

Sleep and autonomic nervous system changes - enhanced cardiac sympathetic modulations during sleep in permanent night shift nurses.

[Chung MH](#), [Kuo TB](#), [Hsu N](#), [Chu H](#), [Chou KR](#), [Yang CC](#).

Graduate Institute of Nursing, Taipei Medical University, Taipei, Taiwan.

OBJECTIVES: Disturbed sleep is the most common problem among the many health-related effects of shift work, with shift workers clearly having higher rates of cardiac disorders. However, the possible mechanism underlying the related health effects of shift work has yet to be examined. Consequently, this study aimed to explore the influence of long-term night shift work on the sleep patterns of nurses and their cardiac autonomic nervous system during sleep. **METHODS:** Our sample comprised ten permanent night shift and ten regular morning shift nurses. Nurses slept in their dormitory where they were allowed to sleep and wake spontaneously. All sleep parameters were digitized using an ambulatory polysomnographic recorder. Using sleep patterns and heart rate variability, the day- and nighttime sleep of permanent night shift nurses were compared with the nighttime sleep of regular morning shift nurses. **RESULTS:** Compared with the nighttime sleep of regular morning shift nurses, the pattern of daytime sleep of permanent night shift nurses showed significantly lower sleep onset latency. Permanent night shift nurses' daytime sleep also had greater proportions of Stage 3 and 4 (deep sleep), and arousal index than recorded during their nighttime sleep. Both the low frequency and low to high frequency ratio of the nighttime sleep of night shift nurses were significantly higher during periods of non-rapid eye movement (NREM) sleep than the nighttime sleep of morning shift workers. In addition, the electroencephalography delta-power of the nighttime sleep of night shift nurses was significantly lower during the first NREM episode sleep than those of both the daytime sleep of night shift workers and the nighttime sleep of morning shift nurses. **CONCLUSIONS:** Permanent night shift nurses have higher sympathetic activity during nighttime sleep than regular morning shift nurses. Night shift working may have effects on the sleeping patterns of nurses in the long run, inducing higher cardiac sympathetic regulation.