



## Handling Sleep & Fatigue in the Workplace: Paradigm or Paradox?

In the American culture of “Get It Done,” is working with too little sleep a sign of grit and initiative, or an alarm bell for health and safety risks?

Mounting evidence shows that, while employers acknowledge the paradigm concerning the safety and health issues arising from poor sleep and fatigue for their employees, their response is often paradoxical – ignoring the clanging alarm.

The National Employee Survey (2017, n=2010)<sup>1</sup> offered a bold conclusion: “Fatigue is a debilitating and potentially deadly problem affecting many Americans.” Another survey of 504 employers in 2017<sup>2</sup> found that 90% acknowledge the negative impact of fatigue in their workplaces, with half or more noticing decreased productivity at work, increased absenteeism from work, and incidents of employees falling asleep on the job.

The National Safety Council (NSC) has established an online calculator for the total costs of not identifying and treating sleep disorders, the primary source of fatigue. In the example in the figure on the right, a Midwest tech company (a “low” risk industry) with 500 employees would incur combined direct health care and indirect economic costs of nearly \$1 million annually.



**Where is the paradox?** According to the surveys, despite the fact that 80% of employees report multiple risk factors for fatigue, **74% of employers underestimate the risk, 73% don't communicate about fatigue** with their workforce, and 61% believe that their employees would not admit that their fatigue compromises their job safety.

**What do employees say about fatigue?** A National Safety Foundation (NSF) poll of 1,000 people concerning the effects of too little sleep (*Sleep in America, 2000*)<sup>3</sup> found: 68% reported difficulty concentrating, 65% had trouble handling stress, 57% were less attentive at listening, 57% said problem solving deteriorated, and 56% said they were less able to make decisions.

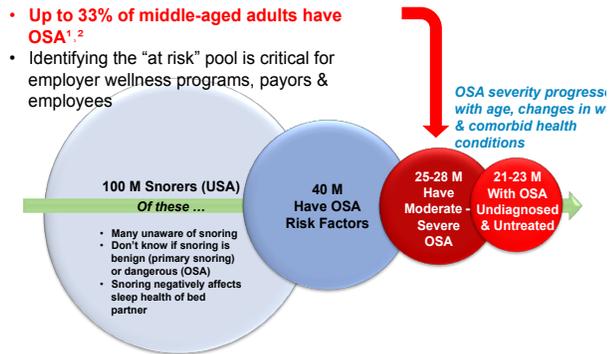
These responses are not surprising in light of another 2017 study published in *Nature Medicine*<sup>4</sup> which concluded that a sleep-deprived brain operates up to 5 times slower than a well-rested brain.

**What are the causes of poor sleep and workplace fatigue?** Employers often have focused on the workplace environment, quality of work conditions, shift scheduling practices and forced overtime, as contributors to fatigue. These factors definitely play a role; however, a root cause of fatigue is the quality of sleep that employees experience at home. The often-hidden culprit may be either insomnia or obstructive sleep apnea (OSA).



Some 20-25% of American adults may have moderate-to-severe OSA, and – because the risk increases with age, weight gain, and some co-morbid health conditions – up to 33% of a middle-aged or older workers could have symptoms of OSA.<sup>5, 6</sup> Transportation industry workers, such as truck drivers, may have the highest prevalence, due to sedentary jobs, poor diet and solitary lifestyle.

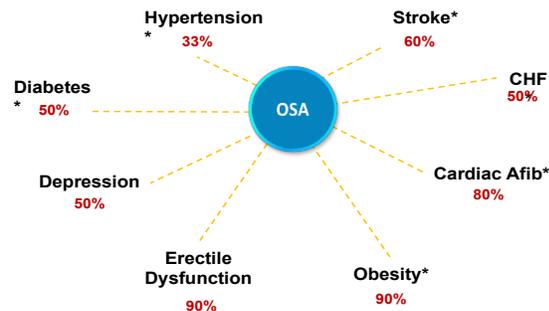
The figure on the right shows that of 100M people in the US who snore, 25-28M have moderate or severe OSA and 80-85% of these people with OSA remain untreated.<sup>7</sup>



Assessing the total cost and productivity burden to employers of untreated OSA requires considering: a) health implications for employees, b) economic impact on companies, and c) evidence that detection and treatment significantly improve both.

### Workers with untreated OSA are at greater risk for serious health consequences.

As shown in the figure on the right, sleep apnea is associated with many chronic diseases such as hypertension,<sup>8</sup> depression,<sup>9</sup> obesity,<sup>10</sup> diabetes,<sup>11</sup> and stroke.<sup>12</sup> In most cases, treating the sleep apnea will make these chronic diseases easier to manage. Moreover, people with untreated OSA have up to a 15-fold increased risk for accidents<sup>13</sup> (and up to a 7-fold increase in serious or fatal motor vehicle accidents<sup>14</sup>) due to excessive daytime sleepiness.



**What is the cost impact of untreated OSA?** Numerous published studies have compared direct medical expenses for people with untreated OSA vs. those without OSA (or with treated OSA) and have established a statistically significant doubling of healthcare utilization costs – including physician visits and fees, hospitalization time and expenses, and total annual medical costs – for those with untreated OSA.<sup>15, 16, 17, 18, 19</sup>

One seminal study (Hoffman, *JOEM* 2010)<sup>20</sup> measured the healthcare costs, disability costs (worker’s comp and short-term disability), and missed work days of 6,110 employees at Waste Management, Inc., before and after OSA diagnosis and treatment. The study computed **total savings of \$6,341 per employee over two years after treatment**, or ~\$3,200 per year. Furthermore, absenteeism was reduced by 5 days/employee per year after OSA was treated.

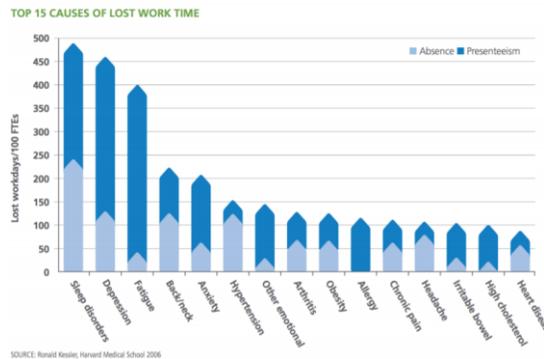
**Does OSA detection and treatment work?** Another seminal study (Bahammam, *Sleep* 1999)<sup>21</sup> evaluated hospitalizations and physician visits in 282 patients with OSA vs. controls in the first and second years



after OSA treatment. The study found hospital utilization reduced by 40% in year 1 and 58% in year 2 following treatment. Similarly, physician claims decreased by one-third within that timeframe.

People feel better quickly after OSA treatment, with improved alertness, energy and concentration. Studies also demonstrate improvement in comorbid conditions from OSA treatment: reduction in daytime blood pressure, heart rate and left ventricular function;<sup>22, 23</sup> reduction in risk for stroke and CHF;<sup>24</sup> and improvement in control of diabetes, including reduced after-meal blood glucose levels.<sup>25</sup>

**Key Takeaway: sleep disorders are the #1 cause of lost work days and productivity costs for employers.** A study conducted by the Harvard Medical School (Kessler, 2006)<sup>26</sup> (see figure) analyzed the top 15 causes of lost work time in surveyed employers and found that **sleep disorders were the leading cause of both absenteeism and presenteeism.** Sleep loss also directly impacts 8 of the remaining 14 major causes of lost productivity.



**Let's change our response to worker fatigue and poor sleep health from a paradox to a paradigm.** For employers concerned about improving the health, safety and productivity of their employees, consider adopting these practices:

1. Screen all employees regularly to detect sleep disorders including OSA.
2. Engage, educate and motivate employees to pay attention to their “sleep breathing health” and their fatigue; start the dialogue, and reward employees for taking fatigue and sleep health seriously.
3. Follow up: employees who are diagnosed with sleep breathing disorders need support to stick with therapy, but improvement in productivity will result from better functional capacity and quality of life.
4. Consider digital advances for detection and follow up. A new method described by Narayan (*Sleep Breath*, 2018)<sup>27</sup> uses software on the user’s smartphone to identify abnormal sleep breathing and risk for OSA. This approach may facilitate earlier detection and treatment of sleep-disordered breathing issues.

Employee sleep, health and safety: in fact, what may matter most is corporate culture.

With what’s at stake, how should we respond? With the old paradox ... or a new paradigm?

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