Pesticides and other agrochemical were found to be within reach of farmers who get their supplies from agrochemical dealers at their farms and homes. Farmers who apply pesticides in mixtures were of the view that tank mixing was favourable because it saves time, labour and cost since more than one pesticide could be applied in a single supply. Farmers generally were aware of the potential adverse impacts of pesticide deposition on the environment but didn’t know it has adverse health effect on human. Most farmers stored agrochemicals in multipurpose storage structures together.

**Introduction**

The prevalence of shiftwork is especially high with hospital healthcare workers. A number of epidemiological studies have found an association between night shift work, and cardiovascular (CVD) and endocrine diseases, involving circadian, behavior and social characteristics.

**Objectives**

The aim of the study was to investigate the association between night shift work and cardiovascular and endocrine diseases in hospital healthcare workers in Bulgaria and possible mediating factors.

**Methods**

The study included 2690 healthcare workers with an average age of 48.0 ± 12.0 years and an average length of service 24.8 ± 12.7 years, from 19 hospitals with >150 beds in Sofia, Bulgaria. A self-administered questionnaire was used to gather information about demographic, physical and behavior characteristics, previous and current work schedules, and the health status of healthcare workers.

**Results**

The worker group with the highest prevalence with CVD was ex-night shift workers (35.3%), followed by night shift workers (24.4%) and the lowest with day workers (16.3%). The OR for developing a CVD for night workers was 1.98 (95% CI: 1.26–3.13); and endocrine diseases, 1.33 (95% CI: 0.83–2.12). The development of CVD was related to age, family history for hypertension and coronary heart disease, body mass index (BMI), heavy smoking and sleep disorders, while endocrine diseases with BMI, shift system, alcohol consumption and family history for diabetes.

**Conclusion**

Data from our study strongly support the evidence for an increased risk and higher prevalence of cardiovascular and endocrine diseases in night shift workers. Actions for improvement of shiftwork organization and health promotion are needed for tackling CVD and endocrine diseases for a better health status of health care workers.
Among night shifters, those who perceived that they frequently had excess workload were 4.54 (1.03 – 20.00) times more likely to frequently experience physical symptoms.

Conclusion This study has shown that there is an association between specific occupation hazards and shiftwork with adverse physical health among Filipino female factory workers.

Introduction Some observational and in vivo studies suggest dynamic neck movements and positions as causes of cervical disc disease. However, epidemiological evidence using objective measurements on neck position and movements as exposure is limited.

Objectives We studied the associations between objectively measured occupational neck movements and postures and CDH.

Methods We formed a cohort of 852,625 Danish workers who ever held at least one of 29 jobs (e.g. dentists, hairdressers, childcare, carpenters) from 1981 to 2016. Representative whole work-day inclinometric measurements using triaxial accelerometers measuring neck angular velocity and posture of the neck were used as exposure. Job titles were retrieved from the Danish Occupational Cohort with Exposure data (DOC-X) database. First diagnosis of CDH was retrieved from the Danish National Patient Register. The risk of CDH by quintiles of cumulated exposure was assessed by incidence rate ratios (IRR), adjusted for age, sex, calendar-year, previous lumbar disc herniation and education, using Poisson regression models.

Results We found 14,000 cases of CDH during 20.2 million person-years of follow-up. Crude analyses showed an increasing IRR of CDH with increasing angular velocity of the neck. However, in the fully adjusted model increasing levels of neck angular velocity showed a decreasing risk with IRR 0.90 [95% confidence interval (CI) 0.86–0.95] when the highest quintile (dynamic work) was compared to the lowest but with no clear exposure-response pattern. The effect became insignificant when adjusted for hand force. Hand force had an IRR of 2.65 (95%CI 2.13–3.29) for the highest vs. the lowest exposure with an exposure-response pattern, which remained after adjustment for wrist velocity. Among women, no increased risk was found for hand force, while wrist velocity showed a significantly protective association with D-UEMSD.

Conclusions In men, occupational exposure to hand force more than doubled the risk of seeking treatment for D-UEMSD. The results for exposure to repetition were less clear. In women, we could not find any indications of an increased risk neither for force nor repetition.

Introduction Some evidence exits of an association between measures of occupational use of hand force and repetition and tendinitis of the wrist and epicondylitis of the elbow. However, these studies have often been limited by bias because of self-reported exposure and an outcome sensitive to time fluctuations.

Objectives To investigate occupational repetitive movements and the use of hand force as causes of distal upper extremity musculoskeletal disorders (D-UEMSD).

Methods A cohort of 202,735 workers in a private pension health scheme from 2005 to 2017 in one of 17 jobs (e.g. office work, carpentry, cleaning) was formed. Representative electro-goniometric measurements of wrist angular velocity as a measure for repetition and expert-rated use of hand force were used as exposures. Job titles were retrieved from the Danish Occupational Cohort with Exposure data (DOC-X) database. Outcome was first treatment for D-UEMSD. In a Poisson regression model, the incidence rate ratios (IRRs) of D-UEMSD were adjusted for age, calendar-year, diagnosis of rheumatoid arthritis and arm fractures. In further analyses, wrist velocity or hand force was added.

Results In men, wrist velocity had an IRR of 1.48 (95%CI 1.15–1.91) when the highest exposure level was compared to the lowest but with no clear exposure-response pattern. The effect became insignificant when adjusted for hand force. Hand force had an IRR of 2.65 (95%CI 2.13–3.29) for the highest vs. the lowest exposure with an exposure-response pattern, which remained after adjustment for wrist velocity. Among women, no increased risk was found for hand force, while wrist velocity showed a significantly protective association with D-UEMSD.

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P-50 OCCUPATIONAL MOVEMENTS AND POSTURES OF THE NECK AS RISK FACTORS FOR CERVICAL DISC HERNIATION (CDH).

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10.1136/OEM-2021-EPI.176

PROSPECTIVE ASSOCIATIONS OF MULTIPLE EXPOSURES TO PSYCHOSOCIAL WORK FACTORS WITH WELL-BEING AMONG EMPLOYEES IN FRANCE

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10.1136/OEM-2021-EPI.178

Objective Literature reviews showed adverse effects of high job demands, low job control, and low social support at work on well-being in working populations. Other psychosocial work factors (PWFs) remain understudied in association with well-being. We aimed to examine the prospective associations of a large variety of PWFs and other occupational exposures with poor well-being, as evaluated by the WHO-5 well-being index. An additional objective was to explore the effects of multiple occupational exposures on this outcome.

Methods The study sample consisted of 15776 employees aged 15–65 years (9181 women, 8579 men) included in the representative sample of the French national survey on working conditions and followed up from 2013 to 2016. Participants were classified as having poor well-being if they had a WHO-5 score below 13. Occupational exposures included 20 PWFs which were studied separately and then grouped into five dimensions (work demands, work organization and job content, interpersonal relations and leadership, work-individual interface, workplace violence), 4 factors related to working