

Infant feeding choices and maternal infant interactions in nurse home visiting

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Is there a relationship between...

- ❖ infant feeding choice and the quality of maternal infant interactions ...
- ❖ in a non-feeding setting...
- ❖ within a nurse home visiting program aimed at enhancing maternal infant interactions???
- ❖ Specifically for mothers that are least likely to breastfeed and more likely to have difficulty parenting.

To keep in mind...

Breastfeeding is a
HEALTH BEHAVIOR

- Like seat belt use, smoking, diet, and exercise
- Attitudes, Knowledge, Skills, Situational Supports



Infant feeding device from 5000BC

What I don't want...guilt...or stirring up old feelings

Maternal – infant feeding interactions...



<http://images.google.com/images?q=pictures+breastfeeding.007>



<http://www.babybottle-museum.co.uk/weird.htm>



www.maths.otago.ac.nz/.../images/babies.gif

WHY???

Connection between Nurse-Family Partnership program objectives and theories and outcomes observed with breastfeeding mothers.

1. **Human Ecology Theory** - the mother's and child's social context are **profound influences** on the mother's life. *(Urie Bronfenbrenner 1979)*
2. **Attachment Theory** - sensitive parental caregiving is a major influence on the child's growing sense of security in the world. *(John Bowlby & Mary Ainsworth 1991)*
3. **Self-Efficacy Theory** - mother's ability to change certain behaviors by learning to **draw upon her own strengths and successes**. *(Albert Bandura 1977)*

Research beyond physical and economical benefits..

- ❖ Decreased stress levels among breastfeeding women
- ❖ Increased confidence
- ❖ A sense of empowerment particularly with young mothers in poverty
- ❖ These factors influence other areas of their lives and the ability to establish self sufficiency.
- ❖ Decreased risk of postpartum depression (Ip et al, 2007)
- ❖ *(Pugh, Milligan, Frick, Spatz and Bronner, 2002)*

Research on significance of interactions

- ❖ Child's social and emotional health (Leavitt, 1999)
- ❖ Cognitive growth (Oxford & Spieker, 2006, Barnard 1994)
- ❖ Child abuse and neglect risk (Lounds, Borkowski and Whitman, 2006)
- ❖ Attachment development (Bacon, Richardson, 2001; Britton et al., 2006)
- ❖ "The quality of interaction between parents and children is a critical process that influences parenting effectiveness and child development" (Bryne and Keefe, 2003).

Human touch

- ❖ The concept of human touch is discussed as a one of the earliest modes of communication for infants (Hertenstein, 2002).
- ❖ Heretenstein (2002) discusses touch as communicating emotions, promoting learning and cognitive growth and helping to establish attachment to a primary caregiver.
- ❖ Winberg (2005) stated that "close contact also changes maternal behavior in terms that can be interpreted as increased attention to and communication with her baby and may reduce parenting failure in vulnerable families" (Winberg, 2005 p. 217).

Physiological impact of breastfeeding on interactions:

- ❖ Oxytocin - known for its **calming effect** on both mother and baby (Uvnas-Moberg, 1998).
- ❖ Decreased lower perceived **stress, anxiety** and feelings of **anger** over their formula feeding counterparts and higher levels of oxytocin (Groër, 2005).
- ❖ “Long periods of maternal infant **separation appear to inhibit** maternal behavior, through oxytocin receptor mediation” (Bocca and Pedersen, 2001, p.201).
- ❖ “Compared to mature mothers, teen mothers who were breastfeeding also had higher salivary cortisol levels and high cortisol in teen mothers was related to **decreased fatigue and increased energy**” (Krypan, Coombs, Zinga, Steiner and Fleming, 2005).

Moms in the study

- 169 mother-infant pairs
- Mean age 17
- Mean education 10 years
- 61% African-American, 34% Caucasian, and 5% Bi-racial
- 6.5% with a low birth weight infant
- 58% reported feelings of depression at least some of the time

What influences breastfeeding?

	Standard error	p value	Odds ratio
Maternal age	0.126	0.029	0.758
Education	0.154	0.039	1.374
Race		0.509	
African- American	0.816	0.621	0.668
Caucasian	0.840	0.980	1.022
Depression	0.179	0.343	0.844
Low birth weight infant	0.000	0.473	1.000
Taught about breastfeeding prenatally	0.349	<0.001	3.562

Who breastfeeds discussion

- Those who were taught!
- Nurses of different backgrounds and comfort levels and beliefs
- Research supports multitude of variables especially for low income women to breastfeed
- Priorities of nurses working with low income families
- Age and education interesting (narrow range of mothers)
- Comparison to like groups of mothers
 - National teen mothers initiation moms <20 = 43%,
 - African American <20 = 30% mothers <http://www.cdc.gov/nchs/data/databriefs/db05.htm>



<http://images.google.com/images?q=pictures+breastfeeding.waba>

Measuring maternal infant interactions

- NCAST teaching scale
- Standardized tool
- 85% inter rater reliability for certification in use of tools
- Points scored for infant and caregiver
- Examples include eye contact, smiling, talking to infant, infant's responses

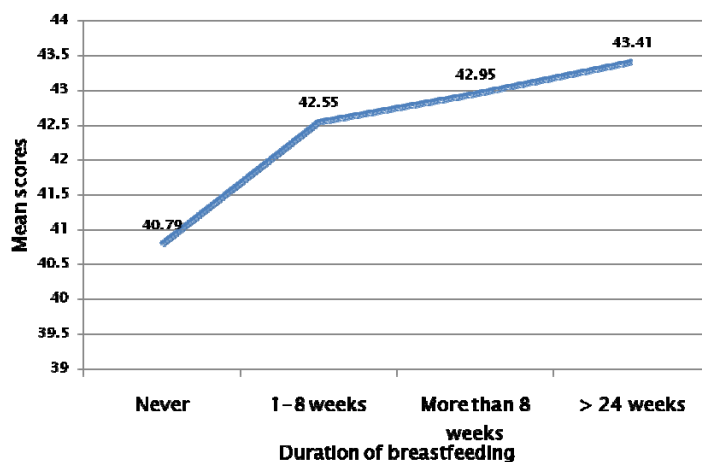
Variables to NCAST maternal teaching scale scores

	Analysis with biracial (n=8), Caucasian, and African American mothers		Analysis with only Caucasian and African American mothers	
	Standard error	p value	Standard error	p value
Maternal age	.269	.342	.275	.402
Education	.328	.476	.333	.330
Race	.278	.037	.393	.202
Depression	.379	.552	.389	.524
Birth weight	.001	.729	.001	.504
Time breastfed baby	.302	.027	.311	.019

Does duration of breastfeeding make a difference?

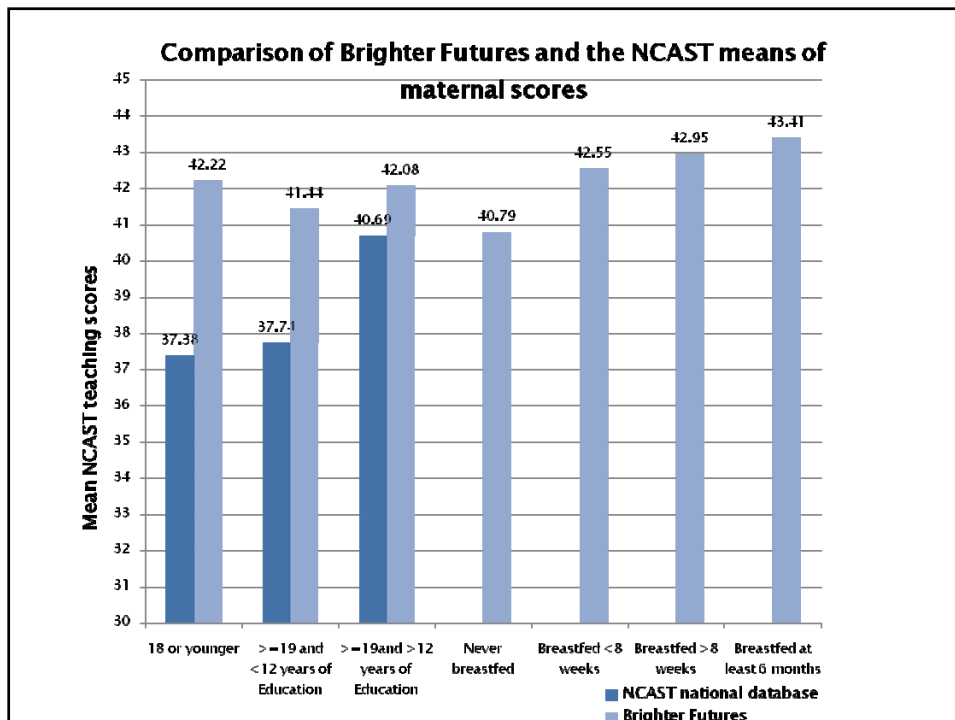
- ❖ An analysis of variance and a Least-Squared Differences (LSD) followed with a post-hoc test were performed to determine significant difference between the groups.
- ❖ The mean NCAST score for the never breastfed group was significantly lower ($p=.036$) than the breastfed for up to 8 weeks group, and significantly lower ($p=.025$) than the breastfed for more than 8 weeks group.
- ❖ The two breastfeeding groups, up to 8 weeks and more than 8 weeks, were not significantly different from each other ($p=.685$).

Mean Nursing Child Assessment Satellite Training teaching scale maternal scores by duration of breastfeeding



Did breastfeeding affect any of the subscales scores?

- ❖ Maternal sensitivity to infant cues, response to infant distress, social and emotional growth fostering, and cognitive growth fostering.
- ❖ Four linear regressions were completed
- ❖ **Sensitivity to cues** ($p=.046$) and the **total score** ($p=.041$) could be predicted by the number of weeks breastfeeding.
- ❖ The other regressions were not statistically significant.



Thoughts on NCAST scores...

- Results using NCAST teaching scale consistent with previous research using NCAST feeding scale.
- Significance of outside of feeding setting
- Sensitivity to an infant's cues is considered the primary **antecedent to attachment** development (Britton et al, 2006).
- **Goals of the NFP** to fostering secure attachments between mother and child (O'Brien, 2005).

Initiating breastfeeding... continuing to breastfeed...

- ❖ **First few hours and days of an infant's life and bonding and attachment...**
- ❖ **"Maternal behavior in the immediate postpartum period may aid in predicting the quality of maternal infant interaction during the subsequent 12 months" (Britton and Gronwaldt 2001)**
- ❖ **Initiating breastfeeding in that first week may have helped that mother and infant to be closer through increased holding, physical touch and feelings of empowerment.**
- ❖ **Other unmeasured variables?**

Limitations, considerations

- Retrospective observational study
- Complexity of variables for feeding decisions and for interactions
- Limited population studied (Low income, young, receiving NFP intervention)
- Potential for bias in the nurse completing the NCAST with the mother that she has been working with?

Conclusions, take aways... Yes, there is a relationship....

- Teaching breastfeeding prenataally makes a difference
- Breastfeeding matters to interactions outside of the feeding setting
 - Does breastfeeding enhance maternal infant interactions?
 - Does promoting higher quality maternal infant interactions impact breastfeeding rates?

BOTH!

Recommendations:

- Work with health care providers to encourage and teach breastfeeding.
 - It's a health behavior
- Work with health care providers to encourage and teach positive maternal-infant interactions
- More research – difficult due to complexity of variables

“The great thing about Nurse-Family Partnership is that it works. To put it simply...it decreases about everything you want to decrease and increases about everything you'd want it to increase.”

Thomas Frieden, Commissioner New York City Dept. of Health & Mental Hygiene

(kind of like breastfeeding....)



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