long do you plan to breastfeed?
 - i. How did you come up with that?
 - ii. What are some of the things that might affect how long you breastfeed?
 - iii. Do you expect to have any difficulties with BF?
 1. Physical: easy, difficult, painful, comfortable
REFLECT: confidence, what are some of the reasons you feel that way?

- b. When do you expect to add formula or foods to what your baby is getting?
[How long do you expect to BF exclusively (meaning only breast milk)?

- c. Do you plan to use a breast pump?

- i. What are some of the reasons that you plan to use a pump?

- 3. *I'd like to switch gears a little bit. I'm wondering how feel about body.*
 - a. How has pregnancy changed the way you feel about your body?
 - i. How do you feel about the weight you have gained on pregnancy?

 - b. What are some of the ways you think BF will change the way you feel about your body?
 - i. Some women have told me they are concerned that their breast size may affect BF. Is this something that concerns you?
 - ii. Some women have told me they are concerned that their body shape/weight may affect BF. Have you heard that?

 - c. What do you expect it to be like to BF around other people?
 - Probe: self-consciousness, comfortable, anxious, confident,
 - i. What makes you feel that way?

- 4. *Social Support— REFER TO ISEL-12*
 - a. How do the people close to you feel about your decision to BF?
 - i. Who? What do they say?
 - ii. When you say "support" what does that mean? Examples?

 - b. What kind of help or support do you expect you'll need for BF?

 - c. What are some of the things or people that have encouraged BF?
 - d. What are some of the things or people that have discouraged BF?

 - e. Do you feel like you have people who support you in general?

- 5. *I'm also interested in the role that health professionals are playing in your plans to BF.*
 - a. Who / what types of health professionals do you see / interact with? (CNM, MDOb, MDPed, NP, LC)
 - b. How do you feel about talking with your HP? (general)
 - i. How do you feel talking with your HP about BF?
 - Probe: comfortable, uncomfortable
 - What makes you feel that way?

 - c. What have your health providers told you about breastfeeding?

 - d. How have they affected your breastfeeding decisions?

- i. Who? (physician, nurse, NP, LC)?
- ii. What are some of the things they've said?
- iii. Supportive? Unsupportive?

- e. What are some of the other things that you do talk about with your HP?
 - i. Your concerns? His/her concerns?
Probe: weight gain, baby's weight, delivery, BP, something else
- f. Have they referred you to any other programs (WIC, LLL, etc)?

6. To you, what does "successful breastfeeding" mean?

7. Is there anything we haven't talked about that you would like to share with me?

Document B.5. Interview guide used for second interview at 7 to 10 days postpartum.

Interview #2: 7-10 Days Postpartum

1. *So, tell me what's been going on since we last spoke.*
 - a. How did everything go with the delivery? (birth story)
Probes: Vaginal? C-section? Difficult? How long?

2. *I would like to know about your first experiences feeding your baby.*
 - a. What was it like the first time you fed your baby (at breast or with bottle)?
 - i. What was it like for you?
 1. Physically? Position? Emotionally?
 - ii. How did your baby respond?
 - iii. How did you know what to do?
 - iv. Who else was there?
 - v. Where? When?

 - b. What was it like feeding your baby after the first time (the rest of the time) while you were in the hospital?
 - i. How did you feel about BF in the hospital?
Who was there?

 - ii. Feed at breast? Pump milk? Formula?
 - iii. Position? Props?
 - iv. Physical challenges/difficulty?

 - c. What help or guidance did you have for BF?
 - i. What was that like? Helpful? Unhelpful? Frustrating?
 - ii. Who?
 - iii. Was that the kind of guidance you expected / wanted?
 - iv. Was there something that would have been more helpful?

3. *Now I would like you to tell me about your experiences feeding your baby since then at home.*
 - a. What has it been like feeding your baby since you have been home?
 - i. Probes: Difficult? Easy? Confusing?
Exhausting? Lonely? Uncomfortable? Rewarding?

 - b. How are you feeding your baby now? (Breast, pumped milk, formula, anything else?)
 - i. What are some of the things that led you to choose feeding your baby that way?
 1. Physical difficulty/challenges?
 2. Importance / unimportance of BF
 3. Convenience / Inconvenience?
 - ii. Who has influenced how you are feeding your baby?
 1. Encouraged BF? Discouraged BF?

 - c. Tell me what it looks like when you feed your baby.

- i. Where are you usually?
- ii. Who else is there?
- iii. How do you make yourself comfortable?
Probes: Position? Type of hold?
Pillows? Props? Clothing?
Baby's comfort?

d. How do you know or decide when to feed your baby? Cues? Schedule?

[If no longer BF, skip to # 10]

4. *Beliefs/attitudes about breastfeeding: Last time we spoke I asked you what successful BF meant to you.*
- a. What does successful BF mean to you now?
 - b. How do you feel about breastfeeding your baby? Tell me more.
 - i. Is this different from how you felt before your baby was born?
 - ii. What are some of the things that have influenced the way you think about BF now?
Probes: Difficult vs easy?, Convenient vs time-consuming?, Satisfying?, Exhausting?, Exposing?
 - c. What do you enjoy or find easy about BF your baby?
 - d. What do you not enjoy or find difficult about BF your baby?

5. *BF Intentions and commitment*

- a. How long do you want to breastfeed now?
- b. What are the reasons you want to BF for that amt of time?
 - i. Exclusively?
 - ii. Pumping?

Reflect: confidence, what are some of the reasons that you feel that way?

6. *How do you feel about your body now?*

- a. How has BF changed the way you feel about your body?
- b. Some women say that they are concerned about exposing their bodies when BF. Do you feel that way, too?
 - i. Does it affect how you breastfeed? (how, where, when)
- c. How do you feel about BF around other people (friends, family, HPs)? Tell me more.
 - i. Family / friends
 - ii. At doctor's office or around other HPs?
- d. How do you feel about BF in public? (self-conscious, anxious vs comfortable, confident)
 - i. What makes you feel that way?

7. *Social Support – [REFER TO ISEL-12]*

- a. How do the people close to you react or feel about you breastfeeding?

- i. Do you feel like you have people that support you for breastfeeding? Who?
- ii. What are some of the things they do that support you for BF?
 Probe: Assistance with BF – advice or information?
 Assistance with “doing things”?
 Emotional support?

Is there something that would help you more?

- iii. What are some of the things the people have done that do not support you BF?

- b. Has anyone or anything discouraged you from BF? Who or what discouraged you?
 - c. Who or what has had the biggest effect on your BF? Tell me more.
 - d. Do you feel like you have people close to you who are supporting you in general?
8. *I'd like to know about the role that health professionals have had on your breastfeeding.*
- a. What kind of HPs have you interacted with since we last met? (MDPed, MDOb, MDFam, nurse, NP, LC)
 - b. How do you feel talking to your HP about BF?
 Probe: male/female, comfortable/uncomfortable
 How do you feel like that relate to you?
 - c. What have your health professionals told you or taught you about breastfeeding?
 - d. How have HPs affected whether or how you breastfeed?
 - i. Who, specifically? (OB, CNM, Pediatrician, Nurse, NP, LC)
 - ii. What are some of the things they've said?
 - iii. Supportive? Not supportive?
 - e. Have they referred you to any other programs (WIC, LLL, etc)?

[Skip #9 if still BF]

9. *Now I'd like to know more about the time when you decided to stop BF.*
- a. What are some of the things or reasons that led you to decide to stop BF?
 - b. What was the biggest reason that you stopped BF?
 Probing: pain, difficulty, time-consuming, no support, return to work, embarrassing, etc.
 Tell me more about that.
 - c. Did you breastfeed as long as you wanted to?
 - i. What would you have needed to BF longer?
 - d. What does successful breastfeeding mean to you now?
 - e. Do you feel like you were successful at breastfeeding?

10. *Is there anything we haven't talked about that you would like to share with me about your BF experience?*

Document B.6. Interview guide used for second interview at 7 to 10 days postpartum.

Interview #3: 6 wk, 3 mo Postpartum

1. *So, tell me what's been going on since we last spoke.*
2. *I would like to know about your experiences feeding your baby since we last met.*
 - a. How are you feeding your baby now? (Breast, pumped milk, formula, other foods?)
 - b. What are some of the things that led you to choose feeding your baby that way?
 - i. Physical difficulty / challenges
 - ii. Importance / unimportance of BF
 - iii. Convenience / freedom
 - iv. Return to work
 - c. Who has influenced how you are feeding your baby?
 - i. Encouraged / Discouraged BF
 - d. Tell me what it looks like when you feed your baby.
 - i. Where are you usually?
 - ii. Who else is there?
 - iii. How do you make yourself comfortable?
Probes: Pillows? Props? Clothing? Baby's comfort?
 - iv. Does anyone else feed your baby?
 - e. How do you know or decide when to feed your baby? Cues? Schedule?

[If no longer feeding any breast milk skip to Section #10]

3. *Now I would like you to tell me what has changed about your breastfeeding experiences.*
 - a. What has changed about the way you breastfeed your baby since we last met?

e.g. Schedule, how often, how much, pain, more difficult or easier, positioning, latching

 - i. Tell me about what led to those changes.
 - ii. Tell me about what has happened as a result from those changes.

4. *Beliefs/attitudes about breastfeeding. I asked you this when we met previously, and I'm wondering...*
 - a. What does successful BF mean to you now?
 - b. How do you feel about breastfeeding your baby?
Probe: confident v. not confident, comfortable, anxious, like v. dislike
Tell me more.
 - i. Is this different from how you felt last time we met? (at 7-10d, 6wk, 3mo)
 - ii. What are some of the things that have influenced the way you think about BF now?
Probing: Difficult vs easy?, Convenient vs time-consuming?, Satisfying?, Exhausting?
Exposing?
 - c. What do you enjoy or find easy about BF your baby?
 - d. What do you not enjoy or find difficult about BF your baby?
5. *BF Intentions and commitment*
 - a. How long do you want to continue breastfeeding now?
 - b. What are the reasons you want to BF for that amount of time?
 - c. What are some of the things that will influence your decision about when to stop?
 - i. Exclusively?
 - ii. Pumping?
6. *I asked you about this when we met before, and I'm wondering how do you feel about your body now?*
 - a. How has breastfeeding changed the way you feel about your body now?
 - b. What are some of the other things that have changed how you feel about your body?
 - c. Some women say that they are concerned about exposing their bodies when BF. Do you feel that way, too?
 - i. Does this affect BF? (how, where, when)
 - d. How do you feel about BF around other people? Tell me more.
 - i. Family / friends?
 - ii. At the doctor's office or around other health professionals?
 - e. How do you feel about BF in public? (self-conscious, anxious vs comfortable, confident)
 - i. What makes you feel that way?

7. *Social Support – REFER TO ISEL-12*

- a. Do you feel like you have people close to you who are supporting you in general?
- b. How do the people close to you react or feel about you breastfeeding?
 - i. Do you feel like you have people that support you for breastfeeding? Who?
 - ii. What are some of the things they do that support you for BF?
Probe: Assistance with BF – advice or information?
Assistance with “doing things”?
Emotional support? Encouragement?

Is there something that would help you more?
- iii. What are some of the things people have done that do not support you BF?
- c. Has anyone or anything discouraged you from BF? Who or what discouraged you?
- d. Who or what has had the biggest affect on your BF? Tell me more.

8. *Now I'd like to know about the role that health professionals have had on your breastfeeding.*

- a. What kind of HPs have you interacted with since we last met? (physician, nurse, NP, LC)?
- b. How do you feel talking to your HP about BF?
Probe: male/female, comfortable/uncomfortable,
How do you feel like they relate to you?
- c. What have your health professionals said about breastfeeding (if anything) since we last met?
- d. How have they affected your plan/ability to continue BF?
 - i. What are some of the things they have said?
 - ii. Supportive? Not supportive?
- e. Have they referred you to any other programs (WIC, LLL, etc)?

[Skip #9 if still BF]

9. *Now I'd like to know more about the time when you decided to stop BF.*

- a. What are some of the reasons that led you to decide to stop BF?
- b. What was the biggest reason that you stopped BF?
Probing: pain, difficulty, time-consuming, no support, return to work, embarrassing, etc.
Tell me more about that.
- c. Did you breastfeed as long as you wanted to?
 - i. What would have you have needed to BF longer?
- d. What does successful breastfeeding mean to you now?
- e. Do you feel like you were successful at breastfeeding?

10. *Is there anything we haven't talked about that you would like to share with me about your BF experience?*

Document B.7. Interpersonal Support Evaluation List (ISEL) surveys that women completed at the end of each interview.

Exploring Experiences and Perceptions of Mothers who Breastfeed



Support and Advice Questionnaire

We are interested in all the support and advice you receive, because it is relevant to understanding who you are. The following questions are to help us understand how you feel that people generally support you in day-to-day life and activities. There are no right or wrong answers to any of these questions.

For each statement below circle "definitely true" if you are sure it is true about you and "probably true" if you think it is true but are not absolutely certain. Similarly, you should circle "definitely false" if you are sure the statement is false and "probably false" if you think it is false but are not absolutely certain.

1. If I wanted to go on a trip for a day (for example, to the country or mountains), I would have a hard time finding someone to go with me.

1. definitely false 2. probably false 3. probably true 4. definitely true

2. I feel that there is no one I can share my most private worries and fears with.

1. definitely false 2. probably false 3. probably true 4. definitely true

3. If I were sick, I could easily find someone to help me with my daily chores.

1. definitely false 2. probably false 3. probably true 4. definitely true

4. There is someone I can turn to for advice about handling problems with my family.

1. definitely false 2. probably false 3. probably true 4. definitely true

5. If I decide one afternoon that I would like to go to a movie that evening, I could easily find someone to go with me.

1. definitely false 2. probably false 3. probably true 4. definitely true

6. When I need suggestions on how to deal with a personal problem, I know someone I can turn to.

1. definitely false 2. probably false 3. probably true 4. definitely true

7. I don't often get invited to do things with others.

1. definitely false 2. probably false 3. probably true 4. definitely true

8. If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.).

1. definitely false 2. probably false 3. probably true 4. definitely true

9. If I wanted to have lunch with someone, I could easily find someone to join me.

1. definitely false 2. probably false 3. probably true 4. definitely true

10. If I was stranded 10 miles from home, there is someone I could call who could come and get me.

1. definitely false 2. probably false 3. probably true 4. definitely true

11. If a family crisis arose, it would be difficult to find someone who could give me good advice about how to handle it.

1. definitely false 2. probably false 3. probably true 4. definitely true

12. If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me.

1. definitely false 2. probably false 3. probably true 4. definitely true

APPENDIX C

ISEL RESULTS

Document C.1. Scores for Interpersonal Support Evaluation List (ISEL-12) and sub-scale for tangible support according to BMI and Socioeconomic (SES) category

Period	Obese (n=13)	Normal-weight (n=9)	Low SES[§] (n=7)	Higher SES (n=15)
Pregnancy				
ISEL score*	32.5	31.1	30.6	32.5
Tangible score**	10.6	10.7	9.6	11.1
7-10 days				
ISEL score	31.9	31.9	30.1	32.8
Tangible score	10.2	10.6	9.3	10.1
6 weeks				
ISEL score	32.5	30.8	30.3	32.5
Tangible score	10.4	10.6	8.9	11.2
3 months				
ISEL score	31.4	31.4	28.5	32.6
Tangible score	10.3	10.7	9	11.1

* Maximum score is 36. Higher score indicates greater support.

** Maximum score is 12. Higher score indicates greater support.

[§] Low SES determined by participation in Supplemental Nutrition Program for Women, Infants, and Children. Those who did not participate in WIC were categorized as higher SES.

REFERENCES

1. World Health Organization. Global Strategy for Infant and Young Child Feeding. Geneva, Switzerland: WHO and UNICEF; 2003.
2. U.S. Department of Health and Human Services. Healthy People 2020 Washington D.C. [Nov 28, 2012]. Available from: <http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicid=26>.
3. U.S. Department of Health and Human Services. The Surgeon General's Call to Action to Support Breastfeeding. Washington D. C.: Department of Health and Human Services, Office of the Surgeon General; 2011.
4. Dieterich CM, Felice JP, O'Sullivan E, Rasmussen KM. Breastfeeding and health outcomes for the mother-infant dyad. *Pediatr Clin N Am*. 2013;60:31-48.
5. Ip S, Chung M, Raman G, Trikalinos TA, Lau J. A summary of the agency for healthcare research and quality's evidence report on breastfeeding in developed countries. *Breastfeeding Medicine*. 2009;4(1):S17-S30.
6. Section on Breastfeeding. Breastfeeding and the use of human milk. *Pediatrics*. 2012;129(3):e827-e41.
7. Centers for Disease Control and Prevention. Breastfeeding Report Card — United States 2014 Atlanta, GA2014 [Dec 1, 2014]. Available from: <http://www.cdc.gov/breastfeeding/pdf/2014breastfeedingreportcard.pdf>.
8. Flegal KM, Carroll MD, Kit BK, Ogden CL. Prevalence of obesity and trends in the distribution of body mass index among US adults, 1999-2010. *JAMA*. 2012;307(5):491-7.
9. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the united states, 2011-2012. *JAMA*. 2014;311(8):806-14.
10. Rasmussen KM, Kjolhede CL. Maternal Obesity: A Problem for Both Mother and Child. *Obesity*. 2008;16(5):929-31.
11. Obesity in pregnancy. Committee Opinion No. 549. American College of Obstetricians and Gynecologists. *Obstet Gynecol*. 2013;121:213-7.
12. Ruager-Martin R, Hyde MJ, Modi N. Maternal obesity and infant outcomes. *Early Hum Dev*. 2010;86(11):715-22.
13. Weiss JL, Malone FD, Emig D, Ball RH, Nyberg DA, Comstock CH, Saade G, Eddleman K, Carter SM, Craigo SD, Carr SR, D'Alton ME. Obesity, obstetric complications and cesarean delivery rate—a population-based screening study. *Am J Obstet Gynecol*. 2004;190(4):1091-7.

14. Rasmussen KM. Association of maternal obesity before conception with poor lactation performance. *Annu Rev Nutr.* 2007;27(1):103-21.
15. Baker JL, Gamborg M, Heitmann BL, Sorensen TIA, Lissner L, Rasmussen KM. Breastfeeding reduces postpartum weight retention. *Am J Clin Nutr.* 2008;88(6):1543-51.
16. Collaborative Group on Hormonal Factors in Breast Cancer. Breast cancer and breastfeeding: collaborative reanalysis of individual data from 47 epidemiological studies in 30 countries, including 50,302 women with breast cancer and 96,973 women without the disease. *The Lancet.* 2002;360(9328):187-95.
17. Schwarz EB, Brown JS, Creasman JM, Stuebe A, McClure CK, Van Den Eeden SK, Thom D. Lactation and maternal risk of type 2 diabetes: a population-based study. *Am J Med.* 2010;123(9):863-6.
18. Natland ST, Nilsen TIL, Midthjell K, Andersen LF, Forsmo S. Lactation and cardiovascular risk factors in mothers in a population-based study: the HUNT-study. *Int Breastfeed J.* 2012;7(8).
19. Schwarz EB, Ray RM, Stuebe AM, Allison MA, Ness RB, Freiberg MS, Cauley JA. Duration of lactation and risk factors for maternal cardiovascular disease. *Obstet Gynecol.* 2009;113(5):974-82.
20. Harder T, Bergmann R, Kallischnigg G, Plagemann A. Duration of breastfeeding and risk of overweight: a meta-analysis. *Am J Epidemiol.* 2005;162(5):397-403.
21. Hilson J, Rasmussen K, Kjolhede C. Maternal obesity and breast-feeding success in a rural population of white women [published erratum appears in *Am J Clin Nutr* 1998 Mar;67(3):494]. *Am J Clin Nutr.* 1997;66(6):1371-8.
22. Kugyelka JG, Rasmussen KM, Frongillo EA. Maternal obesity is negatively associated with breastfeeding success among Hispanic but not Black women. *J Nutr.* 2004;134(7):1746-53.
23. Hauff LE, Leonard SA, Rasmussen KM. Associations of maternal obesity and psychosocial factors with breastfeeding intention, initiation, and duration. *Am J Clin Nutr.* 2014;99:524-34.
24. Liu J, Smith MG, Dobre MA, Ferguson JE. Maternal obesity and breast-feeding practices among white and black women. *Obesity.* 2010;18(1):175-82.
25. Kehler HL, Chaput KH, Tough SC. Risk factors for cessation of breastfeeding prior to six months postpartum among a community sample of women in Calgary, Alberta. *Can J Pub Health.* 2009;100:376-80.
26. Oddy WH, Li J, Landsborough L, Kendall GE, Henderson S, Downie J. The association of maternal overweight and obesity with breastfeeding duration. *J Pediatr.* 2006;149(2):185-91.

27. Baker JL, Michaelsen KF, Sorensen TI, Rasmussen KM. High prepregnant body mass index is associated with early termination of full and any breastfeeding in Danish women. *Am J Clin Nutr.* 2007;86(2):404-11.
28. Kronborg H, Vaeth M, Rasmussen KM. Obesity and early cessation of breastfeeding in Denmark. *European Journal of Public Health.* 2013;23(2):316-22.
29. Mok E, Multon C, Piguel L, Barroso E, Goua V, Christin P, Perez M-J, Hankard R. Decreased full breastfeeding, altered practices, perceptions, and infant weight change of prepregnant obese women: a need for extra support. *Pediatrics.* 2008;121(5):e1319-e24.
30. Sebire NJ, Jolly M, Harris JP, Wadsworth J, Joffe M, Beard RW, Regan L, Robinson S. Maternal obesity and pregnancy outcome: a study of 287 213 pregnancies in London. *Int J Obes Relat Metab Disord.* 2001;25(8):1175.
31. Wojcicki JM. Maternal prepregnancy body mass index and initiation and duration of breastfeeding: a review of the literature. *J Womens Health.* 2011;20(3):341-7.
32. Amir L, Donath S. A systematic review of maternal obesity and breastfeeding intention, initiation and duration. *BMC Pregnancy and Childbirth.* 2007;7(1):9.
33. Verret-Chalifour J, Giguère Y, Forest J-C, Croteau J, Zhang P, Marc I. Breastfeeding initiation: impact of obesity in a large Canadian perinatal cohort study. *PLoS ONE.* 2015;10(2):e0117512.
34. Forster D, McLachlan H, Lumley J. Factors associated with breastfeeding at six months postpartum in a group of Australian women. *Int Breastfeeding J.* 2006;1(1):18.
35. Revell DK, Williams IH, Mullan BP, Ranford JL, Smits RJ. Body composition at farrowing and nutrition during lactation affect the performance of primiparous sows: II. Milk composition, milk yield, and pig growth. *J Anim Sci.* 1998;76(7):1738-43.
36. Morrow DA. Fat Cow Syndrome. *Journal of Dairy Science.* 1976;59(9):1625-9.
37. Sejrsen K, Purup S, Vestergaard M, Foldager J. High body weight gain and reduced bovine mammary growth: physiological basis and implications for milk yield potential. *Domestic Animal Endocrinology.* 2000;19(2):93-104.
38. Kamikawa A, Yamaji D, Imao T, Suzuki C, Okamatsu-Ogura Y, Terao A, Kimura K, Ichii O, Kon Y. Diet-induced obesity disrupts ductal development in the mammary glands of nonpregnant mice. *Developmental Dynamics.* 2009;238(5):1092-9.
39. Flint DJ, Travers MT, Barber MC, Binart N, Kelly PA. Diet-induced obesity impairs mammary development and lactogenesis in murine mammary gland. *Am J Physiol Endocrinol Metabol.* 2005;288(6):E1179-E87.
40. Shaw MA, Rasmussen KM, Myers TR. Consumption of a high fat diet impairs reproductive performance in Sprague-Dawley rats. *J Nutr.* 1997;127(1):64.

41. Rasmussen KM, Hilson JA, Kjolhede CL. Obesity may impair lactogenesis II. *J Nutr*. 2001;131(11):3009S-11.
42. Dewey KG, Nommsen-Rivers LA, Heinig MJ, Cohen RJ. Risk factors for suboptimal infant breastfeeding behavior, delayed onset of lactation, and excess neonatal weight loss. *Pediatrics*. 2003;112(3):607-19.
43. Nommsen-Rivers L, Chantry C, Pearson J, Cohen R, Dewey K. Delayed onset of lactogenesis among first-time mothers is related to maternal obesity and factors associated with ineffective breastfeeding. *Am J Clin Nutr*. 2010;92(3):574-84.
44. Chapman DJ, Perez-Escamilla R. Does delayed perception of the onset of lactation shorten breastfeeding duration? *J Hum Lact*. 1999;15(2):107-11.
45. Nommsen-Rivers LA, Mastergeorge AM, Hansen RL, Cullum AS, Dewey KG. Doula care, early breastfeeding outcomes, and breastfeeding status at 6 weeks postpartum among low-income primiparae. *JOGNN*. 2009;38(2):157-73.
46. Rasmussen KM, Kjolhede CL. Prepregnant overweight and obesity diminish the prolactin response to suckling in the first week postpartum. *Pediatrics*. 2004;113(5):e465-71.
47. Nommsen-Rivers LA, Dolan LM, Huang B. Timing of stage II lactogenesis is predicted by antenatal metabolic health in a cohort of primiparas. *Breastfeeding Medicine*. 2011;7(1):43-9.
48. Jevitt C, Hernandez I, Groër M. Lactation complicated by overweight and obesity: supporting the mother and newborn. *Journal of Midwifery & Women's Health*. 2007;52(6):606-13.
49. Rasmussen KM, Dieterich CM, Zelek ST, Altabet JD, Kjolhede CL. Interventions to increase the duration of breastfeeding in obese mothers: The Bassett Improving Breastfeeding Study. *Breastfeeding Medicine*. 2011;6(2):69-75.
50. Surber CMD. Breastfeeding among obese women : the role of infant size and providing additional support [Thesis]: Cornell University; 2007.
51. Chapman DJ, Morel K, Bermudez-Millan A, Young S, Damio G, Perez-Escamilla R. Breastfeeding education and support trial for overweight and obese women: a randomized trial. *Pediatrics*. 2013;131:e162.
52. Chapman DJ, Morel K, Anderson AK, Damio G, Pérez-Escamilla R. Breastfeeding peer counseling: from efficacy through scale-up. *J Hum Lact*. 2010;26(3):314-26.
53. Maher V. *The Anthropology of breast-feeding : natural law or social construct*. Oxford; Providence; New York: Berg ; Distributed exclusively in the US and Canada by St. Martin's Press; 1992.

54. Vallianatos H, Brennand EA, Raine K, Stephen Q, Petawabano B, Dannenbaum D, Willows ND. Beliefs and practices of First Nation women about weight gain during pregnancy and lactation: implications for women's health. *Can J Nurs Res*. 2006;38(1):102-19.
55. Monterrosa EC. The influence of maternal fatness, knowledge, and diet on infant and young child feeding in Mexico [Thesis]: Cornell University; 2010.
56. Bai Y, Middlestadt SE, Peng C-YJ, Fly AD. Predictors of continuation of exclusive breastfeeding for the first six months of life. *J Hum Lact*. 2010;26(1):26-34.
57. Donath S, Amir L, The AST. Relationship between prenatal infant feeding intention and initiation and duration of breastfeeding: a cohort study. *Acta Pædiatrica*. 2003;92(3):352-6.
58. DiGirolamo A, Thompson N, Martorell R, Fein S, Grummer-Strawn L. Intention or experience? Predictors of continued breastfeeding. *Health Educ Behav*. 2005;32(2):208-26.
59. Hilson JA, Rasmussen KM, Kjolhede CL. High prepregnant body mass index is associated with poor lactation outcomes among white, rural women independent of psychosocial and demographic correlates. *J Hum Lact*. 2004;20(1):18-29.
60. Amir LH, Donath S. A systematic review of maternal obesity and breastfeeding intention, initiation and duration. *BMC Pregnancy and Childbirth*. 2007;7(1):9.
61. Micali N, Treasure J, Simonoff E. Eating disorders symptoms in pregnancy: A longitudinal study of women with recent and past eating disorders and obesity. *Journal of Psychosomatic Research*. 2007;63(3):297-303.
62. Barnes J, Stein A, Smith T, Pollock JI. Extreme attitudes to body shape, social and psychological factors and a reluctance to breast feed. *Journal of the Royal Society of Medicine*. 1997;90:551-9.
63. Hauff LE, Demerath EW. Body image concerns and reduced breastfeeding duration in primiparous overweight and obese women. *Am J Hum Bio*. 2012;24:339-49.
64. Blyth R, Creedy D, Dennis C, Moyle W, Pratt J, De Vries S. Effect of maternal confidence on breastfeeding duration: an application of breastfeeding self-efficacy theory. *Birth*. 2002;29(4):278-84.
65. Burns E, Schmied V, Sheehan A, Fenwick J. A meta-ethnographic synthesis of women's experience of breastfeeding. *Maternal & Child Nutrition*. 2010;6(3):201-19.
66. Bandura A. *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall; 1986.

67. Thoits PA. Mechanisms linking social ties and support to physical and mental health. *Journal of Health and Social Behavior*. 2011;52(2):145-61.
68. Britton C, McCormick FM, Renfrew MJ, Wade A, King SE. Support for breastfeeding mothers. *Cochrane Database of Systematic Reviews*. 2007(1).
69. Miller CT, Rothblum ED, Brand PA, Felicio DM. Do obese women have poorer social relationships than nonobese women? Reports by self, friends, and coworkers. *Journal of Personality*. 1995;63(1):65-85.
70. Boothe AS, Brouwer RJN, Carter-Edwards L, Østbye T. Unmet social support for healthy behaviors among overweight and obese postpartum women: results from the Active Mothers Postpartum Study. *Journal of Women's Health*. 2011;20(11):1677-85.
71. Cohen S, Hoberman HM. Positive events and social supports as buffers of life change stress. *Journal of Applied Social Psychology*. 1983;13(2):99-125.
72. Logsdon MC, McBride AB, Birkimer JC. Social support and postpartum depression. *Research in Nursing & Health*. 1994;17(6):449-57.
73. Raj VK, Plichta SB. The role of social support in breastfeeding promotion: A literature review. *Journal of Human Lactation*. 1998;14(1):41-5.
74. Giugliani E, Caiaffa W, Vogelhut J, Witter F, Perman J. Effect of breastfeeding support from different sources on mothers' decisions to breastfeed. *J Hum Lact*. 1994;10(3):157-61.
75. Wray S, Deery R. The medicalization of body size and women's healthcare. *Health Care for Women International*. 2008;29(3):227-43.
76. Breastfeeding: maternal and infant aspects. ACOG Committee Opinion No. 361. American College of Obstetricians and Gynecologists. *Obstet Gynecol*. 2007;109:479-80.
77. American Academy of Family Physicians. Breastfeeding (position paper). [February 23, 2015]. Available from: <http://www.aafp.org/about/policies/all/breastfeeding-support.html>.
78. Association of Women's Health OaNN. Position statement on breastfeeding2015.
79. ACNM Breastfeeding Task Force. Breastfeeding - Position Statement 2011 [March 2, 2015]. Available from: [http://www.midwife.org/ACNM/files/ACNMLibraryData/UPLOADFILENAME/000000000248/Breastfeeding statement May 2011.pdf](http://www.midwife.org/ACNM/files/ACNMLibraryData/UPLOADFILENAME/000000000248/Breastfeeding%20statement%20May%202011.pdf).
80. Chung M, Raman G, Trikalinos T, Lau J, Ip S. Interventions in primary care to promote breastfeeding: an evidence review for the U.S. Preventive Services Task Force. *Annals of Internal Medicine*. 2008;149(8):565-82.

81. Blair A, Cadwell K, Turner-Maffei C, Brimdyr K. The relationship between positioning, the breastfeeding dynamic, the latching process and pain in breastfeeding mothers with sore nipples. *Breastfeeding Review*. 2003;11(2):5-10.
82. Cadwell K. Latching-On and Suckling of the Healthy Term Neonate: Breastfeeding Assessment. *Journal of midwifery & women's health*. 2007;52(6):638.
83. Mei C, Raman G, Trikalinos T, Lau J, Ip S. Interventions in primary care to promote breastfeeding: an evidence review for the U.S. Preventive Services Task Force. *Annals of Internal Medicine*. 2008;149(8):565-W:111.
84. Hannula L, Kaunonen M, Tarkka M-T. A systematic review of professional support interventions for breastfeeding. *Journal of Clinical Nursing*. 2008;17(9):1132-43.
85. DiGirolamo AM, Grummer-Strawn LM, Fein SB. Effect of maternity-care practices on breastfeeding. *Pediatrics*. 2008;122(Supplement 2):S43-S9.
86. DiGirolamo AM, Grummer-Strawn LM, Fein SB. Do perceived attitudes of physicians and hospital staff affect breastfeeding decisions? *Birth*. 2003;30(2):94-100.
87. McInnes RJ, Chambers JA. Supporting breastfeeding mothers: qualitative synthesis. *Journal of Advanced Nursing*. 2008;62(4):407-27.
88. Schmied V, Beake S, Sheehan A, McCourt C, Dykes F. Women's perceptions and experiences of breastfeeding support: a metasynthesis. *Birth*. 2011;38(1):49-60.
89. Cross-Barnet C, Augustyn M, Gross S, Resnik A, Paige D. Long-term breastfeeding support: Failing mothers in need. *Matern Child Health J*. 2012;16:1926-32.
90. Rasmussen KM, Lee VE, Ledkovsky TB, Kjolhede CL. A description of lactation counseling practices that are used with obese mothers. *J Hum Lact*. 2006;22(3):322-7.
91. Katz K, Nilsson I, Rasmussen KM. Danish health care providers' perception of breastfeeding difficulty experienced by women who are obese, have large breasts, or both. *J Hum Lact*. 2010;26(2):138-47.
92. Schwartz MB, Chambliss HON, Brownell KD, Blair SN, Billington C. Weight Bias among Health Professionals Specializing in Obesity. *Obesity Research*. 2003;11(9):1033-9.
93. Deery R, Wray S. The 'Hardest Leap': Acceptance of diverse body size in midwifery. *The Practising Midwife*. 2009;12(10):14-6.
94. Nyman VMK, Prebensen ÅK, Flensner GEM. Obese women's experiences of encounters with midwives and physicians during pregnancy and childbirth. *Midwifery*. 2010;26(4):424-9.
95. Bick D. Addressing the obesity epidemic: Time for the maternity services to act now but what strategies should we use? *Midwifery*. 2009;25(4):337-8.

96. Chu SY, Kim SY, Bish CL. Prepregnancy obesity prevalence in the United States, 2004-2005. *Maternal and Child Health Journal*. 2009;13(5):614-20.
97. Stuebe AM, Rich-Edwards JW, Willett WC, Manson JE, Michels KB. Duration of lactation and incidence of type 2 diabetes. *JAMA*. 2005;294(20):2601-10.
98. Malterud K. The art and science of clinical knowledge: evidence beyond measures and numbers. *Lancet*. 2001;358(9279):397-400.
99. Miles MB, Huberman AM. *Qualitative Data Analysis: An Expanded Sourcebook*, 2nd Edn. Thousand Oaks, CA: SAGE Publications, Inc.; 1994.
100. Patton MQ. *Qualitative Research and Evaluation Methods*. Thousand Oaks, CA: Sage Publications; 2002.
101. Preventing weight bias. The Rudd Center for Food Policy and Obesity 2013 [Jan 26, 2013]. Available from: http://www.yaleruddcenter.org/resources/bias_toolkit/index.html.
102. Heslehurst N, Lang R, Ranking J, Wilkinson JR, Summerbell CD. Obesity in pregnancy: a study of the impact of maternal obesity on NHS maternity services. *BJOG*. 2007;114:334-42.
103. Martin A, Krishna I, Ellis J, Paccione R, Badell M. Super obesity in pregnancy: difficulties in clinical management. *J Perinatol*. 2014;34:495-502.
104. Mulherin K, Miller Y, Barlow F, Diedrichs P, Thompson R. Weight stigma in maternity care: women's experiences and care providers' attitudes. *BMC Pregnancy and Childbirth*. 2013;13:19.
105. Yaemsiri S, Slining MM, Agarwal SK. Perceived weight status, overweight diagnosis, and weight control among US adults: the NHANES 2003-2008 Study. *Int J Obes*. 2011;35(8):1063-70.
106. Stunkard AJ, Sorensen T, Schulsinger F. Use of the Danish Adoption Register for the study of obesity and thinness. *Research publications - Association for Research in Nervous and Mental Disease*. 1983;60:115-20.
107. Evans A, Marinelli KA, Taylor JS, Bunik M, Noble L, Brent N, Grawey AE, Holmes AV, Lawrence RA, Seo T. ABM clinical protocol #2: Guidelines for hospital discharge of the breastfeeding term newborn and mother: "The going home protocol," revised 2014. *Breastfeeding Medicine*. 2014;9(1):3-8.
108. Progress in increasing breastfeeding and reducing racial/ethnic differences - United States, 2000-2008 births. Centers for Disease Control and Prevention (CDC). *Morb Mortal Wkly Rep*. 2013;62(5):77-80.

109. Obesity and socioeconomic status in adults: United States 1988-1994 and 2005-2008. MCHS data brief no 50. [Internet]. National Center for Health Statistics. 2010. Available from: <http://www.cdc.gov/nchs/data/databriefs/db50.pdf>.
110. Singh GK, Siahpush M, Hiatt RA, Timsina LR. Dramatic increases in obesity and overweight prevalence and body mass index among ethnic-immigrant and social class groups in the United States, 1976-2008. *J Community Health*. 2011;36:94-110.
111. Bentley ME, Dee DL, Jensen JL. Breastfeeding among low income, African-American women: power, beliefs and decision making. *J Nutr*. 2003;133:305S-9S.
112. Taveras EM, Li R, Grummer-Strawn L, Richardson M, Marshall R, Rígo VH, Miroshnik I, Lieu TA. Opinions and practices of clinicians associated with continuation of exclusive breastfeeding. *Pediatrics*. 2004;113(4):283-90.
113. Schanler RJ, O'Connor KG, Lawrence RA. Pediatricians' practices and attitudes regarding breastfeeding promotion. *Pediatrics*. 1999;103(3):e35.
114. Martin A, Horowitz C, Balbierz A, Howell EA. Views of women and clinicians on postpartum preparation and recovery. *Matern Child Health J*. 2014;18(3):707-13.
115. Demirci JR, Bogen DL, Holland C, Tart JA, Rubio D, Jie L, Nemecek M, Chang JC. Characteristics of breastfeeding discussions at the initial prenatal visit. *Obstet Gynecol*. 2013;122(6):1263-70.
116. Garner CD, Ratcliff SL, Devine CM, Thornburg LL, Rasmussen KM. Health professionals' experiences providing breastfeeding-related care for obese Women. *Breastfeeding Medicine*. 2014;9(10):503-9.
117. Chen PG, Johnson LW, Rosenthal MS. Sources of education about breastfeeding and breast pump use: What effect do they have on breastfeeding duration? An analysis of the Infant Feeding Practices Survey II. *Matern Child Health J*. 2012;16(7):1421-30.
118. Centers for Disease Control and Prevention. Severe Maternal Morbidity in the United States Atlanta, GA2014 [Feb 16, 2015]. Available from: <http://www.cdc.gov/reproductivehealth/MaternalInfantHealth/SevereMaternalMorbidity.html>.
119. Cohen D, Coco A. Declining trends in the provision of prenatal care visits by family physicians. *Ann Fam Med*. 2009;7(2):128-33.
120. Weddig J, Baker SS, Auld G. Perspectives of hospital-based nurses on breastfeeding initiation best practices. *JOGNN*. 2011;40(2):166-78.
121. Szucs KA, Miracle DJ, Rosenman MB. Breastfeeding knowledge, attitudes, and practices among providers in a medical home. *Breastfeeding Medicine*. 2009;4(1):31-42.

122. Ahmed A, Bantz D, Richardson C. Breastfeeding knowledge of university nursing students. *American Journal of Maternal Child Nursing*. 2011;36(6):361-7.
123. Feldman-Winter L, Barone L, Milcarek B, Hunter K, Meek J, Morton J, Williams T, Naylor A, Lawrence RA. Residency curriculum improves breastfeeding care. *Pediatrics*. 2010;126(2):289-97.
124. Philipp BL, McMahon MJ, Davies S, Santos T, Jean-Marie S. Breastfeeding information in nursing textbooks needs improvement. *J Hum Lact*. 2007;23(4):345-9.
125. Ogburn T, Philipp BL, Espey E, Merewood A, Espindola D. Assessment of breastfeeding information in general obstetrics and gynecology textbooks. *J Hum Lact*. 2011;27(1):58-62.
126. Philipp BL, Merewood A, Gerendas EJ, Bauchner H. Breastfeeding information in pediatric textbooks needs improvement. *J Hum Lact*. 2004;20(2):206-10.
127. Feldman-Winter LB, Schanler RJ, O'Connor KG, Lawrence RA. Pediatricians and the promotion and support of breastfeeding. *Arch Pediatr Adolesc Med*. 2008;162(12):1142-9.
128. Health Resources and Services Administration. Women's Preventive Services Guidelines: Affordable Care Act expands prevention coverage for women's health and well-being 2012 [March 18, 2015]. Available from: <http://www.hrsa.gov/womensguidelines/>.
129. Merewood A, Mehta SD, Chamberlain LB, Philipp BL, Bauchner H. Breastfeeding rates in US Baby-Friendly hospitals: results of a national survey. *Pediatrics*. 2005;116(3):628-34.
130. College of Family Physicians of Canada, Canadian Medical Association, Royal College of Physicians and Surgeons of Canada. 2010 National Physician Survey. Mississauga, ON: College of Family Physicians of Canada; 2010.
131. Pound CM, Williams K, Grenon R, Aglipay M, Plint AC. Breastfeeding knowledge, confidence, beliefs, and attitudes of Canadian physicians. *J Hum Lact*. 2014;30(3):298-309.
132. Hoddinott P, Pill R. A qualitative study of women's views about how health professionals communicate about infant feeding. *Health Expectations*. 2000;3(4):224-33.
133. Breastfeeding in underserved women: increasing initiation and continuation of breastfeeding. Committee Opinion No. 570. American College of Obstetricians and Gynecologists. *Obstet Gynecol*. 2013;122:423-8.
134. Lind JN, Perrine CG, Li R, Scanlon KS, Grummer-Strawn LM. Racial disparities in access to maternity care practices that support breastfeeding. *Morb Mortal Wkly Rep*. 2014;63(33):725-8.

135. Taveras EM, Li R, Grummer-Strawn L, Richardson M, Marshall R, Rêgo VH, Miroshnik I, Lieu TA. Mothers' and clinicians' perspectives on breastfeeding counseling during routine preventive visits. *Pediatrics*. 2004;113(5):e405-e11.
136. American College of Obstetricians and Gynecologists. Breastfeeding: maternal and infant aspects. Special report from ACOG. *ACOG Clin Rev*. 2007;12(suppl):1s-16s.
137. AWHONN. Breastfeeding position statement. *JOGNN*. 2015;44(1):145-50.
138. Gill SL. The little things: perceptions of breastfeeding support. *JOGNN*. 2001;30(4):401-9.
139. Hauck YL, Graham-Smith C, McInerney J, Kay S. Western Australian women's perceptions of conflicting advice around breastfeeding. *Midwifery*. 2011;27(e156-e162).
140. World Health Organization and UNICEF. Baby-Friendly Hospital Initiative: Revised, updated and expanded for integrated care 2009 [March 10, 2015]. Available from: http://whqlibdoc.who.int/publications/2009/9789241594967_eng.pdf?ua=1&ua=1.
141. Attard Montalto S, Borg H, Buttigieg-Said M, Clemmer EJ. Incorrect advice: the most significant negative determinant on breast feeding in Malta. *Midwifery*. 26(1):e6-e13.
142. Moore ER, Coty M-B. Prenatal and postpartum focus groups with primiparas: breastfeeding attitudes, support, barriers, self-efficacy, and intention. *Journal of Pediatric Health Care*. 2006;20(1):35-46.
143. Archabald K, Lundsberg L, Triche E, Norwitz E, Illuzzi J. Women's prenatal concerns regarding breastfeeding: Are they being addressed? *The Journal of Midwifery & Women's Health*. 2011;56(1):2-7.
144. Constand M, MacDermid J, Dal Bello-Haas V, Law M. Scoping review of patient-centered care approaches in healthcare. *BMC Health Services Research*. 2014;14(1):271.
145. PCORI. Patient-Centered Outcomes Research [March 18, 2015]. Available from: <http://www.pcori.org/>.
146. Selby JV, Beal AC, Frank L. The patient-centered outcomes research institute (PCORI) national priorities for research and initial research agenda. *JAMA*. 2012;307(15):1583-4.
147. Witt AM, Smith S, Mason MJ, Flocke SA. Integrating routine lactation consultant support into a pediatric practice. *Breastfeeding Medicine*. 2011;7(1):38-42.
148. Corriveau SK, Drake EE, Kellams AL, Rovnyak VG. Evaluation of an office protocol to increase exclusivity of breastfeeding. *Pediatrics*. 2013;131(5):942-50.
149. Renfrew M, J., McCormick F, M., Wade A, Quinn B, Dowswell T. Support for healthy breastfeeding mothers with healthy term babies. *Cochrane Database of Systematic Reviews* [Internet]. 2012 5. Available from: <http://onlinelibrary.wiley.com/doi/10.1002/>

- 14651858.CD001141.pub4/abstract.
150. Bunik M, Dunn DM, Watkins L, Talmi A. Trifecta approach to breastfeeding: clinical care in the integrated mental health model. *J Hum Lact*. 2014;30(2):143-7.
 151. Li R, Jewell S, Grummer-Strawn L. Maternal obesity and breast-feeding practices. *Am J Clin Nutr*. 2003;77(4):931-6.
 152. Keely A, Lawton J, Swanson V, Denison F. Barriers to breast-feeding in obese women: A qualitative exploration. *Midwifery*. 2015;<http://dx.doi.org/10.1016/j.midw.2015.01.001>.
 153. Cohen S, Mermelstein R, Kamarck T, M HH. Measuring the functional components of social support. In: Sarason IG, Sarason BR, editors. *Social Support: Theory, Research and Applications*. Dordrecht: M Nihjoff 1985. p. 73-94.
 154. Kronborg H, Væth M. The influence of psychosocial factors on the duration of breastfeeding. *Scandinavian Journal of Public Health*. 2004;32(3):210-6.
 155. Jarlenski M, McManus J, Diener-West M, Schwarz EB, Yeung E, Bennett WL. Association between support from a health professional and breastfeeding knowledge and practices among obese women: evidence from the Infant Practices Study II. *Women's Health Issues*. 2014;24(6):641-8.
 156. Committee on Fetus and Newborn. Postnatal glucose homeostasis in late-preterm and term infants. *Pediatrics*. 2011;127(3):575-9.
 157. Wight N, Marinelli KA. ABM clinical protocol #1: guidelines for blood glucose monitoring and treatment of hypoglycemia in term and late-preterm neonates, revised 2014. *Breastfeeding Medicine*. 2014;9(4):173-9.
 158. Csont GL, Groth S, Hopkins P, Guillet R. An evidence-based approach to breastfeeding neonates at risk for hypoglycemia. *JOGNN*. 2014;43(1):71-81.
 159. Moore ER, Anderson GC, Bergman N, Dowswell T. Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane Database of Systematic Reviews* [Internet]. 2012 5. Available from: <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003519.pub3/abstract>.
 160. Stevens J, Schmied V, Burns E, Dahlen H. Immediate or early skin-to-skin contact after a Caesarean section: a review of the literature. *Maternal & Child Nutrition*. 2014;10(4):456-73.
 161. Negron R, Martin A, Almog M, Balbierz A, Howell E. Social support during the postpartum period: mothers' views on needs, expectations, and mobilization of support. *Matern Child Health J*. 2013;17(4):616-23.

162. Racial and ethnic differences in breastfeeding initiation and duration, by state--National Immunization Survey, United States, 2004-2008. *MMWR Morb Mortal Wkly Rep.* 2010;59:327-34.
163. Sattari M, Levine D, Neal D, Serwint JR. Personal breastfeeding behavior of physician mothers is associated with their clinical breastfeeding advocacy. *Breastfeeding Medicine.* 2013;8(1):31-7.
164. Freed GL, Clark SJ, Sorenson J, Lohr JA, Cefalo R, Curtis P. National assessment of physicians' breast-feeding knowledge, attitudes, training, and experience. *JAMA.* 1995;273(6):472-6.
165. Sattari M, Levine D, Serwint JR. Physician mothers: an unlikely high risk group—call for action. *Breastfeeding Medicine.* 2010;5(1):35-9.
166. Orth TA, Drachman D, Habak P. Breastfeeding in obstetrics residency: exploring maternal and colleague resident perspectives. *Breastfeeding Medicine.* 2013;8(4):394-400.
167. Chetwynd E, Meyer A-M, Stuebe A, Costello R, Labbok M. Recognition of International Board Certified Lactation Consultants by health insurance providers in the United States: results of a national survey of lactation consultants. *J Hum Lact.* 2013;29(4):517-26.
168. Mannel R, Mannel RS. Staffing for hospital lactation programs: recommendations from a tertiary care teaching hospital. *J Hum Lact.* 2006;22(4):409-17.
169. Osterman M, Martin J, Mathews T, Hamilton B. Expanded data from the new birth certificate, 2008. *National vital statistics reports. vol 59 no 7.* Hyattsville, MD: National Center for Health Statistics: 2011.
170. Bonuck KA, Trombley M, Freeman K, McKee D. Randomized, controlled trial of a prenatal and postnatal lactation consultant intervention on duration and intensity of breastfeeding up to 12 months. *Pediatrics.* 2005;116(6):1413-26.
171. Fryar C, Carroll M, Ogden C. Prevalence of overweight, obesity, and extreme obesity among adults: United States, 1960-1962 through 2011-2012: CDC National Center for Health Statistics; 2014 [June 19, 2015]. Available from: http://www.cdc.gov/nchs/data/hestat/obesity_adult_11_12/obesity_adult_11_12.pdf.
172. Osterman M, Martin J. Trends in low-risk cesarean delivery in the United States, 1990-2013. *National vital statistics reports. vol 63 no6.* Hyattsville, MD: National Center for Health Statistics: 2014.
173. Chapman T, Pincombe J, Harris M. Antenatal breast expression: A critical review of the literature. *Midwifery.* 2013;29(3):203-10.
174. Goyal NK, Teeters A, Ammerman RT. Home visiting and outcomes of preterm infants: a systematic review. *Pediatrics.* 2013;132(3):502-16.

175. Health Resources and Services Administration. Maternal, infant, and early childhood home visiting 2010 [Apr 26, 2015]. Available from:
<http://mchb.hrsa.gov/programs/homevisiting/index.html>.
176. Fetherston C. Risk factors for lactation mastitis. *J Hum Lact*. 1998;14(2):101-9.