HERO Industry Research Review

Sleep and Organizational Citizenship Behavior: The Mediating Role of Job Satisfaction

Study Title: Sleep and Organizational Citizenship Behavior: The Mediating Role of Job Satisfaction

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Publication: Journal of Occupational Health Psychology, 2013, Volume 18, 16-26

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Study Overview

In management and applied psychology research, Organizational Citizenship Behavior (OCB) is defined as employee behavior outside of the formal reward system that impacts the performance of a company.[1] The majority of organizational performance research to date has focused on the relationship between OCB and *work-based factors* such as skills training, the availability of career opportunities, and the quality of the relationships between employees and their managers.   This study is unique because it is one of the first to examine the relationship between sleep, a *non-work based factor,* and OCB. Sleep loss, even in the short term, can result in several negative consequences for the organization including higher cognitive errors and workplace injuries. [2] This study sought to understand the relationship between sleep and OCB by studying daily workplace behaviors and examined the process by which this relationship might be explained by looking at job satisfaction, since previous literature has established the positive relationship between job satisfaction and organizational citizenship behavior.
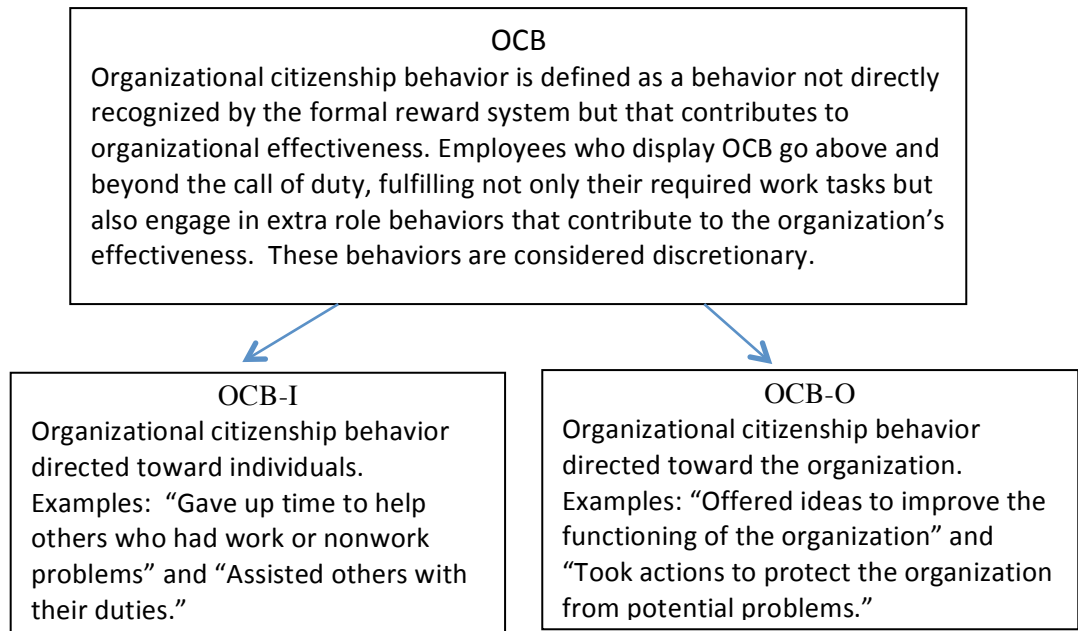
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[1] Organizational behavior: its nature, antecedents, and consequences. Organ, Podsakoff & Mackenzie, 2006. Sage: Thousand Oaks, CA.

[2] Changes to daylight savings time cuts into sleep and increases workplace injuries. 2009. Journal of Applied Psychology. 94,1305-1317.

Two separate studies were included in this research and they both differentiate between OCB-I, which is organizational citizenship behavior that is directed towards individuals, and OCB-O, which is organizational citizenship behavior directed towards the organization (see figure 1).

Figure 1. OCB Definitions[3,4]

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│                            OCB                                │
│  Organizational citizenship behavior is defined as a behavior │
│  not directly recognized by the formal reward system but that │
│  contributes to organizational effectiveness. Employees who   │
│  display OCB go above and beyond the call of duty, fulfilling  │
│  not only their required work tasks but also engage in extra  │
│  role behaviors that contribute to the organization's         │
│  effectiveness.  These behaviors are considered discretionary.│
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OCB-I	OCB-O
Organizational citizenship behavior directed toward individuals. Examples: "Gave up time to help others who had work or nonwork problems" and "Assisted others with their duties."	Organizational citizenship behavior directed toward the organization. Examples: "Offered ideas to improve the functioning of the organization" and "Took actions to protect the organization from potential problems."

Methodology and Results

Methods - Study 1: The first study measured the quality of sleep among 87 individuals (average age of 47) who voluntarily sought treatment in a sleep clinic setting. All study participants were employed full-time from a broad range of organizations and jobs. While participants slept overnight at the sleep clinic, sleep technicians objectively measured the electrical activity in the brain to determine whether a person was awake or asleep and amount of time in the different stages of sleep. After the night in the sleep lab, participants completed

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[3] Organizational behavior: its nature, antecedents, and consequences. Organ, Podsakoff & Mackenzie, 2006. Sage: Thousand Oaks, CA.

[4] Personality and citizenship behavior: The mediating role of job satisfaction. *Journal of Applied Psychology, 94,* 945–959. Ilies, Fulmer, Spitzmuller, Johnson. (2009).

two surveys at the end of that work day; one survey measured job satisfaction using a five item scale originally developed by Brayfield and Rothe, 1951 and later adapted by Scott and Judge, 2006. The other survey measured organizational citizenship behavior using a 16 item scale developed by Lee and Allen, 2002. Age and caffeine intake were controlled for in the study.

Results - Study 1: Participants in this study slept an average of five and a half hours (population average is 7.6 hours). Using regression analysis, the study found that a direct and positive relationship existed between sleep and OCB–O but not OCB-I. However, sleep also had a positive relationship with job satisfaction. When job satisfaction was considered in the regression analysis, sleep was found to have an indirect effect on both OCB-O and OCB-I through the mediator of job satisfaction. (A mediator is a variable that explains the relationship between one variable and another.) In this instance, it means that sleep was linked to both types of OCB because sleep improved job satisfaction.

A potential limitation of this study was that all the sleep subjects suffered from poor sleep. It would be a stronger study if there were more sleep variation among the subjects. These findings may also not be generalizable to the average population who do get sufficient sleep. Thus, a second study was undertaken using a sample of adults who were not seeking sleep treatment.

Methods - Study 2: The second study recruited 85 undergraduate college students who were working for at least 3 months in a variety of jobs. Study participants completed two surveys daily over the course of five working days. The first survey measured their sleep quality from the night before and was completed before their work shift using the Pittsburgh Sleep Diary (Monk et al, 1994). The second survey measured job satisfaction after the end of their work shift using the five-item Scott & Judge scale (2006) and measured OCB using a 16-item scale by Lee & Allen (2002). The latter two scales were also used in the first study.

 Results - Study 2: Study participants reported an average of 7 hours sleep which is higher than the 5.5 hours observed for participants in the first study, but slightly lower than the population average of 7.6 hours.

Hierarchical linear modeling, within-person and between-person, found that the most substantial portion of the sleep variance was the within-person variance, which suggests a higher confidence in the results. This means that on days that subjects got less sleep they completed the surveys differently than on days they got more sleep.

Consistent with the findings of the first study, a positive relationship was found between sleep and job satisfaction as well as between job satisfaction and OCB-I and OCB- O. These findings further support the notion that job satisfaction is a mediator between sleep and OCB. In effect, when employees have better sleep, they have a higher sense of job satisfaction, and job satisfaction influences their level of commitment in their organization.

However, unlike Study 1, when controlling for job satisfaction, a direct effect between sleep and both OCB-I and OCB-O was observed (study 1 reported a direct effect between sleep and OCB-O only).This suggests the possibility that there may be additional factors, other than job satisfaction, (mood for example) that may explain the relationship between sleep and OCB.

Study Conclusions

These studies found that sleep influenced job satisfaction and job satisfaction influenced organizational citizenship behavior. Additionally, sleep quantity was also found to have a direct effect on OCB-O in both studies but only on OCB-I in the second study, which included variations in sleep among individual subjects. This research extends the issue of sleep deprivation in the workplace beyond cognitive outcomes and now relates sleep to employee behavior within the context of a workplace setting.

What it means for employers:

These findings are useful to organizations that want to better understand the impact that *non-work based factors*, such as sleep, may have on employee engagement and ultimately, organizational performance. Specifically, this information can be used to:

- Create awareness in organizations that the amounts of sleep experienced by their employees may have important effects, beyond cognitive errors and injuries, that impact organizational performance.

- Management and measurement of organizational citizenship behavior should be extended to consider not only sleep but also potentially other dynamic nonwork-based factors.

HERO Reviewer's Commentary

This study is relevant to several issues that the employee health management industry is addressing today including employee well-being, employee engagement and the measurement of the value of programs designed to improve health and well-being.

1) **Well-being** - There is a trend in the industry to move from wellness, programs designed to improve states of health, to well-being, a state of being.[5] Sufficient sleep is critical to optimize emotional well-being, physical health and cognition. Insufficient sleep is associated with poorer mental health including anxiety and depression.[6] Even short bouts of sleep deprivation can contribute to a negative mood state, which may adversely affect work relationships and customer service. Research studies link insufficient sleep with weight gain,[7] increased risk for heart disease,[8] gastrointestinal disorders,[9] and certain cancers.[10] Insufficient sleep can also inhibit learning[11] and increase cognitive errors on the job. Particularly worrisome are errors that result in injuries to the employee or to others in the care of the fatigued employee such as a health care providers or commercial drivers.

The complexities of modern life may contribute to the growing sleep problem. Most adults need somewhere between 7-9 hours of sleep per night.[12] However, nearly 40% of

[5] http://www.gallup.com/topic/category_wellbeing.aspx
[6] Drake CL, et al. *Sleep*. 2004;27:1453-1462
[7] Patel SR et al. *Am J Epidemiol* 2006;164: 947–954
[8] Kawachi I, et al. *Circulation*.1995;92:3178-3182
[9] Drake CL, et al. *Sleep*. 2004;27:1453-1462
[10] Schernhammer ES, *Epidemiology* 2006;17:108-111; Kubo T, et al. *Am J Epidemiol*. 2006;164:549-555
[11] Stickgold *et al., Nature Neurosci 3*:1237, 2000
[12] National Sleep Foundation. http://sleepfoundation.org/sites/default/files/STREPchanges_1.png

Americans are not getting the recommended amount of nightly sleep, compared with just 11% more than 70 years ago.[13]

2. **Employee behaviors drive organizational outcomes** - The other relevant topic in the employee health management industry today is employee engagement. Employee engagement is a current topic of interest for employers because it is reportedly low, in the US and globally, and is considered to be a significant factor that impacts productivity and performance.[14] In the scientific literature, employee engagement and OCB are two unique, but related concepts. Employee engagement represents the motivational state of an employee and this state of motivation is positively associated with employee behavior (OCB).[15] However, in business the term employee engagement is often used to describe employee behavior that is related to the state of motivation. It has been described as an employees' level of commitment to their organization demonstrated through behaviors that are discretionary, behaviors that are 'above and beyond' their basic job duties.[16] Some of these definitions are very similar to definitions used in the OCB literature. Putting definitions aside for the moment, this study demonstrated a positive relationship between sleep and the type of behaviors that impact productivity and performance. The scientific community defines these behaviors as OCB and the motivational state of the employee as employee engagement. Employers may use the term employee engagement when they are talking about employee behavior (most likely assuming motivation is a component of the behavior). This point is relevant in interpreting the results for use by the industry.

3. **Evaluation of program value** - These findings may also prompt employers to consider evaluating non-work based factors as important predictors of organizational performance. Historically, programs designed to improve non-work based factors such as sleep or physical

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[13] Gallup. http://www.gallup.com/poll/166553/less-recommended-amount-sleep.aspx

[14] Gallup-Healthways Wellbeing Index. http://www.gallup.com/poll/181289/majority-employees-not-engaged-despite-gains-2014.aspx

[15] Employee Engagement in Relation to Organizational Citizenship Behavior in Information Technology Organizations.Saradha and Patrick. *Proceedings published by International Journal of Computer Applications® (IJCA) Third Annual Global Business, IT and Management for Economic Development Conference (BITMED)* 2011.

[16] Employee Engagement Define It, Measure It and Put It to Work in Your Organization. Workforce Magazine. 2010

activity, would have been evaluated based upon their impact in controlling health care costs or injury rates. These findings suggest that sleep programs, and other programs that address non-work based factors, can be evaluated by measuring the impact related to performance of an organization.

Other considerations inspired by this research, but not directly tied to the findings of this research, may be considered by employers:

- Bring the issue of insufficient sleep as a factor related to OCB into management theories, practices, and policies.
- Consider work policies that help employees obtain sufficient amounts of sleep by addressing work schedules, job demands and work-related stress.
- Consider offering programs and services that help employees improve their sleep.

Finally, it is interesting to note that many of the effects of chronic sleep deprivation are similar to those found with sedentary lifestyles; depression, anxiety, weight gain, heart disease and certain cancers. Sufficient sleep and regular physical activity are both critical components related to health and well-being.

About the HERO Reviewer

Dr. Jennifer Turgiss has over 25 years of experience in senior management and executive roles at national and global health and wellness organizations. She is currently the Vice President of Behavior Science & Analytics at Johnson & Johnson Health and Wellness Solutions. Prior to Johnson & Johnson, Dr. Turgiss was the Vice President of Health Solutions at Virgin Pulse, where she led the behavior science, research and analytic work for the organization. Jennifer joined Virgin Pulse by way of Virgin Active where she was Global Director of Health and Fitness. Prior to that, Jennifer was the National Director of Health and Wellbeing at WellBridge, a division of Monsanto Life Sciences, providing programs and services focused on healthy aging and complementary medicine. Jennifer has a MS in Exercise Physiology from the University of Colorado and Doctor of Public Health from Boston University's School of Public Health, where she specialized in behavioral and social sciences in population health management.