Introduction

The maturation of sleep is one of the most important developmental tasks during early childhood. Past research has illustrated the developmental course of sleep characteristics in a child’s early years: in the first three years, daytime sleep duration and total sleep duration showed significant decrease while nighttime sleep duration remained fairly constant. Variations in daytime sleep, nighttime sleep, and total sleep duration also showed an increasing pattern—wide in early years but narrowed with age—indicating the existence of different developmental patterns in sleep durations.

Longitudinal studies on distinct sleep development patterns in the early years are sparse. Previous studies have been conducted in Canada and France and demonstrated variations in sleep development patterns in the early years.

Mounting literature has also explored the association between child sleep and maternal depression. Many cross-sectional and prospective studies have revealed the negative influence of both prenatal and postnatal maternal depression on child sleep. However, conflicting results are seen in prospective studies. Inconsistent results were also obtained in randomized clinical trials. One potential reason for such disparate findings may be that the association between maternal depression and child sleep is developmentally specific and thus differ across age groups.

Objectives & Hypothesis

- To depict the sleep trajectory on daytime sleep duration, nighttime sleep duration, total sleep duration, and night-waking from 42 days to 3 years old
- To explore whether longitudinal associations exist between maternal depression symptoms and child sleep trajectories.

It was hypothesized that distinct sleep duration and night-waking trajectories exist in the first 3 years and were influenced by maternal depression symptoms.

Methods

This sample is comprised of 262 mother-child dyads participating in the Shanghai Sleep Birth Cohort Study (SSBC). Child night-waking numbers, daytime sleep duration, and nighttime sleep duration were assessed by the Chinese version of the Brief Infant Sleep Questionnaire (BISQ) at 8 time points (42 days, as well as 3, 6, 9, 12, 18, 24, and 36 months). Maternal prenatal depression symptoms at the third trimester of pregnancy were assessed by the Chinese version of the Center for Survey-Depression Scale (CESD). Maternal depression symptoms at 42 days postpartum were assessed by the Chinese version of the Edinburgh Postnatal Depression Scale (EPDS). Maternal depression symptoms at 36 months postpartum were assessed by the Chinese version of the depression-dejection domain of the Profile of Mood States (POMS).

Group-based trajectory models (GBTM) were used to identify child’s distinct sleep trajectory.

Results

- Three trajectories of daytime sleep duration (defined as “short daytime sleep duration” (15.8%), “medium daytime sleep duration” (57.6%), and “long daytime sleep duration” (26.6%) were identified.
- Three trajectories of nighttime sleep duration (defined as “increasing nighttime sleep duration” (17.6%), “stable nighttime sleep duration” (76.3%), and “decreasing nighttime sleep duration” (6.1%) were identified.
- Three trajectories of total sleep duration (defined as “short total sleep duration” (17.7%), “medium total sleep duration” (62.9%), and “long total sleep duration” (19.5%) were identified.
- Two trajectories of night-waking (defined as “resolving night-waking” (28.1%) and “persistent night-waking” (71.9%) were identified.
- Mothers with higher EPDS scores at 42 days postpartum were more likely to have children belonging to trajectories of short total sleep duration.
- Mothers of children belonging to trajectories of persistent night-waking were more likely to have higher POMS depression-dejection scores at 36 months postpartum.

Conclusions

- Different sleep duration trajectories have high variability in the first year but converged during the second and third year.
- Higher maternal depression symptoms at 42 days postpartum are associated with short total sleep duration in children.
- Child persistent night-waking was associated with higher maternal depression symptoms at 36 months postpartum.
- Further studies should focus on short sleep duration and persistent night-waking in children with mothers of higher depression symptoms to promote the development of adequate preventive interventions and treatment.

References