



Changes in Mother-Infant Social Interactions Based on Food Type

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Introduction

- Benefits of breastmilk are numerous (Binns et al., 2016; Lyons et al., 2020).
- Infants who receive the largest portion of their diet from breastmilk and also receive the most physical touch are the most likely to score well on cognitive tests (Feldman & Eidelman, 2003).
- Breastfeeding is recommended by national organizations and encouraged when possible (Meek & Noble, 2022).
- More research is needed on whether breastmilk impacts the social interactions of infant-mother dyads.

Purpose

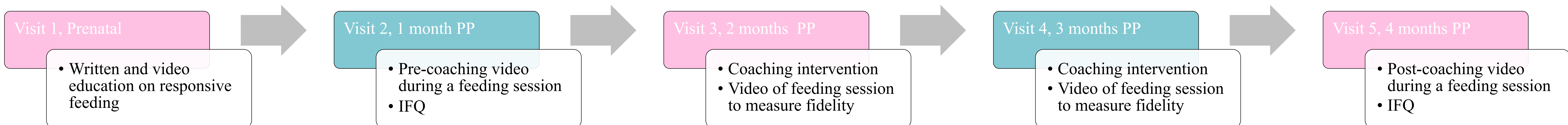
- The purpose of this study was to examine differences in social interaction based on food type.

Methods

- These data come from the Learning Early Infant Feeding Cues (LEIFc) study. A diagram of the study is below.
- Participants (N=21) were recruited from Tallahassee and surrounding areas (Leon, Gadsden, Wakulla, and Jefferson counties).
- Mothers were recruited from community settings during pregnancy, then mother-infant dyads were followed to four months postpartum.
- The Infant Feeding Questionnaire (IFQ) and questions about infant feeding practices were collected at each visit.
- Data from the 1 and 4 month visits were used in these analyses.



Figure 3: LEIFc Visit Summary



Data Analysis

- The total score for the Social Interaction scale of the Infant Feeding Questionnaire was calculated.
- These values were compared at the 1 and 4 month visits to determine changes over time.
- The feeding method used by mothers was also analyzed for consistency between 1 and 4 months as well as the method used at 4 months only.
- This data was separated into two charts that were analyzed using Fisher Exact Tests.

Table 1. Participant Characteristics (n = 21)

Variable	N	%
Maternal Race		
White	10	47.6%
Black	7	33.3%
Other	4	19.1%
Hispanic	2	9.5%
Married	15	71.4%
Working Full-time	11	52.4%
College Graduate	13	61.9%
Baby sex, male*	8	38.1%
Vaginal birth*	16	76.2%
Variable	M ± SD	Range
Mom Age, years	30.3	22-41
Birth Weight, kg*	3.42	2.58-4.25

*n = 19

Results

Change in Social Interaction (SI) Based on Changes in Feeding Type

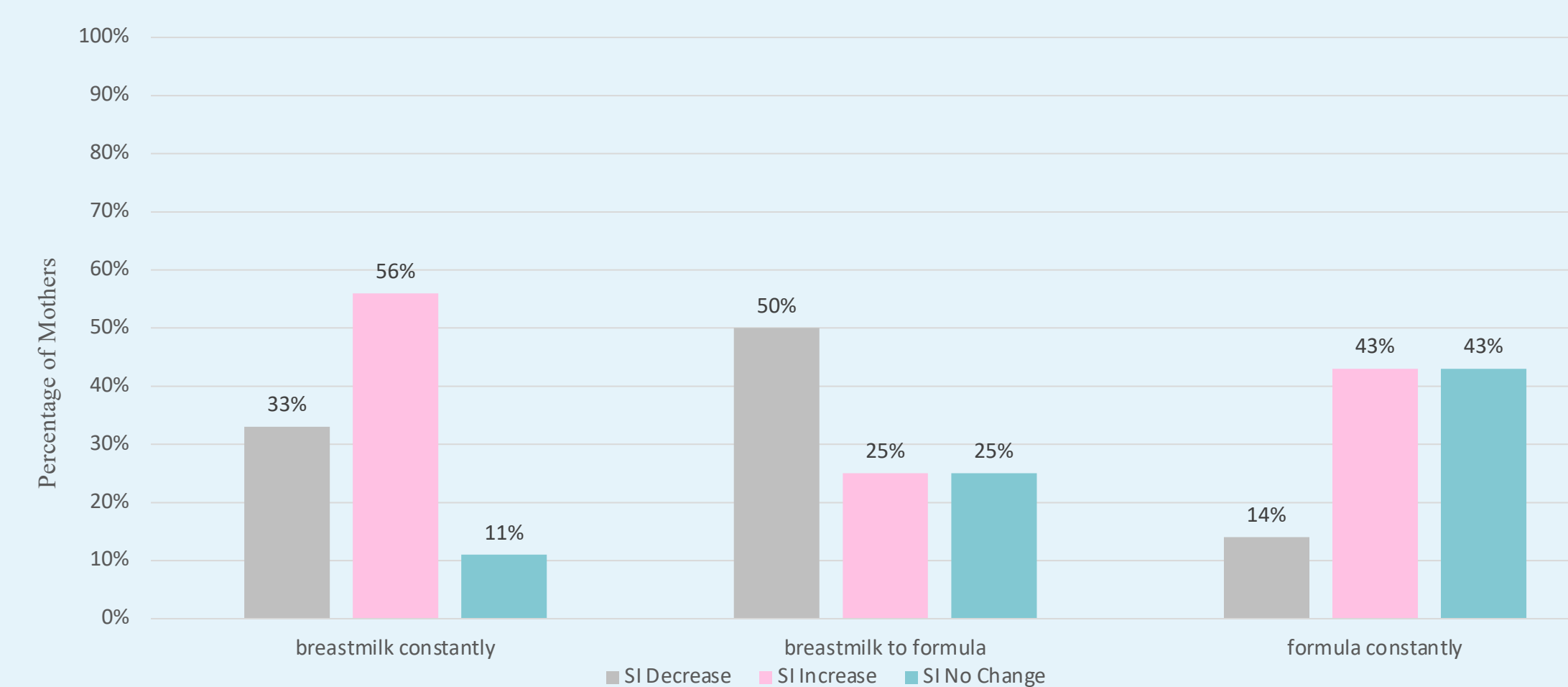


Figure 1 shows that of the infants breastfed exclusively for the duration of the study, 56% had an increase in social interaction between 1 and 4 months compared to 43% who were fed some or all of their diet through formula (p=0.69).

Change in Social Interaction Between Time Points Based on Feeding Type at 4 Months

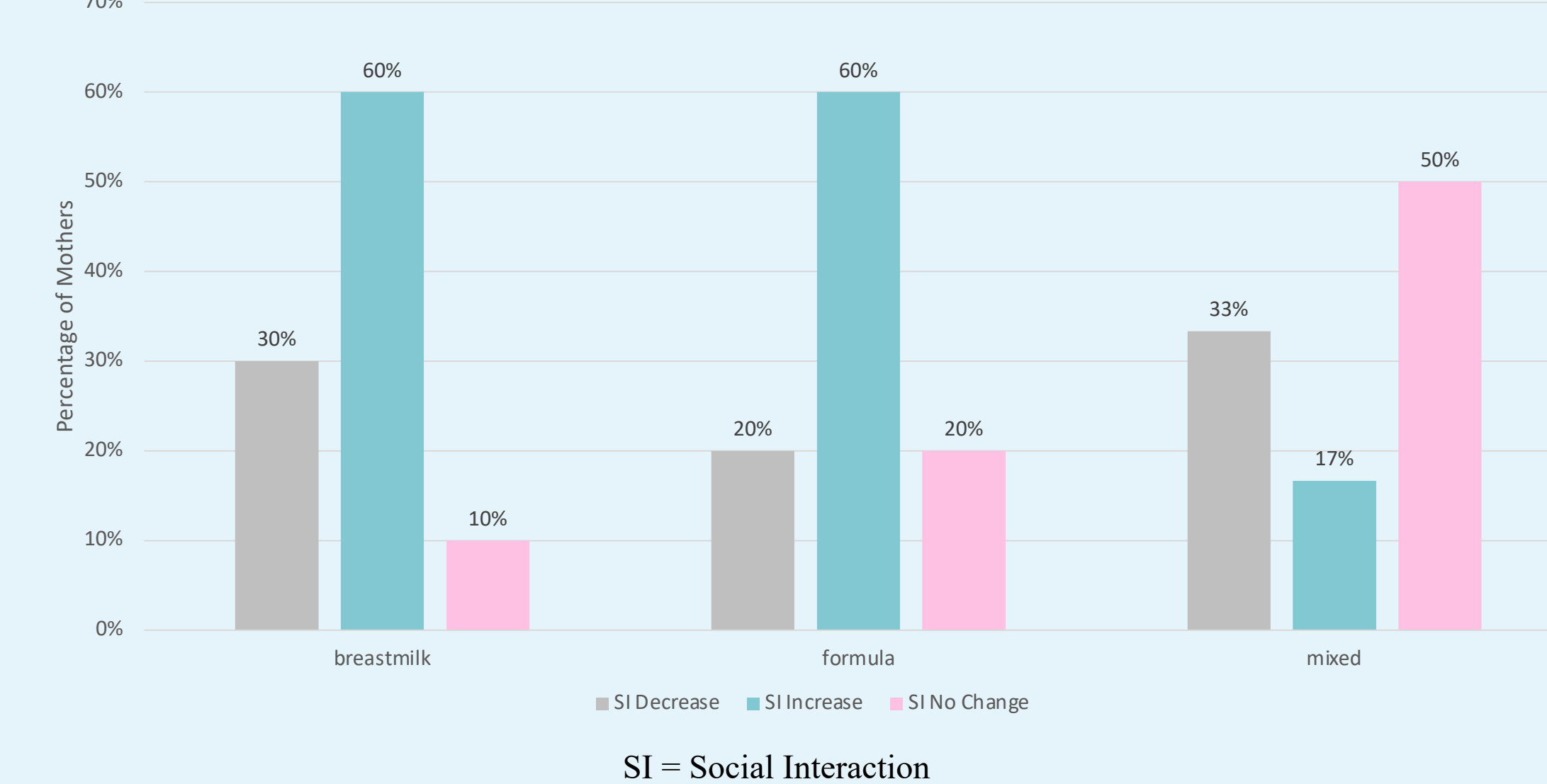


Figure 2 shows that social interaction increased in more infants who were exclusively breastfed (60%) or exclusively formula fed (60%) at 4 months compared to infants who received mixed feedings (17%) (p=0.4).

Conclusion

- Though not statistically significant, results are consistent with prior literature.
 - Receiving only breastmilk in the first few months of life is correlated with an increase in social interaction between mother and infant (Else-Quest et al., 2003).
- However, there are implications that receiving breastmilk only or a consistent food may increase social interaction in the first 4 months of life.
- Prolactin levels may account for these differences, but were not measured in this study.
 - Some research suggests that prolactin levels are correlated with increase maternal response to their infant (Han-Holbrook et al. 2021).

Future Directions

- A larger sample size should be recruited to show whether the statistically insignificant results are due to lack of correlation or lack of enough participants.
- Future studies should measure prolactin levels for possible correlations to social interaction and food type/method.

Acknowledgments

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References

- Binns, C., Lee, M., & Low, W. (2016). The long-term public health benefits of breastfeeding. *Asia Pacific Journal of Public Health*, 28(1), 7-14. <https://doi.org/10.1177/1010539515624964>.
- Else-Quest, N., Hyde, J., & Clark, R. Breastfeeding, bonding, and the mother-infant relationship. *Merrill-Palmer Quarterly*, 49(4), 495-517. <https://www.jstor.org/stable/23096091>.
- Feldman, R., & Eidelman, A. (2003). Direct and indirect effects of breast milk on the neurobehavioral and cognitive development of premature infants. *Developmental Psychobiology*, 43(2), 109-119. <https://doi.org/10.1002/dev.10126>.
- Hahn-Holbrook, J., Little, E., & Abbott, M. (2021). Mothers are more sensitive to infant cues after breastfeeding compared to bottle-feeding with human milk. *Hormones and Behavior*, 136, 105047-105047. <https://doi.org/10.1016/j.yhbeh.2021.105047>.
- Lyons, K., Ryan, C., Dempsey, E., Ross, R., & Stanton, C. (2020). Breast milk, a source of beneficial microbes and associated benefits for infant health. *Nutrients*, 12(4), 1039. <https://doi.org/10.3390/nu12041039>.
- Meek, J., & Noble, L. (2022). Policy statement: Breastfeeding and the use of human milk. *Pediatrics*, 150(1), e2022057988. <https://doi.org/10.1542/peds.2022-057988>.