P9: Relation between occupational exposure to noise and work stress: an exploratory study in industrial environment

Beatriz Barros, Joana Santos & Carlos Carvalhais

Scientific Area of Environmental Health and Research Centre on Health and Environment, School of Allied Health Technologies, Polytechnic Institute of Porto, Portugal

Presenting author: Beatriz_lopes7@hotmail.com

Introduction: Evidence indicates that exposure to excessive noise can affect auditory and non-auditory aspects of health. Research in industrial workplaces was more focused on the relation between occupational noise and auditory effects, and few relate noise exposure and non-auditory symptoms among workers. The set symptoms are referred to as occupational stress, having a direct impact on productivity and safety behaviors.

Objectives: The main goal of this study was to assess the effect of noise exposure on occupational stress.

Materials and Methods: The measurements were performed in two aluminium industries (A and B) and one textile industry (C) located in Portugal. Noise measurements were performed using a sound level meter (Brüel&Kjaer, model 2260). The equipment was verified with an acoustic calibrator (Brüel&Kjaer, model 4231) according to ISO 9612:2009. Occupational stress was assessed through a questionnaire developed for this purpose. Statistical analysis was performed using the software IBM-SPSS™ 20th version. All tests considered a 95% confidence interval.

Results and Discussion: A total of 57 workers participated in the study. General results indicated that $L_{EX,8h}$ levels were often excessive, mainly in industries A and B, ranging from 77.2±1.1 dB(A) to 91.5±1.2 dB(A), exceeding national exposure limit (87 dB(A)). $L_{p,Cpeak}$ values never exceeded the limits (ranged between 101.5 to 124.4 dB(C)). No significant differences (p>0.05) were found between age, sex and stress. Although, it was verified that there were workers in company C that felt stress due to noise exposure. The results of stress obtained in companies A and B (which noise levels were higher) were not significant.

Conclusion: This study reinforces the need to perform more research in this field to understand the influence of environmental and personal factors on occupational stress.

References

1. Stansfeld, S. & Matheson, M. (2003). Noise pollution: non-auditory effects on health. *British Medical Bulletin*, 68(1), 243–257