



Stress and sleep in a representative Swedish sample

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Conclusion

Prevalence of stress is related to sleep disturbances and a shorter sleep duration during weekdays. For individuals reporting low to moderate prevalence of stress this is reversed during the weekend.

Introduction

Reduced sleep duration and poor sleep quality are becoming widespread in modern society. The prevalence of people reported to suffer from poor sleep is approximately one-third and about 10% meet the criteria for insomnia. Stress is usually considered the main cause of insomnia and a relationship between stress and disturbed sleep has been shown in several studies. Many studies have also demonstrated that individual differences in vulnerability plays a role in stress-related sleep disturbances.

Methods

This study was initiated by the Swedish Council on Health Technology Assessment (SBU) and the data collection were commissioned to the Central Bureau of Statistics (SCB). Data was collected by a computer-assisted phone survey. The sample consisted of 1550 Swedish residents, representative for the population and stratified for age and sex. 1128 subjects completed the interview (mean age 47.8 ± 18 y, 52.1% women) consisting of 39 questions including background information, sleep characteristics, sleep complaints and stress.

Results

The total sample was divided into two groups based on the frequency of stress. The low stress group reported stress on an average of 0-2 days/week (n=876, 77, 8%) and the high stress group 3-7 days/week (n=250, 22, 2%).

The low stress group slept longer than the high stress group on workdays but on days off there was no difference. They also reported a shorter sleep latency.

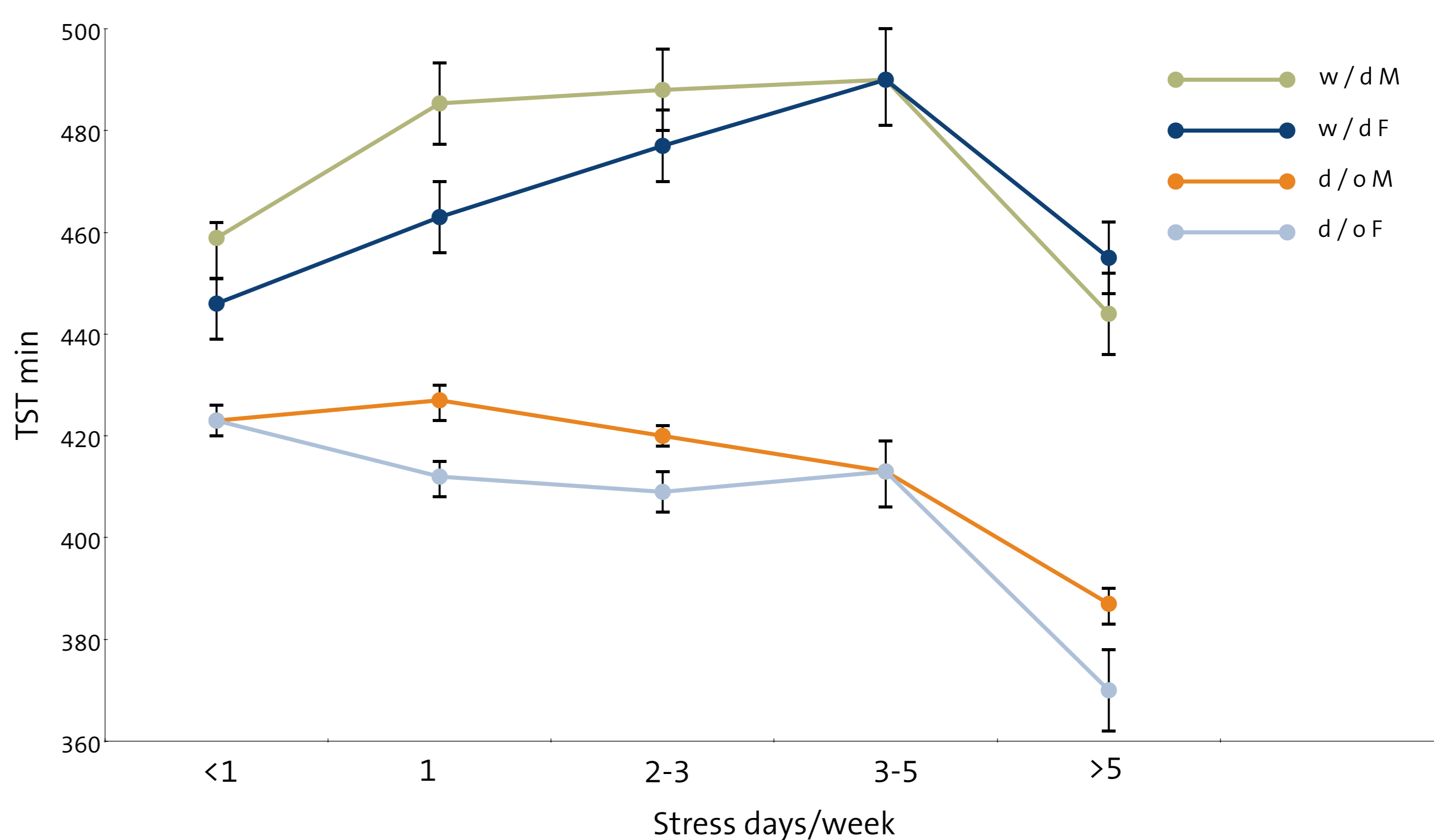
The high stress group reported a longer average sleep latency and a higher frequency of all sleep problem variables. Problems with fatigue, with stress affecting sleep and sleep problems disturbing daily life was also more prevalent in the high stress group.

	Low stress Mean	High stress Mean	t
Sleep latency (min)	19.76±0.81	32.16±2.48	-6.17***
TST work days	419.31±2.31	395.63±5.04	4.65***
TST days off	465.91±3.01	468.76±6.54	-0.43
Sleep problems disturb life	1.27±0.03	2.04±0.08	-11.92***
Fatigue	1.96±0.03	2.94±0.07	-13.63***
Too little sleep	1.76±0.04	2.72±0.10	-9.88***
Difficulties falling asleep	1.82±0.04	2.47±0.10	-6.86***
Early wake up	1.84±0.04	2.26±0.09	-4.56***
Repeated awakenings	2.19±0.04	2.52±0.08	-4.10***
Insufficient rest from sleep	1.75±0.04	3.00±0.09	-14.48***
Stress affects sleep	1.37±0.02	2.79±0.10	-20.59***

Means±se and t-value for sleep characteristics in high and low stress groups. *p<0.05, **p<0.01, ***p<0.001

Considering the possibility of a non-linear relationship between TST and stress we carried out an ANOVA with frequency of stress and sex as between-subjects factors and TST before work days and days off as within-subjects factor.

The main effect of TST was significant (F =513.05, p<0.001) as was the main effect of stress (F =6.18, p<0.001). The main effect of sex was not significant. There was a significant interaction between TST and sex (F =8.01, p<0.01), and between stress and TST (F =15.16, p<0.001). TST before workdays decreased with increased stress frequency and for moderate stress the relationship was inverted before days off. However, this did not apply to the individuals reporting chronic stress who did not increase their TST on days off compared to work days.



Total sleep time in minutes for men and women on workdays (w/d) and days off (d/o).

Discussion

A higher prevalence of subjective stress is related to sleep complaints and disturbances of the daily life in the general population. Most people use the weekend to recuperate and reverse this relationship. However, individuals experiencing chronic stress seems not to be able to extend their sleep duration during the weekend and may be at risk of negative health effects.