

Sleep in Ag: Investing in the Feasibility of Measuring Sleep Quantity and Quality in Agriculture Workers

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BACKGROUND

- Insufficient sleep is a public health problem (Strine & Chapman, 2005) that increases risk for accident and injury (Gregory, 2008)
- Farming and ranching have higher rates of accident, injury and death compared to other occupations (Bureau of Labor Statistics, 2007)
- The impacts of insufficient sleep on farmers and ranchers can be particularly deleterious given the already heightened risk for accident and injury in the ag industry
- Ag work involves seasonal peak busy periods (e.g., planting, harvesting, calving) with long work hours and greater potential for sleep loss (LaBrash et al., 2008)
- No research to date has examined whether farmers and ranchers routinely experience significant sleep loss during their peak busy seasons as compared to their non-peak/slow seasons

RESULTS

- Significant differences between busy and slow seasons were found in Total Time in Bed (7.6 vs. 8.0 hours) and Total Sleep Time (6.8 vs. 7.3 hours)
- This is a practical difference of 24.5 minutes less time in bed, and 28.1 minutes less sleep between busy and slow seasons

	Peak (Busy) Season	Non-Peak (Slow) Season
Sleep Quantity		
Bedtime	11:00 pm	10:54 pm
Wake Time	6:48 am	6:56 am
Total Time in Bed*	7.6 hours	8.0 hours
Total Sleep Time*	6.8 hours	7.3 hours
Sleep Quality		
Sleep Efficiency	90.0%	91.1%
Wake after Sleep Onset	45.3 minutes	42.2 minutes
Number of Night Wakings	16.6	16.4
Average Length of Night Waking	2.7 minutes	2.6 minutes

*p<.05

METHODS

Participants

- 40 farmers and ranchers from a five-state region in the Midwest
 - 32 Male, 7 Female
 - 100% White, non-Hispanic
 - Average age: 46.2 (SD=14.5; range=22 to 73)
- 26% perform additional work outside of agriculture
- Average hours worked per week= 59.4 (SD=15.3)

Data Collection

- Participants filled out online demographic survey and self-identified their busy/slow seasons
- Participants were mailed an actigraph (to objectively measure sleep) to wear for one week during their busy season and one week during their slow season

Analyses

- Objective measures of sleep quantity (bedtime, wake time, total time in bed, and total sleep time) and sleep quality (sleep efficiency, wake after sleep onset, number of night wakings, and average length of night wakings) were compared using paired samples t-tests

DISCUSSION

- Farmers and ranchers slept about half an hour less each night during their busy seasons as compared to their slow seasons
- Over time, this minor nightly sleep loss can accumulate into chronic sleep deprivation, further increasing the risk of accident and injury
- Minor changes in work and sleep habits during peak busy seasons may help ameliorate the increased risk of accident and injury due to sleep loss, such as:
 - Dairy: change milking schedule
 - Calving: sensors to monitor cows in labor
 - Planting/Harvesting: brief breaks or naps during day
- Any intervention would need to be vetted by farmers and ranchers for feasibility

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