Examing the Impact of Later High School Start Times on the Health and Academic Performance of High School Students: A Multi-Site Study

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INTRODUCTION

The notion of changing the starting times of schools is often countered with the argument that adolescents should go to bed earlier and adjust to the schedule. Medical evidence indicates that this may not be possible and suggests that adolescents' optimal waking time is approximately 8:00 a.m. (Carskadon, 1999). Yet, most U.S. high schools start before 8:00 a.m. This means many adolescents "get by" with less sleep than they need which can have negative effects on their academic performance, health, behavior, and emotional functioning (McKnight-Eily et al., 2011; Mitru et al., 2002; Wolfson et al., 1997; Wahlstrom, 2002). In this study, we examined relationships between school start time, academic performance outcomes, amount and quality of sleep, and various health-related factors and accident outcomes.

METHODS

Over 9,000 students in eight high schools in three states were individually surveyed using the Teen Sleep Habits Survey. Academic performance data was also obtained for all students for the year before and the year after the later start time was initiated.

Car crash data were obtained from the Departments of Public Safety in MN and WY.

The five districts included in the study are:
- Mahtomedi, MN
- St. Louis Park, MN
- South Washington County, MN
- Boulder, Colorado
- Jackson Hole, Wyoming

RESULTS FOR LATER START HIGH SCHOOLS

- Improved grades earned in core subject classes of English, math, social studies, science
- Decreased risk of using drugs, alcohol, cigarettes
- Decreased self-reported depression
- Decreased rate of car crashes

Percent of High School Students Sleeping At Least 8 Hours per School Night by School Start Time

<table>
<thead>
<tr>
<th>School Start Time</th>
<th>7:30 AM</th>
<th>7:35 AM</th>
<th>8:00 AM</th>
<th>8:00 AM</th>
<th>8:05 AM</th>
<th>8:20 AM</th>
<th>8:35 AM</th>
<th>8:35 AM</th>
<th>8:35 AM</th>
<th>8:55 AM</th>
</tr>
</thead>
<tbody>
<tr>
<td>School</td>
<td>Fairview High School</td>
<td>Jackson Hole High School</td>
<td>Boulder High School</td>
<td>Mahtomedi High School</td>
<td>Fairview High School</td>
<td>St. Louis Park High School</td>
<td>Woodbury High School</td>
<td>East Ridge High School</td>
<td>Park High School</td>
<td>Jackson Hole High School</td>
</tr>
<tr>
<td>Sample Size</td>
<td>333</td>
<td>446</td>
<td>1379</td>
<td>884</td>
<td>1353</td>
<td>902</td>
<td>1249</td>
<td>960</td>
<td>1407</td>
<td>459</td>
</tr>
<tr>
<td>Sleep ≥ 8 hours/night</td>
<td>33.6%</td>
<td>44.2%</td>
<td>44.5%</td>
<td>49.7%</td>
<td>42.5%</td>
<td>49.8%</td>
<td>57.0%</td>
<td>58.9%</td>
<td>60.0%</td>
<td>66.2%</td>
</tr>
</tbody>
</table>