Introduction

Background:
- Sleep is beneficial for memory.
- Evidence suggests that sleep plays a large role in long-term memory consolidation (Stickgold, 2005; Marshall & Born, 2007).
- Few prior sleep studies have examined relations between sleep and memory in children. One study showed that poor sleep was positively associated with increased behavioral problems, poor concentration and academic attainment in first grade children (Cho et al., 2015).

Aim: The aim of our study was to examine the relationship between declarative memory recall and children’s average sleep duration over a one week delay.

Hypotheses:
- Participants who sleep more will demonstrate better declarative memory, such that higher quantities of sleep will be correlated with higher overall CMS scores.
- Because we expect sleep to play a buffering role in long term memory, we do not expect to find a significant difference in memory decay between hour delay recall and week delay recall.

Methods

Participants:
- 200 participants (50% male) ranging from ages 4-8 years old were recruited from a larger research study (Riggins et al., 2018). The mean age was 6.16 years (SD = 1.52).
- Participants who did not complete all parts of the two measures were excluded from all analyses such that final results included only 180 participants.

Procedure:
- Participants were read two short stories from the Children’s Memory Scale (CMS; Cohen, 1997). They were asked to recall them over the course of two visits. ● Visit 1: ○ Read stories for the first and only time ○ Immediate Recall ○ Hour Delay Recall and Recognition ● Visit 2: ○ Week Delay Recall
- Participants’ parents completed the Children’s Sleep Habits Questionnaire (CSHQ; Owens, Spirito & McGuinn, 2000) over the course of the study.
- The measure we used asked the parents to report their child’s average sleep duration in hours and minutes.

Results

Memory Decay Overtime

<table>
<thead>
<tr>
<th>Partial Correlations (controlling for age)</th>
<th>Correlation (r)</th>
<th>Significance (one-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Immediate Recall Scores and Average 24-hour sleep duration</td>
<td>0.102</td>
<td>0.086</td>
</tr>
<tr>
<td>Raw Hour Delay Recall Scores and Average 24-hour sleep duration</td>
<td>0.127</td>
<td>0.043</td>
</tr>
<tr>
<td>Raw Week Delay Recall Scores and Average 24-hour sleep duration</td>
<td>0.066</td>
<td>0.191</td>
</tr>
<tr>
<td>Memory Decay (immediate - week delay recall) and Average 24-hour sleep duration</td>
<td>0.038</td>
<td>0.307</td>
</tr>
</tbody>
</table>

Sleep Duration and CMS Scores (controlling for Age)

References


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Name with * denotes first authorship.