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## Welcoming, supportive care in US birthing facilities and realization of breastfeeding goals

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### Abstract

**Background:** Emotional and physical support for birthing parents is positively associated with realization of their breastfeeding goals. However, few studies have investigated maternal descriptions of their postnatal unit experience of these domains.

**Research Aim:** The objective was to investigate maternal report of their birthing facility experiences and quantify the extent to which accounts of postpartum support were associated with meeting their breastfeeding goals.

**Methods:** After IRB review, data were obtained through an online survey distributed from November 2016-May 2017. This analysis utilizes data from 2,771 birthing parents who were at least 18 years of age, experienced maternity care in the United States within five years, and reported that they had intended to breastfeed. Bivariate analysis was followed by logistic regression controlling for significant covariates.

**Results:** In this sample of primarily non-Hispanic white birthing parents with intent to exclusively breastfeed, the following postnatal unit variables were associated with higher odds of meeting their breastfeeding goals, birthing parents feeling: welcomed (adjusted OR=1.36), that health care promoted their physical health (adjusted OR=1.41), that care promoted their emotional health (adjusted OR=1.38), that they were supported (adjusted OR=1.56), and that they were recognized by their health care team (adjusted OR=1.30). All the measured postnatal unit support variables were significantly correlated with each other, with correlation coefficients ranging from 0.15 to 0.81.

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Declaration of Conflicting Interests

Kristin Tully, Carl Seashore, Alison Stuebe, and Catherine Sullivan are co-inventors on a patented postnatal unit bassinet. This University of North Carolina at Chapel Hill invention is licensed.

**Conclusions:** Before the COVID-19 pandemic, birthing parents' experiences on the postnatal unit were interrelated and associated with meeting their breastfeeding goals. As health care services are reviewed and prioritized during the COVID-19 pandemic and as part of ongoing strengthening of systems, qualitative and observational research can address the mechanisms underlying breastfeeding outcomes to inform the provision of more holistic and effective support.

## Background

Breastfeeding is critical for maternal and infant health. Infants who breastfeed exclusively have a lower risk of morbidity and mortality (Sankar et al. 2015; Lamberti et al. 2011), childhood infectious diseases (Duijts et al. 2009), and type 2 diabetes and obesity (Horta et al. 2015). For birthing people, lactation is associated with decreased risk of breast and ovarian carcinoma (Chowdhury et al. 2015), hypertension (AHRQ 2018), and type 2 diabetes (Aune et al. 2014).

In recognition of the myriad short- and long-term impacts of breastfeeding for families and society, the World Health Organization recommends breastfeeding for two years and beyond (WHO 2018a) and the American Academy of Pediatrics (AAP 2012), American College of Obstetricians and Gynecologists (American College of Obstetricians and Gynecologists' Committee on Obstetric Practice and Breastfeeding Expert Work Group 2016), American Academy of Family Physicians (AAFP 2017), Association of Women's Health, Obstetric, and Neonatal Nursing (AWHONN 2014), and Academy of Nutrition and Dietetics (Lessen and Kavanagh 2015) recommend exclusive breastfeeding for six months with continued breastfeeding for one year and beyond, as mutually desired within parent-infant dyads.

Most people who give birth in the United States breastfeed; the most recent data indicate an initiation rate of 83.8% (CDC 2019). However, 16.9% of breastfed infants received formula supplementation within the first two days of life (CDC 2019). Additionally, only 57.3% of mother-infant pairs are breastfeeding at six months postpartum and 36.2% at 12 months, according to National Immunization Survey data from 2015 (CDC 2019). More than half of birthing parents stopped breastfeeding earlier than desired, according to the Infant Feeding Practices II survey (IFPS II), which surveyed about 2,000 birthing parents (CDC 2007). To better enable optimal infant feeding, to facilitate birthing parent realization of breastfeeding goals, and to promote the health and well-being of mother-infant dyads, supportive maternity care practices need to be fully identified and implemented (ACOG 2018a; ACOG 2018b; Tully et al. 2017).

In birth facilities, health care team members support breastfeeding by providing information, encouraging skin-to-skin contact and rooming-in, and helping with the identification of infant feeding cues and responses (World Health Organization 2018). These and other aspects of postnatal unit care such as breastfeeding within the first hour of birth and exclusive use of human milk during the postnatal unit stay influence breastfeeding outcomes in a dose-dependent manner (Manganaro et al. 2009; DiGirolamo et al. 2001; Pounds and Shostrom 2018; Murray et al. 2007; Ahluwalia et al. 2012; DiGirolamo et al. 2008; Declercq et al. 2009). Birthing parents are more likely to meet their prenatal intentions to exclusively breastfeed if they deliver at facilities with Baby-Friendly steps implemented (Perrine et

al. 2012; Declercq et al. 2009). The Baby-Friendly *Ten Steps to Successful Breastfeeding* include prenatal preparation for postpartum, inpatient management and outpatient support – and successful completion of requirements during four phases of certification, including an on-site assessment (Baby-Friendly USA 2022).

For birthing parents, the days following childbirth and beyond is a time of immense physical and emotional recovery and transition. Reference to this period as the “4<sup>th</sup> Trimester” has drawn attention to the developmental processes and interrelated nature of mother-infant functioning, and the many new family health needs which are unmet (Tully et al. 2017; Verbiest et al. 2018). The transition to motherhood is multifaceted, as described in Fahey and Shenassa’s Perinatal Maternal Health Promotion Model, where postpartum health physical recovery, maternal role attainment, and care of self, infant, and family. For health and wellness, self-efficacy, mobilization of social support, positive coping, and realistic expectations are important (Fahey and Shenassa 2013). Consistent with this model, birthing parents who report high levels of maternal role attainment have greater feelings of contentment, nurturing, closeness with their infants, and overall more satisfying experiences, which is also associated with greater rates of breastfeeding duration (Cooke et al. 2007; Leff et al. 1994).

Qualitative studies demonstrate that health care providers’ attitudes, individualized attention, language, and encouragement shape the extent to which birthing people feel supported, and this issue is critical because birthing people value emotional and physical breastfeeding support from maternity health care providers (Moore and Coty 2006; Kanotra et al. 2007; Jenkins et al. 2014; Schmied et al. 2011; McInnes and Chambers 2008; Burns et al. 2010). For example, birthing parents’ perceptions of nurses, midwives, or doctors as being rushed contribute to negative maternal experiences (Forster et al. 2008; Brown et al. 2005). Such gaps in care impact birthing parents in numerous ways: they may feel guilty asking for staff assistance on the postnatal unit (Beake et al. 2010), determine that health care providers are unavailable to deliver expected levels of care (Forster et al. 2008), or judge that their health care providers are unable or impeded in their ability to provide breastfeeding support because the clinicians are too busy with other activities (Dykes 2005; Schmied et al. 2011; McInnes and Chambers 2008; Beake et al. 2010).

## Research Aim

The purpose of the study was to evaluate the extent to which birthing parents’ reports of inpatient postpartum experiences were associated with their infant feeding practices. We hypothesized that birthing parents who felt more physically and emotionally supported over the course of their postnatal unit stay would report higher rates of meeting their breastfeeding goals.

## Methods

### Design

The senior authors developed survey items from peer-reviewed literature, clinical expertise, and maternity health care implementation experience. Questions about how birthing parents

felt about the timing of their postpartum discharge and feeling physically and emotionally supported were drawn from the Press Ganey Patient Satisfaction Survey. Ethical review was conducted by the University of North Carolina at Chapel Hill Non-Biomedical Institutional Review Board (16–2531); the study was determined to be exempt.

The online survey included questions about participant characteristics, birthing facility settings, and maternity postpartum health care experiences. The online survey was posted in social media breastfeeding and postpartum groups by the senior author and distributed through electronic list-servs maintained by the Carolina Global Breastfeeding Institute at the University of North Carolina at Chapel Hill. These online groups were available to the general public. Participants were eligible to take the survey if they were at least 18 years of age and English speaking. Those who were interested in providing an electronic mailing address did so in a separate online form, which was not linked to the survey data. Participants who provided their contact information in the form were entered into a drawing to receive one of five \$40 gift cards as an incentive. The survey was administered between November 2016 and May 2017 through Qualtrics.

### Sample

Our study subset comes from this broader survey of 3,610 participants, which included birthing parents, partners, grandparents, a range of maternity health care professionals. The sample population for this analysis were a subset of these survey participants. Inclusion criterion for this analysis were those who self-identified as mothers who experienced maternity care in the United States, intended to breastfeed, and had a child five years or younger. Of the 3,610 total survey responses, 2,771 participants met inclusion criterion to be included in this analysis sample. Participants were excluded from these analyses if any of the following criteria were met: did not classify themselves as a mother (n=319), did not report receiving maternity care in the US (n=258), did not report intending to breastfeed (n=505), or did not deliver a child within the last five years (n=569). Participants might have been excluded for one or more of these criteria. Although the survey asked respondents whether they identified as a mother, we recognize that this term is not inclusive to all birthing individuals. Respondents are therefore referenced as “birthing parents” or “birthing people” in this paper.

### Measurement

The dependent variable for this analysis was whether or not birthing parents reported having met their infant feeding goals with response options of “yes,” “no,” or “not applicable.” The independent variables for this analysis were ten items regarding postnatal unit support, which are listed in Table 3. Each support variable was structured on a four-item response scale worded as “strongly agree,” “somewhat agree,” “somewhat disagree,” and “strongly disagree” or “always,” “sometimes,” “rarely,” and “never.” Covariates included participant demographics (partner relationship status, household income, birthing parent education, and birthing parent ethnicity and race), context of childbirth experiences (mode of childbirth, gestational age at birth, neonatal intensive care unit care utilization for any duration), birth facility characteristics (Baby-Friendly designated facility, and type of facility: hospital, birth center within/adjacent to hospital, free-standing birth center, or home), and infant feeding

substances (mother's own milk, donor human milk, formula) on the postnatal unit (plans and practices).

### Data Analysis

Descriptive statistics were used to examine distributions of study variables and to summarize participant characteristics. Bivariate associations between the dependent variable and each of the independent variables as well as each of the covariates were tested. The outcome variable of having met infant feeding goals or not was chosen because of the focus on birthing parent experience and to account for the potential for planned supplementation, including formula or the use of donor human milk. Each support variable with a significance of  $<.05$  was entered into an adjusted logistic regression model as four-level variables and tested separately against the outcome. These models were adjusted for covariates significantly associated with the dependent variable in the bivariate analysis. Lastly, a Spearman correlation matrix was generated to determine the extent to which the support variables were associated with one another.

Data analyses were completed using SAS statistical software (SAS Institute Inc., Cary, NC), and the .05 level of significance was used throughout the analysis.

### Results

The participant characteristics in this study sample are detailed in Table 1. Overall, 93.1% of birthing parents reported meeting their breastfeeding goals. Participants were predominately non-Hispanic (93.9%) and white (93.1%). Intention to breastfeed was an inclusion criterion for this analysis. Intent to exclusively provide mother's own milk in birthing facilities was 98.9% and report of doing so was 88.2%. Inpatient supplementation was most likely in the form of formula, although donor human milk use was also reported alone and in combination with mother's own milk and/or formula. Fifty-five percent of the birthing parents reported an annual household income of greater than \$75,000 per year; income was not associated with the outcome measure. However, those who were married or in a civil partnership were more likely to report meeting their breastfeeding goals than those with another partner relationship status. More than half of the birthing parents reported delivering in a Baby-Friendly designated facility, although the designation was uncertain among 26.7% of respondents. In this sample, birthing parent report of Baby-Friendly facility designation was not associated with meeting their infant feeding goals. For their most recent deliveries, 73.2% of the participants gave birth vaginally. Those who underwent cesarean section childbirth were less likely to meet their breastfeeding goals, as were the 11% of participants in this sample with prematurely born infants (less than 37+0 gestational weeks). Nine percent of the study infants received neonatal intensive care and this context was negatively associated with meeting breastfeeding goals.

Multiple postnatal unit care experiences were positively associated with meeting breastfeeding goals. These factors were birthing parents having felt: welcomed; wanting to be discharged sooner; that the care promoted their physical health; that the care promoted their emotional health; supported; and recognized as an important part of their family's health and well-being (Table 2). Other variables were not associated with the outcome of

having met breastfeeding goals: birthing parent referred to by name by staff; frequency of staff presence in the postnatal room, timing of staff presence in the postnatal room, and postnatal unit lighting.

Results adjusted for partner relationship status, type of birthing facility, mode of childbirth, NICU utilization, preterm birth, intended infant feeding substance in birthing facility, and infant feeding substance in birthing facility are shown in Table 3. The postnatal unit measures of birthing parents feeling welcomed, feeling that care promoted their physical health, feeling that care promoted their emotional health, feeling supported, and feeling recognized were associated with higher odds of meeting breastfeeding goals. One support variable that was significant in bivariate analysis, wanting to be discharged sooner, was not significantly associated with meeting breastfeeding goals in the adjusted model ( $p=0.08$ ).

All of the assessed postnatal unit support variables were examined in a correlation matrix (Table 4), which indicated that each of these were significantly correlated with one another. The variables pertaining to birthing parent feelings of disruption (frequency of staff presence and timing of staff presence) were highly correlated (0.81), as were the variables of feeling supported and feeling recognized (0.70) and care for physical health and care for emotional health (0.69).

## Discussion

In this study we sought to determine the association between birthing parent report of health care experiences on the postpartum unit and the likelihood of meeting their breastfeeding goals. Consistent with our hypothesis, several aspects of birthing parents' accounts were associated with the outcome, despite the privileged sample with high intention to exclusively breastfeed in mostly Baby-Friendly designated facilities. Postpartum inpatient care is brief in the United States, but consistent with the literature, we found substantial deviation from plans around exclusive provision of mother's own milk in the days following childbirth.

The use of a birthing parent-centered definition of breastfeeding outcomes – their “infant feeding goals” – is a design strength in that it is a patient-reported outcome measure. However, this is also a heterogeneous term. While over 93.1% of individuals in this sample reporting meeting their breastfeeding goals, only 40.1% of birthing parents in the Infant Feeding Practices Survey (IFPS) II reported that they “breastfed their babies as long as they wanted to” (CDC 2007). In previous work, analysis of the IFPS II included definition of “undesired weaning” as participants responding no to the question “did you breastfeed as long as you wanted to?” and “early weaning” as discontinuation of breastfeeding before the duration the individuals had reported in response to the prenatal question “How old do you think your baby will be when you completely stop breastfeeding?” (Stuebe et al. 2014). In that analysis, Stuebe and her colleagues found multiple groupings of breastfeeding outcomes: early, undesired weaning; early, desired weaning; expected, undesired weaning; expected, desired weaning; and breastfed 12 months. The dynamic nature of breastfeeding intentions, practices, and birthing parent reflection is complex. Further work is needed to refine outcomes measures so they are meaningful and actionable.



In this study, several aspects of participants' feelings about the ways they were treated on postnatal unit were associated with whether they met their breastfeeding goals or not. Aspects of support which had the strongest relationships after adjustment for covariates were the extent that the birthing parents felt welcomed on the postnatal unit, felt supported overall, or felt that the postpartum care they received promoted their physical and emotional health. Qualitative research with diverse samples is needed to evaluate the meanings of these constructs and the patient-health care team interactions that lead to them. These and likely other aspects of maternity care require thorough examination in order to identify and strengthen clinical practices to best address birthing parent, infant, and family health needs in a consistent and sustainable manner.

Establishing supportive environments on the postnatal unit for new families is important for patient-centered care because early breastfeeding experiences are associated with breastfeeding duration. In addition to the importance of prenatal intentions to breastfeed (Bascom and Napolitano 2016; Donath et al. 2003; Forster et al. 2006; de Jersey et al. 2017), birthing parent feelings of anxiety during pregnancy and postpartum are associated with lower rates of breastfeeding initiation and shorter duration (Ritchie-Ewing et al. 2018). Postpartum experiences within Baby-Friendly designated facilities have steps in place that are associated with an improved likelihood of breastfeeding, including exclusive breastfeeding at discharge and early breastfeeding initiation (Pérez-Escamilla et al. 2016), but there are still opportunities to layer more supportive care in all postpartum health care environments. Further, positive birthing parent emotions during breastfeeding sessions are associated with a greater duration of exclusive human milk feeding across the first six months and report of better breastfeeding experiences (Wouk et al. 2019). Birthing parent confidence and breastfeeding self-efficacy are critical contributors to infant feeding outcomes (Schafer and Genna 2015; Edwards 2018), among other aspects of the transition through the postpartum period. The elements of postnatal experiences outlined in this study may be crucial components for impacting breastfeeding self-efficacy (Brockway et al. 2017), which is modifiable (Bahorski et al. 2018; Brockway et al. 2017), positively associated with breastfeeding duration (Gerhardsson et al. 2018; Vieira et al. 2018), and an important part of postpartum experiences (Fahey and Shenassa 2013).

The highly correlated nature of the maternity care experiences found in this study suggests that infant feeding outcomes are reflected in part by the context of their care. In addition to determining birthing parent needs, collaboration with their health care team members and other supports such as partners is required to prioritize, co-develop, and implement improved systems of postpartum care. Although previous research found that staff "interruptions" in postnatal unit rooms negatively affected birthing parents' perceptions of their inpatient care (Martell 2003), interfered with breastfeeding (Morrison and Ludington-Hoe 2012; Morrison et al. 2006), and inhibited birthing parents' ability to rest and recover (Beake et al. 2010), the frequency and timing of staff presence in postnatal unit rooms was not associated with report of meeting breastfeeding goals in this study. Further, although authors have suggested that birthing people may benefit from the additional support and rest that may come from a longer inpatient postpartum stay (Kanotra et al. 2007; Brown et al. 2005) and longer hospital stays may be beneficial to establishing breastfeeding (Manganaro et al. 2009; McLachlan et al. 2008), satisfaction with discharge timing in this study was not

associated meeting breastfeeding goals in the adjusted model. Additionally, postnatal unit lighting was investigated in this study due to previous findings that light and noise interfere with postpartum recovery and satisfaction with breastfeeding (Martell 2003) and contributed to birthing perception of staff needs being prioritized above their own (Beake et al. 2010). Lighting may be important for birthing peoples' experiences, but we did not find it to be associated with meeting breastfeeding goals.

## Limitations

Our findings must be considered within the limitations of the study design. The study is limited in that reporting bias could have impacted survey responses, but the anonymity of the data mitigated this risk. We assessed whether birthing parents met their infant feeding goals based on their response to that cross-sectional question; we recognize that meeting one's breastfeeding goals is a nuanced and complicated concept that may change over time. However, study findings suggest that birthing parents' recall of their breastfeeding duration is accurate (Amissah et al. 2017; Natland et al. 2012; Li et al. 2005). We still recognize that the varying length of time elapsed between childbirth and study participation (up to five years) could affect how the birthing parents evaluated both whether they met their infant feeding goals or not and how they felt about their postnatal unit health care. The relationships between meeting health goals and evaluating the quality of health care services are likely bidirectional. Additionally, a limitation is that breastfeeding outcomes are influenced by interaction of expectations, birth experiences, postnatal unit care, and many factors after discharge. Prospective study with expectant birthing parents from diverse backgrounds would permit investigation of the strength of breastfeeding intentions, such as with the Infant Feeding Intentions Scale (Nommsen-Rivers et al. 2010) on postnatal unit experiences and breastfeeding realization. Our sample of predominately privileged, non-Hispanic white birthing parents with intention to exclusively breastfeed still indicated room for improvement in health care services.

These data were collected before the COVID-19 pandemic, during which postnatal unit care has substantially shifted. Understanding components of inpatient postpartum care that were supportive before this period is important for informing practice and the culture of health moving forward. Birthing parents' need for emotionally supportive care may be greater during a period of heightened stress and the new clinical protocols to minimize exposures. Health care team members might anticipate that birthing parents on the postnatal unit can be supported by listening to and validating their experiences, and communicating to connect on facilitators and barriers to meeting their infant feeding goals. In this study, data on emotional health during pregnancy or the postpartum period was not collected. Distress in the perinatal period or the time of study participation may have impacted feeling about encountered experiences and contributed to infant feeding outcomes. Depressive symptoms during pregnancy and postpartum are associated with earlier breastfeeding cessation (Forster et al. 2006; Ritchie-Ewing et al. 2019; Bascom and Napolitano 2016; Wouk et al. 2017), but the relationship is complex (Dias and Figueiredo 2015). Supportive practices for emotional health are important, alongside breastfeeding-friendly workflow including promoting skin-to-skin contact, close birthing parent-infant proximity, and frequent breastfeeding (Gribble et al. 2020).



The generalizability of these study findings is limited in multiple ways. As discussed previously, birthing parents in this sample were more likely to meet their goals than found in another large dataset (Stuebe et al. 2014), although the IFPS II participants were also not nationally representative (Fein et al. 2008). Fifty-eight percent of our sample reported childbirth in a Baby-Friendly designated birth facility, which was greater than the national rate of US births during the study period (CDC 2018). Many of the participants experienced the highest standard of care, as currently defined, unlike the majority of birthing parents in this country (CDC 2018).

Studies of health care experiences that recruit through social media, as was done in this study, have samples are less likely to be broadly representative (Bennetts et al. 2019; Ball 2019); one study in Australia that recruited postpartum birthing parents online found that participants were more likely to be younger, in a relationship, English speakers, more highly educated, first time parents, and have poorer general health compared with the broader population in that country (Leach et al. 2017). That limitation is reflected in our primarily non-Hispanic white married/co-residing sample. Additionally, the websites used in this survey recruitment were primarily associated with dominant culture institutions, which means that the expectations, perceptions, and goals of respondents likely do not capture the diversity of understandings, needs, and trade-offs associated with the wider population of birthing parents. This lack of diversity is important for many reasons, including that Baby-Friendly practices have been found to have a greater impact among more marginalized US populations (Jung et al. 2019; Merewood et al. 2019). The research team recognizes that our sample population is a major limitation to this study and that findings may not be applicable to birthing people who are not non-Hispanic white, as health care practices vary, often reflecting racial bias. Recognition of health care service differences and experiences of these practices must be further studied to understand how to achieve equitable care versus equal care.

Lastly, the study is a convenience sample and as such, is not representative of the US population of birthing people. The postnatal unit care variables may have different relationships with meeting breastfeeding goals among diverse groups, which is to be expected given the vast disparities in breastfeeding and other postpartum outcomes associated with birthing parents' treatment by health care providers by birthing parent race and other characteristics (CDC 2018). Health care interactions have room for improvement for promoting humanity. In particular, the need for eliminating racism, abuse, bias, disrespect, and judgement is urgent (Altman et al. 2019).

## Conclusions

Breastfeeding is well-established in the medical literature as the optimal form of nutrition for infants and lactation is a vital part of birthing parents' health; thus, it is critical to for postnatal unit care to be continually assessed to identify the ways in which health care services can most effectively support birthing people in the days following childbirth and beyond. In this study, meeting breastfeeding goals was associated with how individuals felt about their inpatient postpartum care, which uplifts the importance of emotional aspects of support. Yet, the ways in which people experience their journey through the perinatal

period is deeply personal and should also be examined qualitatively so that the postpartum transition is actively supported with respect and equity.

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**Table 1.**

Sample Characteristics and Bivariate Associations with Meeting Infant Feeding Goals (N=2771)

	Met Breastfeeding Goals			p-Value
	Total sample (N=2771)	Yes (n=2579)	No (n=192)	
	N (%)	N (%)	n (%)	
<i>Maternal Demographics</i>				
<b>Partner Relationship Status</b>				
Married or Civil Partnership	2,531 (91.4)	2,362 (93.3)	169 (6.7)	0.05
Not Married, Living with Partner	173 (6.3)	158 (91.3)	15 (8.7)	
Other (Single, Divorced, Separated, Widowed)	65 (2.4)	57 (87.7)	8 (12.3)	
<b>Household income in the last year</b>				
<\$75,000	1,210 (45.1)	1,123 (92.8)	87 (7.2)	0.54
>=\$75,000	1,472 (54.9)	1,375 (93.4)	97 (6.7)	
<b>Maternal education completed</b>				
High school or less	123 (4.4)	116 (94.3)	7 (5.7)	0.58
>=Some college to doctorate	2,648 (95.6)	2,463 (93.0)	185 (7.0)	
<b>Maternal race</b>				
White	2,563 (93.1)	2,383 (93.0)	180 (7.0)	0.08
Other	191 (6.9)	184 (96.3)	7 (3.7)	
<b>Maternal ethnicity</b>				
Hispanic/Latina	167 (6.1)	153 (91.6)	14 (8.4)	0.45
Not Hispanic/Latina	2,570 (93.9)	2,394 (93.2)	176 (6.9)	
<i>Facility and Birth Variables</i>				
<b>Type of birthing facility</b>				
Hospital	2,408 (87.0)	2,227 (92.5)	181 (7.5)	0.01
Birth Center within hospital	205 (7.4)	200 (97.6)	5 (2.4)	
Free-Standing Birth Center	74 (2.7)	69 (93.2)	5 (6.8)	
Home or other setting (includes health department, outpatient clinics)	82 (3.0)	81 (98.8)	1 (1.2)	
<b>Maternal report of Baby-friendly designated facility at time of delivery</b>				
Yes	1,616 (58.34)	1,513 (93.6)	103 (6.4)	0.10
No	414 (15.0)	386 (93.2)	28 (6.8)	
Unsure	738 (26.7)	677 (91.7)	61 (8.3)	
<b>Mode of delivery for study birth</b>				
Cesarean section	740 (26.8)	674 (91.1)	66 (8.9)	0.01
Vaginal	2,024 (73.2)	1,899 (93.8)	125 (6.2)	
<b>Baby spent any time in the neonatal intensive care unit</b>				
Yes	261 (9.5)	224 (85.8)	37 (14.2)	<.0001
No	2,502 (90.6)	2,349 (93.9)	153 (6.1)	
<b>Gestational age at birth</b>				
< 34 weeks gestation	32 (1.2)	25 (78.1)	7 (21.9)	0.01
34+0 to 36+6 weeks gestation	263 (9.5)	242 (92.0)	21 (8.0)	

	Met Breastfeeding Goals			p-Value
	Total sample (N=2771)	Yes (n=2579)	No (n=192)	
	N (%)	N (%)	n (%)	
> = 37+0 weeks gestation	2,471 (89.3)	2,307 (93.4)	164 (6.6)	
<b>Intended feeding substance in birthing facility</b>				
Mother's own milk	2,739 (98.9)	2,552 (93.2)	187 (6.8)	0.01
Donor human milk	22 (0.8)	20 (90.9)	2 (9.1)	
Formula	10 (0.4)	7 (70.0)	3 (30.0)	
<b>Reported infant feeding in birthing facility</b>				
Mother's own milk only	2,414 (88.2)	2,291 (94.9)	123 (5.1)	<.0001
Donor human milk only	4 (0.2)	2 (50.0)	2 (50.0)	
Formula only	15 (0.6)	11 (73.3)	4 (26.7)	
Combination of mother's own milk and donor human milk	56 (2.1)	50 (89.3)	6 (10.7)	
Combination of formula and human milk (mother's own and/or donor)	248 (9.1)	195 (78.6)	53 (21.4)	

**Table 2.**

Maternal Report of Support Received on Postnatal Unit and Bivariate Associations with Meeting Breastfeeding Goals (N=2771)

	Met Breastfeeding Goals			p-Value
	Total sample (N=2771)	Yes (n=2579)	No (n=192)	
	N (%)	n (%)	n (%)	
<i>Support Received on Postnatal Unit</i>				
<b>Felt welcomed on the postnatal unit by birth facility staff</b>				
Strongly agree	1,900 (71.2)	1,790 (94.2)	110 (5.8)	<.0001
Somewhat agree	630 (23.6)	578 (91.8)	52 (8.3)	
Somewhat disagree	101 (3.8)	88 (87.1)	13 (12.9)	
Strongly disagree	36 (1.4)	29 (80.6)	7 (19.4)	
<b>Felt disrupted by time of day that birth facility staff were in room</b>				
Strongly agree	570 (21.5)	525 (92.1)	45 (7.9)	0.24
Somewhat agree	1,014 (38.2)	943 (93.0)	71 (7.0)	
Somewhat disagree	685 (25.8)	644 (94.0)	41 (6.0)	
Strongly disagree	386 (14.5)	361 (93.5)	25 (6.5)	
<b>Felt disrupted by frequency of birth facility staff in and out of room</b>				
Strongly agree	554 (20.9)	506 (91.3)	48 (8.7)	0.77
Somewhat agree	934 (35.3)	883 (94.5)	51 (5.5)	
Somewhat disagree	689 (26.0)	643 (93.3)	46 (6.7)	
Strongly disagree	473 (17.9)	437 (92.4)	36 (7.6)	
<b>Wanted to be discharged sooner than was</b>				
Strongly agree	579 (21.8)	546 (94.3)	33 (5.7)	0.01
Somewhat agree	589 (22.2)	559 (94.9)	30 (5.1)	
Somewhat disagree	738 (27.8)	682 (92.4)	56 (7.6)	
Strongly disagree	750 (28.2)	687 (91.6)	63 (8.4)	
<b>Felt disturbed by brightness of lights in room</b>				
Strongly agree	289 (10.9)	264 (91.4)	25 (8.7)	0.25
Somewhat agree	645 (24.3)	600 (93.0)	45 (7.0)	
Somewhat disagree	832 (31.4)	778 (93.5)	54 (6.5)	
Strongly disagree	884 (33.4)	827 (93.6)	57 (6.5)	
<b>Felt care received promoted maternal physical health</b>				
Strongly agree	1,174 (44.2)	1,117 (95.1)	57 (4.9)	<.0001
Somewhat agree	1,151 (43.3)	1,068 (92.8)	83 (7.2)	
Somewhat disagree	257 (9.7)	229 (89.1)	28 (10.9)	
Strongly disagree	75 (2.8)	62 (82.7)	13 (17.3)	
<b>Felt care received promoted maternal emotional health</b>				
Strongly agree	886 (33.3)	852 (96.2)	34 (3.8)	<.0001
Somewhat agree	1,088 (40.9)	1,014 (93.2)	74 (6.8)	
Somewhat disagree	483 (18.2)	436 (90.3)	47 (9.7)	

	Met Breastfeeding Goals			<i>p</i> -Value
	Total sample ( <i>N</i> =2771)	Yes ( <i>n</i> =2579)	No ( <i>n</i> =192)	
	<i>N</i> (%)	<i>n</i> (%)	<i>n</i> (%)	
Strongly disagree	203 (7.6)	176 (86.7)	27 (13.3)	
<b>Birth facility staff referred to mother by name</b>				
Always	1,440 (54.1)	1,350 (93.8)	90 (6.3)	0.06
Sometimes	960 (36.0)	891 (92.8)	69 (7.2)	
Rarely	208 (7.8)	193 (92.8)	15 (7.2)	
Never	56 (2.1)	48 (85.7)	8 (14.3)	
<b>Felt supported by birth facility staff</b>				
Always	1,548 (58.0)	1,472 (95.1)	76 (4.9)	<.0001
Sometimes	970 (36.4)	881 (90.8)	89 (9.2)	
Rarely	128 (4.8)	118 (92.2)	10 (7.8)	
Never	21 (0.8)	14 (66.7)	7 (33.3)	
<b>Felt recognized as an important part of my family's health and well-being</b>				
Always	1,813 (68.0)	1,712 (94.4)	101 (5.6)	0.0001
Sometimes	677 (25.4)	613 (90.6)	64 (9.5)	
Rarely	139 (5.2)	129 (92.8)	10 (7.2)	
Never	36 (1.4)	29 (80.6)	7 (19.4)	

**Table 3.**

Results of Adjusted Logistic Regression Models Examining Associations Between Maternal Report of Support Received on the Postnatal Unit and Meeting Infant Feeding Goals

Support Received on the Postnatal Unit <sup>1</sup>	Met Breastfeeding Goals		
	Adjusted Odds Ratio <sup>1</sup>	95% Confidence Interval	P-value
Felt welcomed on the postnatal unit by birth facility staff	1.36	1.10, 1.69	0.01
Wanted to be discharged sooner than was	1.14	0.99, 1.32	0.08
Felt care received promoted maternal physical health	1.41	1.17, 1.71	<.001
Felt care received promoted maternal emotional health	1.38	1.17, 1.63	<.001
Felt supported by birth facility staff	1.56	1.25, 1.95	<.001
Felt recognized as an important part of my family's health and well-being	1.30	1.06, 1.61	0.01

Covariates included in the model were partner relationship status, type of birthing facility, mode of delivery, NICU utilization, preterm birth, intended infant feeding substance in birthing facility, and reported infant feeding substance in birthing facility.

<sup>1</sup>Participants chose one of four choices for each support variable question, which were individually quantified in the model: "Strongly agree," "somewhat agree," "somewhat disagree," and "strongly disagree" or "always," "sometimes," "rarely," and "never."

**Table 4.**

Correlation matrix for variables assessing the interrelatedness of maternal report of health care experiences on the postnatal unit.

	Felt welcomed by staff	Felt disrupted by frequency of staff in room	Felt disrupted by time of day that staff were in room	Wanted to be discharged sooner than was	Felt disturbed by brightness of lights in room	Felt care received promoted maternal physical health	Felt care received promoted maternal emotional health	Staff referred to mother by name	Felt supported by staff
Felt disrupted by frequency of staff in room	-.31								
Felt disrupted by time of day that staff were in room	-.29	0.81							
Wanted to be discharged sooner than was	-.23	0.32	0.30						
Felt disturbed by brightness of lights in room	-.28	0.44	0.44	0.34					
Felt care received promoted maternal physical health	0.49	-.31	-.29	-.25	-.30				
Felt care received promoted maternal emotional health	0.53	-.38	-.38	-.27	-.36	0.69			
Staff referred to mother by name	0.32	-.26	-.27	-.15	-.23	0.29	0.34		
Felt supported by staff	0.59	-.34	-.34	-.25	-.32	0.49	0.57	0.45	
Felt recognized as an important part of my family's health and well-being	0.57	-.30	-.29	-.23	-.28	0.47	0.53	0.47	0.70

All  $p < .001$