

of 6 hours per day and had availed no more than 15 days of leave in the last 6 months.

**Result** The mean age of the PTs was 29.5 years. On an average, the PTs worked for  $8 \pm 1.2$  hours per day for 6 days a week. 78% of the PTs complained of pain or discomfort within the past 6 months. The commonest sites of pain were lower back (58%), neck (52%), upper back (50%), wrist and hand (35%), shoulder (32%) and ankle (10%). Analysis of short form of workstyle questionnaire revealed that 70% of the subjects reported an adverse workstyle risk (total score  $>28$ ). The perceived exertion and workload were also high as over 75% of the PTs had scores of  $>15$  (Borg CR 10) and  $>50$  (NASA Task Load Index) respectively.

**Discussion** PTs handling both adult and paediatric patients had high risk of developing WRMSD and appropriate recommendations were given based on the results to ensure prevention of WRMSD.

#### 641 EFFECTIVENESS OF ONSITE OCCUPATIONAL HEALTH CLINICS IN MANAGEMENT OF WORK RELATED MUSCULOSKELETAL DISORDERS IN 10,850 INFORMATION TECHNOLOGY PROFESSIONALS

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**Introduction** Onsite clinics play a crucial role in the provision of occupational health services. However, the effectiveness of onsite clinics in the management of work related musculoskeletal disorders (WRMSD) is an under studied area. This study reports the outcome of onsite occupational health clinics in Information Technology (IT) companies in the management of WRMSD over a 10 year period.

**Methods** A prospective study was conducted from 2006 to 2016, covering 10 850 employees of IT companies in different cities in an Industrially Developing Country. The employees (6990 males and 3860 females, between the ages 20 to 60 years), were diagnosed by an experienced occupational health physician (OHP) to have a WRMSD in specific regions following extensive usage of desktop and/or laptop computer. All the employees then underwent an ergonomic workplace analysis and protocol based rehabilitation for the WRMSD by specially trained occupational physiotherapists. The employees were reviewed by the OHP monthly and at the completion of rehabilitation.

**Result** Most employees were software and application engineers, followed by managers and technical support staff. A total of 62% of the employees worked for at least 5–9 hours per day and 38% for 10–14 hours per day. The predominant symptoms were low back pain (for males) and neck pain (for females). Nearly, 55% were diagnosed to have Myofascial Pain Syndrome and others with Thoracic Outlet Syndrome, Fibromyalgia, Tendinopathies and Type 1 Complex Regional Pain Syndrome. After the rehabilitation, the VAS scale showed significant reduction in pain levels ( $p < 0.01$ ). 78% had reported reduced productivity due to the WRMSD, which improved markedly after the rehabilitation. 93% of workers reported complete resolution of symptoms and 7% reported partial resolution of symptoms but could work without restriction.

**Discussion** Onsite occupational health clinics are effective in the management of WRMSD in IT companies.

#### 642 WORK RELATED MUSCULOSKELETAL DISORDERS AMONG ORTHOPAEDIC SURGEONS: A SURVEY STUDY

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**Introduction** Surgeons, especially Orthopaedic Surgeons (OS) maintain awkward postures and repetitive tasks which are ergonomically risky. However, there is a paucity of data on the prevalence of work related musculoskeletal disorders (WRMSD) among OS. Hence, the objective was to evaluate the prevalence and risk factors of WRMSD among OS.

**Methods** A survey was conducted using a structured questionnaire, disseminated online. There were 57 respondents, who were OS with a minimum working experience of one year, and the surgeons were practicing in the field of orthopaedics only. The structured questionnaire included demographic details such as age, sex, height, weight, total work experience, number of working hours in a day, type or department of work, questions related to regular exercise, physical risk factors associated with working condition, present health status. Nordic Musculoskeletal Questionnaire (NMQ) was used to know the regional involvement, prevalence and disability rate of MSD, in past 7 days or during the last 12 months. The short form of work style questionnaire was used to assess the risk factors of adverse work style. Data were recorded and analysed.

**Result** The mean age of the OSs was 46.32 years and were predominantly males (96%). On an average, the percentage of OSs with operating hours more than 14 hours was 75.4%. Joint replacement (50.9%) and Arthroscopic surgeries (35.1%), were the commonest surgical procedures carried out by them. A high prevalence rate of work related musculoskeletal symptoms among OS was found, mainly in the low back (68.42%), neck (56.14%), shoulder (42.1%) and upper back (31.57%) regions. Sustained static and/or awkward posture was perceived as the factor most commonly associated with low back and neck symptoms by 84.2% of respondents.

**Discussion** A high prevalence of musculoskeletal symptoms was reported among OS and interventions to address the risk factors identified are recommended.

#### 643 RISK FACTORS FOR THE DEVELOPMENT OF WORK RELATED MUSCULOSKELETAL DISORDERS AMONG INFORMATION TECHNOLOGY PROFESSIONALS

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**Introduction** Work Related Musculoskeletal Disorders (WRMSD) are highly prevalent among Information Technology (IT) professionals. However, the risk factors associated with the development of WRMSD are not clear. Hence, the

objective of this study was to evaluate the risk factors that predispose IT professionals to the development of WRMSD.

**Methods** A prospective analysis of 7280 employees of a single IT company in an Industrially Developing Country was conducted. Among them, 5210 were males and 2070 were females, between the ages 20 to 60 years. The employees were evaluated by a detailed questionnaire consisting of demographic data, job details, health status, physical risk factors, short-form Work Style Questionnaire and Nordic Musculoskeletal Pain Questionnaire. The data were extracted and statistical analysis was done.

**Result** The mean age of the employees was 32.5 years. 58% of the employees were diagnosed by an experienced occupational health physician (OHP) to have a WRMSD, which predominantly included myofascial pain syndrome of the neck, upper and lowerback. Age, Body Mass Index (BMI), working hours and work-style were positively correlated ( $r < 0.01$ ) with the presence of WRMSDs, as higher the age and BMI, increased working hours and higher work-style score showed higher prevalence of WRMSD. On the other hand, rest breaks during work, regular exercises and formal ergonomics training were negatively correlated ( $r < -0.01$ ) with the presence of WRMSDs, as more frequent breaks, regular exercises and ergonomics training showed lower prevalence of WRMSD. Also, the presence of co morbidities like diabetes, hypothyroidism and osteopenia/osteoporosis had a positive influence on the prevalence of WRMSDs in the study population. Other specific factors like work experience, hand dominance, type of computer used also had an influence on the development of WRMSDs.

**Discussion** The risk factor analysis gives an insight to the appropriate areas of ergonomic interventions among IT professionals.

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#### ROTATING SHIFT WORK AND METABOLIC SYNDROME COMPONENTS AMONG WORKERS AT AN ELECTRICITY DISTRIBUTION COMPANY IN ISMAILIA CITY, EGYPT

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**Introduction and aim** Shift work is increasing nowadays. More than fifth employees are shift workers in industrialised countries. The body's biological cycles circadian rhythms that recur at 24 hour intervals is disturbed. This includes sleep-wake patterns, body temperatures and hormone levels. Feeding behaviour, lipid and carbohydrate metabolism and blood pressure are also subjected to daily variation. Studies have shown that rotating shift work has high propensity to metabolic and nutritional disorders and may be directly responsible for increased obesity, higher blood pressure levels, altered nutritional metabolism, insulin resistance, diabetes, dyslipidemias, gastrointestinal disorders and metabolic syndrome. This work was aimed at clarifying the relation between rotating shift work and metabolic syndrome components for better health and well-being of rotating shift workers.

**Methods** A comparative study (ex- post facto design) was carried out in an Electricity Distribution Company in Ismailia

city, Egypt. One hundred eligible shift workers and 100 non shift workers were chosen by systematic random method. The updated IDF criteria for diagnosing metabolic syndrome was used (International Diabetes Federation IDF, 2006). All participants were subjected to interview questionnaire, weight, height, waist circumference and blood pressure measurements, fasting blood sugar level, serum triglycerides and HDL levels.

**Results** According to IDF criteria, 53% of shift workers had metabolic syndrome compared to 39% of day workers ( $p=0.04$ ) with odds ratio 1.8. The mean number of components affecting shift workers was higher than day workers ( $2.7 \pm 1.3$  versus  $2.2 \pm 1.4$  respectively;  $p=0.00$ ). Regarding each component; central obesity, blood pressure and blood sugar were significantly higher among shift workers compared to day workers. Triglycerides and HDL didn't differ significantly between the 2 groups. Shift workers were also suffering more from sleep disorders (insomnia, snoring or obstructive sleep apnea) compared to day workers (55% versus 39% respectively;  $p=0.02$ ). Using a dietary assessment score, unhealthy dietary habits were significantly more compared to day workers ( $6.7 \pm 7.2$  versus  $4.4 \pm 5.9$  respectively;  $p=0.01$ ).

**Conclusion** Metabolic syndrome are higher among shift workers compared to day workers. Also some components of metabolic syndrome as central obesity, blood pressure and blood sugar affect shift workers more than day workers.

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#### OCCUPATIONAL MUSCULOSKELETAL DISORDERS AS A RISK FACTOR FOR USING HYPNOTICS: AN STUDY BASED ON 2013 BRAZILIAN NATIONAL HEALTH SURVEY (PNS)

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**Introduction** Hypnotics are one of the most prescribed drugs in the world and are related to several morbidity and mortality outcomes. Some risk factors such as sex, age, marital status, and also chronic pain e mental disorders have been described in medical papers. However, there are restrict data concerning the influence of occupational factors in the use of sleep drugs. Therefore this study aimed to evaluate the association between MSD and use of hypnotics in the Brazilian population.

**Methods** Cross-sectional study with secondary data from the PNS 2013. We used descriptive statistics to present exposure and outcome variables. Chi-square was proceeded to test differences between groups and Logistic Regression controlling for covariates was made to analyse the main association.

**Results** The general prevalence of hypnotics use was 7,1%. The prevalence was higher in women and in elder people, increasing according to the age. The general prevalence of MSD was 1,9%. Individuals with MSD presented 2 times higher prevalence of hypnotics use compared to controls, even after adjusting for covariates.

**Discussion** When we consider the problem of the use of medication to sleep, it should be attempted to MSD as a possible risk factor and focus of intervention. New researches are necessary to better elucidate the role of musculoskeletal disorders in the hypnotics use.