Advances in Reliability, Safety and Security

ESREL 2024
Collection of Extended Abstracts

Occupational Safety And Health And Interventions For Effectiveness At The Workplace: Preliminary Evidence From The Literature

Gaia Vitrano[a], Guido J.L. Micheli[a], Angelo Castaldo[b], Alessia Marrocco[b], Alessandro Marinaccio[c], Vikash K.T. Kumaran[a]

[a]*Department of Management, Economics and Industrial Engineering, Politecnico di Milano, Milan, Italy*
[b]*Department of Legal and Economic Studies, Sapienza University of Rome, Rome, Italy*
[c]*Department of Medicine, Epidemiology, Occupational & Environmental Hygiene, National Institute for Insurance against Accidents at Work (INAIL), Rome, Italy*

Keywords: occupational safety, occupational health, interventions, effectiveness evaluation, literature review

Occupational safety and health (OSH) centres on the idea that work should not lead to harmful or detrimental effects on employees. However, statistics evidence high incidences of workplace-related injuries and diseases among the working population worldwide. As recorded by the International Labour Organization (ILO) more than 2.3 million workers die each year from occupational accidents or diseases (ILO, 2023). Therefore, a continuos effort for improving workers' Health and Safety (H&S) is required and interventions/initiatives/practices done at the workplace must be periodically reviewed and updated in line with changing work environments and technological advancements.

In Industry 5.0, Information Communication Technologies (ICTs) and new sensor technologies are crucial to make a breakthrough in the OSH field, by facilitating hazard identification and risk management (Salguero-Caparrós & Rubio-Romero, 2023). Industry 5.0 is rapidly changing risk management inside companies because several risks can now be predicted by digitalizing physical assets and creating digital ecosystems including people and machines throughout the value chain (Pereira et al., 2023).

OSH is an economic responsibility that can significantly reduce costs associated with work-related injuries and diseases, contributing to operational efficiency and productivity levels (Micheli et al., 2021). Recognizing the economic OSH impact, the relevance of OSH interventions is high, particularly when considering their potential when implemented in the workplace. They can sensibly improve the OSH conditions for workers, promoting H&S culture in workplaces. This study focuses on consolidating existing research about the effectiveness of current OSH interventions and highlighting areas for future research.

Therefore, a fundamental question arises: Are existing OSH interventions truly effective? More precisely, do we possess concrete evidence of their effectiveness?

Within the modern work environment, the effectiveness of OSH interventions is influenced by several factors (e.g., commitment of management, established safety culture at the workplace, sector of implementation, and geographical area). Their inherent design and subsequent implementation in real settings also affect their effectiveness (Vitrano et al., 2023). Therefore, having effective interventions requires careful attention to the context and mechanisms in play (Fridrich et al., 2015). In this regard, a large portion of the OSH literature is devoted to the evaluation of OSH interventions at the workplace to detect how they have (or should have) effectively contributed to improving OSH work conditions. The literature often delineates general interventions with potentially applicable to various work environments (Micheli et al., 2018; Pedersen et al., 2012; Zwetsloot et al., 2020). Other studies, attempting to develop more effective interventions, have targeted specific working contexts, such as Small and Medium-sized Enterprises (SMEs), which, being more vulnerable than larger

companies, require ad hoc measures (Zwetsloot et al., 2020). Other studies have examined precise typologies of interventions. For example, behavior-based interventions to improve mental health enhance the working population's work-life quality, well-being, and productivity (Ogakwu et al., 2023).

While various interventions have shown effectiveness in specific scenarios, there is still a gap in understanding their applicability across different industries. This problem is complex and multi-faceted because companies are very different in their nature. Each operates within distinct regulatory and work environments where they have their own unique set of hazards. Consequently, a one-size-fits-all approach may not be practical (Lynch-Wood & Williamson, 2014). For example, effective interventions in structured and controlled manufacturing environments may not be applicable or feasible in dynamic and unpredictable healthcare settings. The complexity of healthcare work, which often involves direct patient interaction and a higher risk of biological hazards, requires a different approach to OSH interventions compared to the mechanical and process-oriented nature of manufacturing. Moreover, as workplace settings and practices are rapidly changing, keeping up with these changes could be hard.

Future research for effective OSH interventions is highly needed as they can sensibly improve the OSH conditions of the workers. Nonetheless, the effectiveness of OSH interventions is still rarely monitored and often assumed without proper assessment. This lack of evaluation is often due to the perceived difficulty in measuring interventions, often relying on numerous qualitative factors that are difficult to track (von Thiele Schwarz et al., 2021). Hence, a discussion has been introduced in the literature on the effectiveness of OSH interventions, however, a comprehensive view of the overall problem is still not evident. Understanding the status quo and identifying potential improvement areas will make scholars and practitioners aware of major issues and will support them in pursuing higher effectiveness in OSH interventions.

One of the key areas of research should involve analyses of what works for whom, and the long-term outcomes of OSH interventions (Vitrano et al., 2023). There is also a need to study new tools and techniques to enhance OSH interventions. Further, the influence of employee behavior and organizational culture on the effectiveness of OSH interventions should be investigated. Another promising area to investigate is the need for developing a stronger stakeholder network and enhancing collaboration, knowledge sharing, and communication. This proactive research can indirectly contribute to identifying and implementing cost-effective interventions.

These findings highlight the need for a literature review to systematize and analyze the diverse range of existing studies. Through a systematic review, it would be possible to focus on OSH interventions across different contexts, the evaluation of their effectiveness, and the identification of gaps that might be helpful for future research exploration. This might enable the sharing of best practices and development of adaptable, sustainable OSH interventions that are effective in meeting the specific needs of every context, so bridging the current knowledge gap in the OSH field, ensuring the H&S of workers within a constantly changing work environment.

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