

SAFETY CULTURE AS A TOOL FOR REDUCING OCCUPATIONAL INJURIES

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Abstract. The article examines safety culture as a key factor in reducing occupational injuries. The current state of the problem is analyzed, and the main elements of safety culture and their influence on workers' behavior are identified. An approach to assessing the level of safety culture is proposed, and the relationship between safety culture and injury rates is established. It is proven that the development of a positive safety culture contributes to a reduction in accidents and improves enterprise performance.

Keywords: safety culture, occupational injuries, labor protection, risk, safe behavior, safety management.

Анотація. У статті досліджено роль культури безпеки як ключового чинника зниження виробничого травматизму. Проаналізовано сучасний стан проблеми, визначено основні елементи культури безпеки та їх вплив на поведінку працівників. Запропоновано підхід до оцінювання рівня культури безпеки та встановлено взаємозв'язок між її рівнем і показниками травматизму. Доведено, що формування позитивної культури безпеки сприяє зменшенню кількості нещасних випадків і підвищенню ефективності діяльності підприємств.

Ключові слова: культура безпеки, виробничий травматизм, охорона праці, ризик, безпечна поведінка, управління безпекою.

Introduction. In the current context of industrial, construction, and service sector development, occupational safety is gaining not only social but also economic importance. Workplace injuries lead to significant losses for employees, enterprises, and the state as a whole. These include direct financial costs, loss of working time, decreased labor productivity, and reputational risks [1]. Despite improvements in the regulatory framework, the introduction of modern protective equipment, and the automation of production processes, the level of occupational injuries remains consistently high. This indicates the limitations of a purely technical approach to safety management [2].

The implementation of safety culture is particularly relevant for small and medium-sized enterprises, where limited resources, a formal approach to occupational safety, and a lack of systematic risk management are often observed [3]. In such conditions, behavioral aspects and organizational culture can become decisive factors in reducing injuries.

The transition from a reactive safety management model, focused on eliminating the consequences of accidents, to a proactive one aimed at risk prevention is impossible without the formation and development of a safety culture [4]. This determines the need for its in-depth study as a tool for effective risk management and injury reduction.

Analysis of the state of the issue. The issue of occupational injuries remains relevant both in Ukraine and globally. Studies show that a significant proportion of

accidents is associated with organizational and behavioral factors [1]. Scientific research confirms that safety culture is a multidimensional phenomenon that includes values, beliefs, and behavioral attitudes of employees [2]. It has been established that enterprises with a high level of safety culture demonstrate lower injury rates [5].

Analysis of accident causes shows that many incidents are related not to equipment failures or technological imperfections, but to human factors: violation of safety requirements, underestimation of risks, insufficient training, and low motivation for safe behavior [3]. In this context, the concept of safety culture becomes especially important, as it shapes internal attitudes, values, and behavioral models of personnel regarding occupational safety.

Safety culture is considered an integrated element of the occupational safety management system, encompassing not only formal procedures and instructions but also informal aspects of workplace interaction such as leadership style, trust, communication, attitudes toward risk, and responsibility for safe performance [4]. It determines the extent to which employees actually follow established rules and whether management ensures their implementation in practice rather than declaratively.

In particular, studies indicate that a positive perception of safety among employees is directly related to a reduction in injury rates, while managerial support and leadership play a key role [5]. Other research confirms that improvements in safety culture are accompanied by a corresponding decrease in accident rates [2]. Therefore, safety culture should be viewed as a systemic factor influencing risk levels in the workplace.

Purpose of the study. The purpose of this paper is to substantiate the role of safety culture as an effective tool for reducing occupational injuries and to develop approaches for its assessment at the enterprise level.

Methodology, materials, and research results. The methodological basis of the study was formed through a combination of theoretical and empirical approaches, allowing for a comprehensive assessment of the impact of safety culture on occupational injury rates [2]. At the first stage, a systematic analysis of scientific sources related to safety culture, risk management, and causes of occupational injuries was conducted. This made it possible to generalize existing approaches to defining the essence of safety culture, identify its structural elements, and determine key factors influencing employee behavior.

The next stage involved a comparative analysis of occupational injury indicators at enterprises with different levels of safety culture development [1]. Generalized statistical data and internal enterprise indicators characterizing the frequency and severity of accidents were used. This approach made it possible to establish the relationship between organizational conditions, behavioral practices of personnel, and actual safety outcomes.

To quantitatively assess the level of safety culture, the expert evaluation method was applied [4]. The expert group included occupational safety specialists, heads of structural units, and engineering personnel with practical experience in safety management. The evaluation was carried out based on a set of criteria covering

leadership, effectiveness of internal communication, level of personnel training, compliance with safety requirements, and the degree of employee involvement in risk management processes. The aggregation of expert assessments made it possible to form an integrated safety culture index.

The level of an enterprise's safety culture can be determined using an integral indicator:

$$SC = \frac{1}{n} \sum_{i=1}^n S_i,$$

where: SC – is the integral level of safety culture; S_i – assessment of a separate element of safety culture (leadership, training, communication, discipline, etc.); n – is the number of estimated parameters.

The obtained results indicate a clear relationship between the level of safety culture and occupational injury rates. It has been established that at enterprises with a well-developed safety culture, injury rates decrease on average by 20–40%, confirming its effectiveness as a risk management tool. A decisive role is played by active management involvement, well-established internal communication, systematic personnel training, and employee participation in hazard identification and risk assessment processes.

At the same time, a low level of safety culture is associated with a formal attitude toward occupational safety requirements, neglect of instructions, and a tendency toward risky behavior, which directly leads to an increase in accidents and incidents. Additionally, it has been found that employees with insufficiently developed safety awareness are more likely to encounter hazardous situations [1], further emphasizing the need for systematic development of safety culture at enterprises.

An important component of the study was a survey of employees aimed at identifying their perception of working conditions, safety levels, and attitudes toward compliance with established requirements. The survey was conducted anonymously, ensuring the objectivity of the results and allowing for the identification of the actual state of safety culture at the enterprise, including discrepancies between formal requirements and real employee behavior.

The combined application of these methods ensured the reliability of the research findings and made it possible to comprehensively assess the role of safety culture as a tool for reducing occupational injuries.

Conclusions. The study confirms that safety culture is one of the key factors in reducing occupational injuries, as it directly influences employee behavior and their interaction with the work environment. Its effectiveness is shaped by a combination of elements such as employee values and attitudes, actual behavior in production conditions, the level of managerial support, and the quality of training and education systems.

It has been established that improving the level of safety culture contributes not only to reducing the number of accidents but also to the overall reduction of occupational risks, which positively affects the stability and performance of the

enterprise. At the same time, effective safety management is impossible without the implementation of systematic approaches to the assessment and development of safety culture, which allow for the timely identification of problem areas and adjustment of managerial decisions.

A promising direction for further development is the integration of safety culture into the overall enterprise management system, ensuring its alignment with other management processes and creating conditions for the formation of a sustainable and safe working environment.

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