Tenth International Conference on Managing Fatigue: Abstract for Review

Sleep Quality among Commercial Truck Drivers: Associations with personal and occupational factors

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Problem

Obesity was found to be twice as prevalent in long haul truck drivers (69%) as compared to the 2010 adult working population (31%). Truck drivers report sleeping less than recommended for alertness on the job. Short sleep is also associated with obesity among commercial drivers. However, it was not shown how sleep quality was associated with obesity in truck drivers. The purpose of this cross-sectional study was to quantify sleep and fatigue issues among the sample of drivers and assess associations between poor sleep quality and obesity among commercial truck drivers.

Method

Truck drivers (n=817) were enrolled across the United States. Drivers completed computerized questionnaires and had anthropometric measurements taken (e.g., height and weight). The questionnaire included questions about frequency of restless sleep, the average number of hours of sleep each night away from home, diagnosis of a sleep problem by a health professional, use of sleep aids, methods to help stay awake while driving (e.g. roll down the window, listen to music, talk.),, and use any of caffeine or other products (caffeine pills and energy drinks) to stay awake while driving. Sleep quality was organized into two categories, “Very Well/Well” and “Fair or Below Fair”.Drivers were categorized into 5 groups based on BMI. 5 (0.6%) Underweight (BMI>18.5 kg/m^2), 80 (9.8%) Normal (18.5 ≤BMI<25 kg/m^2), 223 (27.4%), Overweight (25≤ BMI<30 kg/m^2), 392 (48.2%) Obese (30≤BMI<40 kg/m^2) and 114 (14%) Morbidly Obese (40 kg/m^2≤BMI). Frequencies and means were applied to describe the population. Logistic regression was used to assess associations between sleep quality and obesity adjusting for age and gender. Odds ratios (95% confidence interval) were used to compare the self-reported sleep quality across levels of BMI groups (normal weight was assigned as the referent group). Additional analyses are ongoing to assess relationships between obesity and sleep quality measures.

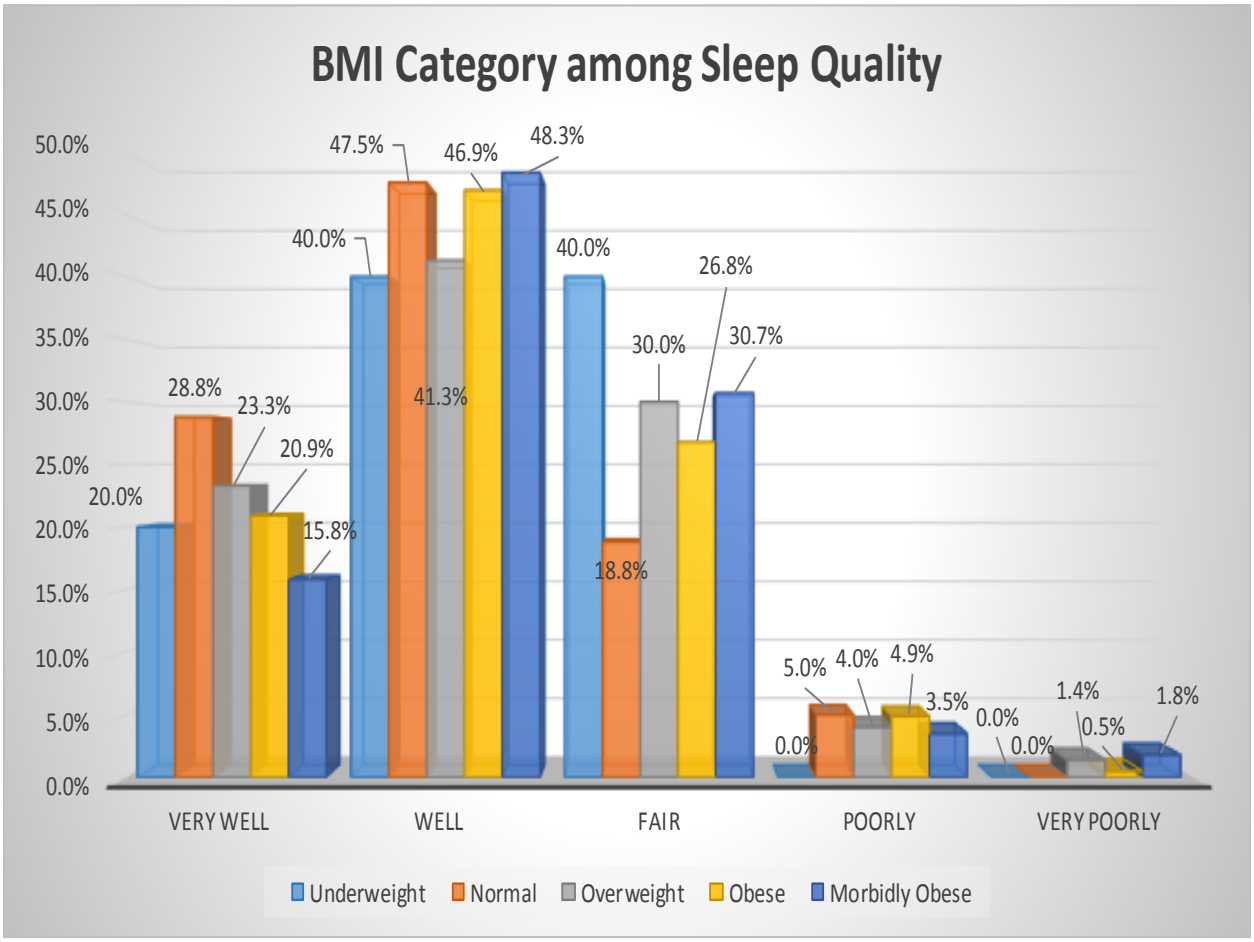
Results

Of the 817 drivers enrolled in this study, most report never or seldom having restless sleep. Most drivers were obese or morbidly obese. Nearly 2/3 of drivers report doing something to help them stay awake while driving, however relatively fewer report using caffeine or energy drinks. 88 drivers (10.8%) report using a sleep aid to help them fall asleep. Overweight drivers were more likely (OR=1.83, 95%CI=1.01-3.27) to have “Fair or Below Fair” sleep quality as compared to those with a normal BMI. Morbidly obese drivers (OR=1.81, 95%CI=0.96-3.49) and

Obese drivers (OR=1.61 95%CI=0.91-2.78) were more likely to have “Fair or Below Fair” sleep quality compared to drivers of a normal BMI. Additional analyses are ongoing assessing relationships between obesity and other factors including use of a sleep aid, use of energy drinks, and using things to help stay awake. These will be completed and presented at the conference if it is accepted for presentation.

Table 1. Demographic Statistics

	Mean	Standard Deviation
Age	47.3	10.5
Restless Sleep	Frequency	Percent
Never	185	22.7
Seldom	426	52.3
Often	159	19.5
Always	44	5.4
Average Hours of Sleep Per Night while on the Road		
Less than 4	16	2.0
4 to 5	85	10.4
5 ½	26	3.2
6	128	15.7
6 1/2	63	7.7
7	105	12.9
7 1/2	52	6.4
8	130	16.0
8 1/2	48	5.9
9	37	4.6
More than 9	64	7.9
I Sleep at Home Every Night	60	7.4
Body Mass Index Category		
Underweight	5	0.6
Normal	80	9.8
Overweight	225	27.5
Obese	393	48.1
Morbidly obese	114	14.0
Gender		
Female	112	13.7
Male	705	86.3
Diagnosed with a Sleep problem	100	12.2
Use of a Sleep Aid	88	10.8
Do Anything to Help to Stay Awake while Driving	525	64.3
Use Caffeine or other products to help stay awake while driving	199	24.4
Caffeine Pills	12	1.5
Energy drinks	109	13.5



Discussion

This study suggests that commercial truck drivers who are overweight report significantly poorer sleep quality, and obese and morbidly obese drivers were nearly statistically significantly poorer sleep quality, compared to normal weight. There is a surprisingly high use of sleep aids, doing things to stay awake, and use of caffeine or other products to stay awake while driving among this sample of drivers. To our knowledge, this is the only study reporting these factors among a large cross-section of commercial drivers. Ongoing analyses on the interrelationship between these factors and obesity are ongoing. There may be many other modifiable factors to be explored, that play a role in BMI and sleep quality among this population.

Sleep quality has been found to be more strongly related to crash risk than sleep duration. Additionally, sleep duration, and sleep patterns were related to higher driving safety-critical event rate in subsequent work period. These analyses suggest that the relationships between obesity, sleep quality, sleep duration, sleep disorders, and driver attempts to combat or induce sleepiness are complex.

Obesity and related medical conditions are a leading reason for medical disqualification among truck drivers. Additionally, obesity has been linked with sleep apnea, which has in turn been associated with a two-fold increased crash risk. Identification and interventions of some of the

sleep issues related to obesity may both directly and indirectly improve sleep quality and reduce crash risk among drivers.

Summary

Sleep quality was associated with body mass index, after controlling for potential confounding factors. Complex relationships exist between obesity and sleep quality, sleep duration, diagnosed sleep disorders and sleep related medication.