Introduction

- Mothers in the United States and other industrialized nations commonly report postpartum fatigue, often attributed to disruptions of nightly sleeping routines. In an effort to discover the factors that influence sleep deprivation in new mothers and to evaluate the impacts this deprivation may have, numerous studies have examined sleep patterns in these women.
- Details of the sleeping routines of postpartum mothers in non-industrialized populations have received far less attention. Unlike U.S. mothers, women in many of these populations commonly co-sleep with their infants, an arrangement that is likely to have been the norm throughout human evolutionary history and that may mitigate post-partum fatigue (McDenna et al., 2007; Worthman 2007).
- In the context of life history theory, fragile resources and difficult living conditions necessitate that some trade-offs are made in order to maximize reproductive success. Due to the limited amount of energy that is available, maternal health and other demands must be balanced against the health of the offspring.
- Factors such as nutrition level, stress, workload, and environment can all play important parts in determining breastfeeding patterns and thus sleep patterns.

Participants & Methods

- **Sample**
  - 190 mother-infant pairs in 30 rural and near-town communities in the Bolivian altiplano (altitude 3,789 m).
  - Mothers were taught to record breastfeeding frequency during the day and night. For daytime breastfeeding, mothers were given ganchos (safety pins) with a known number of zapetillas (small paper pins). Every time a woman breastfed during the day, she pulled off a zapetilla. The ganchos was returned at the end of two days so that the number of missing zapetillas could be recorded.
  - For nighttime breastfeeding, the mother reported when she went to bed, how many times she breastfed her infant during the night, and when she woke up in the morning. A breastfeeding episode was defined as each time a woman lifted up her shirt and the infant took the breast.
- **Observations**
  - 879 observation periods
  - Behavior recorded over 2-day period each month for several months.
  - Median number of observation periods per woman: 4.
- **Terms defined**
  - **Farm Sample:** Women who lived on a farm. No electricity and heating provided by wood stoves.
  - **Near-Town Sample:** Women who lived near Patacayama. Most had electricity and some had propane stoves instead of wood burning stoves.
  - **Seasonality:** agricultural work cycle.
  - **Planting and harvesting season:** characterized by more intense labor and lower food supplies.
  - **In between planting and harvesting season:** Warmer temperatures, higher level of rain
  - **Winter:** Less arduous labor; in early winter, plentiful food from harvest. Lower temperatures and longer nights.
- **Used mixed model command in SPSS v20.0 and hierarchical linear modeling in analyses**

Results

- **Hypothesis 1:** The number of hours in bed (“sleep”) is influenced by the number of hours of natural darkness.
- **Result:** Sleep duration increases with hours of darkness. While the sleep duration is greatest in the farm sample, the sleep duration in the town sample increases more with increasing darkness (see Figure 1). Note that study was done below the equator and winter occurs during May through July.

Acknowledgements

References

- McDenna, S., et al. 2007. The median sleep duration in this study was approximately 8.75 hours, much longer than reported in industrialized countries.