

# Benefits of Infant Massage for Babies Born Prematurely or Prenatally Exposed

Laura Hawkey, LEND Trainee 2020-2021



# LEND Competencies

- Competency 1: Family-Centered/Culturally Competent Practice:
  - 1.8: Identify and apply family centered care principles in a clinical setting
  - 1.9: Identify family centered-practices in the community and services setting
- Competency 5: Research & Critical Thinking:
  - 5.1: Critically review literature

# Capstone Question...

- Is infant massage beneficial for babies born prematurely or prenatally exposed?

# *A Brief History of Infant Massage*

- “Neonatal massage has a long and varied history. The first recorded episode of neonatal massage is thought to have occurred during the height of the Egyptian empire. There is also documentation of massage in China as early as 2760 BC. Many far eastern cultures massage infants today as an integral part of mother, having passed this practice down for generations. Infants in Nigeria, Uganda, Fiji, New Guinea, Venezuela, and others are routinely massaged for the first several months of life.. However, Infant massage is a relatively new modality in North America” (Mainous, Rosalie O. 2002).
- Infant massage in the United States can be traced back to the 1970s when a woman worked at an orphanage in India (McClure, Vimala 2017).

# *Infant Massage in the West*

- Infant massage is only practiced in 38% of NICUs (Field, et. al. 2010).
- Despite increasing popularity over the years in the West, instruction or information about infant massage may be difficult to obtain (Neonatal Skin Care & Toxicology)
- Infant Massage USA touted reaching 20,000 families since 2005, which equals approximately 1,250 per year
- Lack of infant massage studies (recent, uniformity/consistency in implementation).

# Weight Gain in Premature Infants

- *Massage Therapy by Mothers & Trained Professionals Enhances Weight Gain in Preterm Infants, Sari Goldstein Ferber, David Kohelet*
  - 57 mothers & infants recruited from 3 medical centers
  - Factors that excluded infants from the study include: severe medical conditions, birth weight, infant's age
  - Information sought to determine:
    - Does infant massage help premature babies gain weight, as concluded in several other studies?
    - Is there a difference in findings if infant massage is performed by mothers or providers?

Ferber, Sari Goldstein, Kuint, Jacob, Weller, Aron, Feldman, Ruth, Dollberg, Shaul, Arbel, Eliana, and Kohelet, David. (2002). Massage therapy by mothers and trained professionals enhances weight gain in preterm infants. *Early Human Development*, 67(1-2), 37-45.

# Weight Gain in Premature Infants

- Subjects & Methods:
  - Two treatments groups
    - One group received infant massage from mother
    - Second group received infant massage from provider
    - Control group, no infant massage
  - Study occurred over a 10 day period
  - Massage sessions were 15 minutes, 3 times a day, occurring the same time each day

Ferber, Sari Goldstein, Kuint, Jacob, Weller, Aron, Feldman, Ruth, Dollberg, Shaul, Arbel, Eliana, and Kohelet, David. (2002). Massage therapy by mothers and trained professionals enhances weight gain in preterm infants. *Early Human Development*, 67(1-2), 37-45.

# Weight Gain in Premature Infants

- Results & Discussion:
  - Massaged infants had significant weight gain
  - Both massage groups had similar outcomes
  - Caloric intake appeared to be more efficient in both treatment groups
    - No difference related to method of feeding in all groups
  - Massaged infants gained an average of 6-8 grams more a day
  - Evidence that it doesn't matter who administers infant massage, as both groups had similar outcomes
    - Provides evidence that infant massage is effective for weight gain and the person providing the therapy is not as significant

Ferber, Sari Goldstein, Kuint, Jacob, Weller, Aron, Feldman, Ruth, Dollberg, Shaul, Arbel, Eliana, and Kohelet, David. (2002). Massage therapy by mothers and trained professionals enhances weight gain in preterm infants. *Early Human Development*, 67(1-2), 37-45.



# Stress Behaviors in Premature Infants

*Preterm Infants Show Reduced Stress Behaviors and Activity After 5 Days of Massage Therapy, Maria Hernandez-Reif, et. al.*

- Participants:
  - 36 infants in the study
  - 18 infants in massage group, and 18 infants in control group
- Treatment Groups:
  - Infants in massage group received three 15 minute massages daily, all administered at the same time of day. Altogether, 15 massage sessions were completed for each infant
  - The control group didn't receive massage therapy, but rather continued receiving standard NICU treatment as prescribed

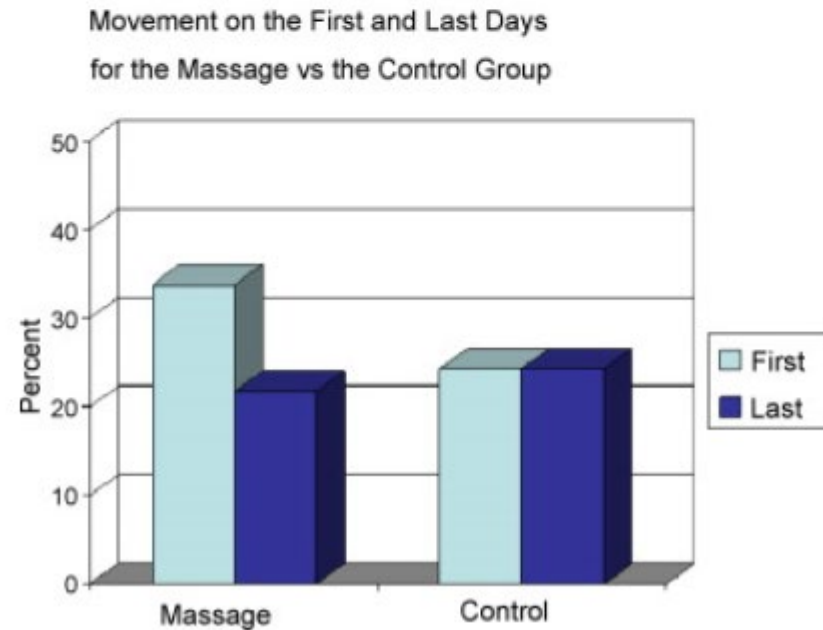
Reif-Hernandez, Maria, Diego, Miguel, Field, Tiffany. Preterm infants show reduced stress behaviors and activity after 5 days of massage therapy (2007). *Infant Behaviors and Development*, 30(4), 557-561.

# Stress Behaviors in Premature Infants

- Behavior Observations:
  - Researchers blind to group allocation observed infants for stress behaviors and activities (movement) on the first and last days
  - Stress behaviors included crying, grimacing, yawning, sneezing, jerking arm(s)/leg movement, startles, and/or finger flaring
  - Activity included: any movement of limbs, torso, or gross body movement of any kind

Reif-Hernandez, Maria, Diego, Miguel, Field, Tiffany. Preterm infants show reduced stress behaviors and activity after 5 days of massage therapy (2007). *Infant Behaviors and Development*, 30(4), 557-561.

# Stress Behaviors in Premature Infants



# Stress Behaviors in Premature Infants

- Discussion:
  - Infants born preterm who require NICU care are exposed to many stressors, causing increased observable stress behaviors and movement/activity
  - Reducing stress behaviors and movement is key, to lesson the risk of medical or developmental complications caused by chronic stress
  - Infants receiving massage therapy showed less movement/activity and less stress behaviors, suggesting infant massage has a “stress-reducing or pacifying effect”.

Reif-Hernandez, Maria, Diego, Miguel, Field, Tiffany. Preterm infants show reduced stress behaviors and activity after 5 days of massage therapy (2007). *Infant Behaviors and Development*, 30(4), 557-561.

# Infant Massage & Prenatal Exposure

- Subjects/Eligibility Criteria:
  - 30 preterm infants exposed to cocaine in utero receiving care from NICUs
  - <37 week
  - <1500 grams
  - Positive urine or meconium screening for cocaine or maternal report for cocaine use during pregnancy
  - Infants were randomly assigned to massage group or control group (15 massage, 15 control)

Wheeden, Abigal, Scafidi, Frank, Field, Tiffany, Ironson, Gail, Valdeon, Chad, Emmalee, Bandstra. Massage Effects on Cocaine-Exposed Preterm Neonates. (1993). *Developmental and Behavioral Pediatrics*, (14)5, 318-322.

# Infant Massage & Prenatal Exposure

- Procedure:
  - All participants received standard NICU care despite group designation
  - Infant massage provided for three 15-minute sessions a day, spanning 10 days
- Data:
  - Daily weight, caloric intake, number of feedings, frequency of urination/stooling, average respiration rate, heart rate, and body temperature, number of apneic episodes, and parental visits
  - Obstetric Complications Scale (OCS), Postnatal Complication Scale (PSC), Newfoundland Scale, and Neonatal Behaviors Assessment Scale
    - Completed on first and last day of study

Wheeden, Abigail, Scafidi, Frank, Field, Tiffany, Ironson, Gail, Valdeon, Chad, Emmalee, Bandstra. Massage Effects on Cocaine-Exposed Preterm Neonates. (1993). *Developmental and Behavioral Pediatrics*, (14)5, 318-322.

# Infant Massage & Prenatal Exposure

- Results/Discussion:
  - Study findings indicate that infant massage can help improve the clinical course for babies born prematurely and prenatally exposed to cocaine
  - Results showed greater weight gain, less postnatal complications, improved motor performance on the Brazelton exam, and less stress behaviors
- *“Clinically, this investigation has demonstrated an inexpensive treatment for improving the course of cocaine-exposed preterm infants. Intervention programs should be designed to allow such infants the opportunity to profit from massage therapy. Because of the potential polysubstance drug nature of this sampling, the findings of the study might apply to drug-exposed infants in general” (Wheeden, et. al., 1993).*

Wheeden, Abigail, Scafidi, Frank, Field, Tiffany, Ironson, Gail, Valdeon, Chad, Emmalee, Bandstra. Massage Effects on Cocaine-Exposed Preterm Neonates. (1993). *Developmental and Behavioral Pediatrics*, (14)5, 318-322.

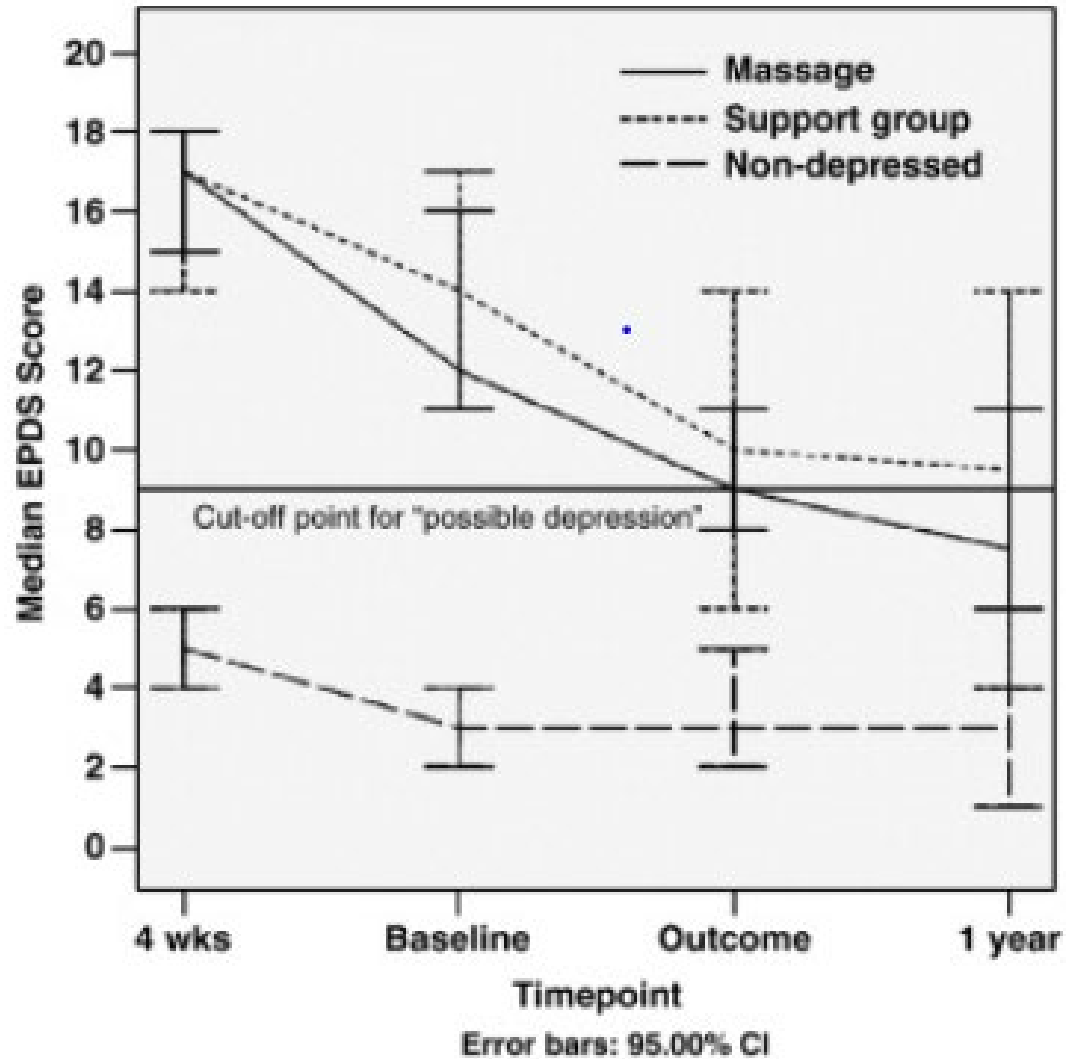
# Postnatal Depression & Mother-Infant Outcomes

- *Postnatal Depression and Mother and Infant Outcomes After Infant Massage, M. Higgins, et. al.*
  - Looked for evidence to see if infant massage is an effective tool for postnatal depression and mother-infant attachment
  - Study showed benefits improving mother's postnatal depression scores & mother-infant bond

O'Higgins, M., Roberts, St. James, Glover, V. Postnatal depression and mother and infant outcomes after infant massage. (2008). *Journal of Affective Disorders.* (109)1-2. 189-192.



# Postnatal Depression & Mother-Infant Outcomes



O'Higgins, M., Roberts, St. James, Glover, V. Postnatal depression and mother and infant outcomes after infant massage. (2008). *Journal of Affective Disorders*. (109)1-2. 189-192.

# Infant Massage & Sleep

- *Effectiveness of Infant Massage on Strengthening Bonding and Improving Sleep Quality, Hartanti, et. al. (2019).*
  - Looked into infant massage as a therapy to assist with sleep issues in babies
  - Mothers were taught infant massage, and used with their child for 35-37 days
- Study Instrument:
  - Maternal Attachment Inventory (MAI) – measured caregiver bond/attachment with infant
  - Brief Infant Sleep Questionnaire (BISQ) – measured infant's sleep quality and habits

Hartanti, Ainurrizma, Salimo, Harsono, Widyaningsih. Effectiveness of Infant Massage on Strengthening Bonding and Improving Sleep Quality. (2019). *Indonesian Journal of Medicine* (4)2, 165-175.

# Infant Massage & Sleep

- Results/Discussion:
  - Infants receiving massage showed improvement in:
    - Mother- baby bonding/attachment
    - Sleep duration
    - Number of awakenings
    - Duration of awakenings

Hartanti, Ainurrizma, Salimo, Harsono, Widyaningsih. Effectiveness of Infant Massage on Strengthening Bonding and Improving Sleep Quality. (2019). *Indonesian Journal of Medicine* (4)2, 165-175.

# *Dissemination Plan*

## Coming Up:

- April 30<sup>th</sup>: Meet with interdisciplinary early intervention & Hatch team from Albuquerque & Las Cruces
- Presentation with UNM Focus group
- Create separate handouts that go into depth for each infant massage benefit to offer to families

## Future Thoughts/Plans:

- Lovelace & Presbyterian NICUs
- Nurse Family Partnership, Parents as Teachers, & home visiting programs
- Metro FIT/Statewide FIT

## Works Cited

- Field, Tiffany, Diego, Miguel, Hernandez-Reif, Maria. Preterm infant massage therapy research: a review. *Infant Behaviors & Development*, 33(2), 115-124.
- Goldstein , Sari Ferber, Kuint, Jacob, Weller, Aron, Feldman, Ruth, Dollberg, Shaul, Arbel, Eliana, Kohelet, David. Massage Therapy by Mothers & Trained Professionals Enhances Weight Gain in Preterm Infants. *Early Human Development*, 67(1-2), 37-45.
- Hartanti, Ainurrizma, Salimo, Harsono, Widyaningsih. Effectiveness of Infant Massage on Strengthening Bonding and Improving Sleep Quality. (2019). *Indonesian Journal of Medicine* (4)2, 165-175.
- Hernandez-Reif, Diego, Miguel, Field, Tiffany. Maria Preterm Infants Show Reduced Stress Behaviors and Activity After 5 Days of Massage Therapy. *Infant Behaviors & Development*, (30)4, 557-561.
- Mainous, Rosalie O. (2002). Infant Massage as a Component Developmental of Care, Past, Present, and Future. *Holistic Nursing Practice*, 17(1), 1-7.
- McClure, Vimala. *Infant Massage: A Handbook for Loving Parents*. New York. Bantham Books. 2017.
- O'Higgins, M., Roberts, St. James, Glover, V. Postnatal depression and mother and infant outcomes after infant massage. (2008). *Journal of Affective Disorders*. (109)1-2. 189-192.
- Wheeden, Abigal, Scafidi, Frank, Field, Tiffany, Ironson, Gail, Valdeon, Chad, Emmalee, Bandstra. Massage Effects Cocaine Exposed Preterm Neonates (1993). *Developmental and Behavioral Pediatrics* (14)5, 318-322.