

Latent class analysis for identification of occupational accident casualty profiles in the selected Polish manufacturing sector

Nowakowska, M.^{a,*}, Pajęcki, M.^b

^aFaculty of Management and Computer Modelling, Kielce University of Technology, Poland

^bFaculty of Management and Computer Modelling, Kielce University of Technology, Poland

ABSTRACT

The objective of the analysis is identifying profiles of occupational accident casualties as regards production companies to provide the necessary knowledge to facilitate the preparation and management of a safe work environment. Qualitative data characterizing employees injured in accidents registered in Polish wood processing plants over a period of 10 years were the subject of the research. The latent class analysis (LCA) method was employed in the investigation. This statistical modelling technique, based on the values of selected indicators (observed variables) divides the data set into separate groups, called latent classes, which enable the definition of patterns. A procedure which supports the decision as regards the number of classes was presented. The procedure considers the quality of the LCA model and the distinguishability of the classes. Moreover, a method of assessing the importance of indicators in the patterns description was proposed. Seven latent classes were obtained and illustrated by the heat map, which enabled the profiles identification. They were labelled as follows: very serious, serious, moderate, minor (three latent classes), slight. Some recommendations were made regarding the circumstances of occupational accidents with the most severe consequences for the casualties.

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*Corresponding author:

spimn@tu.kielce.pl
(Nowakowska, M.)

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