

Subjective sleepiness, individual differences and daytime work

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Introduction

The aim of the study was:

- 1) To describe the variation in sleepiness across a workweek in a large sample of daytime workers,
- 2) To evaluate individual differences of severe sleepiness and explore the determinants of sleepiness.

Method

The sample included 526 daytime workers (79% females, mean age=44 years, SD=10) that filled in a questionnaire and a sleep/wake diary during one week. The

diary included questions on sleep, stress, health and sleepiness (Karolinska sleepiness Scale, KSS, 1 alert – 9 sleepy, rated at 6 times/day between 07h and 22h).

Conclusion

Subjective sleepiness was low during daytime work although there was a minor group (13%) that reported excessive daytime sleepiness at the same level as night workers and individuals suffering of chronic stress (with a burnout diagnosis).

Excessive daytime sleepiness was associated with low age, being female, having high education, and sleep complaints, which removed the effects of working times, health, and stress.

Results

Figure 1 shows that mean daily sleepiness was lowest on days off (weekend) and there was no accumulation across work days. **Table 1** shows that the prevalence of severe sleepiness (defined as having at least 2 KSS ratings ≥ 7 per day) was 13%. **Table 2** shows some variables that differed significantly ($p < 0.05$) between the KSS groups. **Finally**, the significant predictors were subjected to a multiple regression analysis and the results are presented in the box below.

Figure 1. Sleepiness across weekdays (means \pm sd)

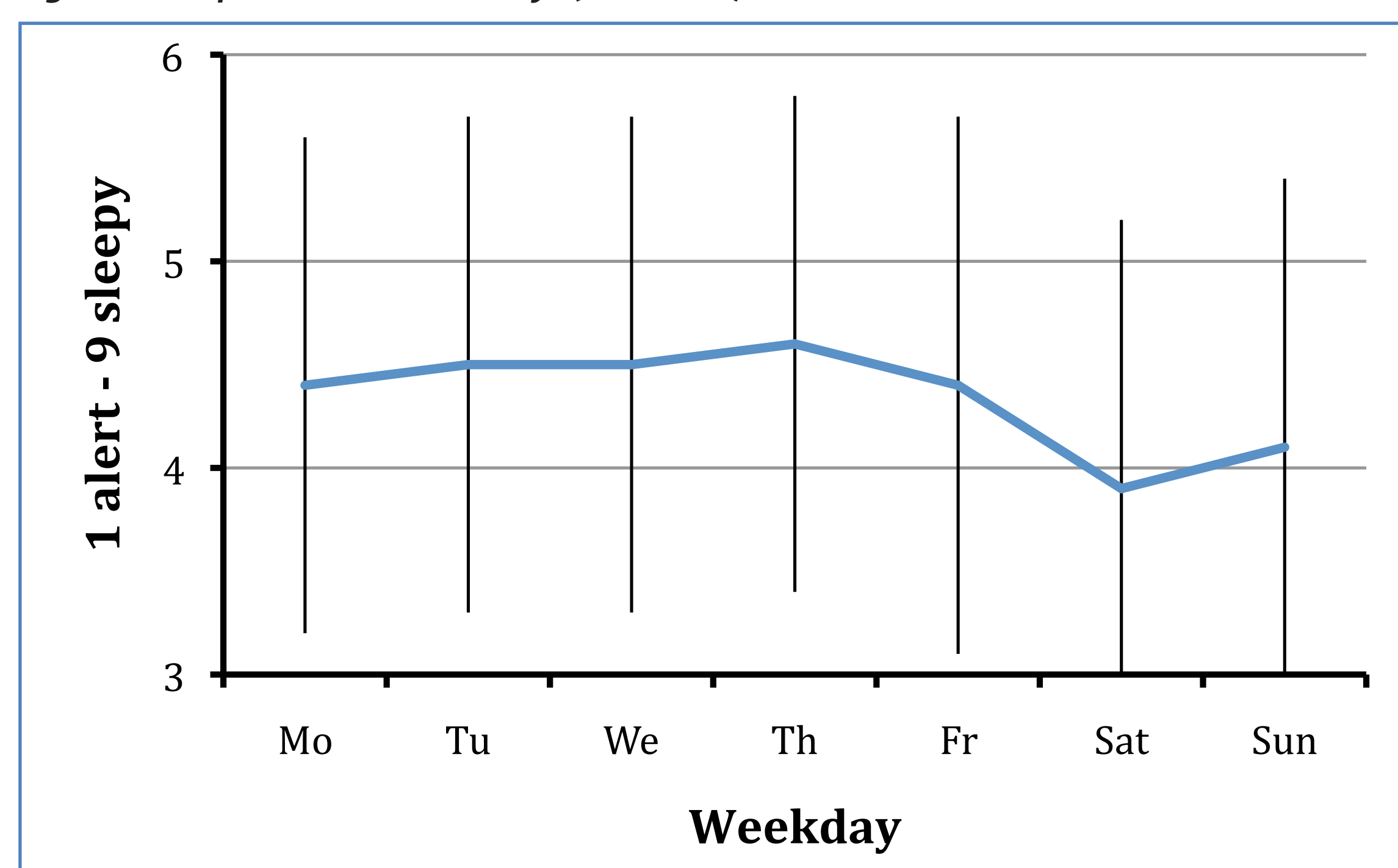


Table 1. Prevalence of sleepiness

KSS group (mean number of KSS 7-9, /weekday 7-22h)	Number of subjects (%)
0	30 (6%)
1 (0.1-1.0)	242 (48%)
2 (1.1-2.0)	172 (34%)
3 (2.1-3.0)	45 (9%)
4 (>3)	19 (4%)

Table 2. Determinants of severe sleepiness (means \pm sd)

	KSS 0	KSS 0-1	KSS 1-2	KSS 2-3	KSS >3
Sex, % female	53	75	89	82	90
Age, years	49 \pm 11	45 \pm 10	44 \pm 10	41 \pm 10	39 \pm 10
Weekly working hours	32 \pm 2	34.6 \pm 1	32.6 \pm 1	29.0 \pm 2	37.8 \pm 3
Higher education (collage)	31%	41%	58%	58%	68%
Mean daily stress (1-9 high)	2.8 \pm 1.3	2.8 \pm 1.1	3.3 \pm 1.1	3.2 \pm 1.2	3.9 \pm 1.2
Sleep quality (1 poor – 5)	4.3 \pm 0.5	4.2 \pm 0.4	4.1 \pm 0.5	4.0 \pm 0.5	3.9 \pm 0.5
Awakening diff (1 poor – 5)	3.4 \pm 0.6	3.3 \pm 0.6	2.9 \pm 0.6	2.7 \pm 0.6	2.3 \pm 0.7

A multiple regression analysis (with KSS group as the outcome variables) showed that the following determinants became significant:

- age (beta=-0.13)
 - sex (beta=-0.14)
 - high education (beta=0.10)
 - awakening difficulties (beta=0.24)
- Total amount of explained variance=16.5%