



Maternal determinants of breast milk feeding in a level III neonatal intensive care unit



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Abstract *Objectives:* Despite gains in breast milk feeding rates in the NICU population nation-wide over the last 15 years, disparities in breast milk feeding rates persist within and between hospitals. This study investigated maternal determinants of the likelihood of breast milk feeding.

Study design: The pilot study took place in a large, urban NICU in Northern California. Thirty mothers of children born prematurely in 2011 or 2012 were surveyed using a unique data collection tool. Responses were later linked to medical records data after the infant was discharged home.

Results: The most salient positive predictors of breast milk feeding behavior were those in the familial and peer role-modeling category. The direction of the relationship between many of our predictors ran counter to our initial hypothesized relationships. *Conclusions:* Maternal attitudes, beliefs, social support and logistical constraints create a complex environment for nurses to navigate. Studies such as this one are critical to understanding the intricacies of early-life nutrition interventions.

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Introduction

Disparities by race, class and education exist in NICU breast milk feeding

Breast milk feeding rates in the neonatal intensive care unit (NICU) over the last 15 years have steadily increased. Recent estimates of breast milk feeding rates in the NICU for infants with very low birth weights range from 60% (Lee et al., 2012) to 71% (Merewood et al., 2006). Though the initiation rates of NICU-admits and non-admits are nearly equal, the duration of breast milk feeding for NICU admits is, on average, significantly longer than non-admits (Colaizy and Morriss, 2008). NICU admits are 10% more likely to breast milk feed until 4 months of age. While the constraints of boarding in a NICU could provide a greater barrier to breast milk feeding than the normal discharge home, the opposite is supported by this research evidence.

Despite the overall increase in likelihood of breast milk feeding in the NICU, disparities by race, ethnicity and class mirror the patterns in the full term population. African-American or Black race is an independently significant risk factor for exclusive formula feeding (Lee and Gould, 2009). Older, white, more affluent mothers of low birth weight infants are more likely to initiate and sustain breast milk feeding (Furman et al., 1998, 2002), (Liu et al., 2010), (Jones et al., 2011). Inadequate prenatal care, low maternal education and maternal smoking are also associated with a decreased likelihood of breast milk feeding (Killersreiter et al., 2001).

The determinants of breast milk feeding are not only on the individual level. Between-hospital differences in breast milk feeding rates are predicted by hospital-level characteristics. Hospital-level success positively predicts patient-level success even after controlling for patient characteristics (Powers et al., 2003). Successful hospital-level interventions to improve breast milk feeding rates often center on the full implementation of the Baby Friendly Hospital Initiative (Philipp et al., 2001), (Merewood et al., 2003), (Martens, 2012) (Saadeh, 2012). Other research has identified specific successful practices, such as: full integration of maternal postpartum care into the NICU; presence of Lactation Consultants 7 days per week, 24 h per day; explicit written procedures for breast milk pumping; integration of breast milk pumping into medical chart information and staff-wide promotion of skin-to-skin contact (Maastrup et al., 2012), (Merewood et al., 2005).

Past qualitative research on the determinants of breast milk feeding in the NICU found that parents of children in the NICU had to confront “altered expectations” of breastfeeding upon the unexpected premature delivery (Bernaix et al., 2006). If a premature delivery was somewhat expected, either through early designation of a high-risk pregnancy, the presence of multiples, or interaction with a community with high premature birth risk, mothers were more inclined to research breast milk feeding information during pregnancy and indicate they felt “more prepared” (Bernaix et al., 2006). Other qualitative studies point to a mother’s concerns with social support (Kaufman and Hall, 1989), adequate supply, and “problems with the mechanics of breastfeeding a preterm infant” as potential barriers to breast milk feeding (Kavanaugh et al., 2006).

This paper will focus on the roles of prenatal maternal attitudes, logistical constraints, and positive peer and familial models in predicting breast milk feeding incidence and exclusivity.

Hypotheses

Based on the extant literature (Lee et al., 2013) and application of social scientific theories (Ajzen and Fishbein, 1977) (Blyth et al., 2002) (Elder et al., 1999), we hypothesized that the following factors would increase both exclusivity and likelihood of breast milk feeding.

- 1 More positive pre-existing beliefs and attitudes towards breastfeeding
- 2 Fewer logistical constraints—i.e., fewer children at home, a shorter commute to the hospital
- 3 More peer or familial role models who have successfully breastfed

Methods

Setting and participants

This project was approved by the Committee on Human Subjects at the University of California, San Francisco and the Institutional Review Board (IRB) of the Alta Bates Summit Medical Center in Berkeley, California.

The setting for this study was the NICU at the Alta Bates Summit Medical Center (ABSMC). This NICU is a Level III NICU, operating with roughly 75 beds and 200 staff members. The participants in our study came from a wide geographical area.

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