



Artificial Intelligence, Nursing, and Musculoskeletal Disorders: A New Global Health Challenge

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Editorial



Nurses are at the heart of healthcare systems, yet their own health remains inadequately protected. Work-Related Musculoskeletal Disorders (WMSDs), particularly lower back, neck, and upper limb pain, are especially common in this profession, which involves patient transfers, awkward postures, repetitive movements, and physically demanding work [1, 2]. Recent international data confirm that MSDs are a global problem among nurses, with significant variations across regions and professional contexts [3-5]. This issue takes on particular significance in the context of a global nursing shortage. This issue takes on particular significance in the context of a global transformation of the healthcare workforce. According to the *State of the World's Nursing 2025* report, the global nursing workforce has grown from 27.9 million in 2018 to 29.8 million in 2023. Despite this increase, the global shortage is still estimated at 5.8 million nurses in 2023, with significant disparities between countries and regions [6]. The health, safety, and ability of nurses to remain in the workforce must therefore be considered integral components of the resilience of health systems and universal health coverage [6, 7].

In this context, Artificial Intelligence (AI) could help transform the prevention of Musculoskeletal Disorders (MSDs). Techniques such as computer vision, machine learning, and deep learning now make it possible to automatically identify and classify certain work-related postures. A systematic review and meta-analysis published in 2026 demonstrates the rapid development of these approaches for assessing postures and the risk of MSDs in various occupational activities [8]. This development opens the door to a more objective and continuous assessment of the biomechanical stresses to which workers are exposed. For nurses, this approach could facilitate a shift from prevention based primarily on training in "movements and postures" to a dynamic and context-specific prevention strategy. For example, AI could detect repeated bending of the torso, asymmetrical postures, or risky movements during patient transfers. These solutions could complement traditional ergonomic methods and facilitate targeted interventions focused on the work environment and work organization [9, 10]. However, AI must not become a new tool for monitoring or intensifying work. Technology intended to protect healthcare workers could be counterproductive if it were used primarily to measure their productivity or monitor their behavior. The WHO therefore emphasizes that AI in healthcare must adhere to the principles of equity, transparency, accountability, safety, and the protection of human rights [11, 12].

Global health is also at stake. A solution developed in a hospital with significant technological resources will not necessarily be suitable for a rural facility or a low-resource health system. To truly help reduce inequalities, AI tools applied to occupational health must be accessible, affordable, robust, explainable, and adaptable to different workplace contexts. Thus, AI could foster a new generation of ergonomics: "augmented ergonomics," capable of objectively assessing real-world work constraints, identifying high-risk situations early on, and helping teams design safer care environments [13-16].

But AI will not replace nurses, ergonomists, adaptive equipment, or adequate staffing levels. Its value lies instead in its ability to complement human expertise and support data-driven prevention decisions. Protecting nurses from MSDs means protecting those who protect healthcare systems. From this perspective, AI should be evaluated not only on its ability to improve care, but also on its ability to improve the conditions under which care is provided.

The prevention of MSDs thus becomes a strategic intersection between artificial intelligence, occupational health, nursing, and global health.

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