

Guest Editorial

Occupational Ergonomics and Safety, Part 1

It seems that significant progress has been made in last years in what concerns the scientific knowledge about work and its impact on workers' wellbeing and health, which includes but it is not limited to occupational ergonomics and safety. Even considering that this domain is very transversal and comprehensive, as it may include researchers from multidisciplinary teams, research in this domain has clearly increased and we have now a larger number of scientific events, a higher number of researchers publishing their works, and a high emergence rate of research groups at universities and other research institutions, which was also followed by an increasing concern about these issues by governments and other regulators. Even though it is strikingly difficult to demonstrate it in an unequivocal way, this appears to have had a clear effect on companies and on their ability to implement plans and measures to prevent and control occupational risk factors. But despite these advances, occupational risk prevention is still a domain for which solutions are neither complete nor permanent, since the evolution of work systems gives rise to new challenges.

The development and consolidation of a specific scientific domain can only be achieved if there is also a consolidation of the knowledge associated with that domain. In this sense, the technical and scientific work that has been developed in this area is a key factor for improvement. It is therefore necessary to promote all the initiatives that can lead to an increase of the scientific production in the domain of occupational health and safety, which, among other things, will enable researchers and professionals to share their experiences and put in action some of the research outputs.

Against this background, I am very pleased and honored to present this special issue of Occupational Ergonomics and Safety for *WORK: A Journal of Prevention, Assessment and Rehabilitation*. Twenty-one articles were peer-reviewed, revised, and ultimately accepted for publication in this special issue, which has included main authors from 10 different countries.

The issue opens with a focus on occupational ergonomics, more precisely on topics related to musculoskeletal disorders (MSDs) and associated symptoms. In a first paper, Pope-Ford and Jiang present a work focused on dentists and in the inter-relationship of the exertion levels of eleven upper extremity muscles during common dental procedures. This is followed by the article of Serranheira, Sousa-Uva and Sousa-Uva, where the authors try to understand the effects of nursing tasks on work relate MSDs symptoms. Finally, Yu et al. considered a population of almost 3000 workers in China and they evaluated the predictive power of stress models associated with sickness absence due to low back symptoms. The last two papers of this set were also focused on MSDs but involving the study of manual lifting tasks. Khaled, Karwowski and Sapkota, using a more theoretically approach, investigated the human trunk kinematics data behavior during a manual lifting task, and Azevedo et al., examined the influence of the previous knowledge about the load on the postural balance of the worker when lifting different weight loads.

There are three articles addressing physical risk factors at workplaces in the perspective of ergonomics. The first is by Rodrigues et al., who evaluated the thermal comfort sensation felt by surgeons and nurses in surgical rooms, and suggest that both workers' clothing and the ventilation conditions can play an important role. The second is from Oliveira et al., and it is focused in the study of occupational hot thermal environments in the Portuguese ceramic activity sectors, comparing the obtained results with previous studies from 1994 and 2012. Lastly, Joines et al., present a study based on an experimental design, where they analyze the ergonomic and utility power consumption benefits of adjustable LED task lighting in an office environment, highlighting the benefits of using adjustable lighting to musculoskeletal comfort, posture, and visual comfort.

After these first two sets of studies focused on ergonomics topics, we move to studies related to occupational safety. The next four articles of this sequence are studies focused on workers' safety but in with several perspectives and addressing several topics. For example, Boustras and Hadjimanolis describe a national survey with micro-companies and make a crosschecking of the results with results obtained from work inspectors, concluding that micro-companies have specific characteristics that need to be addressed when it regards accident prevention. Next, Ramos, Arezes and Afonso, presented a case study related to the application of an economic evaluation methodology in a Hospital. The authors emphasized that in this type of analysis it is important to consider the external benefits that may result from prevention. Castro, Carvalhais and Teles have explored the topic of fatigue, by focusing in the role of irregular schedules of cabin crew as a trigger of fatigue symptoms in a wet lease Portuguese airline. Also within these safety topics and establishing a 'bridge' with ergonomics and cognitive task analysis, Gomes et al. try to identify the ergonomic factors present in helicopter pilots' activities that may compromise or enhance their performance, and they have identified some relevant cognitive and physical ergonomic constraints.

Three articles relate to safety culture and climate. Agnello, Ansaldo and Bragatto conducted a study where they addressed the topic of contract workers who are involved in maintenance works. By selecting the case of the use of PPE as a benchmarking example, they present an approach based on knowledge sharing as key to involve contractors and sub contractors in safety culture. Mélia test an explaining model for risk and accidents in the Spanish construction industry, and verified that his approach to safety climate seems to be a useful framework for the assessment of organizational and behavioral risks in construction. Finally, Rodrigues, Arezes and Leão, present an assessment tool that uses a multilevel structure to measure the safety climate. They show its application with companies from the Portuguese furniture industry.

This special issue also includes two articles related to workers' perceptions. In the first one, Näswall, Burt and Pearce explored the possible influence of employee control over work scheduling and overtime in the relationship between workload demands and per-

ceived job risk. In the second, Barros-Duarte et al., by applying the Work and Health Questionnaire, tried to asses how working condition can hinder the continuity on workplaces for workers older than 60 year-old.

The final set of four articles at the end of this special issue is dedicated to risk assessment methods. The first two articles report a comparison between methods. The one from Carvalho and Melo explores the value of applying semi-quantitative risk assessment methods and the analysis of their reliability. Nunes et al. also compared different methods for work accidents investigation, but with the aim at verifying their suitability for a hospital environment. Ionica and Leba propose the application of a method to evaluate human actions in order to estimate possible risks and prevent possible system faults, both at human factor and equipment levels. Last, but not least, Anand, Srivastava and Srivastava describe the design and implementation of a methodology for the assessment and minimization of risk of occupational health hazards, considering also workers' earnings.

On behalf of the entire team that was involved in the success of this special issue, I am very proud to provide a very broad scope of contributions, which has included some challenges and solutions proposed here by a very broad group of authors from a wide array of disciplines and countries. I greatly enjoyed working with the contributors to this special issue on Occupational Ergonomics and Safety. I also thank the contributors for sharing their findings and insights with the journal readers, as well as the journal reviewers for their essential contribution. I hope that the work presented here can be an inspiration for translating research into useful action, that can be used to improve working conditions and workers' health preservation and, ultimately, make a significant and tangible contribution to the effective improvement of their quality of life.

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