Nighttime Breastfeeding and Postpartum Depression: A practical look at depression, breastfeeding, and maternal sleep

Kathleen Kendall-Tackett, Ph.D., IBCLC
Department of Pediatrics
Texas Tech University School of Medicine

The Problem of Fatigue

- Current recommendations

“Even for moms with fresh buns out of the oven, sleeping is not a luxury—it’s a medical necessity.”
“Humans need 8.4 hours of uninterrupted sleep per night in order to function at their best (the key word being uninterrupted).”

“Sleep in a separate area away from the baby and the adult on duty
- Use earplugs and a white noise machine... if necessary. The goal is to make sure that you aren’t hearing the baby or other noises so you can achieve uninterrupted sleep”

Excerpt from a popular book on Postpartum Depression
• “If you’re breastfeeding or pumping, it’s important to empty both breasts before bed so you won’t be awakened engorged and in pain during your off-duty shift.
• If you can pump during the day, your partner can use your milk for off-duty feedings.”

Excerpt from a popular book on Postpartum Depression

• Current program with hospital stay up to 5 days for women at high risk for depression
• Personal or family history of depression, depression in pregnancy
  – Infants room out
  – Breastfeeding women encouraged to pump and/or use formula for night feedings
  – Benzodiazepines used to encourage consistent nighttime sleep onset (week 1)


• Is the answer as simple as avoiding nighttime breastfeeding?

• What are the key questions?
  – Depression and sleep disruption
  – Breastfeeding and sleep disruption
  – Breastfeeding and fatigue
  – Breastfeeding and depression
  – Depression and breastfeeding in a high-risk group

• Sleep terminology
  – Sleep latency (time it takes to get to sleep)
  – Sleep efficiency (time spent sleeping minus total time in bed)
  – REM latency (time it takes to enter REM from sleep onset)

Is there a relationship between sleep disruption and depression?
In U.S. National Sleep Foundation *Sleep in America Poll* (2005)
- 50% report feeling tired or fatigued at least one day a week
- Of fatigued individuals
  - 77% have at least one symptom of insomnia
  - 89% report a sleep disorder at least a few nights a week
  - 32% report that they get less sleep than they need
  - 29% take 30 minutes or more to fall asleep

• General population study in Japan (N=24,686)
- Sleep duration <6 hours or >8 had highest rates of depression
- Sleep duration 6-8 hours had lowest rates

• Study of indigenous tribes in NW British Columbia (N=430)
- Sleep problems common
  - 17% insomnia
  - 18% restless leg syndrome (RLS)
  - 8% apnea
- Each independently related to moderate to severe depression

• German population study (N=4181) adults 18-65 years
- 35.2% report current sleep problems
- Sleep problems associated with one or more physical problems and one or more mental disorders
- Sleep problems associated with more morbidity

• Prospective study of 112 mothers
- Highest rates of depression at 3 months for mothers who
  - Slept <4 hours at night and
  - Napped <60 min during the day
Study of 2830 women at 7 weeks postpartum
- Poor sleep was an independent risk factor for depression
- Factors associated with poor sleep
  - Depression
  - Previous sleep problems
  - Primiparity
  - Not exclusively breastfeeding
  - Younger or male infant

Dorheim et al. Sleep 2009; 32: 847-855

• How does depression impact sleep?

Dorheim et al. Sleep 2009; 32: 847-855

- Bidirectional relationship between poor sleep quality and major depression
  - Poor sleep quality is a risk factor for depression
  - Depression is a risk factor for poor sleep quality

Posmontier JOGNN 2008; 37:722-737

- Sleep abnormalities in depressed new mothers
  - Decreased sleep time and reduced REM latency

Ross et al., J Psychiatry Neurosci 2005, 30: 247-256

- Taiwanese study of mothers 13-20 pp (N=163, 50% depressed)
- Sleep of depressed mothers
  - Overall poorer quality
  - Longer sleep latency (25 v 20 minutes)
  - Shorter sleep duration
  - More daytime dysfunction


- 23 women with PPD, 23 without
  - 6-26 weeks postpartum
  - Wrist actigraphy 7 days, sleep diary, questionnaire
  - Depressed women had
    - Longer sleep latency
    - Wake after sleep onset
    - Poorer sleep efficiency

Posmontier JOGNN 2008; 37:722-737
• Longitudinal study of 124 mothers (3rd trimester, 1, 2, 3 mos postpartum)
  – 26% depressed during pregnancy
  – 15% depressed postpartum
• Depressed women had significantly more sleep problems


• “For new mothers, a complaint of trouble falling asleep may be the most relevant screening question in relation to their risk for postpartum depression”

• 253 pregnant women (83 depressed)
  • During 2nd and 3rd trimesters, depressed women had more sleep disturbances
  • Higher NE and cortisol levels
  • Newborns of depressed mothers had more sleep disturbances and less time in deep sleep

Field et al. Infant Behav Dev 2007; 30: 127-133

• Study of Chinese-American mothers and fathers of babies in the NICU (N=22, 17)
  • After NICU, 93% mothers, 60% fathers reported sleep problems
    – Difficulty falling asleep
    – Higher frequency waking during the night
    – Total sleep time lower for mothers
    – Mothers’ perceived fatigue higher than fathers

Lee et al. Issues Ment Health Nurs 2007; 28: 593-605

• Do breastfeeding mothers have more sleep disruptions and higher daily fatigue?

• Study in France
  • Compared exclusive bf (N=129) and exclusive formula (N=114) mothers (2-4 days, 6 weeks, 12 weeks pp)
  • No significant difference at any time point in fatigue symptoms

- 72 couples at 1 month pp
- 80% exclusively breastfeeding
- 93% of babies in parents’ room, 51% in parents’ bed
- Sleep and fatigue not associated with type of birth, parents’ ages, or parent-infant bedsharing
- EBF mothers had more awakenings but a comparable total time sleeping compared with non-EBF mothers
- Recommends nurses emphasize “sleeping for two”


- Study of 33 mothers at 4 weeks postpartum
  - Data were collected via sleep Q’aires for 5 days
- Breastfed infants slept less than bottle-fed infants
- Breastfeeding mothers who bedshared got the most sleep in a 24-hour period
- Lowest amount of sleep for breastfeeding, non-bedsharing mothers

Quillin & Glenn JOGNN 2004; 33: 580-588

- Study of 133 new mothers & fathers (3 mos postpartum)
  - Questionnaire and actigraphy data
- 67% EBF, 23% mixed, 10% formula
- EBF mothers slept 40 minutes longer than mixed feeding mothers
- Mothers who gave BM slept 47 min longer than mothers who gave formula at night
- Fathers who gave BM slept 38 min more than fathers who gave formula at night


- Online survey of 6,410 mothers with infants aged 0-12 months (Mean age=6.96 months)
- From 59 countries
  - U.S. (N=4,789)
  - European Union/Eastern Europe (N=545),
  - Canada (N=416)
  - Australia/New Zealand (N=186)
  - Middle East (N=56)
  - Central and South America (N=32),
  - Asia (N=30)
  - Africa (N=13)


Energy Level on Most Days

![Bar chart showing energy level on most days for breastfeeding, combo, and formula groups]

F(2)=46.9, p<.0001

Overall Physical Health

![Bar chart showing overall physical health rating for breastfeeding, combo, and formula groups]

F(2)=78.03, p<.0001
On most nights, do you think breastfeeding helps sleep, keeps from sleep, or is there no difference?

- Helps Sleep
- Keeps from sleep
- No difference

Hours Baby Sleeps at Longest Stretch

- Breastfed
- Formula
- Combo

F(2)=144.41, p<.0001

Number of Nighttime Awakenings

- Breastfed
- Formula
- Combo

F(2)=96.69, p<.0001

Mother's Total Hours of Sleep Most Nights

- Breastfed
- Formula
- Combo

F(2)=15.55, p<.0001

Minutes to Fall Asleep

- Breastfed
- Formula
- Combo

F(2)=24.53, p<.0001

Is the Amount of Sleep You Are Getting Sleep Negatively Affecting Your Health?

- Breastfed
- Formula
- Combo

X2(2)=71.79, p<.0001
Would you get more sleep if formula feeding?

- Yes
- No
- Not Sure

• Using supplementation as a coping strategy for minimizing sleep loss can actually be detrimental because of its impact on prolactin hormone production and secretion.....

“.... Maintenance of breastfeeding as well as deep restorative sleep stages may be greatly compromised for new mothers who cope with infant feedings by supplementing in an effort to get more sleep time.” (p. 201)

Kendall-Tackett, Trauma, Violence & Abuse: 8, 117-126

• A 3 year follow-up of mothers who had MDD postpartum
• Half had a history of CSA
• CSA women were had significantly more depressed and anxious, with greater life stresses


• Study of primiparous women (107 CSA, 156 control)
• Child sexual abuse associated with maternal depression and partner violence at 2-4 years postpartum

Comparison of three groups
- No CSA (penetration) or rape as teen or adult (N=5044)
- CSA or teen/adult rape (N=857)
- Child sexual abuse and rape (N=137)

Percentage who are breastfeeding

History of Depression

Severity of depression

Anxious or Afraid

Diagnosis of PTSD
Trauma’s Impact on Mothers’ Fatigue and Sleep

- In a primary-care sample
  - 52% of sexual abuse survivors reported that they could not sleep at night
  - 36% reported nightmares
  - 53% reported intrusive symptoms: sudden thoughts or images of past events

Hulme, Child Abuse Neglect 2000; 24: 1471-1484

---

Minutes to Get to Sleep

- F(2)=38.19, p<.0001

Wake in the middle of the night even when baby is sleeping

- X2(2)=37.49, p<.0001

Total Hours of Sleep per Night

- F(2)=9.19, p<.0001

Overall Physical Health

- F(2)=18.8, p<.0001
Impact of breastfeeding on maternal sleep of sexual trauma survivors

Longest Stretch Baby Sleeps

F(8)=32.64, p<.0001

Number of Hours Mothers Sleep

F(8)=6.93, p<.0001

Minutes to Get to Sleep

F(8)=16.002, p<.0001

Mother's Daily Energy

F(8)=11.01, p<.0001

Mother's Overall Physical Health

F(8)=24.65, p<.0001
A couple of other caveats

- Review of 49 studies on breastfeeding and depression
- Bottle feeding increases the risk of depression
- Breastfeeding decreases risk of depression

Dennis & McQueen Pediatrics 2009; 123: e376-e751

Impact of breastfeeding on maternal mental health

<table>
<thead>
<tr>
<th></th>
<th>EPDS Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>BF</td>
</tr>
<tr>
<td>CSA or rape</td>
<td>Forma</td>
</tr>
<tr>
<td>CSA &amp; rape</td>
<td>Mixed</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>CSA or rape</td>
<td>3</td>
</tr>
<tr>
<td>CSA &amp; rape</td>
<td>6</td>
</tr>
</tbody>
</table>

F(8)=17.39, p<.0001

Depression on PHQ-2

<table>
<thead>
<tr>
<th></th>
<th>PHQ-2 Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>BF</td>
</tr>
<tr>
<td>CSA or rape</td>
<td>Formula</td>
</tr>
<tr>
<td>CSA &amp; rape</td>
<td>Mixed</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>CSA or rape</td>
<td>1.5</td>
</tr>
<tr>
<td>CSA &amp; rape</td>
<td>3</td>
</tr>
</tbody>
</table>

F(8)=9.62, p<.0001

Mother's Self-Rated Emotional Health

<table>
<thead>
<tr>
<th></th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>BF</td>
</tr>
<tr>
<td>CSA or rape</td>
<td>Formula</td>
</tr>
<tr>
<td>CSA &amp; rape</td>
<td>Mixed</td>
</tr>
<tr>
<td>No</td>
<td>2.8</td>
</tr>
<tr>
<td>CSA or rape</td>
<td>3.3</td>
</tr>
<tr>
<td>CSA &amp; rape</td>
<td>3.8</td>
</tr>
</tbody>
</table>

F(8)=12.24, p<.0001
- Mother-baby separation may backfire
- Sleep is a physiologically vulnerable state
- Must feel secure to downregulate vigilance


- Adults with insecure relationship with partners have poorer quality sleep and smaller percentage of Stage 3-4 sleep

- The same would likely be true when mothers and babies are separated
- They may not be able to downregulate enough to go into deep sleep

• Implications
  - Sleep is related to maternal mental health
  - Daytime fatigue is a symptom we should address
  - But we shouldn’t assume that sleep disruptions are due to the baby
  - Or that separation is always the answer

• Questions we should ask
  - What was sleep like before you had your baby?
  - How many minutes does it take for you to fall asleep?
  - Do you wake in the middle of the night when everyone else is asleep?
  - Do you have a sleep disorder?
  - Have you ever been depressed?
  - (if appropriate) Do you have a history of psychological trauma?

- Plan of care should be individualized for every mother
Some approaches
- Strategies for coping with fatigue
- Treat depression
- Cognitive-behavioral sleep interventions

Possible medications for sleep
- Some antidepressants
- Atypical antipsychotics (e.g., olanzapine)
- SARIs (e.g., trazadone)
- Sleeping pill (e.g., zolpidem)
- No benzodiazepines for trauma survivors
- If using sleep medications, baby should not bedshare

Possible limiting nighttime feeds
- 4-5 hours of uninterrupted sleep may be less disruptive to breastfeeding than 8 hours
- Informed consent about how this may impact breastfeeding

We can also provide hope
- It won’t always be this way

Corwin & Arbour MCN 2007; 32:215-220

For more information on inflammation and depression
Come visit on Facebook

UppityScienceChick.com
BreastfeedingMadeSimple.com