Results Adjusted results indicated a positive association between work onboard aircrafts and skin melanoma (OR=2.30, 95% CI: 1.06–4.97) and the risk seemed only to be elevated in the subgroup of pilots (OR=7.08, 95% CI: 2.51–19.93). Longer duration of employment as pilot was further indicated to increase the risk of skin melanoma (OR per year=1.07, 95% CI: 1.01–1.14).

Conclusions Findings from our study, adjusted for potential confounders, support existing evidence suggesting that pilots have an occupational related increased risk of skin melanoma. However, the association need to be confirmed by future large-scale studies, including detailed objective information on dimensions of exposure and potential confounders.

Psychosocial exposures

Introduction While psychosocial working conditions have been associated with morbidity, their associations with mortality, especially cause-specific mortality, were less studied. Additionally, few studies considered the potentially time-varying aspect of exposures. We aimed to examine trajectories of job demand-control status in relation to all-cause and cause-specific mortality, including cardiovascular diseases (CVD), suicide, alcohol-related, and dementia mortality.

Material and Methods The study population consisted of around 4.8 million individuals aged 16 to 60 years in Sweden in 2005. Job control and job demands were measured using Job Exposure Matrices (JEMs). Trajectories of job control and job demands throughout 2005–2013 were identified, and job demand-control categories were subsequently classified. Deaths were recorded in the national death register until the end of 2019. Cox regression models were used.

Results A total of 148,399 individuals died in 2006–2019. Most individuals appeared to stay in a similar occupational category over the years and thus had stable levels of job control and job demands assessed using JEMs. Low control and passive jobs were associated with higher all-cause, CVD, and suicide mortality in both men and women. High strain jobs were associated with higher all-cause and CVD mortality in men. While low control, passive jobs, and high strain jobs were associated with higher alcohol-related mortality in women, they were associated with higher dementia mortality in men.

Conclusion Psychosocial working conditions are related to all-cause and cause-specific mortality, and there are sex differences in the associations. Future studies considering the time-varying aspect of job exposures using JEMs should note that most workers do not change occupations.

Nanoparticles

Introduction Due to the increasing demand of engineered nanomaterials (ENMs) in industrial application, the health of engineered nanoparticle (ENPs) exposed workers is engaging more attention. Metal and metal oxide nanoparticles are often used as industrial catalysts which can generate reactive oxygen species leading to increased oxidative stress in humans after inhaling. However, more understanding is needed to clarify the physiological effects and plausible biological mechanisms associated with ENPs. This study aimed to assess long-term changes in oxidative stress and DNA methylation damage in workers exposed to metal oxides nanoparticles.

Material and Methods 376 participants from 15 factories completed a questionnaire interview, blood and urine samples donation during their annual physical examinations from 2010 to 2012. Urinary 8-hydroxy-2-deoxyguanosine (8-OHdG) and N7-methylguanine (N7-MeG) were identified as biomarkers of oxidative and methylated DNA damage, respectively. Plasma superoxide dismutase (SOD) and glutathione peroxidase-1 (GPx-1) were identified as biomarkers of antioxidants. Based on the ENMs handled by the participants, they were divided into four groups: nano-titanium dioxide (nano-TiO2) and nano-silver (nano-Ag) co-exposed, nano-Ag exposed, nano-TiO2 exposed, and reference group.

Results After adjusting for confounders in generalized estimating equation (GEE) model, a significant increase in log N7-MeG of 112.4% (β = 0.327, 95% C.I. = 0.171 to 0.484) and a significant decrease in log GPx-1 of 6.6% (β = -0.030, 95% C.I. = -0.052 to -0.007) were found in the nano-Ag exposed group compared with the reference group. A significant decrease in log SOD of 13.4% (β = -0.062, 95% C.I. = -0.122 to -0.003) was found in the nano-TiO2 and nano-Ag co-exposed group compared with the reference group.

Conclusion Elevated methylated DNA damage and reduced enzymatic antioxidant activity were observed in workers exposed to Nano-Ag. Notably, this study also observed a reduced enzymatic antioxidant activity in the nano-TiO2 and nano-Ag co-exposed workers.