



Shiftwork and the use of prescription medication for sleep, anxiety and depression: a prospective cohort study

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Introduction

There is only limited evidence to date linking shiftwork with clinical levels of sleep disturbance and mental health problems. Few studies have examined redeemed drug prescriptions using register data, which is the focus of this study.

Materials and Methods

Data were obtained from three waves of the Finnish Public Sector Study (2000, 2004, 2008. 66-68% response rate). Participants were from two cohorts; local government employees in 10 towns - a mixture of healthcare workers and employees from other occupational sectors ('10 Towns Cohort'); and employees of 21 hospitals ('Hospitals Cohort'). Mean age 43.6 (SD=9.8), range 18-69; 82.4% female. Responses were linked to data on redeemed prescriptions (until December 2011).

Cox regressions were used to predict time to first incident use of Hypnotics & Sedatives and Anxiolytics & Antidepressants, comparing shift workers with dayworkers matched for occupational group. Participants were excluded if they had any recorded purchase of the drug in question prior to follow-up, or if they reported previous diagnosis of depression or other mental disease.

Results

See Table 1. In the 10 Towns Cohort, 3-shift work was associated with greater use of both medications. Two-shift work was associated with greater use of Anxiolytics & Antidepressants. In the Hospitals Cohort, the majority of associations were either non-significant or negative (i.e. indicative of a protective effect). The main exception was associations between 3-shift work and greater use of Hypnotics & Sedatives among those ≥ 40 years.

Conclusions

The finding of greater use of hypnotics and sedatives by rotating nightshift workers adds to the limited evidence to date linking night with clinical levels of sleep disturbance. The finding of greater use of anxiolytics and antidepressants by some groups of shiftworkers provides limited evidence of a link between shiftwork and mental health problems.

Sensitivity analyses indicated that the disparity between cohorts was neither due to the presence of non-healthcare workers in the 10 Towns Cohort, nor to the presence of former shiftworkers in the control sample of the Hospital Cohort. Other possible explanations are that: the cohorts differ with respect to type of shift schedule e.g. the intensity of nightwork; shiftworkers in the Hospital Cohort may be more selected, as it may be easier for them to transfer to daywork.

Table 1

Cox regressions predicting first incident use of medication, comparing shiftworkers with dayworkers. Odds Ratio (OR) and 95% Confidence Intervals (CI).

	Model	Age group								
		≤ 39 years			40-49 years			≥ 50 years		
		N	OR	95% CI	N	OR	95% CI	N	OR	95% CI
10 Towns Cohort										
<i>Hypnotics & Sedatives</i>										
2-shift work	0	11050	1.09	0.92-1.29	9962	1.12	0.96-1.29	8783	1.11	0.96-1.28
	1	10971	1.12	0.94-1.33	9842	1.12	0.96-1.30	8604	1.13	0.98-1.31
3-shift work	0	10079	1.27	1.07-1.51	8475	1.25	1.05-1.49	7159	1.14	0.93-1.39
	1	10004	1.42	1.17-1.71	8362	1.34	1.11-1.62	7008	1.24	1.00-1.53
<i>Anxiolytics & Antidepressants</i>										
2-shift work	0	10910	1.29	1.15-1.46	9789	1.17	1.04-1.31	8702	1.21	1.06-1.37
	1	10835	1.27	1.12-1.45	9673	1.11	0.98-1.26	8525	1.16	1.02-1.32
3-shift work	0	9962	1.07	0.93-1.23	8333	0.97	0.84-1.14	7088	1.25	1.05-1.48
	1	9891	1.20	1.03-1.40	8225	1.02	0.86-1.20	6939	1.24	1.03-1.49
Hospital Cohort										
<i>Hypnotics & Sedatives</i>										
2-shift work	0	4143	0.74	0.60-0.92	4124	1.01	0.85-1.21	4170	1.08	0.93-1.25
	1	4124	0.88	0.70-1.11	4083	1.04	0.86-1.26	4111	1.13	0.95-1.34
3-shift work	0	6736	0.80	0.70-0.92	5181	1.16	1.02-1.32	4071	1.20	1.04-1.39
	1	6704	1.00	0.84-1.18	5130	1.16	1.00-1.35	4024	1.22	1.03-1.44
<i>Anxiolytics & Antidepressants</i>										
2-shift work	0	4071	0.94	0.79-1.11	4062	0.98	0.84-1.15	4143	1.10	0.96-1.28
	1	4052	0.92	0.77-1.11	4022	0.91	0.77-1.08	4087	1.06	0.90-1.24
3-shift work	0	6663	0.79	0.70-0.89	5123	0.93	0.83-1.05	4053	0.85	0.73-0.99
	1	6631	0.82	0.72-0.94	5071	0.91	0.79-1.04	4007	0.76	0.64-0.91

Model 0=crude, model 1=adjusted for age, sex, socioeconomic status, marital status and alcohol consumption.

Key: Increased OR Decreased OR

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