Musculoskeletal disorders

**P-252 IDENTIFICATION OF WORK RELATED MUSCULOSKELETAL DISORDER AMONG ARTISANS OF DHOKRA BELL METAL HANDICRAFT INDUSTRY OF INDIA**

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**Introduction** Artifacts manufactured by Bell metal casting process is one of the traditional handicraft industries of India known as Dhokra craft. This craft work is recognized worldwide for its unique metal craftsmanship, ornamentation and sculpting process. Due to commercialization, long hours of strenuous, repetitive nature of work in traditional workplace with conventional hand tools exposed the artisans to Work-related musculoskeletal disorders (WRMSDs). This study aims to identify the causes of the prevalence of muscular discomfort among artisans in bell metal handicraft industry of India.

**Material and Methods** 119 artisans participated in this study, which was divided into two phases Phase I Identification and quantification of the occupation risk factors in the manufacturing process of Dhokra artifacts with the help of Rapid upper limb assessment (RULA) questionnaire, modified Nordic questionnaire and Body part discomfort (BPD) mapping technique. Phase II As Dhokra craft is a hand crafting process, biomechanical study (pinch strength and hand grip strength) was conducted before and after the activity to identify the hand related issues among the artisans.

**Results** The analysis revealed that artisans faced posture-related MSDs during crafting activities. With the comparison of Nordic and BPD data it shows the artisan feel high level of discomfort in their hand (88.23%) and Forearm (82.35%) region in initial hours of work. Similarly in crafting activities, significant difference in hand grip strength (p<0.04) and Tip pinch strength (p<0.003) was identified between manual precision based pre and post activities.

**Conclusions** Through analysis and observation of the result it was concluded that artisan’s health mostly affected by improper body posture and commercial workload. The crafting process exposed artisans to occupational related health issues, accident and injuries. Moreover, it suggested that ergonomics intervention in tool and work process design is the need of the hour to prevent MSDs.

Noise

**P-264 HEARING IMPAIRMENT AMONG ACTIVE MILITARY PERSONNEL**

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**Introduction** Noise is a widespread nuisance in the workplace, present in many professional sectors including military workplaces. Due to their activities, military personnel are at high risk of sudden hearing loss. For example, the level of sound produced by an assault rifle shot can reach 160 decibels, as reported in various studies. Our objective is to study the prevalence of hearing impairment in active military personnel and to evaluate the impact on medical fitness for work.

**Material and Methods** Retrospective descriptive study conducted among active military personnel. Occupational and medical data were collected from the medical records of patients who consulted at the Military Center for Occupational Medicine and Occupational Safety (MCOMOS) during the period 2018–2022.

**Results** The study included 169 male patients with a mean age of 41.89 ± 9.18 years. They were military personnel divided into officers (13.6%), non-commissioned officers (61.1%) and enlisted men (24.1%), mainly occupying the position of infantry soldier (15%), gunner (9.2%) and artillery (3%). They suffered mainly from tinnitus (60.2%), hypacusis (40%) and dizziness (12.4). The diagnosis of bilateral sensorineural hearing loss was retained in 132 soldiers (78.1%). In 21.9%, otitis media was diagnosed. Among them, 2% had a barotrauma. This deafness was considered an occupational disease and justified a workstation adjustment in 78.1% of cases. An eviction from gunfire and noise was granted for 78.1% of the soldiers.

**Conclusion** The noise of firearms, explosions, air and ground vehicles make so much noise that hearing loss is one of the most common disabilities in the military. This justifies the importance of personal protective equipment to further protect the ears of military personnel and the role of the occupational physician in the early detection of hearing disorders.

Psychological hazards/Health

**P-265 IMPACT OF PSYCHIATRIC DISORDERS ON MEDICAL FITNESS FOR WORK IN THE MILITARY FIELD**

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**Introduction** Psychological adjustment is an essential component of meeting national service goals, which makes many psychiatric disorders incompatible with armed service. The purpose of our study was to estimate the prevalence of psychiatric disorders in military personnel and to assess their impact on medical fitness for work.

**Material and Methods** Retrospective descriptive study conducted at the Military Center for Occupational Medicine and Occupational Safety (MCOMOS) between 2018 and 2021 among active military personnel.

**Results** The study included 150 male patients with a mean age of 40.44 ± 8.66 years. They were all military personnel divided into non-commissioned officers (59.3%), enlisted men (33.3%) and officers (7.3%). They were mainly in administrative functions (25.3%), in the infantry (8.7%) and as drivers (8%), with an average professional seniority of 13.23 years. Their psychiatric disorders were mainly anxiety-depressive disorder (70%), post-traumatic stress disorder (20%), adjustment disorder (2%), acute psychotic episode (2%) and bipolar disorder (2%). A prohibition to carry arms was prescribed for 56% of the soldiers. In 8.7% of the cases, an eviction from night shifts was requested. In
addition, 3.3% and 2.7% of the cases respectively requested a prohibition of field trips and intense physical effort. Evictions were granted in 42% of the soldiers with an average duration of eviction of 2 months [1–14 months]. In 2.7% of the cases, a reform file was requested to decide on the fitness of these soldiers for armed service.

Conclusion A better understanding of the psychiatric causes, which affected fitness for work in the military by sometimes causing unfitness for military service, would allow the development of standardized procedures for psychological and psychiatric evaluation of young conscripts.

**Noise**

**P-270** NOISE EXPOSURE AS A FACTOR IN THE INCREASE OF BLOOD PRESSURE AND HEART RATE OF WORKERS IN A STEEL MANUFACTURING INDUSTRY

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**Introduction** According to the WHO, excessive noise is a threat to occupational health with both auditory and non-auditory health consequences. The purpose of this study was to examine the impact of noise exposure on blood pressure and heart rate in steel industry personnel.

**Materials & Methods** In this cross-sectional study, 80 industrial workers who were exposed to occupational noise were recruited after Institutional Ethical Clearance and management approval. A structured questionnaire evaluated the perceptions of non-auditory impacts among workers (tiredness, headache, dizziness, insomnia, and fainting). The participants’ noise exposure was recorded using an American National Standards Institute (ANSI) sound level metre, and their physiological responses, including Blood Pressure (BP) and Heart Rate (HR), were evaluated both before and after exposure.

**Results** The noise levels in the industry ranged from 80.2 to 96.9 dBA, with an average value of 88.5 dBA; approximately 67% of workers were exposed to noise levels exceeding the OSHA standard’s Permissible Exposure Limit (PEL). The mean systolic and diastolic blood pressures were 135.33±17.3 and 90.13±11.8 mmHg, respectively, and the pre- and post-treatment heart rates were 92.43±13.04 bpm. The workers’ perception showed no significant correlation between noise exposure and years of work in noisy areas, age, or the indicators chosen like tiredness, dizziness, headache, insomnia, and fainting. However, a strong positive correlation was seen between BP (p=0.001) and HR (p=0.001) and noise exposures above the PEL.

**Conclusion** The mismatch between workers’ perceptions and the correlations between noise exposures and non-auditory consequences demonstrates that workers’ comprehension and risk perception of excessive occupational noise exposures are quite low. Evidence suggests high noise exposure induces unfavourable physiological responses in humans. Despite regulations, there is a lack of enforcement and compliance. Protection of workers in high-noise industries requires engineering interventions, effective hearing conservation programmes, and stringent policies.

**Solvents**

**P-272** HEALTH IMPACTS OF VOLATILE ORGANIC COMPOUNDS EXPOSURE AMONG PAINTERS AT CONSTRUCTION SITE

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**Introduction** Painters at construction sites are exposed to domestic paints and thinners which contain organic solvents which are a substantial source of volatile organic compounds (VOCs). Several studies have shown the respiratory impacts of VOCs but their impacts on other systems are often too subtle. Hence, we sought to study their health impacts.

**Methodology** This analytical cross-sectional study was conducted among 75 painters (age 25 -55 years) with minimum 5 years of experience. Their VOC exposure status was assessed using personal VOC monitor and were found to have higher traces of toluene levels. Exposure index questionnaire was used and their mean cumulative toluene exposure index was calculated. Outcome parameters were assessed using health questionnaire. The participants were categorized into two groups based (≤ 10 years, >10 years) on their years of paint exposure.

**Results** The mean cumulative toluene exposure levels among high exposure group (316.65 *10 3 ppm) were significantly higher compared to the low exposure (214.01*10 3 ppm) group. The odds of neurological and (1.54,95% CI = 0.4,3.9), gastrointestinal symptoms (1.48,95% CI = 0.5,4.2), dermatological manifestations (1.38,95% CI = 0.4,3.9), were higher among high exposure group, after adjusting the confounding variables.

**Conclusion** Painters at construction site were found to have increased risk of health effects and future longitudinal studies are required to assess the temporality.

**Irritants and allergens**

**P-276** ALLERGIC CONTACT DERMATITIS TO METALS AMONG CONSTRUCTION WORKERS

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**Introduction** Allergic contact dermatitis (ACD) is one of the most common occupational diseases among construction workers due to exposure to ubiquitous allergens, particularly metals, responsible for chronic and disabling forms. Our aims were to study the socio-occupational, clinical and allergological characteristics of ACD to metals in construction workers and to evaluate its impact on their work ability.

**Material and Methods** Descriptive and retrospective study including construction workers consulting an occupational medicine department in Tunis from 1999 to 2022, presenting...