Stress Research Institute

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The impact of reduced work time on sleep and stress

- a group randomized intervention study using diary data

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Objective

- Insufficient time for recovery after a workday may cause disturbed sleep, fatigue and stress.
- The aim of the present study was to evaluate an intervention referring to a 25% reduction of weekly work hours with respect to sleep, sleepiness and stress for employees within the public sector in Sweden.

Data and Methods

- Participating work places (N=33) were randomized into an intervention group and a control group.
- Participants (N=580; 71.6% women) worked full time at baseline.
- Work time was reduced to 75% for the intervention group (N=354) with preserved salary.
- Data was collected at baseline, 9-month follow-up and 18-month follow-up.
- Subjective sleep quality, sleep duration, sleepiness, stress and worries at bedtime were measured with diary during one week per data collection.

Results

- A multilevel mixed-model showed that compared with the control group, the intervention group improved over 18 months on sleep quality and sleep duration (+24 minutes) and reduced sleepiness, stress and worries at bedtime (*ps*<.002) on workdays.
- During days off, the intervention group showed improved sleep quality, reduced sleepiness and stress (*ps*<.006), but no effects on sleep duration or worries at bedtime were found.
- Adding gender as an additional factor indicated no differences between women and men in response to the intervention.

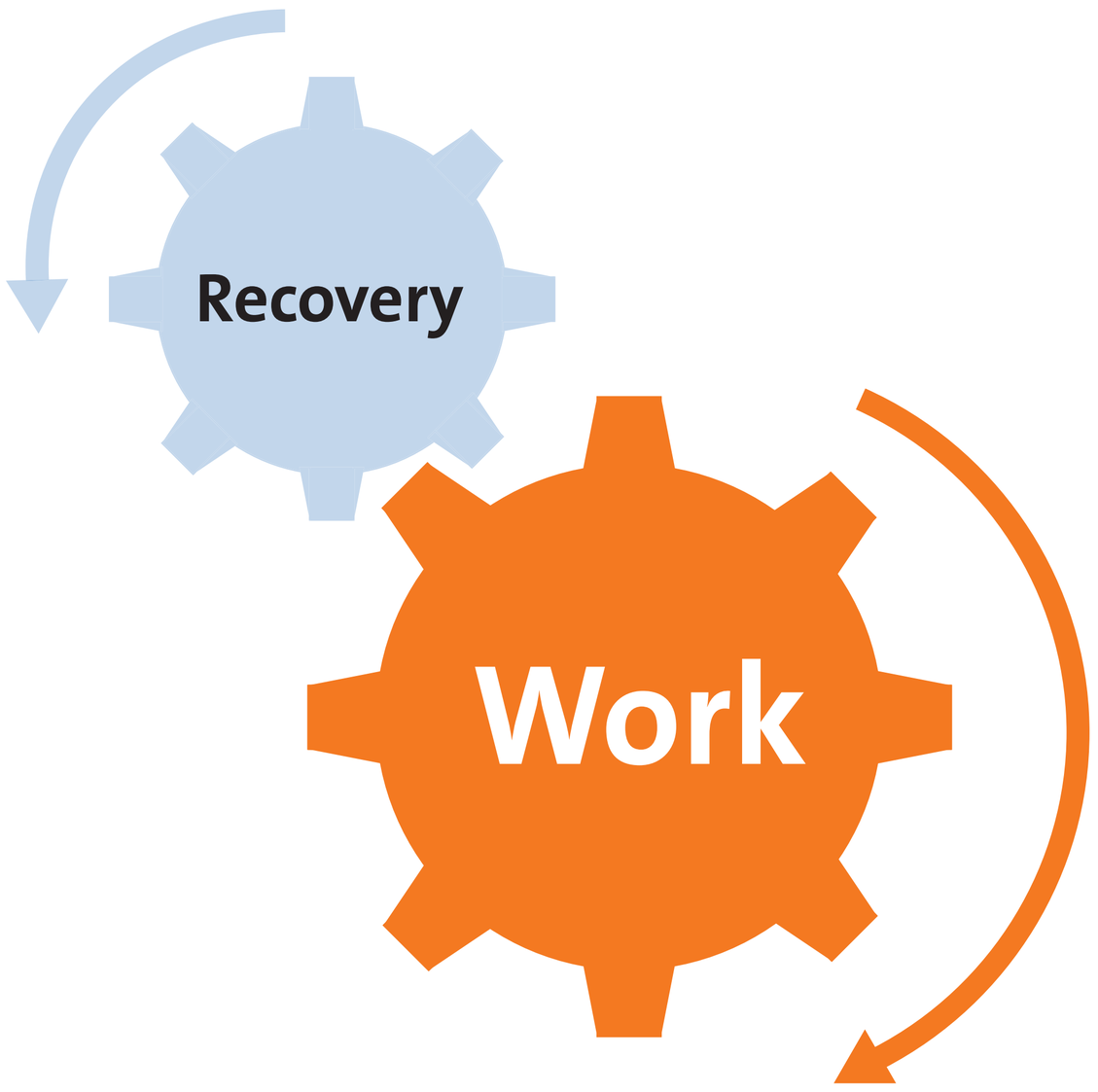

Table 1.
Results of the group by time interaction from the multilevel mixed model analyses. All three data collection periods are included in the model.

Variables	Estimate	S.E.	z	P>|z|	95% C. I.		Cohen's f^2
SSQa work (1 – 5 good)	0.086	0.025	3.39	0.001**	0.036	0.135	0.028
SSQ days off *(1 – 5 good)*	0.109	0.035	3.09	0.002**	0.040	0.179	0.026
Sleep length work *(h)*	0.196	0.034	5.76	0.000**	0.130	0.263	0.067
Sleep length days off *(h)*	-0.042	0.059	-0.71	0.476	-0.159	0.074	0.000
Sleepiness work *(1 – 9 very sleepy)*	-0.206	0.046	-4.53	0.000**	-0.295	-0.117	0.080
Sleepiness days off *(1– 9 very sleepy)*	-0.224	0.058	-3.89	0.000**	-0.337	-0.111	0.042
Stress work *(1 – 9 very high)*	-0.243	0.058	-4.21	0.000**	-0.356	-0.130	0.038
Stress days off *(1 – 9 very high)*	-0.222	0.058	-3.87	0.000**	-0.338	-0.110	0.036
Worries/Stress at bedtime work *(1 – 5 no worry/stress)*	0.089	0.032	2.77	0.006**	0.026	0.151	0.021
Worries/Stress at bedtime days off *(1 – 5 no worry/stress)*	-0.040	0.066	-0.63	0.529	-0.170	0.087	0.000

a) SSQ=Subjective Sleep Quality
*** Significant at the 0.01-level*

Conclusion

- A 25% reduction of weekly working hours with retained salary resulted in beneficial effects on sleep, sleepiness and stress both on work days and on days off.
- This controlled intervention thus indicates that reduced work time over a period of 18 months may improve recovery and reduce stress.

Stress Research Institute is a knowledge centre in the area of stress and health. The Institute is part of the Faculty of Social Science, Stockholm University, Sweden and conducts basic and applied research on multidisciplinary and interdisciplinary methodological approaches.
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