

Maternal positive emotions during infant feeding and breastfeeding outcomes

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Background

Major medical organizations in the U.S. recommend exclusive breastfeeding for six months, with continued breastfeeding through the first year “or longer as mutually desired by the woman and her infant.” Few studies have explored the role of maternal emotions in breastfeeding outcomes. Dr. Barbara Fredrickson’s broaden-and-build theory of positive emotions suggests that experiences of positive emotions lead to adaptive benefits by broadening one’s thought-action repertoire, allowing the accrual of personal and social resources to improve health and well-being.

Aim: To estimate the association between maternal positive emotions during infant feeding at two months and time to breast milk feeding (BMF) and exclusive breast milk feeding (EBMF) cessation and overall maternal evaluation of breastfeeding at 12 months.

Methods

185 women from a longitudinal cohort of mother-infant dyads were followed from the third trimester through 12 months postpartum. All women intended to breastfeed at least two months. We measured positive emotions during infant feeding at 2 months using the mean subscale score of the modified Differential Emotions Scale (mDES). The mDES asks the “greatest amount” 10 positive and 10 negative emotions were experienced during infant feeding over the past week using a 5-point Likert scale. We used Cox proportional hazards regression to estimate hazard ratios for time to BMF and EBMF cessation associated with a one-unit increase in positive emotions.

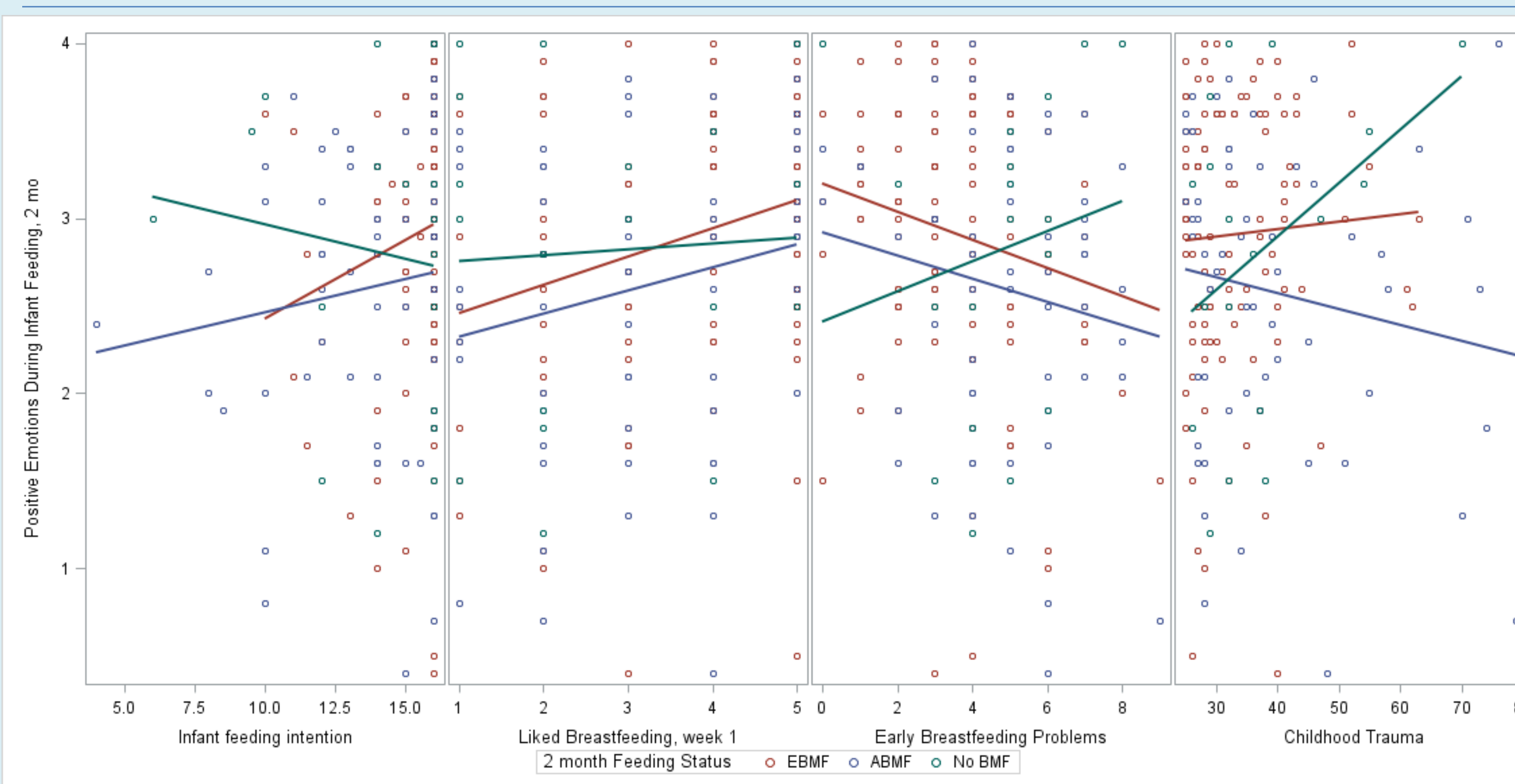
We also estimated the association between positive emotions and the maternal evaluation of breastfeeding at 12 months using the Maternal Breastfeeding Evaluation Scale (MBFES), which asks about agreement or disagreement with 30 statements about breastfeeding and/or expressing milk as an overall experience using a 5-point Likert scale.

- With breastfeeding I felt a sense of inner contentment.
- Breastfeeding was a special time with my baby.
- My baby wasn't interested in breastfeeding.
- My baby loved to nurse.
- It was a burden being my baby's main source of food.
- I felt extremely close to my baby when I breastfed.
- My baby was an eager breastfeeder.
- Breastfeeding was physically draining.
- It was important to me to be able to nurse.
- While breastfeeding, my baby's growth was excellent.
- My baby and I worked together to make breastfeeding go smoothly.
- Breastfeeding was a very nurturing, maternal experience.
- While breastfeeding, I felt self-conscious about my body.
- With breastfeeding, I felt too tied down all the time.
- While breastfeeding, I worried about my baby gaining enough weight.
- Breastfeeding was soothing when my baby was upset or crying.
- Breastfeeding was like a high of sorts.
- The fact that I could produce the food to feed my own baby was very satisfying.
- In the beginning, my baby had trouble breastfeeding.
- Breastfeeding made me feel like a good mother.
- I really enjoyed nursing.
- While breastfeeding, I was anxious to have my body back.
- Breastfeeding made me feel more confident as a mother.
- My baby gained weight really well with breast milk.
- Breastfeeding made my baby feel more secure.
- I could easily fit my baby's breastfeeding with my other activities.
- Breastfeeding made me feel like a cow.
- My baby did not relax while nursing.
- Breastfeeding was emotionally draining.
- Breastfeeding felt wonderful to me.

Results

Descriptive statistics by Feeding Status at 2 months

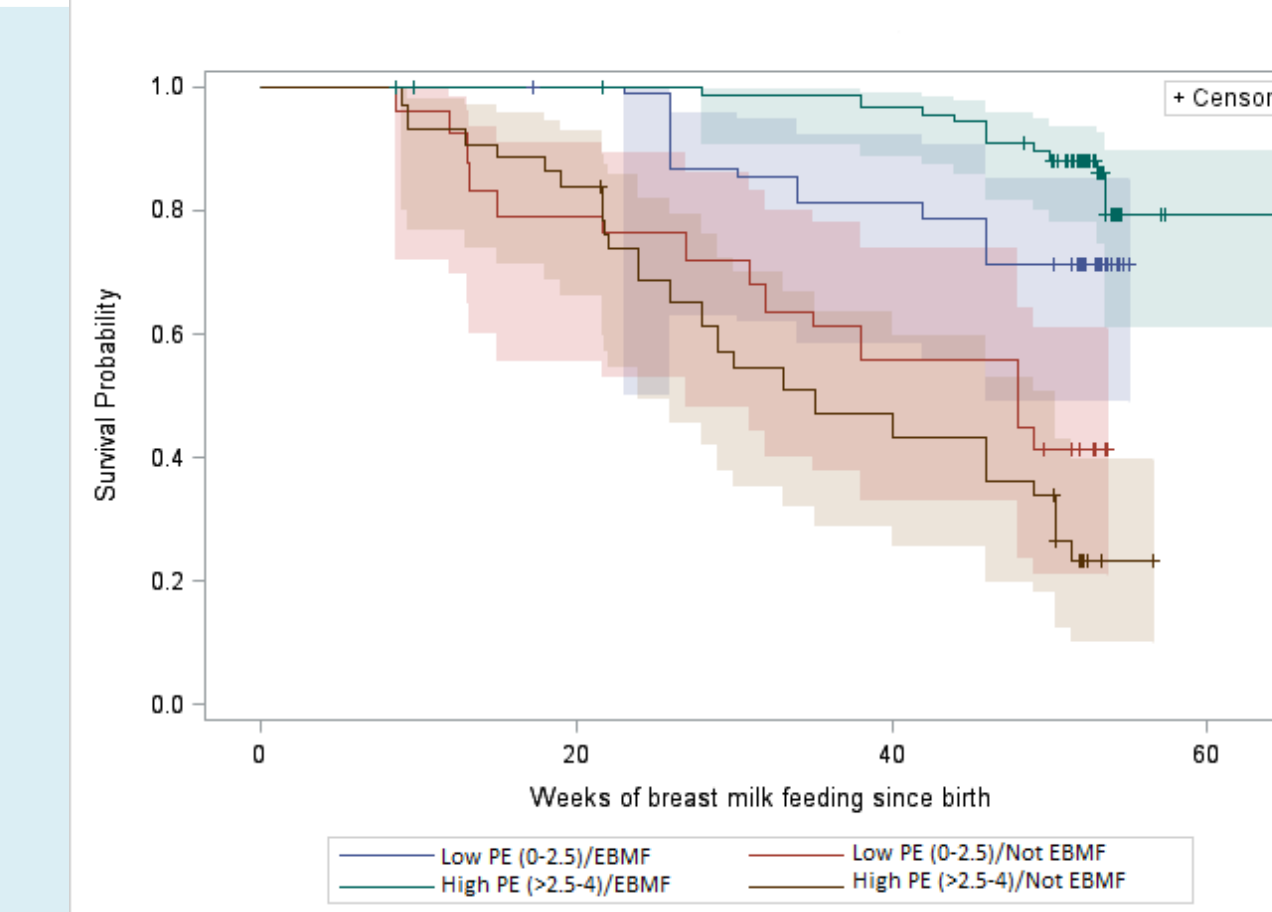
N (%) or mean (SD)	Any Breast Milk Feeding (BMF)	Exclusive Breast Milk Feeding (EBMF)	No Breast Milk Feeding
	175	115	18
Positive Emotions, 2 months	2.8 (0.8)	2.9 (0.8)	2.8 (0.9)
Negative Emotions, 2 months	0.6 (0.6)	0.6 (0.6)	0.4 (0.4)
Liked Breastfeeding, week 1	3.6 (1.4)	3.8 (1.3)	2.7 (1.5)
Early Breastfeeding Problems	4.0 (2.0)	3.6 (1.8)	4.7 (1.9)
Baseline depression score (EPDS)	4.7 (3.8)	4.6 (3.5)	7.4 (6.3)
Baseline anxiety score (STAI)	27.7 (7.7)	27.1 (7.0)	28.7 (11.0)
Race/Ethnicity			
Non-Hispanic White	132 (75.4)	95 (82.6)	10 (55.6)
Black, Hispanic, Other	43 (24.6)	20 (17.4)	8 (44.4)
Education			
Some college or less	34 (19.4)	16 (13.9)	10 (55.6)
College grad or postgrad	141 (80.6)	99 (86.1)	8 (44.4)
Return to work by 2 months			
Yes	54 (30.9)	34 (29.6)	3 (16.7)
No	119 (68.0)	80 (69.6)	15 (83.3)
Moderate/Severe Childhood Trauma			
No	122 (69.7)	85 (73.9)	10 (55.6)
Yes	46 (26.3)	25 (21.7)	8 (44.4)



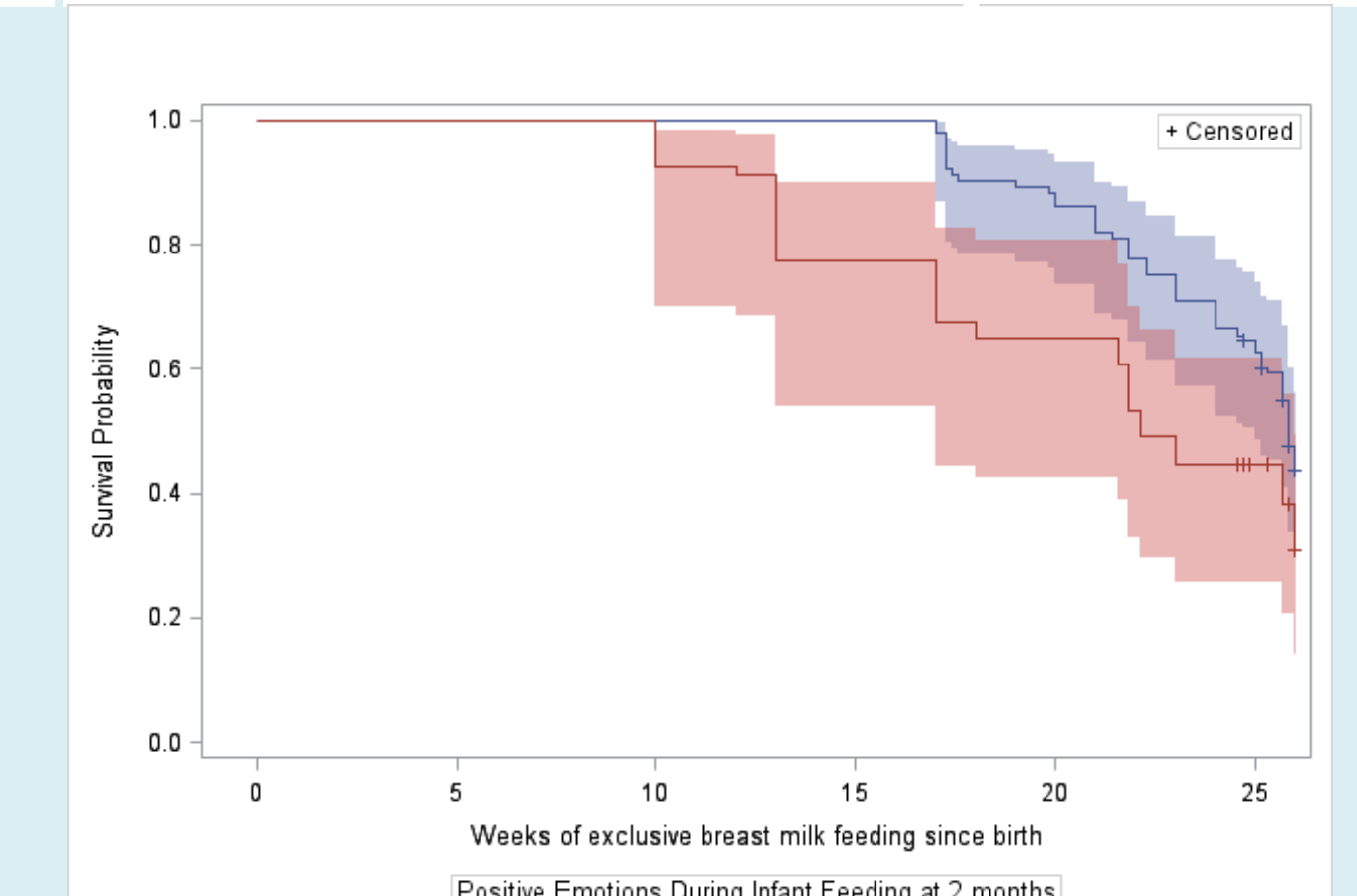
- Positive emotions during infant feeding did not differ by breastfeeding status at 2 months
- Positive emotions were correlated with longer prenatal breastfeeding intention, liking breastfeeding in the first week, and fewer early breastfeeding problems among breastfeeding women but not among those exclusively formula feeding at 2 months
- Positive emotions were correlated with higher levels of childhood trauma among exclusive formula feeders and with lower levels of childhood trauma among those doing ABMF

“More research which considers the whole nature of the breast feeding situation is badly needed. The number of months of breast feeding are probably much less important psychologically than the type of breastfeeding and the type of weaning involved. Was the breast feeding unsuccessful breastfeeding—with all the tension, fear, and pain that that involves? Or was it successful breastfeeding with its peace of mind and physical pleasure.” Niles Newton, *Maternal Emotions* (1955).

Time to cessation of any breast milk feeding by positive emotions and exclusivity at 2 months



Time to cessation of exclusive breast milk feeding by positive emotions at 2 months



Hazard ratios for breastfeeding cessation associated with a one-unit increase in positive emotions

	N	Crude	Weighted*
Any breast milk feeding (BMF)			
Among all women BMF at 2 months	172	0.85 (0.62, 1.16)	0.74 (0.53, 1.02)
By prenatal breastfeeding intention met at 2 months			
Intention met	125	0.70 (0.46, 1.07)	0.56 (0.36, 0.87)
Intention not met	47	1.52 (0.93, 2.48)	1.40 (0.82, 2.41)
By race/ethnicity			
Non-Hispanic White	130	0.72 (0.50, 1.03)	0.61 (0.41, 0.89)
Black, Hispanic, Other Race/Ethnicity	42	1.18 (0.59, 2.34)	1.03 (0.50, 2.16)
Exclusive breast milk feeding (EBMF)			
Among all women EBMF at 2 months	114	0.62 (0.36, 1.07)	0.58 (0.34, 0.98)
By race/ethnicity			
Non-Hispanic White	94	0.78 (0.53, 1.13)	0.63 (0.44, 0.91)
Black, Hispanic, Other Race/Ethnicity	20	0.23 (0.08, 0.66)	0.31 (0.11, 0.91)

*Models weighted to control for confounding by maternal antenatal attachment score, prenatal depression score, adult attachment style, birth trauma, number of breastfeeding problems in the first two weeks, return to work by 2 months, and negative infant temperament

Association between a one-unit increase in Positive Emotions and Maternal Breastfeeding Evaluation

	N	Crude	Weighted*
Among all women in the sample	185	7.00 (4.17, 9.82)	5.36 (2.24, 8.48)
BMF at 2 months			
BMF at 2 months	167	7.12 (4.57, 9.67)	5.60 (2.67, 8.52)
No BMF at 2 months	18	6.64 (-4.39, 17.67)	4.98 (-6.24, 16.20)
Maternal Enjoyment/Role Attainment Subscale	167	4.44 (3.02, 5.86)	3.97 (2.36, 5.58)
Infant Satisfaction/Growth Subscale	167	1.51 (0.29, 2.73)	0.99 (-0.35, 2.32)
Lifestyle/Maternal Body Image Subscale	167	2.09 (0.82, 3.36)	0.93 (-0.53, 2.39)

*Models weighted for adult attachment style, maternal antenatal attachment score, prenatal anxiety score, number of breastfeeding problems in the first two weeks, negative emotions during feeding at two months, childhood trauma score, and negative infant temperament

Discussion

Positive emotions during feeding at 2 months were associated with a longer time to cessation of BMF and EBMF. The association with BMF cessation was stronger where women had met their prenatal breastfeeding intention at 2 months and among Non-Hispanic White women, while the association with EBMF cessation was stronger among women of color. Positive emotions at 2 months were also associated with a better overall maternal breastfeeding experience at 12 months, with a stronger association among women who were BMF at 2 months. Positive emotions at 2 months were more strongly associated with the maternal enjoyment and role attainment subscale of the MBES. More research is needed to understand trajectories of maternal emotions during infant feeding and maternal and infant outcomes associated with positive emotions.