Shiftwork Effects on Alertness, Sleep and Health of Police Personnel Under Non-Rotating Shifts

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Numerous concerns about possible effects of compressed work schedule on sleep, alertness and well-being of the shift workers have been studied by researchers. Until now, there have been a few studies performed with permanent shift schedules compared to rotating shift schedules. Also protective services are one of the populations that work round the clock, but have received less attention. This report presents the results of an ongoing study of New Jersey Institute of Technology's (NJIT) Police Department staff (N=76), to examine how 8 and 12 hour permanent shift schedule affects their alertness, sleep and health.

The study generated a questionnaire survey based on the Survey of Shift workers (SOS) to evaluate the outcomes of permanent shift schedules on workers. The approval of the Institutional Review Board was obtained before the survey was administered. In addition to the demographic questions, the survey contained 5 questions on alertness and workload, 17 questions on sleep habit and sleep quality, and 7 questions on health, wellbeing and satisfaction.

Till now, 10 participants from 12 hours shift, and 18 participants from 8 hour shift have completed the questionnaire survey. Significant preliminary results are as following. Participants are predominantly male (83%), and their mean (sd) experience as a shift worker on the current shift systems is 5(4.85) years. In a five point scale of 1 to 5, the mean (sd) of workload is rated at 3.48(0.63), which corresponds to "average to heavy" workload. Alertness is measured on a five point scale, 1 being very alert and 5 being very sleepy. The mean alertness score at the late-stage of the shift is 2.37, which is worse than both the early-stage 1.75 and the mid-stage 1.89 of the shift. Alertness is also consistently scored poorer for 12 hour shift as compared to 8 hour shift. For the first, middle and late stage of the shift, the mean alertness scores are 2.10, 2.30 and 2.80 for 12 hour shift, and 1.44, 1.67, 2.17 for 8 hour shift, respectively. Participants rated their sleep quality on a 4-point scale, 1 being high quality and 4 being poorest quality. Three sleep quality indicators, for which the mean score exceeded the critical score of 2, are: waking up earlier than intended, negative effect of overtime, and insufficient sleep. The mean scores for the above three sleep quality indicators are 2.30, 2.40 and 2.10 for 12 hour shift, and 2.28, 2.11 and 1.72 for 8 hour shift, respectively. Sleep quality indicators are also consistently scored poorer for 12 hours shift. With a critical score of 2, in a 1-4 point scale, frequency of pain in back-neck, and headache scored, 2.40 and 2.00 for 12 hour shift, and 1.67 and 1.72 for 8 hour shift. Almost all studies reported that satisfaction with 12h shift is higher than 8h shift schedule (Di Milia, 1998; Paley et al.; 1998 and Smith et al., 1998) and so is in ours; 70% participants of 12 hour shift, as opposed to 50% of the 8 hour shift, reported "definitely satisfied" with their shift schedule.

The current results strongly indicate decreasing level of alertness, and increasing sleep and health problems associated with 12 hours shift schedule. We hope to conclude surveying the majority of the 76 members of the police department within the next month and then perform statistical analysis of the outcomes. We believe that this study will fill the gaps in understanding the effects of fixed and compressed work shifts for protective service population.

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Session 1B

2:40 - 3:00   **BREAK**

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