

Sharing knowledge of effects of mother-infant skin-to-skin contact for children born full-term, mothers, and the long-term mother-child relationship

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Photographer: Terry Kurgen



Documented Benefits of Mother-Infant Skin-to-Skin Contact

- More stable temperature, heart rate, respiratory rate, and gastrointestinal adaptation
- More restful sleep
- Less crying
- Faster growth
- Less pain from routine procedures



Other Possible Benefits of Mother-Infant Skin-to-Skin Contact

- For mothers
- For infants after the newborn period
- For the mother-infant relationship

Benefits of Skin-to-Skin Contact

For Mothers

- Facilitates baby's adaptation to postnatal life, which is reassuring to mother.
- Releases oxytocin, which facilitates maternal feelings and behavior.

For Infants

- Affects awareness of external stimulation from mother.
- Increases infant's ability to notice, recognize, and engage with mother



Mother-Infant Study

- 90 Mother-Infant dyads (full-term infants) divided into Skin-to-Skin and Control groups.
- Mothers assigned to groups based on the hospital in which their infants were born.
- Hospitals designated as the Skin-to-Skin and Control group sites were switched halfway through the study.

Mothers in Skin-to-Skin group

were requested to provide skin-to-skin contact for
6 hours/day for infants' 1st week
2 hours/day for infants' 2nd through 4th weeks

Mothers in Control group

were not requested to provide skin-to-skin contact


All mothers

recorded the skin-to-skin contact they provided each day

Mean Hours per Day of Mother-Infant Skin-to-Skin Contact for the Skin-to-Skin and Control Groups during the Infants' First Week and during Weeks 2 through 4

<i>Group</i>	<i>Infant Age</i>	
	Week 1	Weeks 2 through 4
Skin-to-Skin	5.0 (1.3)	2.7 (1.2)
Control	0.5 (0.8)	0.2 (0.3)

Note. Standard deviations are in parentheses.



Data Collection on Home Visits at 1 week, 1 month, 2 months, 3 months

- Feeding practices
- Mothers' postpartum depression
- Infants' responsiveness to their mothers



“Young Mother Nursing Her Child” by Mary Cassatt, 1906.



Breastfeeding Rates

CANADA

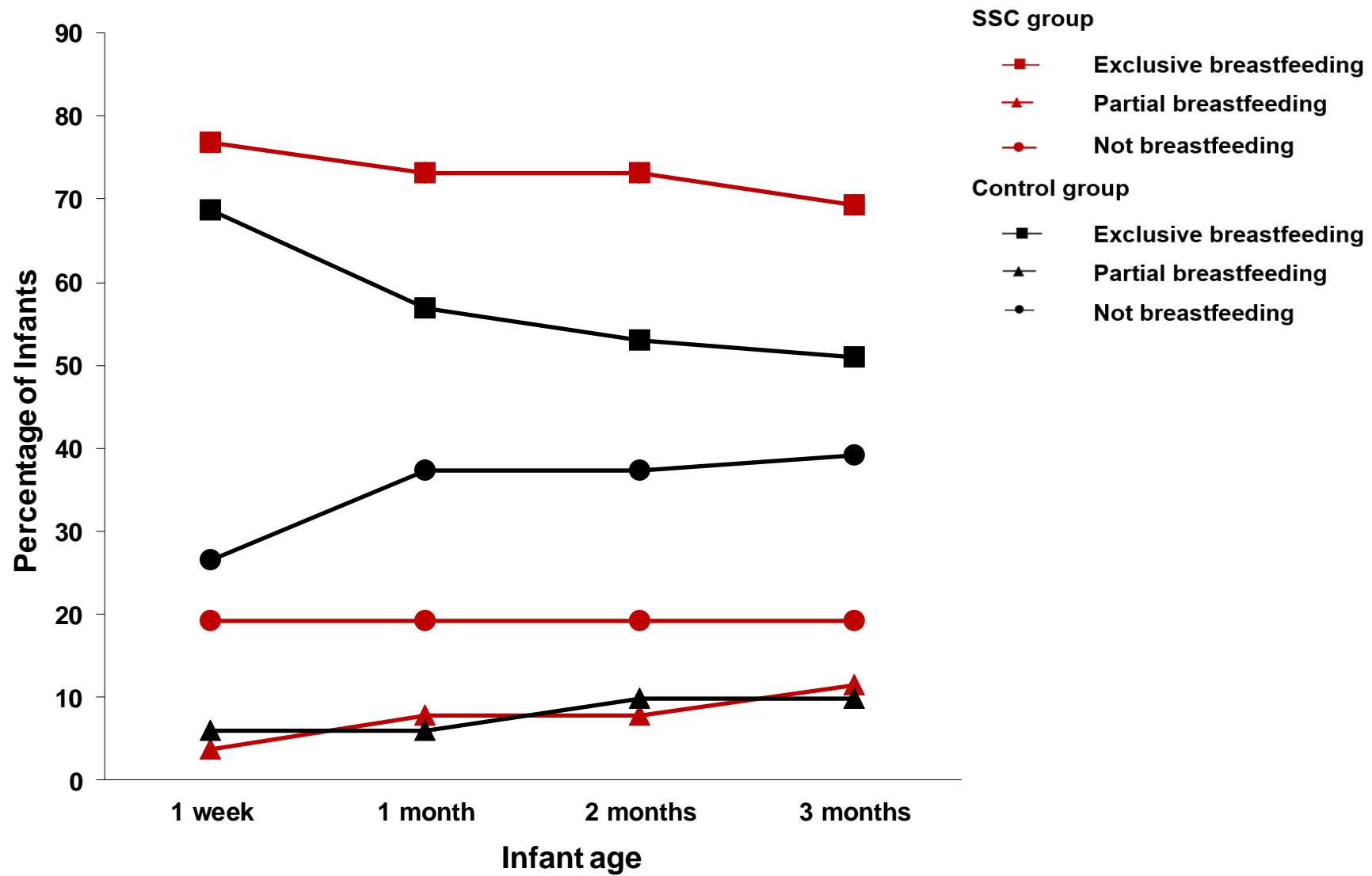
- 87% of mothers initiate breastfeeding
- 26% are breastfeeding at 6 months

Most mothers who terminate breastfeeding before 6 months do so in the first month.



Types of Feeding Practices

- Exclusive breastfeeding (breastmilk only)
- Partial breastfeeding (breastmilk + formula/other foods)
- No breastfeeding (formula/other foods only)



Bigelow, A.E., Power, M., Gillis, D.E., MacLellan-Peters, J., Alex, M., & McDonald, C. (2014). *Infant Mental Health Journal*, 35, 51-62.

Postpartum Depression Rates

- 13%

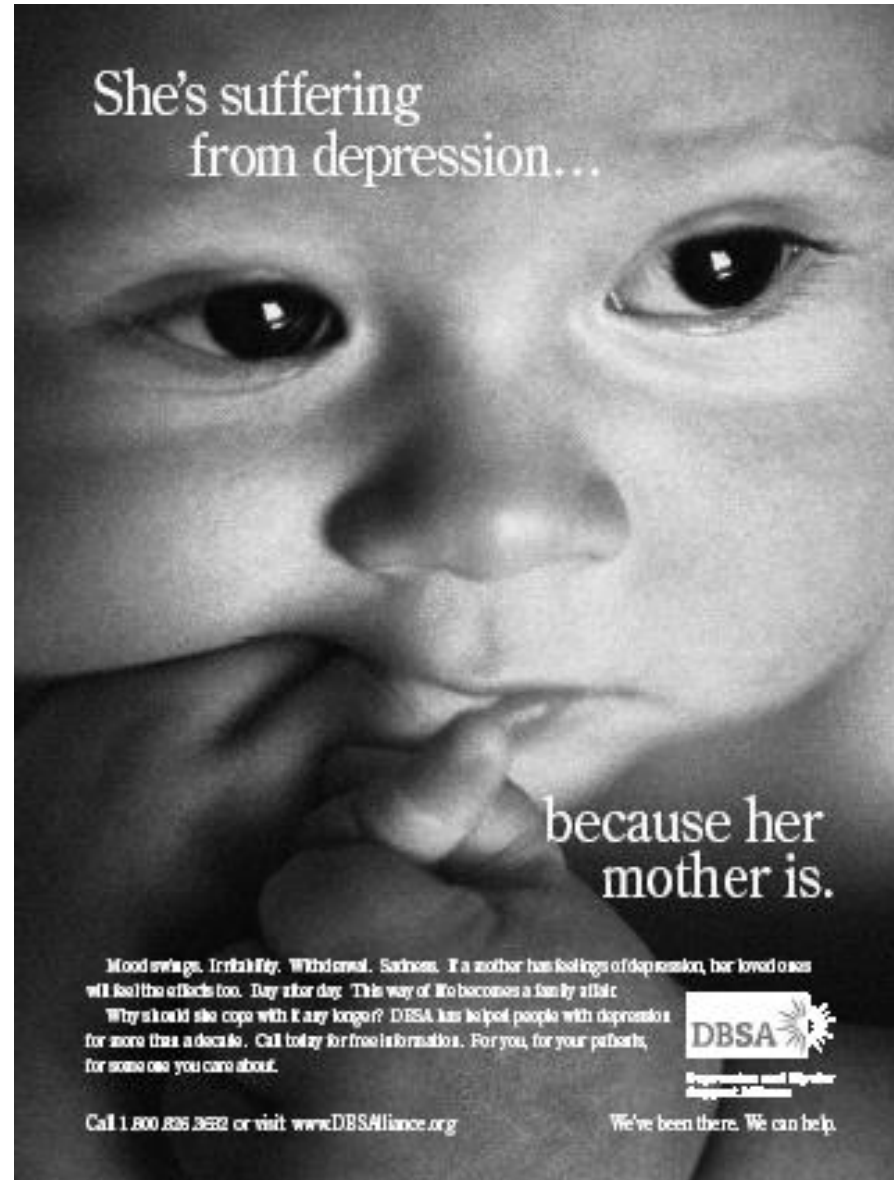
O'Hara, M., & Swain, A. (1996). *International Review of Psychiatry*, 1, 37-54.

- Between 20% and 40%

McCoy, S. J., Beal, J. M., Shipman, S. B., Payton, M. E., & Watson, G. (2006). *Journal of American Osteopathic Association*, 106, 193-198.

Morris-Rush, J. K., Freda, M. C., & Bernstein, P. S. (2003). *American Journal of Obstetrics and Gynecology*, 188, 1217-1219.

Infants of Depressed Mothers



She's suffering
from depression...

because her
mother is.

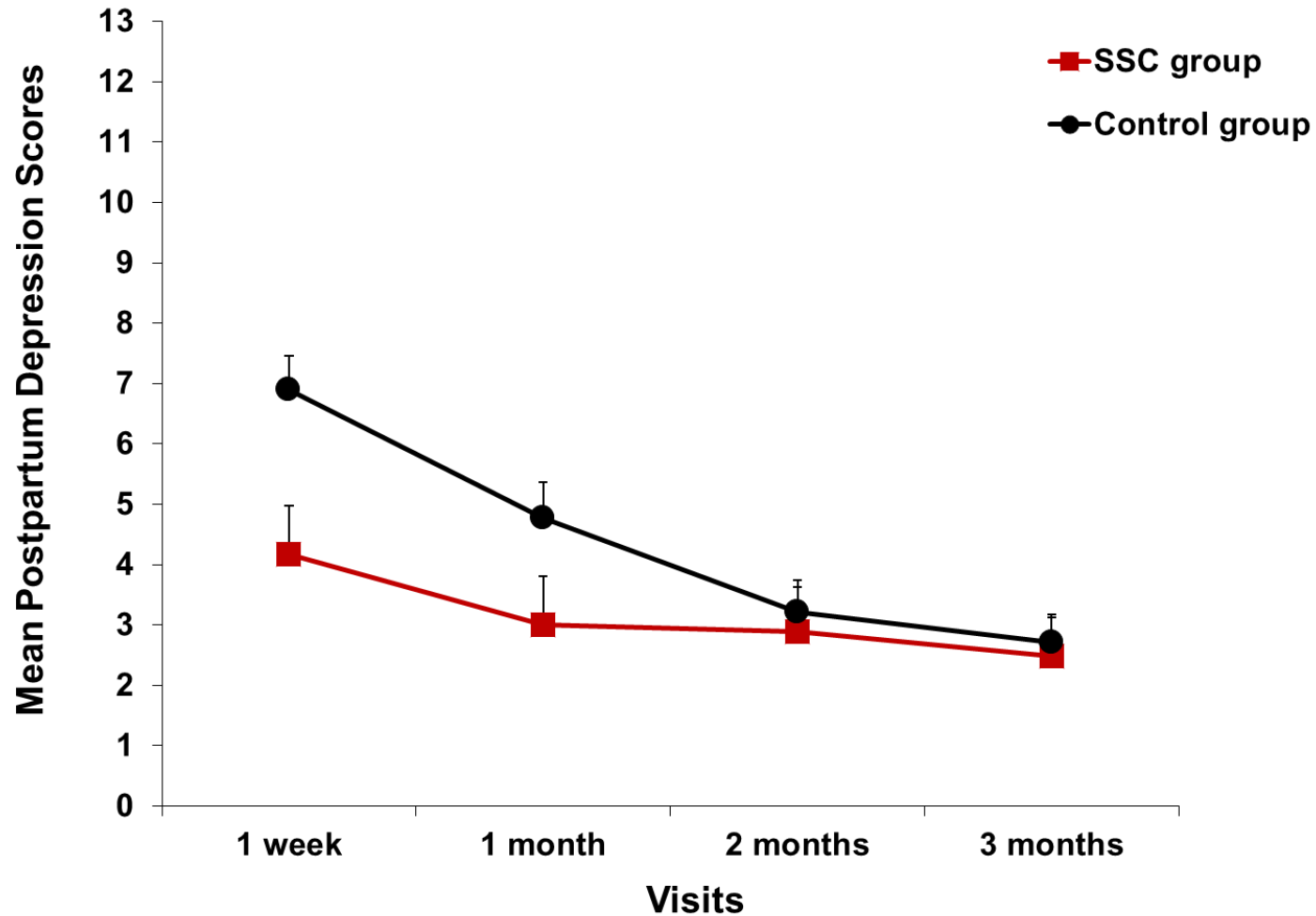
Mood swings. Irritability. Withdrawal. Sadness. If a mother has feelings of depression, her loved ones will feel the effects too. Day after day. This way of life becomes a family affair.

Why should she cope with it any longer? DBSA has helped people with depression for more than a decade. Call today for free information. For you, for your patients, for some one you care about.

DBSA
Depression and Bipolar Support Alliance

Call 1.800.826.3632 or visit www.DBSAAlliance.org We've been there. We can help.

Edinburgh Postnatal Depression Scale (EPDS)



- Bigelow, A.E., Power, M., MacLellan-Peters, J., Alex, M., & McDonald, C. (2012). *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 41, 369-382.



Association between Breastfeeding and Reduced Maternal Depression

- Mothers who breastfeed their infants have fewer depressive symptoms.
 - The association is strongest in the early postpartum period
- Possible causal factor: Oxytocin, which bolsters positive mood states and stimulates milk production



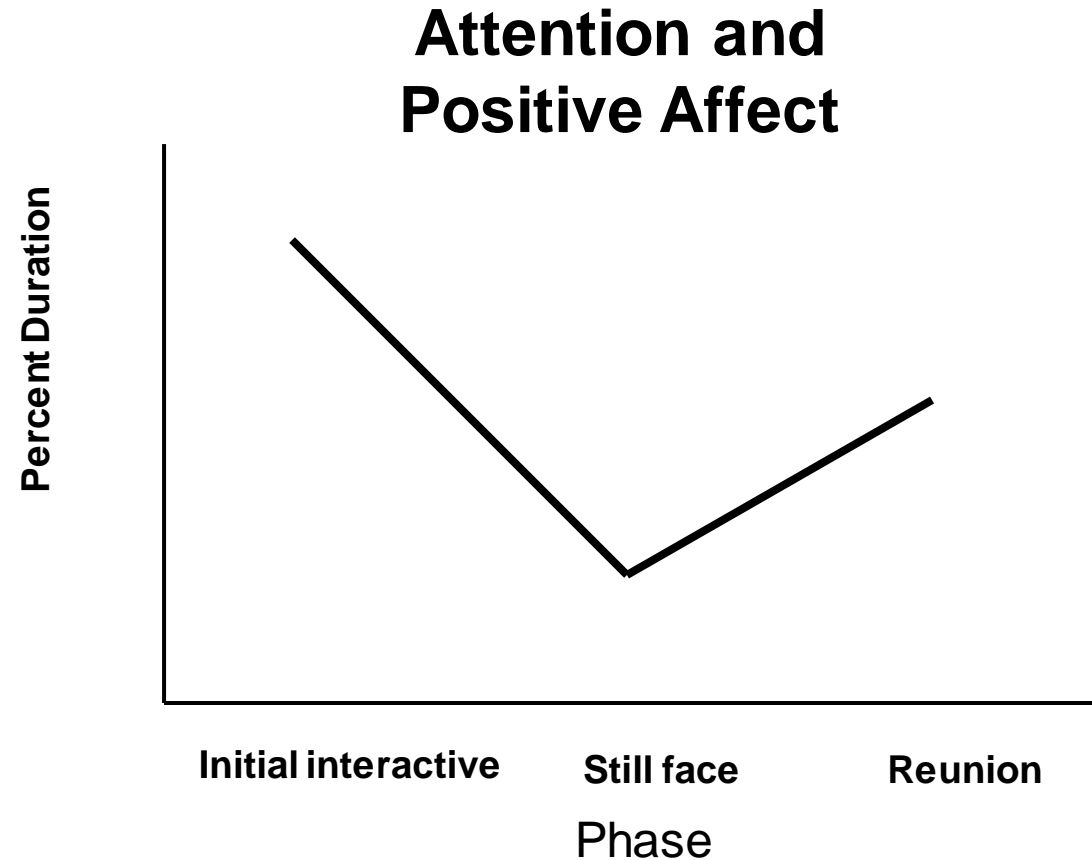
Still Face Task

Assesses infants' responsiveness to maternal social interaction

PHASES

- **Initial interactive** – Mother engages infant
- **Still face** – Mother becomes still with neutral expression, no talking or touching the infant
- **Reunion** – Mother resumes engagement with infant

Still Face Effect: Normally seen from 2 months of age

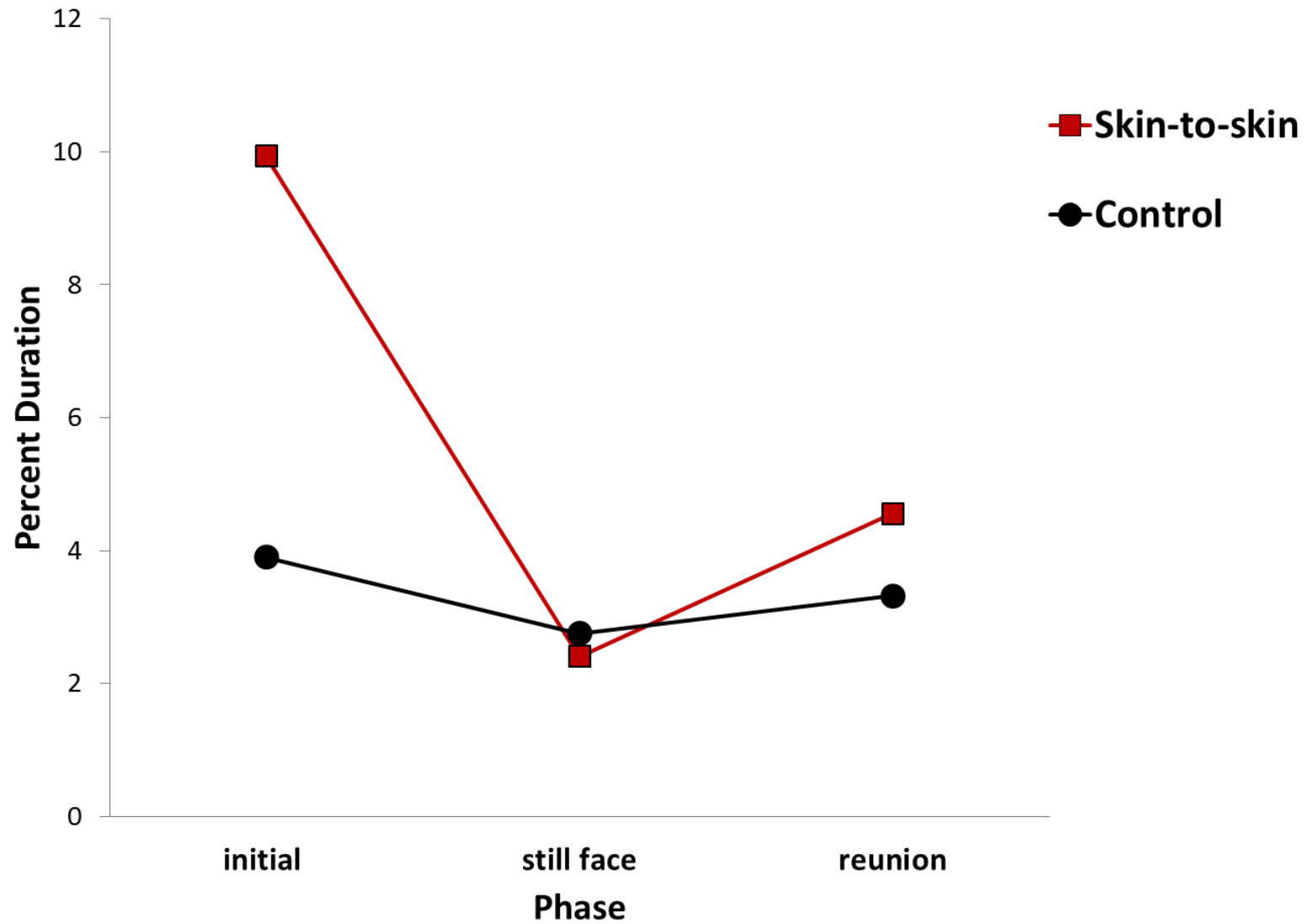




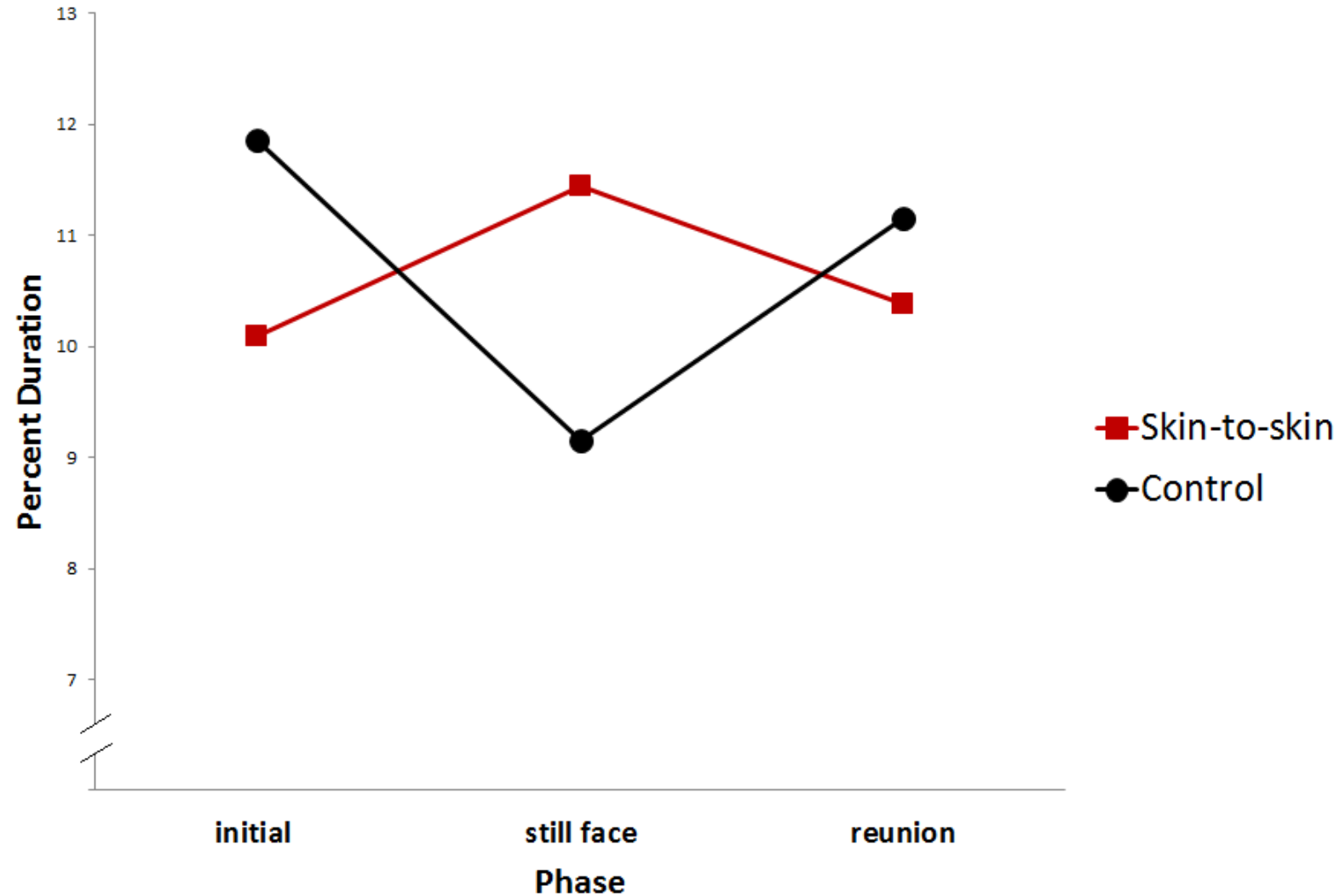
Prediction

Mother-infant skin-to-skin contact facilitates infants' response to the Still Face Task.

1 month: Non-distress vocalizations



3 months: Non-distress vocalizations





Results of the Infancy Study

Mother-infant skin-to-skin contact

- Facilitates the maintenance of mothers' decision to breastfeed
- Reduces mothers' feelings of depression in the early postpartum period
- Increases infants' sensitivity to their mothers' social behavior toward them

Skin-to-skin contact enhances the developing mother-infant relationship



Follow-up Study

Does skin-to-skin contact enhance the mother-child relationship over the long term?



Feldman et al. (2014)

10 year skin-to-skin follow-up of mothers and their premature infants.

Results:

Children in the Skin-to-Skin group had better cognitive development and autonomic nervous system functioning.


Mothers and children in the Skin-to-Skin group were more reciprocal in their interactions



Our Study

The first long term follow-up of a mother-infant skin-to-skin contact study with full term infants.

The children were 9 years old.



Autobiographical Emotional Events Dialogue (AEED)

Mother and child discuss events when the child felt:

- happy
- mad
- sad
- scared



AEED Coding

7 maternal scales collapsed into

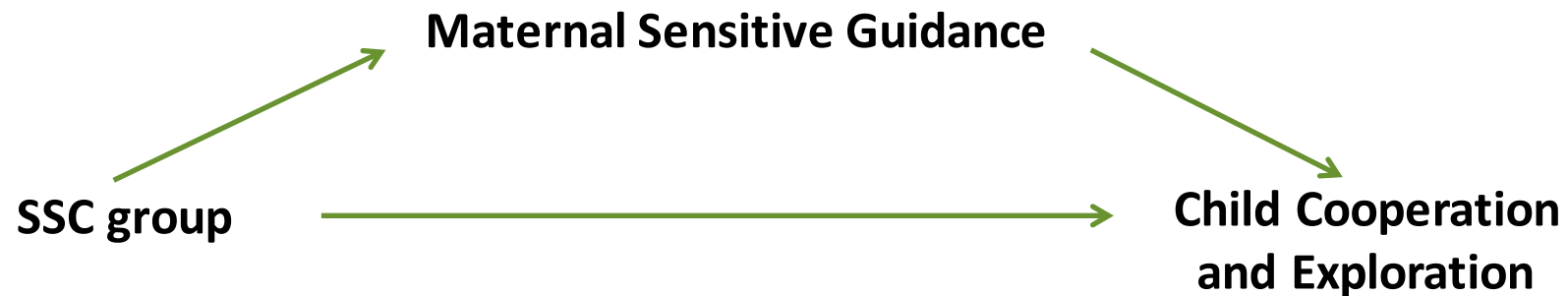
Maternal Sensitive Guidance

7 child scales collapsed into

Child Cooperation and Exploration

AEED Results

- Mothers in the Skin-to-Skin group had higher Maternal Sensitive Guidance scores
- Children in the Skin-to-Skin group had higher Child Cooperation and Exploration scores





Mother-Child Reciprocity: Key Theme

- Our 9 year follow-up of skin-to-skin contact with mothers and their full term infants.
- Feldman et al.'s 10 year follow-up of skin-to-skin contact with mothers and their premature infants.





Long-term Benefits of Skin-to-Skin Contact

Physiologically:

- Increases oxytocin in mothers and infants
- Promotes mother-child oxytocin synchrony, possibly over the long-term

Behaviorally:

- Mother-child relationship is dynamic
- Early positive relations enhance the possibility of continued positive relations.

Thank you



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Study Collaborators & Research Funders

Mother-Infant Skin-to-Skin Study

Investigators

Ann Bigelow (Principal Investigator), Janis MacLellan-Peters, Judith Cormier, Penny Fuller, Terry Penny, Magdy Fouad, Ann Marie Murdock, Kim MacLean, Marion Alex, Doris Gillis, Sherry Bowman, Clare Fawcett

Research Associates

Michelle Power, Shim Pang, Claudette McDonald, Gerry Cameron, Jan Hanifen, Rachel MacFarlane, Mena Enxuga, Yvonne MacDonald, Jennifer Delaney, Cynthia Flanagan, Laura Walden, Caitlin Best

Videographer: Marley Parker

Funded by the Nova Scotia Health Research Foundation



9 Year Follow-up Study

Investigators

Ann Bigelow (Principal Investigator), Kim MacLean, Doris Gillis, Michelle Ward

Research Associates

Michelle Power, Katlyn Gerrior, Laila Drabkin, Carolyn Taylor, Sage Cryderman, Debby Turner, Kim Jordan, Sonya Sarty, Lindsay Berrigan, Xu Wang, Jesse Husk

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Publications

- Bigelow, A. E., & Power, M. (2020). Mother-infant skin-to-skin contact: Short-and long-term effects for mothers and their children born full-term. *Frontiers in Psychology* 11, Article 1921. <https://doi.org/10.3389/fpsyg.2020.01021>
- Bigelow, A. E., Power, M., MacLean, K., Gillis, D., Ward, M., Taylor, C., Berrigan, L., Wang, X. (2018). Mother-infant skin-to-skin contact and mother-child interaction nine years later. *Social Development*, 27, 937-951.
- Bigelow, A. E., Power, M., Gillis, D.E., MacLellan-Peters, J., Alex, M., & McDonald, C. (2014). Breastfeeding, skin-to-skin contact, and mother-infant interactions over infants' first three months, *Infant Mental Health Journal*, 35, 51-62.
- Bigelow, A. E., Power, M., MacLellan-Peters, J., Alex, M., & McDonald, C. (2012). Effect of mother-infant skin-to-skin contact on postpartum depression and maternal physiological stress. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 41, 369-382.
- Bigelow, A. E., & Power, M. (2012). The effect of mother-infant skin-to-skin contact on infants' response to the still face task from newborn to three months of age. *Infant Behavior and Development*, 35, 240-251.
- Feldman, R., Rosenthal, Z., & Eidelman, A. I. (2014). Maternal-preterm skin-to-skin contact enhances child physiological organization and cognitive control across the first 10 years of life. *Biological Psychiatry*, 75, 56-64.

Video and DVDs

- Bigelow, A. E., Gillis, D., Lukeman, S., Johnson, C., Reid, T., Mann, C., Power, M., & Duff, P. (2020). *Skin-to-skin contact: Benefits to you and your baby* (for parents and parents-to-be; 3.5 minutes). Animated video disseminating the results of our longitudinal mother-infant skin-to-skin contact research. <https://www.youtube.com/watch?v=n8q7pc8zPyY>
- Bigelow, A. & Gillis, D. (2010). *Enhancing Baby's First Relationship: A Parent's Guide for Skin-to-Skin Contact with Their Infants* (DVD for parents; 20 min) and *Enhancing Baby's First Relationship: Results from a Study on Mother-Infant Skin-to-Skin Contact* (for practitioners; 28 min). The DVDs and accompanying Facilitator's Guide are online at <http://people.stfx.ca/abigelow/dvds-mother-infant-skin-to-skin-contact.htm>