

# Importance of Ergonomics for Healthcare Workers

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DOI: <https://doi.org/10.52403/ijshr.20230310>

## ABSTRACT

**Objective:** The goal of this study is to analyze literature on ergonomics in healthcare organization from existing publication. The studies are compiled to assess the importance of ergonomics among healthcare workers. A review was performed by reviewing some selective studies by IEOM Society International on 2022. As a result, the effects of ergonomics on healthcare workers have been extensively researched with small samples, leaving plenty of room for future research to validate and expand all priorities.

**Design:** A thorough literature search was undertaken which included major online databases (PubMed, Springer, Science Direct and Google Scholar).

**Keywords:** Ergonomics; Healthcare workers; Society, Musculoskeletal Disorders

## INTRODUCTION

The word ergonomics is derived from Greek words, "ergo" and "nomos", meaning work and law respectively. Ergonomics has been described as the science that deals with adjusting any work environment, tools, task, and equipment to fit with the person's physical capability and limitations to provide a safe, comfortable environment and reduce the risk of the work related injury (1).

In modern world, ergonomics has become the most important part of daily life. Now a days, in the fast moving world, health workers are considered highly technical and more advanced in society. The healthcare industry is a major industrial sector in numerous countries. The recent economic recession has contributed to the slowing down of increases in health spending in the US; however, health spending still represents a major proportion of the gross domestic product (GDP): 18.3% in 2021 in the US and 1.8% in India. In other industrialized countries, health expenditures represent between 8-11% of the GDP. Therefore, the healthcare sector plays a major socioeconomic role in many countries. Improving the delivery and organization of healthcare delivery can have major impact not only on patients, but also on the socioeconomic health of countries (4). Good ergonomics can make life more pleasurable and comfortable. The work pattern of the healthcare workers is excessively tedious. So, good ergonomics will contribute significantly to the general wellbeing and workplace safety. This in turn, will improve the quality and productivity of healthcare workers.

## **OBJECTIVE**

The objective of the review of articles is to assess importance of ergonomics among health care workers and analyze the articles.

## **MATERIALS & METHODS**

To gather information related to importance of ergonomics among healthcare workers, a literature review using a search of electronic databases was conducted. The footnote chasing was also done and related studies were included in the analysis. To search the articles in PubMed, an advanced methodological search strategy was used: ergonomics AND healthcare workers, importance of ergonomics AND healthcare workers. Many studies were found and were chosen based on certain criteria like research-based studies, studies written in English language and free full text. The qualitative research and studies which required purchase were excluded.

## **RESULT**

Though extensive research has been done in the field of ergonomics, the evidence related to importance of it among healthcare workers is not sufficient. There is a need to explore more. Practicing good ergonomics will proportionately affect the quality of work rendered by health care workers. Therefore, understanding the importance of ergonomics will help to customize the work environment in order to increase the productivity of healthcare workers.

A cross-sectional descriptive study was conducted in Bangladesh among 227 resident doctors. A structured close-ended questionnaire was used to assess the awareness of ergonomics. Results of the study showed that, awareness level was good in only (15%), fair in (16.7%) and for majority (68.3%) of the sample, awareness of ergonomics was poor and didn't follow the parameters of good ergonomic use of a computer. The reason behind this study was the lack of any lecture and training on computer ergonomics and correct body posture in MBBS and post-graduation level (1).

An online survey was conducted in India among 377 ophthalmologists by using a validated questionnaire in 2018 to assess the ergonomics practices and musculoskeletal disorder. Study result showed that the prevalence of self reported physical problem raised by poor ergonomics was 75.3%. The following factors were found to be associated with self-reported musculoskeletal problems which can arise from bad ergonomics practices: work experience of less than 10 years, and lack of good clinic and operation room ergonomic practices (2). A cross-sectional descriptive study was conducted to assess the level of awareness and knowledge of the science of ergonomics among Medical laboratory scientists in Benin City, Nigeria. According to the authors, this was the first study to assess the ergonomics knowledge of medical laboratory scientists in Nigeria. The effective and timely use of ergonomic principles at work places supports employee health, productivity, and well-being. The applicability of ergonomic concepts depends on how well they are understood. In light of this, the purpose of this study was to evaluate the ergonomics knowledge and awareness of medical laboratory scientists working in Nigerian diagnostic centers that were both public and private. The result of this study showed that out of 106 participants 27 (25.5%) were reported to have heard of the term ergonomics. Only 6 (22.2%) of 27 participants who are aware of ergonomics knew at least a benefit of the right application of ergonomics and how it is important in medical area to increase quality of working hours (3). To determine the significance of ergonomics and human factors in healthcare, a study was done by Pascale Carayon to assess emerging role of human factors and ergonomics in healthcare delivery- A new field of application and influence for the IEA at National Institute of Health in 2012. The findings of the study showed that good ergonomics can control workload, physical, cognitive, and macro ergonomic problems, with medical equipment and health information

technologies during care transitions, as well as risk management and patient safety management, resilience, and feedback loops between event detection, reporting, and analysis and system redesign (4). A study was done in Iran in 2013 by giving a questionnaire to nurses to find out the relationship between knowledge of ergonomics and workplace conditions with musculoskeletal disorders. It showed that nurses' awareness of ergonomic science, working conditions (including lighting, ventilation etc) and work-related injuries and problems received  $2.93 \pm 0.58$ ,  $2.23 \pm 0.54$  and  $2.66 \pm 0.76$  scores out of 5, respectively. The results showed that the study group was aware of workplace ergonomics principles in an intermediate level and the more nurses know workplace ergonomics principles, the less work-related injuries and problems they will have. Nurses' awareness of ergonomic principles was mediocre and, the level of their knowledge about working conditions and work-related injuries was low and weak, respectively (5).

## CONCLUSION

Research from the past demonstrates that good ergonomics increases healthcare productivity and efficiency. Ergonomics is the study of how to create safe and healthy workplaces where the demands of the job "fit" the skills of the people who must carry them out (Walters 2010).

According to Hignett in 2013, ergonomics experts should work closely with healthcare professionals to obtain a deeper understanding of the complex healthcare world, as well as to develop and grow clinical ergonomics and human factors application and understanding with an environment that can sustain meaningful long-term relationships.

A holistic perspective which emphasizes upon enhancing interaction of people such as medical practitioners, healthcare workers, and patients as well as the other components that make up healthcare systems are essential; this connects vision of "human factors and ergonomics". This would lead to

improved outcomes regarding safety, wellness, well-being, and overall performance. (Rodríguez and Hignett 2021). The practice of ergonomics among healthcare workers will promote their well being which in turn will help them in providing quality care to the patients and meet the organizational goals. However, healthcare workers still lack utilizing the knowledge and practicing it in daily life.

Keebler in 2022 said that human factors and ergonomics is poorly understood in medicine, and when ergonomics experts are involved, it is present in very small groups spanning various disciplines, and it is perceived as expensive and consuming time. There is a significant need for ergonomics awareness in the healthcare sector.

## Declaration by Authors

**Ethical Approval:** Not Required

**Acknowledgement:** None

**Source of Funding:** None

**Conflict of Interest:** The authors declare no conflict of interest.

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How to cite this article: Kastury Chakraborty, Sara Oommen, Bindhu Mathew, Sherina K. Importance of ergonomics for healthcare workers. *International Journal of Science & Healthcare Research*. 2023; 8(3): 52-55. DOI: <https://doi.org/10.52403/ijshr.20230310>

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