Short Communication
Volume 10:05, 2025

International Journal of Public Health and Safety

ISSN: 2736-6189

Open Access

Worker Well-being: Mental Health, Safety, Technology

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Introduction

This study explored the impact of job stress and workplace violence on the mental health of Korean workers during the COVID-19 pandemic. Findings indicated that high job stress and exposure to workplace violence significantly correlated with increased depression and anxiety among workers, highlighting the critical need for mental health support and interventions in occupational settings during crises[1].

This systematic review examines the influence of digital technologies on occupational safety and health in developing countries. It highlights how these technologies can both improve safety through better monitoring and training, and introduce new risks related to data privacy, digital divides, and increased work intensity. Effective implementation requires tailored strategies addressing local contexts and infrastructure[2].

This study investigated the relationship between occupational stress and health-related quality of life among healthcare workers in Oman during the COVID-19 pandemic. It found that high levels of stress significantly impacted their physical and mental well-being, underscoring the severe burden placed on these frontline workers and the need for organizational support to mitigate long-term health consequences[3].

This cross-sectional study in Jordan evaluated the safety climate within the manufacturing industry and its correlation with occupational accidents. The findings revealed that a positive safety climate, characterized by strong management commitment and worker involvement, was significantly associated with a lower incidence of workplace accidents, highlighting its crucial role in promoting occupational safety[4].

This systematic review and meta-analysis investigated the factors contributing to occupational musculoskeletal disorders among nurses. Key findings highlighted ergonomic risk factors, long working hours, and patient handling tasks as major contributors, emphasizing the need for ergonomic interventions, appropriate staffing, and training programs to reduce these prevalent occupational injuries[5].

This cross-sectional study examined the role of safety leadership in shaping safety climate and behavior among healthcare workers. Results indicated that effective safety leadership positively influenced safety climate, which in turn promoted safer practices among staff. This suggests that strong leadership is vital for fostering a proactive safety culture within healthcare organizations[6].

This research explored the Work Ability Index (WAI) and its connections to physical activity, body mass index, and other health factors in aging employees. It found that maintaining good physical activity levels and a healthy BMI positively correlated with higher work ability, emphasizing the importance of promoting healthy lifestyles to sustain an aging workforce effectively[7].

This systematic review and meta-analysis investigated the health effects of occupational exposure to chemical hazards among workers in South Korea. It identified significant associations between various chemical exposures and adverse health outcomes, including respiratory issues and certain cancers. The findings underscore the continuous need for stringent exposure controls and robust health surveillance programs[8].

This systematic review and meta-analysis assessed the psychological distress experienced by paramedics during the COVID-19 pandemic. It found a high prevalence of anxiety, depression, and PTSD symptoms among this critical workforce. This highlights the severe mental health impact of pandemic response efforts on frontline emergency services and the urgent need for targeted psychological support[9].

This systematic review investigated the applications of Artificial Intelligence (AI) in occupational safety and health. It identified diverse uses, including predictive risk assessment, automated monitoring, and intelligent safety training systems. While promising for enhancing safety, the review also notes challenges related to data quality, ethical considerations, and the need for human-AI collaboration[10].

Description

The comprehensive body of research highlights various critical aspects of occupational safety and health, emphasizing both established challenges and emerging concerns. A significant area of focus is the mental health impact on workers, particularly exacerbated by global crises. For instance, studies during the COVID-19 pandemic revealed that Korean workers experienced heightened depression and anxiety directly linked to high job stress and exposure to workplace violence, signaling a clear demand for mental health support in crisis-prone occupational settings [1]. Similarly, healthcare workers in Oman during the same pandemic reported substantial occupational stress that severely impacted their overall health-related quality of life, underscoring the immense pressure on frontline staff and the urgent need for robust organizational support to prevent long-term health consequences [3]. Furthermore, paramedics, as another critical group on the frontlines, exhibited a high prevalence of psychological distress, including anxiety, depression, and PTSD symptoms, indicating the profound mental health toll of pandemic response efforts on emergency services and the pressing need for tailored psychological support systems [9].

Beyond mental health, the cultivation of a strong safety climate and effective leadership are paramount for preventing workplace incidents. A cross-sectional study in Jordan's manufacturing industry demonstrated a significant association between a positive safety climate—defined by strong management commitment and active worker involvement—and a lower occurrence of occupational accidents,

highlighting the preventative power of a well-established safety culture [4]. This concept is further reinforced by research among healthcare workers, where effective safety leadership was shown to positively influence the safety climate, which subsequently promoted safer behaviors among the staff. This suggests that proactive and visible leadership is indispensable for fostering a preventative and responsive safety culture within healthcare organizations and across various industrial sectors [6].

Physical well-being remains a persistent concern in many occupations. A systematic review and meta-analysis on nurses identified ergonomic risk factors, prolonged working hours, and demanding patient handling tasks as major contributors to occupational musculoskeletal disorders [5]. These findings highlight the crucial need for targeted ergonomic interventions, appropriate staffing levels, and specialized training programs designed to mitigate these prevalent occupational injuries. Maintaining physical health also extends to the general workforce; research on aging employees explored the Work Ability Index, finding a positive correlation between consistent physical activity levels, a healthy Body Mass Index (BMI), and higher work ability. This emphasizes the value of promoting healthy lifestyles and wellness initiatives to sustain a productive and capable aging workforce effectively [7].

The influence of evolving technologies and persistent environmental hazards also shapes occupational health paradigms. Digital technologies, while offering avenues for improved safety through better monitoring and training, also introduce new challenges, particularly in developing countries. These include issues related to data privacy, the exacerbation of digital divides, and an increase in work intensity. Consequently, successful integration of these tools requires localized, context-specific strategies and infrastructure development [2]. Concurrently, traditional hazards continue to pose risks; a systematic review in South Korea revealed significant health effects from occupational exposure to chemical hazards, linking them to adverse outcomes like respiratory issues and specific cancers. This reiterates the ongoing necessity for stringent exposure controls and robust health surveillance programs [8].

Looking to the future, Artificial Intelligence (AI) holds considerable promise for transforming occupational safety and health practices. Applications range from predictive risk assessments and automated monitoring to intelligent safety training systems. While these innovations offer significant potential for enhancing workplace safety, their implementation comes with important considerations. Challenges include ensuring data quality, addressing ethical implications, and fostering effective human-AI collaboration to fully realize the benefits without unintended consequences. The careful integration of such advanced tools requires foresight and a balanced approach to overcome these hurdles and maximize their positive impact on worker well-being and safety [10].

Conclusion

The collected research illuminates diverse facets of occupational safety and health, emphasizing mental health challenges, physical well-being, safety culture, and technological impacts. The COVID-19 pandemic significantly amplified mental distress among workers, with studies revealing increased anxiety, depression, and PTSD symptoms in Korean workers, Omani healthcare staff, and paramedics due to job stress, violence, and intense frontline demands [1, 3, 9]. These findings underscore the critical need for mental health support in occupational settings.

Promoting a strong safety climate and effective leadership is crucial for accident prevention. Research indicates that management commitment and worker involvement lead to fewer accidents in manufacturing, while strong safety leadership enhances safety climate and behavior among healthcare professionals [4, 6]. Physical health concerns include occupational musculoskeletal disorders among nurses, highlighting ergonomic risks and the need for interventions [5]. Additionally, maintaining physical activity and a healthy Body Mass Index (BMI) correlates with better work ability in aging employees, stressing healthy lifestyle promotion [7].

The evolving nature of work integrates digital technologies, offering safety improvements but also posing risks like data privacy and increased work intensity in developing nations [2]. Persistent threats include occupational exposure to chemical hazards in South Korea, linked to various adverse health outcomes, necessitating stringent controls [8]. Artificial Intelligence (AI) applications are promising for predictive risk assessment and safety training but require careful consideration of data quality and ethical implications [10]. Overall, the studies collectively advocate for comprehensive interventions, robust support systems, and proactive strategies to safeguard worker well-being and enhance occupational safety across varied sectors.

Acknowledgement

None.

Conflict of Interest

None.

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How to cite this article: Rahou, Amira. "Worker Well-being: Mental Health, Safety, Technology." *Int J Pub Health Safe* 10 (2025):472.

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Received: 01-Sep-2025, Manuscript No. IJPHS-25-175366; **Editor assigned:** 03-Sep-2025, PreQC No. P-175366; **Reviewed:** 17-Sep-2025, QC No. Q-175366; **Revised:** 22-Sep-2025, Manuscript No. R-175366; **Published:** 29-Sep-2025, DOI: 10.37421/2157-7587.2025.10.472