Sleep Quality and Sleep Hygiene in Children with Autism Spectrum Disorders

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*The views expressed in this presentation are those of the author and do not reflect the official policy of the Department of the Army, the Department of Defense, or the U.S. Government.
Background: Sleep Quality
Background: Sleep Quality
Background: Sleep Quality
Background: Sleep Hygiene
Sleep Hygiene in Children with ASDs

Our Bedtime Routine

- Pajamas
- Brush Teeth
- Drink of Water
- Go Potty
- Read Stories
- Lights Out
<table>
<thead>
<tr>
<th></th>
<th>Sleep Onset Latency</th>
<th>Night wakings</th>
<th>Amount of Sleep</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean min (SD)</td>
<td>% None</td>
<td>% 1+</td>
</tr>
<tr>
<td><strong>Bedtime Routine</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes (n = 600)</td>
<td>17.1 (14.7)</td>
<td>86.7</td>
<td>13.3</td>
</tr>
<tr>
<td>No (n = 27)</td>
<td>19.8 (16.0)</td>
<td>81.5</td>
<td>18.5</td>
</tr>
<tr>
<td><strong>Late Bedtime</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before 9pm (n = 227)</td>
<td>14.8 (10.7)**</td>
<td>87.2</td>
<td>12.8</td>
</tr>
<tr>
<td>After 9pm (n=400)</td>
<td>18.6 (16.5)**</td>
<td>86.0</td>
<td>14.0</td>
</tr>
<tr>
<td><strong>Parent Present at bedtime</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never/rarely (n = 485)</td>
<td>17.7 (15.3)</td>
<td>89.9</td>
<td>10.1***</td>
</tr>
<tr>
<td>Few /every night (n=141)</td>
<td>15.6 (12.7)</td>
<td>74.5</td>
<td>25.5***</td>
</tr>
<tr>
<td><strong>Reading</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes (n = 157)</td>
<td>16.5 (14.4)</td>
<td>82.2</td>
<td>17.8</td>
</tr>
<tr>
<td>No (n = 470)</td>
<td>17.4 (14.8)</td>
<td>87.9</td>
<td>12.2</td>
</tr>
<tr>
<td><strong>Television in Bedroom</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No (n = 357)</td>
<td>17.6 (15.6)</td>
<td>85.4</td>
<td>14.6</td>
</tr>
<tr>
<td>Yes (n = 270)</td>
<td>16.6 (13.5)</td>
<td>87.8</td>
<td>12.2</td>
</tr>
<tr>
<td><strong>Caffeine</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None (n = 370)</td>
<td>17.5 (15.8)</td>
<td>87.6</td>
<td>12.4</td>
</tr>
<tr>
<td>1+ per day (n = 257)</td>
<td>16.8 (13.0)</td>
<td>84.8</td>
<td>15.2</td>
</tr>
</tbody>
</table>

*** p <.001 level,  **p<.01 level,  *p<.05 level
Mindell, Meltzer, Carskadon, & Chervin (2009)

- Consistent Bedtime Routine
- Bedtime at 9pm or earlier
- Including reading as part of bedtime routine
- Bedroom void of TV
- Avoiding caffeine
- Falling asleep without a parent present
Goal

To determine if significant differences exist between sleep hygiene factors and sleep quality amongst school-aged children with autism spectrum disorders as compared to a national sample.
Method

Sample
Caregivers of children aged 6-10 and in 1^{st}-5^{th} grades

- Caregivers:
  - 22 mothers, 4 fathers, 1 guardian

- Children
  - 24 males, 3 females
  - 16 autism, 7 asperger’s, 4 PDD-NOS
Results: Children with ASD had worse sleep quality

Children with ASDs slept for less total time.

\[ \text{ASD } M = 8.53, \ SD = 2.04; \ \text{National Sample } M = 9.4, \ SD = 1.1 \]

2-sample \( t(662) = 3.85, \ p < 0.001 \)

Children with ASDs took longer to fall asleep.

\[ \text{ASD } M = 35.04, \ SD = 18.04; \ \text{National Sample } M = 17.2, \ SD = 14.7 \]

2-sample \( t(662) = 6.11, \ p < 0.001 \)

Children with ASDs had more night wakings.

59.25\% of the ASD sample, vs. 13.6\% of the National Sample

\[ \chi^2(1, \ N = 27) = 47.9, \ p < 0.001 \]
Results: Children with ASDs were more likely to:

Read as a part of their bedtime routine.
- 48.15% of the ASD sample, vs. 25% national norm
  \[ \chi^2(1, N = 27) = 7.72, p < 0.01 \]

Have a bedtime at or before 9pm.
- 77.78% of the ASD sample vs. 36.2% of the norm.
  \[ \chi^2(1, N = 27) = 20.21, p < 0.001 \]
Results:

Sleep Hygiene Habits Associated with Better Sleep Quality in the National Sample

1. Consistent Bedtime Routine
2. Bedtime at 9 o'clock or earlier
3. Including reading as part of bedtime routine
4. Bedroom void of TV
5. Avoiding caffeine
6. Falling asleep without a parent present
Results: Children with ASDs were just as likely to:

- Not have a TV in their room.
  
  \[ \chi^2(1, N = 27) = 0.28, \ p = 0.60 \]

- Not use caffeine.
  
  \[ \chi^2(1, N = 27) = 2.54, \ p = 0.11 \]
Results:

Sleep Hygiene Habits Associated with Better Sleep Quality in the National Sample

1. Consistent Bedtime Routine
2. Bedtime at 9 p.m. or earlier
3. Including reading as part of bedtime routine
4. Bedroom with no TV
5. Avoiding caffeine
6. Falling asleep without a parent present
Results: All Children with ASDs had a consistent bedtime routine

100% of the ASD sample, vs. 95.5% of the national sample

Because of violating rules of goodness-of-fit for Chi Square tests, a Chi Square test could not be completed to compare the two samples in relation to bedtime routine.
Results:

Sleep Hygiene Habits Associated with Better Sleep Quality in the National Sample

1. Consistent Bedtime Routine
   ![Clock Icon]

2. Bedtime at 9pm or earlier
   ![Happy Face]

3. Including reading as part of bedtime routine
   ![Reading Book Icon]

4. Bedroom free of TV
   ![Ban TV Icon]

5. Avoiding caffeine
   ![Ban Coffee Icon]

6. Falling asleep without a parent present
   ![Sleeping Child Icon]
Results: Children with ASDs were less likely to fall asleep independently.

37.04% of the ASD sample, vs. 77.4% of the norm

$\chi^2(1, N = 27) = 25.15, \ p < 0.001$
Results:

Sleep Hygiene Habits Associated with Better Sleep Quality in the National Sample

1. Consistent Bedtime Routine
2. Bedtime at 9 pm or earlier
3. Including reading as part of bedtime routine
4. Bedroom free of TV
5. Avoiding caffeine
6. Falling asleep with a parent present
Discussion
References


References


References


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