https://doi.org/10.53230/tgm.1310-912X.2024.1002.19

APPLICATION OF MATHEMATICAL METHODS IN THE STUDY OF OCCUPATIONAL SAFETY AND ERGONOMICS IN THE LIGHT INDUSTRY

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One of the main branches of the light industry, which has a particularly wide social significance in Bulgaria, is the sewing industry. Therefore, the subject of research in this work will be basic technological parameters of the working environment that affects the safety performance and ergonomics in the sewing industry.
As a summary of the conducted study, it can be summarized that a number of studies have been carried out on the influence of individual work environment factors on safety and ergonomics in different areas of the light industry. For a large number of industrial production types individual technological parameters have been found to influence the increase in safety and ergonomics performance. With regard to the sewing industry, the influence of individual basic factors of working conditions on occupational safety and ergonomics has also been investigated. It is important to note, however, that the issue of deriving the degree of influence of individual factors determining working conditions that affect occupational safety and ergonomics in the sewing industry has not been studied in sufficient depth in Bulgaria.

In the context of the above, the aim of the present work is to investigate the importance of the numerous factors of working conditions in the sewing industry affecting occupational safety and ergonomics and to sift out the most significant of them by ranking (ordering) them.

In order to realize this goal, a ranking experiment is planned. On the basis of the research and analysis, a questionnaire was created, which included 9 generalized factors affecting occupational safety and ergonomics in the sewing industry. An expert survey was conducted on the priority importance of these factors. A Kendall's tau and scatterplot experiment was conducted, as a result of which the factors influencing occupational safety and ergonomics in the sewing industry were ranked by priority importance. The factors that most significantly (with the highest priority) influence occupational safety and ergonomics in the sewing industry are identified.

The obtained results give grounds to specify the priority importance of these factors. This greatly refines and simplifies the work in the expert analysis of occupational safety and ergonomics in the sewing industry.

Keywords: *technological parameters, work safety, distraction experiment.*

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