

P-181 **THE PREVENTION OF OCCUPATIONAL HEAT STRESS IN SUGARCANE WORKERS IN NICARAGUA: AN INTERPRETATIVE PHENOMENOLOGICAL ANALYSIS**

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Introduction Chronic kidney disease of non-traditional origin (CKDnt) is an ongoing epidemic that has taken the lives of tens of thousands of people in Mesoamerica, also affecting other tropical geographies. Occupational heat stress, which will increase worldwide as climate change persists, has been identified as a primary trigger of inflammation and subsequent kidney injury and reduced renal function. At Nicaragua's largest sugarcane mill, the water, rest, shade (WRS) intervention has proven to reduce the risk of heat stress and kidney injury effectively as assessed by the research and policy NGO La Isla Network and their academic partners. However, discrepancies between intervention design and implementation have been found.

Objective This study explores the perceptions of the WRS intervention in the company from the perspective of positions responsible for the workers' environment and heat stress prevention implementation.

Method A qualitative design was used in the study. Twenty-one key informants of low and middle management, field assistants, and two members from La Isla Network took part in the study. Semi-structured interviews were used to collect the data. Interviews' transcriptions were analyzed using interpretative phenomenological analysis.

Results Four main themes were developed in the analysis of the data: 'A worthwhile struggle,' 'Culture of care,' 'Traditional production culture versus Culture of care,' and 'The importance of the formalization of care.' Each theme contained sub-themes, all of which were further discussed in the light of organizational psychology.

Conclusion Discretionary differences resulting in low and middle management prioritizing production over health protection appeared to relate to a fair part of the implementation challenges and indicate that more efforts are needed to align operations' production and health goals. Education enhancement might be necessary, while further focus on health metrics for performance assessment might offer an opportunity to level perceived incentives and value of health and production.

P-183 **THE COSTS IMPUTABLE TO WORK STRESS IN EUROPEAN COUNTRIES: HOW MUCH DOES IT COST FROM A SOCIETAL PERSPECTIVE? A STUDY PROTOCOL**

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Introduction Work-related psychosocial exposures are highly prevalent in European countries and are associated with various health outcomes, especially mental disorders and cardiovascular diseases (CVD). Evaluations of the economic burden of psychosocial work exposures are however very seldom in the literature.

Objective To estimate the annual costs of depression and CVD attributable to work-related psychosocial exposures in 28 European Union countries (EU28).

Methods This study will follow the top-down cost-of-illness (COI) approach, which estimates the economic burden of health conditions in a population from a societal perspective, starting from the total costs of diseases. We will estimate the fractions of these costs that are attributable to work-related psychosocial exposures (attributable fractions, AFs). AF estimates require data on the prevalence of exposure in the whole population, and on the relative risk of developing the disease when exposed to the risk factor. Relative risk estimates will come from a systematic literature review. Prevalence of exposure estimates will derive from an analysis of the 2015 European Working Conditions Survey data. Work-related psychosocial exposures will include the factors from the job strain model, effort-reward imbalance model, and other models/concepts depending on the availability of data.

Results Our evaluation of costs will include: (1) direct health-care costs as reimbursed by public healthcare systems: outpatient visit fees to physicians and other health professionals, hospitalisations, emergency room visits and medication, (2) direct healthcare costs as out-of-pocket payments paid by patients, depending on the extent of the public healthcare system in each country, (3) indirect costs due to sickness absences at work, to disability leave, early retirement and premature death, and the cost of presenteeism when available.

Conclusion This study will provide original and relevant insights on a macro-level for policy-makers and stakeholders when defining public health priorities and preventive strategies in European countries regarding work stress prevention.

P-191 **JOB SATISFACTION AMONG HEALTH CARE PROFESSIONALS WORKING AT THE SURGERY DEPARTMENTS IN NIŠ, SERBIA**

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Introduction Job satisfaction in health care is an important factor determining quality and performance of a health care system.

Objectives The objectives of this study are to assess job satisfaction among Serbian health care professionals of the surgery clinics and to evaluate factors that could influence the job satisfaction rating.

Methods A cross-sectional study using anonymous self-report questionnaire (Spector, 1994) was performed between June 2016 and March 2017. The study included 158 health care professionals, 33 males (20.9%) and 125 females (79.1%), from the surgery departments of Niš, Serbia. The questionnaire with 36 item has nine facet scale (Pay, Promotion, Supervision, Fringe Benefits, Contingent Rewards, Operating Procedures (required rules and procedures), Coworkers, Nature of Work, and Communication) and each facet is assessed with four items, and a total score is computed from all items. Data were analyzed using SPSS version 20.

Results Highest-rated factors of job satisfaction were nature of work (the average score was 15.78 ± 5.38 , maximum 24) and supervision (14.90 ± 5.79). Highest-rated stressors were fringe benefits (10.90 ± 4.36), and promotion (11.26 ± 4.33). Compared to nurses, a higher total job satisfaction was found among doctors ($p = 0.020$). There was a statistically

significant correlation between overall job satisfaction and managerial roles leader ($r = 0.272$, $p = 0.002$), decision maker ($r = 0.196$, $p = 0.022$), innovator ($r = 0.206$, $p = 0.014$) and negotiator ($r = 0.237$, $p = 0.005$). There was no correlation between total job satisfaction and motivation of health care professionals ($r = -0.033$; $p = 0.713$).

Conclusion The finding suggests that the nature of work, supervision and coworkers had a modest effect on job satisfaction of healthcare workers at surgery departments. Strengthening of managerial skills would lead to increased job satisfaction of health workers.

P-193 ASSOCIATION BETWEEN SLEEP-WAKE ACTIVITY CIRCADIAN RHYTHM AND MILD COGNITIVE IMPAIRMENT AMONG WORKERS WITH PNEUMOCONIOSIS IN HONG KONG

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Introduction Weakened circadian activity rhythm was found to increase dementia and mild cognitive impairment (MCI) among female aged general population, but little is known among pneumoconiosis workers with male predominating.

Objectives This study aims to investigate sleep-wake activity circadian rhythm of patients with pneumoconiosis and test the hypothesis that weakened circadian rhythm is associated with MCI.

Methods We randomly enrolled patients with pneumoconiosis who participated in the annual interview activity. Community controls frequency-matched by age and sex were recruited as the reference. Participants wore wrist actigraphs continuously for 7 days (168 h) after completion of a standardized epidemiological questionnaire. Mesor, doubled amplitude acrophase and percent rhythm are the main circadian parameters and a higher value indicates a more robustness of circadian rhythm. MCI status was assessed using validated Chinese version of Montreal Cognitive Assessment (HK-MoCA) and Mini-mental state examination (MMSE) with a cutoff of 21/22 and 26/27, respectively. Co-variance analysis and multivariate logistic regression were performed to obtain adjusted mean of cognitive score and adjusted odds ratio (AOR).

Results Workers with pneumoconiosis had significantly lower MoCA score than the community controls (20.5 ± 0.4 vs. 22.0 ± 0.5 , $p = 0.03$) after age and education were adjusted, while the difference in MMSE score was borderline (25.6 ± 0.3 vs. 26.4 ± 0.4 , $p = 0.08$). Mesor and Double amplitude were the circadian parameters that were notably lower among pneumoconiosis workers than the community controls. Compared with community controls with higher Mesor values, pneumoconiosis workers with lower Mesor levels had an AOR of 2.89 (95%CI: 1.20–6.95) for MCI measured by MoCA, which was relatively higher than that of the community controls (AOR=2.73, 95%CI: 0.94–7.93). Similar but attenuated results were observed for double amplitude.

Conclusion This study provides the first epidemiological evidence that increased risks of mild cognitive impairment is associated with weakened circadian rhythm among pneumoconiosis workers.

P-194 SEX DIFFERENCE OF NEGATIVE EMOTION AND CONTRIBUTING FACTORS AMONG CHINESE NIGHTSHIFT WORKERS

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Introduction Nightshift work is prevalent in developed and developing countries in which female nightshift workers are more vulnerable, particularly for mental health.

Objective This study aims to investigate if the prevalence of negative emotion differ among male and female nightshift workers and explore the contributing factors using the baseline information of a prospective nightshift worker cohort in Shenzhen, China.

Methods We recruited 5329 workers and collected their blood/urine samples from 5 industries at the baseline, but only included 834 workers from 2 companies into this report because other 3 companies mainly composed of male workers. We adopted a standardized questionnaire to collect information on lifetime nightshift work, lifestyle factors, housework demands and socio-demographic data.

Results Overall, 510 workers were males (61.2%) and 324 were females (38.8%). More female than male workers were nightshift workers (90.1% vs. 82.7%), aged ≥ 40 years (20.4% vs. 12.9%) and married (74.4% vs. 58.2%) but less females attained college or above (8.6% vs. 23.5%) and leisure-time exercises (32.7% vs. 50.0%). Significantly more female workers did different housework including cooking (12.7% vs. 9.6%), washing (50.6% vs. 31.4%) and taking care of children/elderly (20.4% vs. 12.2%), and the sex difference in housework demands was particularly prominent among nightshift workers. Female nightshift workers were more prone to negative emotion because of 'feel exhaust or insufficient energy (40.1% vs. 32.2%)', 'worry of significant change of body weight (18.5% vs. 12.6%)', 'insomnia/poor sleep (31.5% vs. 21.3%)', and 'hard to concentration or forgetful (30.1% vs. 20.4%)'; however, there was no significant sex difference of negative emotion among daytime workers.

Conclusion This study reveals that female nightshift workers were more vulnerable to negative emotion, and nightshift work schedule and high housework burden are the contributing factors.

P-195 EFFECTIVENESS OF COVID-19 VACCINE IN HEALTH CARE WORKERS, MILAN, ITALY

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Introduction Randomized controlled trials showed efficacy of vaccines against coronavirus disease 19 (COVID-19). There is the need to quantify vaccine effectiveness in real-world contexts, including people at high risk of infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), such as health care workers (HCWs).

Objectives To evaluate vaccine effectiveness among hospital HCWs.