Associations between shift work and use of prescribed medications for the treatment of hypertension, diabetes, and dyslipidemia: a prospective cohort study [1]

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1. *Supplementary tables*
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Table S1: Sample size and frequency of any-incident use of medication, broken down by predictor variable categories.

		10 Towns cohort								
	Medication	Type 2 diabetes			Hypertension			Dyslipidemia		
		N	N new redemptions	%	N	N new redemptions	%	N	N new redemptions	%
Shiftwork status	Daywork	28947	1109	3.8	26202	5389	20.6	28975	3498	12.1
	Shiftwork without nightshifts	5653	258	4.6	5072	1829	24.2	5658	754	13.3
	Shiftwork with nightshifts	3609	126	3.5	3309	700	21.2	3610	441	12.2
Age at baseline	≤39	14056	223	1.6	13784	1759	12.8	14150	444	3.1
	40-49	12868	489	3.8	11726	2773	23.7	12942	1595	12.3
	≥50	11285	781	6.9	9073	2786	30.7	11151	2654	23.8
Sex	Male	7985	437	5.5	7082	1459	20.6	7958	1272	16.0
	Female	30178	1056	3.5	27501	5859	21.3	30285	3421	11.3
Occupational status	Upper white-collar	14423	406	2.8	13283	2410	18.1	14410	1465	10.2
	Lower white-collar	8759	386	4.4	7803	1821	23.3	8780	1169	13.3

	Skilled blue-collar	9767	333	3.4	8920	1902	21.3	9830	1132	11.5
	Other blue-collar	5260	368	7.0	4577	1185	25.9	5223	927	17.8
Marital status	Unmarried	4820	140	2.9	4535	708	15.6	4827	363	7.5
	Married / cohabiting	27420	1078	3.8	25712	5436	21.4	28446	3540	12.4
	Divorced	4117	200	4.9	3613	955	26.4	4119	613	14.9
	Widow(er)	507	44	8.7	422	133	31.5	502	107	21.3
Smoking	No	30082	1099	3.7	27157	5623	20.7	30067	3612	12.0
	Yes	7218	352	4.9	6603	1496	22.7	7271	919	12.6
					Hospital cohort					
	Medication	Type 2 diabetes			Hypertension			Dyslipidemia		
		N	N new redemptions	%	N	N new redemptions	%	N	N new redemptions	%
Shiftwork status	Daywork	10215	374	3.7	9225	2342	25.4	10139	1305	12.9
	Shiftwork without nightshifts	3512	140	4.0	3121	833	26.7	3505	484	13.8
	Shiftwork with nightshifts	8035	223	2.8	7546	1654	21.9	7987	668	8.4
Age at baseline	≤39	8564	161	1.9	8438	1340	15.9	8598	208	2.4
	40-49	7051	197	2.8	6497	1870	28.5	7035	812	11.5
	≥50	6147	379	6.2	4957	1639	33.1	5998	1437	24.0
Sex	Male	2709	109	4.0	2471	558	22.6	2679	434	16.2
	Female	19053	628	3.3	17421	4271	24.5	18952	2023	10.7
Occupational status	Upper white-collar	3794	142	3.7	3433	2536	17.3	3748	549	14.7

	Lower white-collar	12367	332	2.7	11489	2536	22.1	12367	1021	8.3
	Skilled blue-collar	2977	119	4.0	2644	754	28.5	2926	452	18.4
	Other blue-collar	2624	144	5.5	2316	651	28.1	2591	435	16.8
Marital status	Unmarried	2678	77	2.9	2428	479	19.0	2648	187	7.1
	Married / cohabiting	16521	557	3.8	15117	3735	24.7	16463	1890	11.5
	Divorced	2141	89	4.2	1897	505	26.6	2111	305	14.5
	Widow(er)	274	10	3.7	221	75	33.9	264	54	20.5
Smoking	No	18087	567	3.3	16485	3947	23.9	17981	2021	11.2
	Yes	3046	116	3.8	2826	721	25.5	3022	364	12.1

Table S2: Number of participants, number of events and person-years by age group and cohorts for each of three types of medication and the three types of work schedule.

	10 Towns cohort								
Age at baseline	≤ 39 years			40-49 years			≥ 50 years		
Medication Shiftwork status	N	Events	Person-years	N	Events	Person-years	N	Events	Person-years
Type 2 diabetes									
Daywork	10497	152	79101	9790	352	78440	8613	605	71368
Shiftwork without nightshifts	1876	44	14522	1935	94	15765	1833	120	14478
Shiftwork with nightshifts	1662	27	12150	1130	43	9247	804	56	6446
Hypertension									
Daywork	10119	1244	71641	8647	2045	61168	6495	2099	45305
Shiftwork without nightshifts	1803	295	12881	1655	459	11772	1395	475	9295

Shiftwork with nightshifts	1611	220	11050	999	268	7050	608	212	4150
Dyslipidemia									
Daywork	10550	303	78957	9684	1165	73978	8009	2020	58609
Shiftwork without nightshifts	1891	73	14429	1907	245	14887	1684	436	11911
Shiftwork with nightshifts	1666	68	12116	1134	185	8612	733	188	5201
				Hospital cohort					
Age at baseline		≤ 39 years			40-49 years			≥ 50 years	
Medication Shiftwork status	N	Events	Person-years	N	Events	Person-years	N	Events	Person-years
Type 2 diabetes									
Daywork	3238	55	25761	3583	90	31462	3382	229	29275
Shiftwork without nightshifts	1149	25	9389	1039	34	8852	1321	81	11235
Shiftwork with nightshifts	4160	81	33807	2423	73	21804	1435	69	12813
Hypertension									
Daywork	3108	85	25744	3531	398	29658	3110	822	23792
Shiftwork without nightshifts	1095	36	9440	1025	130	8325	1209	318	9148
Shiftwork with nightshifts	4035	87	33628	2389	284	20545	1335	297	10715
Dyslipidemia									
Daywork	3253	85	25744	3531	398	29658	3110	822	23792
Shiftwork without nightshifts	1159	36	9440	1025	130	8325	1209	318	9148
Shiftwork with nightshifts	4165	87	33628	2389	284	20545	1335	297	10715

Table S3: Associations between Shiftwork without nightshifts and Shiftwork with nightshifts and any incident use of medication.

		10 Towns cohort						Hospital cohort					
Age at baseline		≤ 39 years		40-49 years		≥ 50 years		≤ 39 years		40-49 years		≥ 50 years	
	Model	HR	95% CI	HR	95% CI	HR	95% CI	HR	95% CI	HR	95% CI	HR	95% CI
Hypertension													
Shiftwork without nightshifts	0	**1.30**	**1.15-1.49**	**1.17**	**1.06-1.29**	1.07	0.98-1.19	1.07	0.92-1.26	1.07	0.93-1.22	1.09	0.97-1.23
	1	**1.22**	**1.07-1.39**	**1.13**	**1.02-1.25**	1.05	0.94-1.16	1.10	0.92-1.30	1.04	0.91-1.20	1.06	0.93-1.21
	2	**1.20**	**1.05-1.37**	**1.16**	**1.04-1.29**	1.05	0.95-1.17	1.11	0.93-1.33	1.06	0.92-1.22	1.04	0.91-1.20
	3	**1.22**	**1.07-1.41**	**1.14**	**1.02-1.26**	1.02	0.92-1.13	1.08	0.94-1.30	1.03	0.89-1.19	1.02	0.89-1.18
Shiftwork with nightshifts	0	**1.16**	**1.08-1.34**	**1.15**	**1.01-1.30**	1.09	0.95-1.25	**0.87**	**0.77-0.98**	0.94	0.85-1.04	0.92	0.82-1.03
	1	1.14	0.98-1.33	1.13	0.99-1.30	1.06	0.91-1.23	0.89	0.77-1.02	**0.88**	**0.78-0.99**	0.95	0.82-1.09
	2	**1.18**	**1.00-1.38**	**1.16**	**1.01-1.33**	1.05	0.90-1.22	0.91	0.79-1.04	0.90	0.80-1.02	0.95	0.82-1.09
	3	1.16	0.99-1.36	**1.17**	**1.02-1.35**	1.03	0.89-1.20	0.91	0.79-1.05	**0.86**	**0.77-0.98**	0.91	0.78-1.05
Type II Diabetes													
Shiftwork without nightshifts	0	**1.55**	**1.10-2.18**	**1.34**	**1.06-1.68**	0.94	0.77-1.15	1.24	0.78-1.97	1.37	0.97-2.01	0.94	0.73-1.21
	1	1.23	0.87-1.73	**1.28**	**1.01-1.62**	0.91	0.74-1.11	1.05	0.63-1.74	1.33	0.88-2.02	0.83	0.63-1.10
	2	1.24	0.87-1.75	**1.28**	**1.01-1.62**	0.87	0.70-1.08	0.92	0.54-1.55	1.28	0.84-1.94	0.84	0.63-1.12
	3	1.32	0.92-1.90	1.25	0.98-1.59	0.85	0.68-1.05	0.83	0.48-1.43	1.15	0.75-1.79	0.85	0.63-1.14
Shiftwork with nightshifts	0	1.15	0.76-1.74	1.02	0.74-1.40	1.05	0.80-1.37	1.08	0.76-1.52	1.14	0.85-1.56	**0.74**	**0.56-0.96**
	1	1.03	0.67-1.59	0.93	0.66-1.29	0.93	0.70-1.24	1.04	0.70-1.54	1.24	0.86-1.79	0.78	0.57-1.07
	2	1.06	0.68-1.66	0.90	0.64-1.28	0.93	0.69-1.25	1.09	0.74-1.63	1.30	0.91-1.88	0.79	0.57-1.09
	3	1.11	0.70-1.75	0.83	0.59-1.18	0.91	0.67-1.23	1.12	0.75-1.67	1.09	0.75-1.59	0.79	0.56-1.09
Dyslipidemia													
Shiftwork without nightshifts	0	**1.35**	**1.05-1.74**	1.04	0.90-1.19	1.06	0.96-1.18	1.19	0.81-1.74	1.17	0.9761.42	1.01	0.89-1.15
	1	1.23	0.95-1.59	1.02	0.89-1.18	1.04	0.93-1.16	1.19	0.78-1.81	1.21	0.98-1.48	1.02	0.88-1.18
	2	1.19	0.91-1.56	1.03	0.90-1.19	1.04	0.94-1.17	1.12	0.73-1.73	**1.21**	**0.98-1.50**	1.03	0.89-1.20
	3	1.24	0.95-1.63	1.02	0.88-1.18	1.04	0.93-1.16	1.09	0.70-1.69	1.18	0.95-1.46	1.03	0.89-1.20
	0	**1.51**	**1.16-1.97**	**1.35**	**1.16-1.58**	1.06	0.92-1.22	**0.70**	**0.52-0.94**	1.02	0.87-1.18	**0.81**	**0.71-0.93**

Shiftwork	1	1.09	0.81-1.47	**1.26**	**1.07-1.49**	1.01	0.86-1.18	0.94	0.64-1.38	1.03	0.86-1.23	**0.81**	**0.69-0.94**
with	2	1.17	0.87-1.59	**1.33**	**1.12-1.57**	1.00	0.85-1.17	0.94	0.63-1.37	1.07	0.89-1.28	**0.81**	**0.69-0.95**
nightshifts	3	1.11	0.81-1.52	**1.32**	**1.11-1.56**	0.99	0.84-1.16	0.96	0.65-1.42	1.05	0.87-1.26	**0.80**	**0.68-0.95**

Model 0=crude, Model 1=adjusted for sex, occupational status, and marital status; Model 2=Model 1 + alcohol consumption, (alcohol consumption)^2, smoking, physical activity, and (physical activity)^2; Model 3=Model 2 + BM I and (BMI)^2. Significant associations in bold.