



## A prospective study of the association between shiftwork & prescription drug use

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### Background & Aim

Shiftwork is associated with increased risk of gastro-intestinal problems, metabolic disorders, cardiovascular disease, musculo-skeletal disorders, mental ill-health and chronic sleep disturbance. We aim to analyze data from the Swedish Longitudinal Occupational Survey of Health (SLOSH) and the Finnish Public Sector Study (FPSS) to prospectively examine associations between shiftwork and the purchase of drugs associated with these health complaints.

### Method

SLOSH is an ongoing nationally representative longitudinal cohort survey study. Since the start in 2006 follow-ups have been conducted every second year. The sample currently comprises 21,489 respondents, either in gainful employment or not currently employed. FPSS is an ongoing prospective study of local government employees in 10 towns and 21 public hospitals. The current project uses data from

surveys carried out in 2000–2002 (N = 48,598, response rate 68%) and in 2004 (N = 48,076, response rate 66%). For both SLOSH and FPSS, questionnaire data have been linked to data on redeemed drug prescriptions obtained from national registers.

### Status of the project

Using data from the employed participants of SLOSH, separate analyses have been conducted for ‘shiftworkers’ (i.e. participants working schedules that may or may not include night work; N=2506) and for ‘nightworkers’ (only participants working schedules that include night work; N=1116). In each case, the control group comprised participants doing only ‘day work’ (N=8250 & N=5575). Separate analyses examined first incidence use of seven categories of medication. Adjustments were made for baseline age, sex, smoking status and educational level (plus physicality of work in the analyses of pain medication). Participants

were excluded from an analysis if they had been prescribed the medication before baseline or if they reported having the health complaint at baseline. Cox proportional hazard regression models were used to compute hazard ratios with 95% CIs.

There were no significant associations between either shiftwork or nightwork and the incident use of any drug. However, there were marginally non-significant trends suggesting that night workers were more likely to use hypnotics and type-2 diabetes medication (see Table 1). The absence of significant associations in the other analyses may reflect a lack of statistical power. We will explore this issue in the forthcoming analysis of the FPSS.

### Weblinks

SLOSH: <http://bit.ly/17bdRKK>

FPSS: <http://bit.ly/1a1So7g>

Table 1: Results of the Cox regressions on the association between work schedule and any incidence use of medication in the SLOSH sample.

	Shiftworkers			Nightworkers	
	Model	HR	95%CI	HR	95%CI
Alimentary <sup>1</sup>	0	1.06	0.91-1.23	0.99	0.80-1.23
	1	1.12	0.96-1.30	1.10	0.88-1.37
Anxiety & depression <sup>2</sup>	0	0.84	0.58-1.21	0.88	0.59-1.31
	1	0.78	0.54-1.14	0.83	0.55-1.25
Diabetes (Type 2)	0	0.96	0.62-1.49	1.27	0.69-2.32
	1	1.12	0.71-1.75	1.47	0.80-2.73
Hypertension	0	0.93	0.79-1.09	0.92	0.73-1.17
	1	0.99	0.84-1.17	1.06	0.84-1.35
Hypnotics <sup>3</sup>	0	1.18	0.94-1.49	1.24	0.90-1.71
	1	1.20	0.94-1.53	1.34	0.96-1.85
Metabolic disorder	0	0.90	0.77-1.05	0.92	0.73-1.15
	1	0.96	0.82-1.14	1.07	0.85-1.35
Pain <sup>4</sup>	0	1.12	0.99-1.26	0.94	0.78-1.13
	1	1.08	0.94-1.23	0.92	0.76-1.12

Model 0=crude, Model 1=adjusted.

<sup>1</sup> In the analysis of Alimentary, those reporting symptoms always or often were excluded, while those reporting less frequent symptoms or none were included.

<sup>2</sup> In the analysis of Anxiety and depression, it was only possible to identify those with depression at baseline (for exclusion), as there were no data available regarding anxiety disorders across all four waves.

<sup>3</sup> In the analysis of Hypnotics, those reporting ‘severe’ sleep disturbance at baseline were excluded, while those reporting ‘none’ or ‘moderate’ sleep disturbance were included.

<sup>4</sup> In the analysis of Pain, those reporting pain every day / that effected their lives a lot were excluded, while those reporting less frequent / less severe pain or none were included.