diary filled out by the nurses at the end of each work-shift provided information concerning family and social relationships during a typical working week. Habits on coffee, smoke, time of meal assumption and home management during working days were also collected.

Result Nurses working on CCW shift rotation reported more frequently difficulties in keeping adequate family and social relationships compared to nurses working on CW one (96% vs 73%, p=0.002).

No differences were reported in coffee (3–4 cups/day), smoking (61%) habits and time of meals assumption (irregular in about 33% of nurses) during working days in the two groups. No differences were reported in the time spent in home management by the two groups.

Discussion CCW shift rotation seemed to disrupt quality of family and social relationships of nurses more than CW one. The fact that CCW shift rotation is associated to higher sleep disturbances and more fatigue in the free-time might partially explain these results. These aspects should be taken into account in shift-work schedule organisation, particularly in women.

Influence of shiftwork and chronotype on sleep duration and occupational accidents: findings from a cross-sectional study in metal working industry

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Introduction Atypical work-times such as night shifts and very early shifts can affect the quality and quantity of sleep. Short sleep duration and disturbed sleep are associated with a heightened accident risk. Humans and animals are influenced by a biological clock which is genetically determined and synchronised by daylight. The study investigates the impact of the start of working time and chronotype on sleep duration and occupational accidents.

Methods In this cross-sectional study data were collected from about 550 employees in the woodworking and metalworking industry. Analyses were conducted for relationships between chronotype, start of working time, sleep duration and accidents.

Result The average chronotype moves by two hours towards an earlier type from the youngest to the oldest group of employees. Among the subjects without accidents 23% regard themselves as morning types, 69% as intermediate types and 9% as evening types. Among the subjects who had an accident 32% were morning types and 5% evening types. The late chronotypes get the least sleep on workdays and the early chronotypes get the least sleep on work-free days. Significant differences in the sleep duration were found for morning shift workers compared to day workers. A relevant proportion of the sleep deficit is due to the early start of working time.

Discussion The study shows significant chronotype-dependent differences in the sleep duration on work-days and free days. Early chronotypes seem to be unable to compensate their sleep deficit on free days, late types are unable to sleep early in the evening. Results will be useful to identify groups of workers at heightened risk for sleep deficit and sleepiness at work. In this way occupational accidents in shift workers and workers with an early starting time of work could be reduced.
work and extra-work accidents. The long-term effects, such as obesity, cardiovascular disease and cancer, are difficult to study, because of the need for detailed exposure assessment and the long latency periods of these diseases.

**Method** A review of literature on PubMed from 2000 to 2017 on diet and health effects in night shift workers was conducted to collect epidemiologic evidence of diseases in night shift workers, describing their biological pathways and a set of dietary guidelines.

**Results** Significant Rate Ratio and Hazard Ratio increases of different diseases associated to modified eating behaviour and poor eating habits among night shift workers are reported. The night shift work is a risk factor for disruption of the circadian rhythms and for some genetic deregulation, because it produces the inversion of the sleep/wake cycle and modifies the alternation between activity and rest.

**Discussion** Healthy diet and improved dietary practices can reduce shift-workers’ chronic disease risk. In literature was shown the importance of eating behaviour in order to prevent diseases in these workers, therefore educational programs are necessary to encourage several important lifestyle changes. Interventions to reduce chronic disease risk among shift workers should incorporate several important lifestyle changes (i.e.: healthy diet, improved dietary practices, decreased drug and alcohol use, physical activity, proper sleep and light exposure). The reported findings suggest a possible role of educational programs on eating behaviour as preventive strategies in this group of workers. Actually is missing a deep knowledge of the relationship between specific dietary compositions (i.e. Mediterranean diet) and the prevention programs of diseases among shift workers.

**Abstracts**

**NIGHTSHIFT WORK AND PROSTATE CANCER AMONG HONG KONG CHINESE MEN**

**Introduction** A positive association between nightshift work and prostate cancer risk has been reported in epidemiological studies, but the findings have been mixed. Also, none of the previous studies has attempted to sufficiently consider the possible confounding effect from dietary sources including environmental exposure to bisphenol A (BPA). This study aims to examine the association between night shift work and prostate cancer risk among Hong Kong Chinese men after take into account more environmental exposures.

**Methods** We consecutively recruited 431 incident prostate cancer cases and age frequency matched 402 controls who had complete information on nightshift work. After receiving written consents, trained researchers interviewed participants using a standard questionnaire to obtain information on socio-demographics, smoking, dietary habits, habits of using plastic food containers, family cancer history, and occupational history and nightshift work. A newly developed novel cumulative BPA exposure index (CBPAI) was used to estimate chronic BPA exposure. Odds ratio and 95% confidence interval (95% CI) was performed using multiple logistic regression analysis.

**Results** The mean age of prostate cancer cases was comparable to the controls (69.4 vs 68.2 years). Compared with the controls (39.1%), more cases were less educated with a higher proportion of ‘primary school or below’ (41.1%). More cases than controls were the nightshift workers (13.5% vs 7.5%). After adjustment of age and socioeconomic characteristics, the OR of nightshift work to prostate cancer was 1.87 (95% CI: 1.16 to 3.01), and the OR retained statistical significance (OR=1.76, 95% CI: 1.07 to 2.89) after environmental exposures mainly from dietary sources were further adjusted.

**Discussion** Results from this study provided supportive evidence that there might be a link between nightshift work and prostate cancer. The main merit of this study is that more environmental risk factors were considered in quantifying the association.

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**WORK SCHEDULE AND PROSPECTIVE ANTIDEPRESSANT PRESCRIPTIONS IN THE SWEDISH WORKFORCE: A 2-YEAR STUDY USING NATIONAL DRUG REGISTRY DATA**

1. **Introduction** Mood disorders affect millions of individuals worldwide and contribute to substantial morbidity and disability. A better understanding of modifiable work-related risk factors for depression could inform and advance prevention efforts in this area. This study used a large Swedish longitudinal occupational survey to prospectively examine the effect of self-reported work schedule on registry-based antidepressant prescriptions over a two-year period.

2. **Methods** The analytic sample (n=8643) was obtained from the Swedish Longitudinal Occupational Survey of Health. Sex-stratified and unstratified analyses were conducted using logistic regression. For exposure, 8 categories were used to describe work schedule in 2008: ‘regular days’ (3 categories: night work history=none, ≤5 years, or 4+ years), ‘night work (regular, rostered, or rotating)’, ‘regular shift work (no nights)’, ‘rostered work (no nights)’, ‘flexible/non-regulated hours’, and ‘other’. For the outcome, all prescriptions coded N06A according to the Anatomical Therapeutic Chemical System were obtained from the Swedish National Prescribed Drug Register and dichotomized into ‘any’ or ‘no’ prescriptions between 2008 and 2010. Estimates were adjusted for potential sociodemographic, health, and work confounders, and for prior depressive symptoms.

**Results** In unadjusted analyses, an increased odds ratio for depression was observed for ‘Other’ work hours in unstratified (OR=1.75, 95% CI: 1.21 to 2.51) and female (OR=1.62, 95% CI: 1.05 to 2.51) models; in adjusted models effects persisted but confidence intervals widened to non-significance at the p=0.05 level. In models adjusted for previous depressive symptoms, females in ‘flexible/non-regulated’ schedules showed an increased odds ratio for depression (OR=2.01, 95% CI: 1.08 to 3.76), while a decreased odds ratio was observed for the unstratified model ‘regular shift work (no nights)’ category (OR=0.61; 95% CI: 0.38 to 0.97).

**Discussion** This study’s findings support prospective relationships between work schedule and antidepressant prescriptions.