



A prospective study of the association between shift-work & prescription drug use

Göran Kecklund,¹ Philip Tucker,^{1,2} Paula Salo,³ Jussi Vahtera³

¹Stress Research Institute, Stockholm University, Stockholm, Sweden, ²Psychology Department, Swansea University, Swansea, United Kingdom ³Finnish Institute of Occupational Health, Turku, Finland

Background

Shiftwork is associated with increased risk of several health disorders. Previous findings have been based on self-reports & / or medical diagnosis. No studies have examined redeemed drug prescriptions, using register data.

Method

Data obtained from three waves of the Finnish Public Sector Survey (2000, 2004, 2008. 66-68% response rate). Participants were local government employees in 10 towns and 21 hospitals. N=53,275, 82.36% female. Mean age 43.6 (SD=9.8), range 18-69. Responses were linked to data on redeemed prescriptions (until December 2011).

We compared shiftworkers (participants who reported working shifts that included nights) with dayworkers (matched for occupational group). Separate Cox regressions were used to predict time to first incident use of each of eight categories of medication. Every analysis included adjustments for the following covariates: Model 1 - age, sex, education, marital status, size of apartment (a correlate of in-

come); Model 2, Model 1 + BMI, physical activity (met days), smoking status, self-rated health and geographical region. Participants were excluded if they had any recorded purchase of the drug in question prior to follow-up.

Results

In Model 1, shiftworkers were more likely to use medications for hypertension, metabolic disorder, and hypnotics and sedatives. They were less likely to use medication for pain, and anxiety / depression. In Model 2, shiftworkers were more likely to use hypnotics and sedatives, but less likely to use medication for pain, and for anxiety / depression (see Table 1).

Conclusions

The results provide only limited evidence of greater prescription drug use among those who work shifts that include nights. However, the greater use of hypnotics and sedatives by shiftworkers is a relatively unique finding, in so far as it suggests an association between night work and clinically significant levels of sleep disturbance.

Table 1
Cox regression analyses predicting first incident use of each category of medication for shiftworkers, as compared with dayworkers. Hazard Ratios (HR) and 95% Confidence Intervals (CI)

	N	Model	HR	95%CI
Alimentary	38,859	0	0.95	0.92-0.98
		1	1.00	0.97-1.04
		2	1.01	0.97-1.05
Diabetes (Type 2)	41,823	0	0.76	0.69-0.85
		1	0.93	0.84-1.04
		2	0.90	0.80-1.01
Hypertension	37,002	0	0.92	0.88-0.96
		1	1.05	1.01-1.10
		2	1.04	0.99-1.09
Pain	31,009	0	0.94	0.91-0.96
		1	0.95	0.92-0.98
		2	0.94	0.92-0.97
Metabolic disorder	36,370	0	0.90	0.86-0.94
		1	1.05	1.01-1.09
		2	1.03	0.99-1.08
Hypnotics & sedatives	41,078	0	1.10	1.05-1.16
		1	1.18	1.12-1.24
		2	1.19	1.13-1.26
Anxiolytics & antidepressants	39,284	0	0.92	0.87-0.96
		1	0.93	0.88-0.97
		2	0.94	0.90-0.99
Statins	41,065	0	0.75	0.71-0.80
		1	0.99	0.93-1.06
		2	0.97	0.91-1.03

Model 0=crude; Model 1=adjusted for age, sex, education, marital status, and size of apartment;
Model 2=model 1 + BMI, alcohol consumption, physical activity, smoking, self-rated health, region.

Key: Increased HR Decreased HR

CONTACT