

**Title:**

Promoting Healthy Work Environments By Evaluating and Addressing Sleep Habits of Nursing Students

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**Session Title:**

Promoting Healthy Work Environments By Evaluating and Addressing Sleep Habits of Nursing Students

**Slot:**

J 01: Sunday, 19 March 2017: 8:00 AM-8:45 AM

**Scheduled Time:**

8:00 AM

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**Keywords:**

nursing students, sleep deprivation and strategies

**References:**

Baldwin, D. & Daugherty, S. (2004). Sleep deprivation and fatigue in residency training: Results of a national survey of first- and second-year residents. *Sleep*, 27(2), 217-23.

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Landrigan, C., Rothschild, J., Cronin, J., Kaushal, R., Burdick, E., Katz, J., Lilly, C., Stone, P., Lockley, S., Bates, D., & Czeisler, C. (2004). Effect of reducing interns' work hours on serious medical errors in intensive care units. *New England Journal of Medicine*, 352(18), 1838-48.

Lockley, S. W., Barger, L. K., Ayas, N. T., Rothschild, J. M., Czeisler, C. A., & Landrigan, C. P. (2007). Effects of health care provider work hours and sleep deprivation on safety and performance. *The Joint Commission on Accreditation of Healthcare Organizations* 33(11), 7-18.

Mansukhani, M. P., Kolla, B. P., Surani, S., Varon, J., & Ramar, K. (2012). Sleep deprivation in resident physicians, work hour limitations, and related outcomes: a systematic review of the literature. *Postgraduate Medicine* 124(4): 241-9. Doi: 10.3810/pgm.2012.07.2583

Stickgold, R. (2005). Sleep-dependent memory consolidation. *Nature* 437:1272-1278.

Wagstaff, A. & Lie, J. (2011). Shift and night work and long working hours – a systematic review of safety implications. *Scandinavian Journal of Work, Environment, & Health*, 173-85.

\*Of note, there are very few relevant, well-conducted studies on sleep and healthcare workers completed in the last five years.

**Abstract Summary:**

Nursing students, part of the healthcare team, lose sleep by working long hours in jobs and clinicals. Long work hours may lead to psychological, health, safety and quality care issues, hence, an unhealthy work

environment. This presentation communicates our study findings and introduces strategies for addressing nursing student sleep deprivation.

**Learning Activity:**

LEARNING OBJECTIVES	EXPANDED CONTENT OUTLINE
1. Explain current situational context that promotes nursing student sleep deprivation.	I. Current situational context that promotes nursing student sleep deprivation A. Today’s nursing student: employment, clinical, didactic, and social commitments B. Today’s nursing school: challenges of limited clinical site availability, increasing use of 12-hour clinical shifts, and demanding clinical and didactic requirements
2. Discuss consequences of sleep deprivation for nursing students and healthcare environments.	II. Consequences of sleep deprivation A. Physical and mental impact B. Resulting impact on occupational injuries, error rates, stress, burnout, automobile injuries, and academic performance
3. Describe participants, methods, and results of a study of nursing students’ sleep habits.	III. Sleep study participants, methods, and results A. Nursing student demographics B. Study design and methods C. Presentation of descriptive results
4. Analyze nursing student sleep study implications.	IV. Implications of nursing student sleep deprivation A. Errors, occupational injuries, automobile accidents B. Psychological impact C. Physical impact
5. Develop strategies that address nursing student sleep deprivation and promote healthy work environments.	V. Collaborative strategies that address sleep deprivation in nursing students in order to create safer, healthier work environments A. Within schools of nursing B. In conjunction with healthcare systems

**Abstract Text:**

Nursing students, part of the healthcare team, are often employed while in school, working various hours including 12 hour day and night shifts. In addition, increased competition for clinical sites has forced some schools to work 12-hour clinical shifts. These long work hours combined with other rigorous nursing school requirements may decrease available sleep hours and negatively impact students’ sleep-wake cycles.

Researchers have found that a significant proportion of nurses and nursing students suffer from sleep abnormalities and related medical issues, as well as lower grades in those with significant lack of sleep (Dumer & Dinges, 2005; Lockley, Barger, Ayas, Rothchild, Czelsler, & Landrigan, 2007; Stickgold, 2005). Further, a study performed by Wagstaff and Lie (2011) found that work periods greater than eight consecutive hours carry an increased risk of occupational accidents that accumulates so that the increased risk of accidents after working twelve hours is two times the risk of accidents after working eight hours. Finally, shift work resulting in sleep deprivation in other healthcare workers, such as interns and residents, has been shown to be a crucial factor in contributing to medical error (Baldwin & Daugherty,

2004; Landrigan, Rothschild, Cronin, Kaushal, Burdick, Katz, Lilly, Stone, Lockley, Bates, & Czeisler, 2004; Mansukhani, Kolla, Surani, Varon, & Ramar, 2012).

While the literature presents a persuasive picture of the need for sleep and the impact sleep deprivation can have on individuals, students, and healthcare practitioners, a dearth of literature surrounding, specifically, nursing students, sleep deprivation, and associated impact of sleepiness on health and safety exists. Arguably, this lack of research on sleep habits and sleep deprivation calls for research studies, such as the one on which we report, as well as ways to address this phenomenon. Consequently, nurse educators, nurse leaders, and nursing students have a responsibility to collaborate and cultivate strategies to help students improve sleep habits and, thereby, enhance safer, healthier work environments.

A convenience sample of 328 pre-licensure nursing students from a Mid-western university was sought for the study. Internal Review Board (IRB) approval was obtained. The questionnaire and all study materials were sent to all undergraduate nursing students who had been or were currently enrolled in a nursing course with a clinical component via university email accounts, and an online survey method administered study instruments. This research was a quantitative survey pilot study that was used to determine the need for a more in-depth, comprehensive larger study.

The questionnaire was titled, *Sleep Deprivation of Nursing Students*, and included five sections with a total of twenty-one questions. Section (A) included six questions related to student demographics. Section (B) addressed aspects of personal sleep habits with two questions. Section (C) included four questions and addressed automobile and motor vehicle use after working and program clinical experiences. Section (D) included one multi-part question addressing students' expenditure of spare time. Section (E), with a total of ten questions, addressed work safety and program clinical experiences.

An invitation letter to participate in the study and a consent form was included in the survey packet sent to all study participants via email. No incentives for completing the study were identified or provided in the survey packet. Three email reminders were sent to the survey sample during the six-week study completion period.

Data was analyzed using descriptive statistics. Of the convenience sample (n=328), 179 completed the study for a 54% response rate. While participants reported a need for 8 or more hours of sleep to feel rested, most obtained less than 6 hours of sleep prior to class or clinical experiences, potentially negatively impacting learning in the classroom and safety in the clinical setting. The majority of participants indicated that they self-medicated to stay awake and to induce sleep, consuming caffeine/stimulants or sleeping pills, depending on the perceived need. Clinical hours ranged from 7-12 hours per week, with nearly one third of respondents having 12 or more clinical hours per week.

More than half of participants were employed 8-12 hours per week and worked 7 to greater than 12 consecutive days combining employment and clinical schedules in spite of the known increase in error rates and decrease in decision making and critical reasoning after 12 hours of employment or clinical experience. Factoring in drive time to number of work hours, consecutive days between jobs, clinical experiences, and clinical hours showed the risk of accident or falling to sleep is greatly increased. More than half of participants reported fatigue after clinical experiences and when driving after work or clinical experiences. Most of participants were awake 18-19 hours out of a 24-hour day. In spite of this, though, nearly all of participants believed they engaged in safe practice at work and clinical experience and that 12 hour shifts or longer did not impact safety or decrease ability to learn.

The majority of nursing students in this study did not recognize the impact of sleep deficit and 12 hour employment or clinical experiences on learning capacity, error rates, decision making and critical thinking. Over 30 years of research has shown the negative effects of sleep deprivation, circadian misalignment and human performance in physicians and nurses. There is little, if any, investigation to date into the effects of those same variables on nursing students. Post-study, these researchers conclude

that educators are responsible for recognizing that sleep, employment, and clinical variables affect safety and clinical judgment and for teaching students about the negative impact of sleep deprivation on health and safety. Additionally, educators must collaborate with nursing students and nurse leaders to determine if limits on work and clinical experiences are needed and to develop strategies that promote healthy sleep habits. Lastly, educators must be role models for balancing family/social/work life so that students can see how a healthy balance positively affects health and attitude, thereby positively impacting home and work environments.