

registered in the Danish Hip or the Danish Knee Arthroplasty Registers (DHA/DKA) with a diagnosis of primary OA were sent a detailed questionnaire regarding previous occupation, related exposures and complementary environmental factors. The analyses included cumulated exposures, McNemar's  $X^2$  tests, and conditional logistic regression including gene-exposure-interaction variables.

**Results** 1181 twins responded (rate 58.9%). Responder analyses did not display any significant difference with non-responders with respect to diagnosis, zygosity and sex. We found a gene-exposure effect modification in hip OA-lifting and lifting-walking with OR's 17.7 (1.1–280.2) and 10.4 (1.00–107.1), respectively, and a clear dose-response relationship between hip OA and prolonged standing-walking. Significant occupational risk factor in knee OA was kneeling, but no gene-kneeling interaction was detectable.

**Conclusion** Gene-exposure effect modification may be important in the development of hip OA in particular exposures to lifting and lifting-walking, but not in knee OA.

### 385 A COMPARATIVE STUDY OF MUSCULOSKELETAL SYMPTOMS AND WORK- OR STUDY-RELATED IMPACT FOR PROFESSIONAL AND PRE-PROFESSIONAL MUSICIANS

Jessica Stanhope\*, Philip Weinstein, Rebecca Tooher, Dino Pisaniello. *The University of Adelaide, Adelaide, Australia*

10.1136/oemed-2018-ICOHabstracts.749

**Introduction** Musculoskeletal symptoms are common in musicians, but little is known of the work- or study-related impacts, nor how they compare with other groups. The aim of this study was to compare professional musicians and pre-professional musicians (university music students), with a reference group, regarding the prevalence of musculoskeletal symptoms and their impact.

**Methods** A questionnaire survey was distributed to university music students and professional musicians, as well as non-music university staff and students (the reference group). Ache, pain and discomfort in the previous 12 months were determined using a modified Nordic Musculoskeletal Questionnaire, as well as the work- and study-related impact of these symptoms. Descriptive statistics were reported, and comparisons were made adjusting for age and gender. A 5% level of significance was used.

**Result** Symptom prevalence was high in both groups (86% for musicians and 91% for the reference group), principally in the neck, shoulder and lower back regions. After adjusting for age and gender, symptoms in the wrist/hand region were more common for musicians (OR 1.55, 95% CI: 1.12 to 2.15), and less common in the lower back (OR 0.69, 95% CI: 0.50 to 0.95), hip/thigh (OR 0.45, 95% CI: 0.31 to 0.68), knee (OR 0.45, 95% CI: 0.31 to 0.66), and ankle/foot (OR 0.40, 95% CI: 0.27 to 0.58) when compared with the reference group.

Musicians were more likely to make changes to their work or study (OR 2.08, 95% CI: 1.27 to 3.39), or take leave from work or study (OR 1.71, 95% CI: 1.12 to 2.60) because of their musculoskeletal symptoms, when compared with the reference group.

**Discussion** Musculoskeletal symptoms were common in both groups, with musicians more likely to experience wrist/hand

symptoms. Musicians' were more likely to experience an impact from musculoskeletal symptoms on their work or study. Implications will be discussed.

### 1428 ASSOCIATION BETWEEN KINESIOPHOBIA AND PRESENTEEISM AMONG ELDERCARE WORKERS WITH LBP

<sup>1</sup>Yamato Tsuboi\*, <sup>1,2</sup>Shunsuke Murata, <sup>3</sup>Fumihiro Naruse, <sup>1</sup>Rei Ono. *<sup>1</sup>Kobe University Graduate School of Health Sciences, Department of Health Sciences; <sup>2</sup>Japan Society for the Promotion of Science, Research Fellowship for Young Scientists; <sup>3</sup>Every Rehab Inc*

10.1136/oemed-2018-ICOHabstracts.750

**Introduction** Presenteeism has an impact on socioeconomic burden. Low back pain (LBP) is also prevalent problem in eldercare workers and causes presenteeism. Kinesiophobia (fear of movement) is an important psychosocial factor because it is shown more disabling than pain itself. For resolving presenteeism, this study aimed to elucidate the association between kinesiophobia and presenteeism among eldercare workers with LBP.

**Methods** In this cross-sectional study, we identified 548 eldercare workers with LBP from the database collected in 2014. 343 participants were included for statistical analyses (median 48 years old, female 83.7%). To measure kinesiophobia, we used the 11-item Tampa Scale for Kinesiophobia (TSK). TSK score ranges from 11 to 44, with higher score indicating higher kinesiophobia. 25-item Work Limitations Questionnaire (WLQ) was used to evaluate presenteeism and consisted of 'Time Management (TM)', 'Mental-Interpersonal Demands (MID)', 'Physical Demands (PD)', and 'Output Demands (OD)'. Productivity loss (%) was estimated from WLQ using algorithm, and categorised into no (<5%), mild (5% to 10.9%), moderate (11% to 16.9%), and severe presenteeism (17%<). WLQ subscales were also categorised into quartile. For the univariate and multivariate analyses, ordinal logistic regression analyses were performed to test associations of TSK score with presenteeism. Covariates were demographic data, LBP status, lifestyle-related factors, and psychosocial factors. Proportional odds ratios (OR) and 95% confidence intervals (95% CI) were estimated.

**Results** In the univariate analysis, TSK score was significantly associated with productivity loss and all WLQ subscales. After adjusting for covariates, higher TSK score was significantly associated with larger productivity loss (OR=1.11, 95% CI: 1.06 to 1.17). Associations of TSK score with all WLQ subscales also remained significant after adjustment for covariates (TM; OR=1.05, 95% CI: 1.01 to 1.09, MID; OR=1.10, 95% CI: 1.05 to 1.15, PD; OR=1.05, 95% CI: 1.00 to 1.09, OD; OR=1.05, 95% CI: 1.01 to 1.10).

**Conclusion** This study suggests that kinesiophobia could be an important factors related to presenteeism among eldercare workers with LBP.

### 27 ERGONOMIC RISK FACTORS IN INTENSIVE CARE UNIT AND MUSCULOSKELETAL SYMPTOMS

<sup>1</sup>Banu Dilek, <sup>2</sup>Ayse Coskun Beyan, <sup>2</sup>Sabriye Özcan, <sup>2</sup>Tugba Demirel, <sup>2</sup>Özay Işık, <sup>2</sup>Yücel Demiral. *<sup>1</sup>Dokuz Eylül University Physical Therapy and Rehabilitation Department, İzmir, Turkey; <sup>2</sup>Dokuz Eylül University Occupational Medicine Department, İzmir, Turkey*

10.1136/oemed-2018-ICOHabstracts.751

**Introduction** Musculoskeletal disorders (MSD) represent a significant occupational problem in intensive care unit (ICU) workers. This study aimed to determine ergonomic risk factors and the musculoskeletal symptoms in ICU workers in university hospital.

**Methods** Ergo team was created by the occupational health department in the hospital. The socio demographic data were obtained by a questionnaire. The clinical assessments were performed by a physiatrist. Cornell Musculoskeletal Discomfort Questionnaire was used for musculoskeletal symptoms assessment. Walk-through survey performed to determine main jobs and tasks in ICUs. The Rapid Entire Body Assessment (REBA) scale was used to assess the ergonomics risks for the nurses.

**Results** There were 30 patient bed in both intensive care units. Twelve doctors (10.7%), sixty four nurses (62.7%) and twenty seven staff members (26.2%) worked in two ICUs included in the study. Each nurse was responsible for two patients while the doctors and staff members were responsible entire units. 102 workers of those 56 from internal medicine ICU (IMICU) (56%) and 46 from anaesthesia ICU (AICU) (46%) workers were participated to the study. 60.7% of the study group was female and the mean age was  $32 \pm 6.4$  in IMICU and  $33.1 \pm 5.7$  in AICU ( $p=0.3$ ). According to the Cornell scale, 52 (50.9%) had neck pain, 58 (56.8%) had back pain and 25 (24.5%) had wrist pain. Two ergonomically high risk tasks (patient positioning and working with monitor) were identified. The nurses' mean REBA score was  $9.7 \pm 1.6$  in anaesthesia ICU and  $8.7 \pm 2.0$  in internal medicine ICU ( $p=0.8$ ) for patient position taks. The mean REBA scores for anaesthesia ICU were  $6.1 \pm 1.6$  and  $4.8 \pm 1.4$  ( $p=0.7$ ) respectively.

**Conclusion** More than half of ICU workers had neck, back and wrist pain. ICU nurses had high ergonomics risks. In these units, 'ergonomic risk prevention programmes' should be implemented by occupational health teams.

### 316 REDUCTION OF MUSCULOSKELETAL PAIN AMONG PROFESSIONAL MUSICIANS BY INTRODUCING RESISTANCE BAND TRAINING AT WORK

<sup>1,2</sup>LPA Brandt\*, <sup>1</sup>MB Panduro, <sup>2</sup>SR Nielsen. <sup>1</sup>Odense University Hospital, Odense Denmark; <sup>2</sup>University of Southern Denmark, Odense, Denmark

10.1136/oemed-2018-ICOHabstracts.752

**Introduction** Several studies have shown that professional symphony orchestra musicians have a higher prevalence of musculoskeletal complaints (MSC), compared to other work groups. MSC have a great impact on the musicians' workability and life quality, emphasising the importance of finding preventive measures

**Methods** A cross-sectional study, based on questionnaires before and after an intervention of resistance band training, among 350 musicians and administrative workers from 5 symphony orchestras in Denmark. The participant rated their degree of pain on a VAS scale from 0 to 10 and overall reduction of MSC. The changes from baseline to follow-up for each separate body region were evaluated using a linear mixed model.

**Result** MSC was most common in shoulders, neck, and lower back. Female musicians had a significantly higher prevalence of MSC than men. Low string group had the lowest prevalence of MSC, while high string, brass-winds and woodwind

groups had a relative high prevalence of MSC. Resistance band training showed a positive significant effect with a mean reduction of VAS-scores in shoulders at  $-0.88$  and neck at  $-0.52$ . 45% of the participants experienced an overall reduction in musculoskeletal pain.

**Discussion** In compliance with the purpose, MSC before and after the intervention were assessed, showing a positive effect with regards to MSC in shoulders and neck. Future research should explore how realistic implementing resistance band training is as a steady regime among professional symphony orchestra musicians, likewise assuring a long lasting positive effect.

### 170 STUDY ON WORK-RELATED MUSCULOSKELETAL SYMPTOMS AMONG TRAFFIC POLICE IN KATHMANDU VALLEY

Leela Paudel. Kathmandu Medical College, Kathmandu University, Kathmandu, Nepal

10.1136/oemed-2018-ICOHabstracts.753

**Introduction** Occupational environment plays an important role in health of the exposed population. Traffic police personnel (TPP) are more vulnerable to this situation. Work-related Musculoskeletal symptoms (WRMSS) is defined as any trouble (ache, pain or discomfort) in nine topographic region of the body. The purpose of the study is to find the prevalence of WRMSS and to find the association between the various risk factors like-age, working hours, work in the field (years), body mass index(BMI), smoking, alcohol consumption, chewing tobacco with the development of WRMSS and to assess the sickness absenteeism and reduction in productivity.

**Methods** An analytical cross-sectional study of WRMSS was done among 355 traffic police from all 36 traffic booths of Kathmandu Valley. Data was collected using a questionnaires adapted from the Dutch and Nordic Musculoskeletal questionnaires. The number of traffic police was selected according to the proportion of the traffic police in each traffic booth.

**Results** The average age of the respondents with standard deviation were  $29.59 \pm 6.99$  years and a majority were male (90.1%). Almost 70% of respondents had complain of WRMSS in any body parts during last 12 months and the most common site was low back (51.3%). WRMSS lead to 9.25% absenteeism from work and 2.25% change duties due to Musculoskeletal trouble. The variables age, duration of working hour, work in the field (years), BMI were significantly associated with WRMSS (all  $p < 0.05$ ). There was no significant association between education, smoking, alcohol consumption, and chewing tobacco with WRMSS in Traffic police.

**Conclusion** WRMSS affects more than 70% of traffic police with most common site being the low back. Significant risk factors include- age, duration of working hour, work in the field (years) and body mass index. Periodic examination, ergonomics modification and health education will definitely help to improve the quality of life among this group.

### 1495 IDENTIFICATION OF INFLAMMATORY BIOMARKERS FOR THE EARLY DETECTION OF TENDONITIS DURING REPETITIVE MANUAL ASSEMBLY TASKS

D Conde\*, G Ibarra-Mejia, JS Moore, K Browne. University of Texas at El Paso, USA

10.1136/oemed-2018-ICOHabstracts.754