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SLEEP DURATION IN TWO DIFFERENT NAVY WATCHSTANDING SCHEDULES
1Sleep and Performance Research Center, Washington State University, Spokane, WA, 2Naval Postgraduate School, Monterey, CA, 3College of Medical Sciences, Washington State University, Spokane, WA

Introduction: Many Naval surface operations involve rotating watchstanding schedules with limited sleep opportunities. One schedule, the “5/15,” rotates backward through periods with 5 h on, 15 h off duty. The timing of sleep varies over days, and sleep is split once every 4 days. Another schedule, the “3/9,” cycles through periods with 3 h on, 9 h off duty. This allows for consistent sleep timing over days, but sleep may need to be split to accommodate nighttime watchstanding. In both the 5/15 and 3/9 schedules, four watch sections alternate so that there is a watchstanding crew at all hours. In this pilot study, we compared sleep durations in simulated sections of the 5/15 and 3/9, keeping total watchstanding duration and sleep opportunity equal across schedules.

Methods: N = 15 healthy, male subjects (ages 18–29) spent 5 consecutive days and nights in a laboratory. Subjects were assigned to one of four watch sections, each with 6.5 h sleep opportunities daily: (A) 5/15 with sleep at 00:30 (day 1), 22:30 (day 2), 18:30 (day 3), and split sleep at 19:00 (2 h) and 03:00 (4.5 h) (day 4); (B) 3/9 equivalent to (A), but shifted to begin on day 3; (C) 3/9 with sleep at 22:30 daily; and (D) 3/9 with split sleep at 21:00 (2 h) and 04:00 (4.5 h) daily. Each group had 4 subjects, except (D), which had 3. Sleep was measured with wrist actigraphy and analyzed with mixed-effects ANOVA.

Results: Grand mean sleep duration was 5.56 h (SE: 0.08 h) and did not differ significantly between watch sections (F = 0.19; p = 0.90). However, there was an interaction of section by day (F = 3.82; p < 0.001), with both 5/15 sections sleeping less when sleep was scheduled to begin at 18:30, in the wake maintenance zone. Sleep duration did not decrease when sleep was split, and even tended to increase when split sleep followed a prior sleep period starting in the wake maintenance zone (F = 3.02; p = 0.08).

Conclusion: Although sleep duration did not differ significantly between simulated 5/15 and 3/9 watch sections overall, sleep duration was more steady in the 3/9, which maintained circadian alignment across days. Furthermore, splitting sleep in one of the 3/9 sections did not adversely affect sleep duration. Larger samples are needed to investigate whether the increased sleep stability of the 3/9 schedule also yields a performance advantage.

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INTENTION AND WILLINGNESS TO DRIVE WHILE DROWSY AMONG UNIVERSITY STUDENTS
Lee CJ, Geiger-Brown J, Back KH
1Department of Behavioral and Community Health, University of Maryland School of Public Health, College Park, MD, 2Center for Health Outcomes Research, University of Maryland Baltimore, Baltimore, MD, 3Center for Health and Homeland Security, University of Maryland Baltimore, Baltimore, MD

Introduction: Few studies have examined sleepiness-related risk behaviors using health behavior theories. This study assessed the utility of constructs from the Theory of Planned Behavior (TPB) and the Prototype Willingness Model (PWM) to predict intention and willingness to engage in drowsy driving in a population of university students.

Methods: An online questionnaire was used to collect data from 497 university students (Mean Age = 23.24 ± 5.58 years) on their attitudes, subjective norms, and perceived behavioral control concerning drowsy driving behavior in various situations, as well as on their intention and willingness to engage in such drowsy driving behaviors in the future. Hierarchical multiple regression was used to assess: (1) the utility of attitudes, subjective norms, and perceived behavioral control (“the TPB constructs”) in predicting intention and willingness to engage in drowsy driving behavior; and (2) the utility of augmenting the TPB constructs with the PWM construct of willingness to better predict drowsy driving intention.

Results: After adjusting for personal characteristics and past driving behavior, the TPB constructs significantly (p < 0.001) explained an additional 39–46 percent of the variance in drowsy driving intention and an additional 24–37 percent of the variance in drowsy driving willingness. Perceived behavioral control was consistently the strongest predictor for both drowsy driving intention and willingness. Augmenting the TPB constructs with willingness significantly (p < 0.001) explained an additional 4 to 7 percent of the variance in drowsy driving intention. Perceived behavioral control and willingness were consistently the strongest predictors for drowsy driving intention in the augmented model, which together with the control variables explained 64–70 percent of the variance in intention.