Sleep Postpartum-Realities and Anticipatory Guidance

• Libby Averill Rosen, PhD, RN, IBCLC
  • Dedicated to Stuart and Elizabeth Averill who sang endless bedtime songs and taught me the love of mothers and babies!

Who ever says they sleep like a baby has either never had one, or does not sleep well!

Disclosure

• I have no financial interest in any business related to this topic, yet!
• I have written 2 chapters for different books on this topic
• I just know that if mom’s not happy no one is!
Sleep ZZZZZZZ

What sparked my interest in the topic?

• I have helped over 2,500 babies come into the world.
• Parents report sleep and feeding as the biggest concerns that they experience.
• Humans need sleep to feel rested and to be alert to function effectively.
• At least 8 hours of uninterrupted sleep is considered the average amount required for restfulness.
• As many as 70 million people are problem sleepers according to Dr. Carl E. Hunt of the National Center on Sleep Disorders Research. [http://www.nhlbi.nih.gov/health/public/sleep/index.htm](http://www.nhlbi.nih.gov/health/public/sleep/index.htm)

Influences on Sleep

• Neural pathways
• Maternal hormones
• Noises, light
• C-section
• Sex
• Birth weight
• Parity
Sleep Development

- Mammals are either altricial or precocial

What regulates sleep?

- Sleep is regulated by the suprachiasmatic of the hypothalamus.
- A “zeitgeber” is a “time-giver” or time cue
  - These include temperature, nutrition, meal-timing, medicines and drugs
  - Light is a critical “zeitgeber” and it re-sets rhythms in a phase dependent manner.
- How far into the night you see light, impacts your sleep.
  - Evening light pushes the phase later
  - Morning light pulls the phase earlier
New terms

• The higher the sleep pressure, the faster you fall asleep.
• Naps lower sleep pressure.
  • These facts support what you know works, when you keep people up later, no early evening naps, they sleep better at night.

Lee’s Model of Impaired Sleep

Sleep Deprivation
  Developmental adaptations
  Care giving
  Cultural expectations

Sleep Disruption
  Hormones
  Full breasts
  Baby waking
  Stress anxiety

Sleep Loss

Adverse Health Outcomes
  biopsychosocial- mood, attention, completion of goals

Adapted from Lee et al. (2002); Lee (2004)
Sleep Tips for Pregnant Women

• Once her baby is born, a mother's sleep is frequently interrupted, particularly if she is nursing. Mothers who nurse and those with babies that wake frequently during the night should try to nap when their babies do. Sharing baby care to the extent possible, especially during the night, is important for the mother's health, safety, performance and vitality.

• This previous statement is not based on research- Sleep for mothers and their baby is a unique biopsychosocial process.

• http://sleepfoundation.org

In pregnancy
Maternal Sleep

“Anyone who ever said they slept like a baby has never had one.”
Leo Burke

• During pregnancy 7 hours and 16 minutes with insomnia and interruption's was reported in 1,480 healthy women at 32 weeks gestation
  • Sivertsen, Hysing, Dorheim & Eberhard-Gran (2015)
• Average sleep time is 7.53 hours in 24 at 4 weeks-6.15 during usual night time hours, much of it interrupted Quillin (1997)
• Average of 6.6 hours of sleep at 6 weeks and 7.3 hours at 12 weeks (Stremler at al., 2013)

Greatest concern of new parents:

• Infant feeding and sleep!
  • Wright, Macleod and Cooper (1983)
  • So, Buckley, Adamson and Horne (2005)
  • Doan, Gardiner, Gay and Lee (2007)
  • Sivertsen, Hysing, Dorheim and Eberhard-Gran (2015)
  • Mindell, Sadeh, Kwon and Goh (2015)
  • Kempler, Sharpe, Miller and Barlett (2016)
Remember

- D.W. Winnicott - There is not just a baby, there is a baby and someone!
- Anders noted that babies arouse many more times than parents notice! 44% of 2 month olds and 78% of 9 month olds sleep through the night according to parents but only 15% of 2 month olds and 33% of 9 month olds did!

Infant Sleep Development

- In utero
- Observable stages at birth
- Impacted by the environment
- 6 months to establish cycling similar to adult patterns.
Newborn Sleep

- It starts as active sleep, quiet sleep and indeterminate sleep, not the stages we have as adults.
- Pressure for sleep is every 3-4 hours in infants and 12-16 in older children and adults.
- Newborns-Active sleep is 60-70% of TST with REM onset- high brain activity- which impacts neural development, learning and memory.
- REM onset disappears by 6 months and more quiet sleep than active and sleep spindles appear by 3 months.

4-6 months to establish cycling similar to adult patterns.

- Most studies say sleeping through the night is sleep during usual nighttime hours.
- 12 weeks for circadian rhythm of melatonin to appear, with cortisol rhythm developing soon after (Rivkees, 2003)
- Typically when birth weight doubles, which makes developmental sense!
- Melatonin begins to get produced.
Infant Sleep

- Nocturnal/Daytime Sleep in infants (Stremler et al. 2013)
  - 7.9 hours at 6 weeks; 3.1 daytime = 11 hours (n=60)
  - 8.9 hours at 12 weeks; 3 hours daytime = 11.9 hours of sleep (n=53)
- Quillin and Glenn (2004) found 14 hours of sleep as average for a newborn.
- Quillin (1997) found an average of 14.65 hours in 24 hours, only 6.15 of that during the maternal hours.
- Range of “normal” sleep; 11-18 hours according to most sources.

Misconceptions

- There has been an implication in our culture McKenna (2005) that “good” babies sleep better and longer, thus discounting the biological need for awakenings and feedings to support optimal health.
What is the impact for lactation?

• Expectations are that the baby’s sleep will mirror the mothers
  • Ball (2003)

• A mother’s need for sleep without interruptions might lead to early weaning.
  • Pinilla and Birch (1993)
  • Ball (2003)

And why does it matter?

• AAP (2012) and Centers for Disease Control (CDC) and Department of Health and Human Services’ (HHS) all endorse breastfeeding as the optimal form of nutrition for human infants.

• The Blueprint for Action on Breastfeeding (HHS) and Ip et al. (2007) summarize the abundant research describing the health benefits of breastfeeding.
What comes first- the chicken or the egg? Sleep Issues and Depression or Fatigue

- Kempler, Sharpe, Miller, & Bartlett (2016)
  - Meta analysis of studies and 1666 mother-child dyads showed a small to medium and statistically significant effect of sleep interventions on infant nocturnal total sleep time.
  - But no difference in number of sleep interludes.
  - A small difference in maternal moods was noted but thought to be publication bias perhaps, insufficient evidence of what type of intervention is most effective at which ages.
- Wambach (1998)
  - Measured maternal perception of sleep quality and its relationship to breastfeeding and found no differences in fatigue levels of mothers who weaned and those who continued to breastfeed.
  - Those with breastfeeding problems and greater sleep disturbance reported more fatigue.

Conflicts in the literature

- Both the popular media and in published studies mixed messages are provided.
  - Who sleeps better?
    - Breast or bottle?
    - Co-sleeping, bed-sharing, crib?
Relationship of Feeding to Sleep

• Barnard (1999)
  • Formula feeding 6-8 times
  • Breastfed up to 14 times
• Pinilla and Birch (1993)
  • All breastfeeding, experimental study
    • 100% in experimental group slept 5 hours at 6 weeks compared to 23% of the controls.

Sleep Environment and Feeding

• What are the messages?
• What is reality?
• What is reactive co-sleeping?
So what is co-sleeping

- Co-sleeping and bed sharing are two different things.
- Co-sleeping is sharing a room.
- KIDS and AAP are clear that the safest place for a baby to sleep is alone in the crib on their back in their parents room.
- LLL and Sweet Sleep Authors state that is is more complex than that, bed sharing can be safe if:
  - Nonsmoking
  - Not obese
  - Not under the influence of drugs or alcohol
  - Firm mattress
  - No extra bedding

What I found in my study:

- Convenience sample of first time mothers, no differences were found based on feeding method.
- Parent reported bed-sharing 14% of the time
  - Over 30% actually slept in parents bed
  - 50% spent some of the night in the parents bed.
  - Education on safe sleep practices is essential.
- Although mothers self-report were not significantly different then home polysomnography-some over reported and some underreported their sleep leading to similar means.
Is there a difference in the hours of sleep you do get by feeding method?

- Nishihara et al. (2004)
- Dissertation work- SWS differences in breastfeeding and bottle-feeding mothers.

My dissertation

- 20 breastfeeding and 20 formula feeding mothers
- 4-6 weeks postpartum before returning to work.
- 20-35 years of age
- First time/co-habiting
- Edinburgh Post-Partum Depression Scale
- St. Mary’s Hospital Sleep Questionnaire
- Wrist Actigraphy
- Home Polysomnography
Slow Wave Sleep

Sleep Environment
Co-sleeping

- Quillin and Glenn (2004) found that co-sleeping increased the overall amount of sleep for breastfeeding mothers, although breastfeeding mothers had more sleep periods in 24 hours.

Current Research-Strategies and Realities

- Hauck, Signore, Fein, & Raju (2008) Infant Sleeping Arrangements and Practices During the First Year of Life
  - 2,300 moms at 3 months and 1,800 at 12 months. 85% slept in the same room as their parent at 3 months, only 25% at one year.
  - At 3 months 16% didn’t use supine positioning, increased to 29% by 6 months and 36% by a year.
  - Bedsharing was 42% at 2 weeks, 34% at 3 months, and 27% at 12 months.
  - More than a third of women were noncompliant with safe sleep guidelines at 3 months.
  - Reasons given to sleep with baby: to calm when fussy, helps me or us to sleep better, to breastfeed, to bond, to calm when sick, my family does this, safer if baby is with me, to bottle feed, to help with blocked duct, doctor or nurse advised.
  - Reasons given to not sleep with baby: Safer not to sleep together, too hard to get baby to sleep in crib later, not done in my family, interferes with our sleep, smoker/medications, doctor nurse advise.
Current Research-Strategies and Realities

- Kempler, Sharpe, Miller, & Bartlett (2016) Do Psychosocial sleep interventions improve infant sleep or maternal mood in the postnatal period?
  - Meta analysis of 5 studies and 1566 mother-child dyads showed a small to medium and statistically significant effect of sleep interventions on infant nocturnal total sleep time
  - No difference in number of sleep interludes.
  - A small difference in maternal moods was noted but thought to be publication bias perhaps.
  - Insufficient evidence of what type of intervention is most effective at which ages.

  - Questionnaires on infant sleep and Pittsburgh Sleep Quality Index; 10,085 children were studied.
  - The older the child the less disturbed the sleep for mother logical.
  - Strong associations between child and maternal sleep for patterns and disturbances. 55% of moms reported poor sleep.
  - More infant sleep was more connected when room sharing, but separate rooms didn't enhance maternal sleep.
  - Sleep awakenings caused the most dissatisfaction with sleep.

Current Research-Strategies and Realities

  - 4,450 women were studied at 32 weeks pregnancy, 8 weeks and year two postpartum.
  - Insomnia was stable at two measures at both experiencing; It dropped to 44% by year two.
  - Mean sleep duration was 7 hours 16 minutes, 6 hours 31 min and 6 hours 52 minutes at that time.
  - Not related to maternal depression.

  - 57 families were studied. 66% were fully breastfed at 3 months, 59% partially breastfed and 20% received formula. At 6 months 44% were fully breastfed, 49% partially and 50% formula.
  - Found that partners involvement relative to mothers in care of the infant resulted in a moderate improvement in infant and maternal sleep percent at 3 and 6 months and that Maternal sleep percent at 3 months significantly predicted infant sleep at 6 months.
  - The greater the paternal involvement in infant daytime and nighttime caregiving at 3 months significantly predicted more consolidated maternal and infant sleep at 6 months.
  - They found that disturbed maternal sleep may actually contribute to the development of problematic infant sleep patterns.
Current Research-Strategies and Realities, con’t

- Stremler et al. (2013) Effects of Behavioral-Educational Intervention On Sleep for Primiparous Women and their Infant in Early Postpartum: Multisite randomized controlled trial.
  - Large RCT educational intervention study of 246 primiparas, which found no differences between groups. There was only about 6 minutes of difference in sleep and it didn't rise to a statistical significance regarding nighttime sleep.
  - The intervention was an education session with a nurse for 45-60 minutes and a booklet of 20 pages to review on strategies to promote sleep and follow up phone calls.
  - It was ineffective in improving maternal or infant sleep or other health outcomes during early postpartum at 6 weeks averaged about 6.6 hours of sleep.
  - Intervention study- education and strategies provided Mothers 57 more minutes and infants 46 more minutes of sleep in the intervention group n= 15. Small sample size, N=30.

So what can we do?

- Set up realistic expectations.
- Strategize with families before the birth.
- Encourage sleep supportive environments.
- Reinforce the normalcy of sleep changes and parameters for the return to normal.
What can we do as lactation consultants, health care providers?

- In prenatal class
  - Use of Sleep Activity Record
- At delivery
  - Skin to skin
  - Anticipate norms
  - Understand biopsychosocial influences
- Early postpartum
  - Offer strategies

Establishing Rhythms and Patterns

- Movement, activity
- Reading to the baby.
When will life be normal

• Lee (1998) notes that although we do not know when sleep patterns that are altered during pregnancy return to normal postpartum, we do know that by three months postpartum slow wave sleep and rapid eye movement (REM) sleep parameters are back to prepregnancy levels, however sleep efficiency is still below prepregnancy levels.

Good Sleep Hygiene

• Use your bed for sex and sleep only. *Where should you feed the baby?*
• Go to bed at the same time and get up at the same time every day seven days a week. *Challenging with a baby- whoever said they slept like a baby has never had one!*
• Establish a routine for bedtime, a soothing bath, reading a book or listening to music. *The neurons that fire together wire together!*
Good Sleep Hygiene

- Avoid caffeinated beverages, alcohol or nicotine within a few hours of bedtime. Essential with new parents given SIDS risks.
- Avoid eating closer then 2-3 hours before bed. Challenging for lactating women who need an extra 350 calories.
- Create a room that is dark, quiet, cool and comfortable with comfortable mattress and pillows. Keep pillows from baby! Cool is ok for baby, use HALO swaddler/sleeper
- Exercise daily and end at least a couple hours before bedtime. With a new baby- take walks!
- http://www.sleepfoundation.org

Health care providers need to re-educate and clarify conflicting information!

- Conduct Research!
- Address sleep at all stages
- Provide options and strategies
- Remind families
  - The beauty of night-time interludes
  - This to shall pass
No sandman could give me the joy of your sparkly eyes at night, my stars.
-Jen Averill

Resources


• American Academy of Sleep Medicine
  http://www.aasmnet.org/