

Productivity and Workplace Injuries among Healthcare providers; the impact of Ergonomics

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Abstract

Prevalence of Musculoskeletal Disorders rise among Healthcare Professionals. Ergonomics is the scientific study of designing products, systems, and environments with the aim of optimizing human well-being and overall system performance. In the healthcare industry, ergonomics can play a crucial role in reducing workplace injuries and enhancing productivity. This review article aims to provide an overview of the importance of ergonomics in healthcare workplaces and discusses recent research on the topic.

Keywords: *Ergonomics, Healthcare workers, Productivity & Workplace injuries.*

Introduction

Ergonomics is the science that deals with the interactions between humans and the work environment. The principles of ergonomics aim to design the workplace to fit the worker, reduce work-related injuries, and increase productivity. Healthcare workers face many ergonomic challenges due to the nature of their work, which includes repetitive tasks, awkward postures, and heavy lifting (Davis, Freeman, Ying, Huth, 2021). In this review article, we will explore the role of ergonomics in improving productivity and reducing workplace injuries in the healthcare setting.

Healthcare workers are at high risk of workplace injuries due to the nature of their work. According to the U.S. Bureau of Labor Statistics, healthcare workers have a higher rate of musculoskeletal disorders than any other industry. Musculoskeletal disorders include injuries to the neck, back, shoulders, and upper extremities. These injuries are caused by prolonged standing, uncomfortable positions, and manual handling tasks, such as lifting and transferring patients (Krishnan, Raju, Shawkataly, 2021).

In a study conducted by the National Institute for Occupational Safety and Health (NIOSH), it was found that implementing ergonomic interventions reduced the incidence of musculoskeletal disorders by up to 62%. One example of an ergonomic intervention is the use of adjustable height workstations. Healthcare workers who spend a significant amount of time standing or sitting in the same position can experience musculoskeletal pain and discomfort. By providing adjustable height workstations, workers can adjust their work surface to a comfortable level, reducing the risk of injury (Das, Gangopadhyay, Ghosh, 2021). Another example of an ergonomic intervention is the use of lifting equipment. Healthcare workers are often required to lift and move patients, which can put them at risk for back injuries. By providing lifting equipment such as hoists and transfer aids, the risk of injury can be significantly reduced (Qi, Chen, 2020).

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One of the most common ergonomic issues in healthcare workplaces is musculoskeletal disorders (MSDs). Healthcare workers are at a higher risk of experiencing MSDs due to repetitive physical strain, uncooperative postures, and moving weighty patient or object. A recent study found that nurses who reported high levels of MSD-related pain had a lower quality of life and increased job dissatisfaction. Consequently, ergonomics interventions, such as training in proper lifting techniques and using equipment to reduce repetitive motions, can prevent MSDs and promote worker well-being (Ji, Hettiarachchige, Littman, Piovesan, 2023).

Ergonomics can also play an important role in preventing falls among healthcare workers. A study by Das (2019) found that the implementation of ergonomic design features in hospitals, such as non-slip flooring and handrails, reduced the number of falls and fall-related injuries. Furthermore, ergonomic design of rooms, including placement of monitors, lighting, and call systems, can improve safety and reduce staff response times.

The use of technology in healthcare has also increased the need for ergonomic design in the workplace. For instance, electronic health records (EHRs) have been associated with an increase in musculoskeletal injuries due to long periods of sitting and typing. Another study found that ergonomic workstation designs, such as adjustable desks and chairs, can reduce the risk of EHR-related musculoskeletal injuries (Barkhordarzadeh, Choobineh, Razeghi, Cousins, Mokarami, 2022).

One such study was conducted by Bongers et al., who found that ergonomic interventions significantly reduced the incidence of work-related musculoskeletal disorders in healthcare workers (Bongers et al., 2006). Similarly, a study by Nordin et al., reported that ergonomic interventions significantly reduced the incidence of back injuries in nurses (Nordin et al., 2006). Moreover, ergonomics has also been shown to improve productivity in healthcare settings. In a study by Karahan et al., ergonomic interventions resulted in improved work posture, reduced physical workload, and increased productivity among healthcare workers (Karahana et al., 2014). Similarly, a study by Tam and Smith reported that ergonomic interventions resulted in reduced physical strain among healthcare workers, which, in turn, improved productivity (Tam and Smith, 2003).

Productivity is critical in the healthcare setting. Healthcare facilities aim to provide high-quality care to patients while managing costs and maintaining efficiency. The ergonomics of the workplace can affect the productivity of healthcare workers. Poor ergonomics can lead to fatigue, discomfort, and injuries, which can impact the worker's ability to perform tasks efficiently (Ali, Ahsan, Hossain, 2020).

Ergonomics plays a significant role in improving productivity and reducing workplace injuries in healthcare settings. By designing work environments to fit the workers, healthcare facilities can reduce the risk of musculoskeletal disorders, decrease absenteeism, and increase worker satisfaction. Implementing ergonomic principles can also improve work efficiency, reduce worker fatigue, and increase patient safety. For example, using lift assist devices can reduce manual handling tasks, which can reduce the incidence of musculoskeletal injuries. Healthcare facilities should consider ergonomic principles when designing work environments (Jovanović, Šimunič, 2021).

Ergonomic principles can include adjusting work surfaces, reducing the need for manual handling tasks, and providing access to tools and devices that reduce the risk of injury. Some facilities have also implemented training programs for healthcare workers on ergonomic principles and safe patient handling. Finally, ergonomics interventions can have a positive impact on worker productivity. A study found that ergonomic interventions, such as walking workstations and sit-stand desks, increased worker productivity by 10-12%, reduced fatigue, and improved mood (Derbew et al., 2021).

Recent research has also focused on using innovative technologies, such as virtual reality and wearable devices, to improve ergonomic training and reduce workplace

injuries in healthcare. A study found that a virtual reality training program improved the posture and lifting mechanics of nursing students. Furthermore, wearable devices, such as smart watches and activity trackers, can provide real-time feedback on posture and movement and promote healthy workplace behaviors (Sohrabi, Babamiri, 2021).

Improving productivity through ergonomics in healthcare services can be achieved through implementing ergonomic interventions and designing workspaces that are conducive to worker well-being. Here are some solutions that can be implemented to improve productivity through ergonomics in healthcare services:

1. **Implementing ergonomic workstations:** Ergonomic workstations that are customized to a worker's physical dimensions and task requirements can reduce work-related musculoskeletal disorders (WMSDs). Adjustable workstations, chairs, and keyboards that can be adjusted for height, angle, and tilt can help create a comfortable and safe work environment for healthcare workers, enabling them to work for longer hours without suffering from fatigue and discomfort (Davis, Freeman, Ying, Huth, 2021).
2. **Providing ergonomic training:** Providing ergonomic training to healthcare workers can help create awareness regarding the importance of workplace ergonomics, correct body posture, and safe lifting techniques. Dynamic exercises such as stretching and yoga can help improve blood circulation, reducing the risk of common ergonomic-related injuries (Ji, Hettiarachchige, Littman, Piovesan, 2023).
3. **Incorporating automation:** Automation can be used to reduce the physical strain on healthcare workers and increase productivity. For instance, automated lifting equipment can be used to move heavy loads, reducing the risk of WMSDs and improving overall output (Ji, Hettiarachchige, Littman, Piovesan, 2023).
4. **Redesigning workspaces:** Redesigning workspaces to incorporate ergonomic principles such as proper lighting, temperature, ventilation, and spatial layout can improve productivity and worker well-being. For example, proper lighting can reduce eye strain and headaches, while minimizing walking distance can increase efficiency and minimize fatigue (Davis, Freeman, Ying, Huth, 2021).
5. **Providing ergonomic tools and equipment:** Providing healthcare workers with ergonomically efficient equipment and devices, such as lightweight and cordless devices, can reduce physical strain on the worker, saving energy and increasing productivity (Sohrabi, Babamiri, 2021).
6. **Creating a culture of ergonomic mindfulness:** Creating a work culture that prioritizes ergonomic principles can help promote safe, efficient, and comfortable work practices. Regular discussions, briefing, and training sessions can help remind workers of the importance of ergonomics, making productive practices a habit (Sohrabi, Babamiri, 2021).

Conclusion

Ergonomics plays a significant role in improving productivity and reducing workplace injuries in healthcare settings. By designing the workplace to fit the worker, healthcare facilities can reduce the risk of musculoskeletal disorders, increase worker efficiency, and improve patient safety. Healthcare facilities should consider implementing ergonomic principles when designing work environments and providing training to healthcare workers on ergonomic principles and safe patient handling.

Acknowledgment:-

This project was supported via funding from Prince Sattam Bin Abdulaziz University project number (PSAU\2023/R/1445), AlKharj, Saudi Arabia.

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