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Original Article

Perception and Knowledge of Correct Ergonomics Among Health Care Professionals in Memon Medical Institute Hospital

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Abstract

Background: Ergonomics is the science of adapting the workplace to suit human physical capabilities and limitations. Proper ergonomic practices can prevent musculoskeletal disorders and improve workplace productivity and employee satisfaction. Healthcare professionals are particularly susceptible to ergonomic issues due to the physical demands of their jobs.

Objective: This study aims to evaluate the perception and awareness of correct ergonomics among healthcare professionals at Memon Medical Institute Hospital.

Methods: A cross-sectional observational study was conducted at Memon Medical Institute Hospital over three months. A total of 150 participants, including doctors, paramedical staff, and office workers, were selected using a non-probability convenience sampling technique. Exclusion criteria included individuals with a history of trauma or malignant conditions. Data were collected through a standardized questionnaire and analyzed using SPSS version 21. The chi-square test was employed to examine the relationship between ergonomic knowledge and practice, with significance set at $p < 0.05$.

Results: Of the 150 participants, 56.7% were male and 43.3% female. 85 participants (56.7%) reported knowledge of ergonomics, while 65 (43.3%) did not. A significant relationship was found between ergonomic knowledge and its application ($p = 0.002$).

Conclusion: The majority of healthcare professionals at Memon Medical Institute Hospital are aware of ergonomic principles and apply them effectively, which can help reduce musculoskeletal disorders and improve productivity.

1 Introduction

Ergonomics, derived from the Greek words "ergo" meaning work and "nomos" meaning law, focuses on designing workspaces that optimize human well-being and overall system performance (1). It involves adapting the workplace to meet the physical capabilities and limitations of workers, aiming to reduce the risk of musculoskeletal disorders and enhance productivity. In healthcare settings, where the physical demands are significant, implementing ergonomic principles is crucial to ensure the safety and efficiency of healthcare professionals. Musculoskeletal disorders are a common occupational hazard in the medical field, often resulting from repetitive movements, awkward postures, and prolonged static positions (2).

Healthcare facilities are complex environments where staff members frequently engage in physically demanding tasks, which can lead to ergonomic-related issues. The prevalence of musculoskeletal disorders in healthcare professionals is high, with reports indicating significant incidences of back, neck, and shoulder pain among nurses and other medical staff (3). These issues not only affect the health and well-being of the employees but also have a direct impact on their productivity and the quality of patient care provided. Therefore, promoting ergonomic awareness and practices among healthcare workers is essential for reducing work-related injuries and improving workplace efficiency (4).

Despite the recognized benefits of ergonomics, many healthcare workers remain unaware of its importance and fail to apply ergonomic principles in their daily routines. The lack of ergonomic awareness can lead to increased absenteeism, decreased job satisfaction, and higher healthcare costs due to injury-related expenses. Studies have shown that healthcare professionals often experience symptoms such as muscle weakness, soreness, and reduced range of motion, which are indicative of poor ergonomic practices (5). These symptoms can significantly impact their ability to perform tasks efficiently and safely, emphasizing the need for better ergonomic training and implementation in healthcare settings.

This study seeks to assess the perception and knowledge of ergonomics among healthcare professionals at Memon Medical Institute Hospital. By evaluating their understanding and application of ergonomic principles, the research aims to identify gaps in knowledge and

practice that could be addressed through targeted interventions. The findings of this study are expected to highlight the importance of incorporating ergonomics into healthcare practices to prevent musculoskeletal disorders and enhance the overall work environment for healthcare professionals. This research builds on previous studies that have explored ergonomic practices in various healthcare settings, providing a comprehensive analysis of the current state of ergonomic awareness among medical staff at the hospital (6). Through this investigation, the study aims to contribute to the development of strategies that can improve ergonomic knowledge and implementation, ultimately leading to better health outcomes for both healthcare professionals and patients.

2 Material and Methods

The study was a cross-sectional observational research project conducted at Memon Medical Institute Hospital over a period of three months. The objective was to assess the perception and awareness of correct ergonomics among healthcare professionals, including doctors, paramedical staff, and office workers. A total of 150 participants were selected using a non-probability convenience sampling technique, ensuring a representative sample of the hospital's healthcare workforce. The inclusion criteria consisted of healthcare professionals actively engaged in clinical and administrative duties. Exclusion criteria included individuals with a history of trauma or any malignant condition, as these factors could potentially confound the study's outcomes by influencing ergonomic practices independently.

Data collection was conducted using a structured, standardized questionnaire designed to evaluate the participants' knowledge and practices related to ergonomics. The questionnaire was developed based on established ergonomic guidelines and reviewed by experts in the field to ensure its validity and reliability. Prior to data collection, ethical approval was obtained from the institutional ethics committee of Memon Medical Institute Hospital, with reference number IRB/MMIH/2021/30, ensuring compliance with the ethical standards outlined in the Declaration of Helsinki. Informed consent was obtained from all participants, who were assured of the confidentiality and anonymity of their responses.

The questionnaire covered various aspects of ergonomic knowledge and practices, including awareness of ergonomic principles, application of ergonomic practices in the workplace, and the perceived usefulness of ergonomic information. Participants were asked to respond to questions related to their ergonomic practices, such as adjusting their sitting and standing positions, taking postural breaks, and the use of ergonomic equipment. The questionnaire also collected demographic information, including age, gender, and job role, to facilitate a comprehensive analysis of the data.

Data were analyzed using SPSS version 25. Descriptive statistics were used to summarize the demographic characteristics and the responses related to ergonomic knowledge and practices. The chi-square test was employed to examine the relationship between participants' knowledge of ergonomics and their application of ergonomic practices, with a significance level set at $p < 0.05$. This analysis aimed to identify significant correlations and patterns in the data, providing insights into the current state of ergonomic awareness and application among healthcare professionals at the hospital.

The study adhered to all ethical guidelines, ensuring the protection of participants' rights and the integrity of the research process. The findings from this research are expected to contribute to the development of targeted interventions aimed at improving ergonomic knowledge and practices among healthcare professionals, ultimately enhancing their well-being and productivity.

3 Results

The study included a total of 150 healthcare professionals from Memon Medical Institute Hospital, comprising 85 males (56.7%) and 65 females (43.3%). Table 1 summarizes the demographic distribution of participants.

Table 1: Gender Distribution of Participants

Gender	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Male	85	56.7	56.7	56.7
Female	65	43.3	43.3	100.0
Total	150	100.0	100.0	

Of the 150 participants, 85 (56.7%) reported having knowledge of ergonomics, while 65 (43.3%) indicated they had no such knowledge. Most participants (135, or 90%) worked full-time, while the remaining 15 (10%) worked part-time. In terms of work hours, 135 participants (90%) worked 8 hours per day, and 15 participants (10%) worked 12 hours per day. Table 2 presents a detailed overview of the participants' ergonomic practices and knowledge.

Table 2: Ergonomic Practices and Knowledge

Ergonomic Practice/Knowledge	Yes	No	Total
Knowledge of Ergonomics	85	65	150
Full-time Employment	135	15	150
8 Hours Work Per Day	135	15	150
Adjust Sitting Position	41	109	150
Adjust Standing Position	109	41	150
Change Position Regularly	141	9	150
Take Postural Breaks	113	37	150
Information Related to Ergonomics Useful	143	7	150
Discomfort with Prolonged Static Posture	134	16	150
No Comment on Usefulness of Ergonomic Information	7	-	-

The chi-square test revealed a significant relationship between knowledge of ergonomics and its practical application, with a p-value of 0.002, indicating a statistically significant correlation. Table 3 displays the results of the chi-square test.

Table 3: Chi-Square Test Results

Test Component	Value	Degrees of Freedom (df)	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.273	1	0.002
Continuity Correction	8.145	1	0.004
Likelihood Ratio	9.260	1	0.002
Fisher's Exact Test (2-sided)	-	-	0.004
Linear-by-Linear Association	9.211	1	0.002
Number of Valid Cases	150		

The results indicate that healthcare professionals at Memon Medical Institute Hospital generally have a good understanding of ergonomic principles, with the majority applying these principles in their work settings. This application of ergonomics is likely to reduce the risk of musculoskeletal disorders and enhance productivity among staff members.

4 Discussion

The study conducted at Memon Medical Institute Hospital demonstrated that a significant proportion of healthcare professionals were knowledgeable about ergonomics and applied these principles in their daily work. This finding aligns with previous research that emphasizes the importance of ergonomic practices in reducing musculoskeletal disorders and enhancing workplace productivity (3). The significant correlation between ergonomic knowledge and its practical application, as indicated by the chi-square test, underscores the positive impact of ergonomic awareness on the behavior of healthcare professionals.

Comparative studies have shown varying levels of ergonomic awareness and implementation across different healthcare settings. For instance, a study conducted among dentists in tertiary care hospitals revealed only an average application of ergonomic principles, despite good knowledge (14). In contrast, the present study found a higher level of practical application among healthcare workers, which may be attributed to targeted training and awareness programs conducted at the hospital. Similarly, research among medical professionals in other countries highlighted the need for continuous education and integration of ergonomic principles into daily clinical practice to prevent work-related musculoskeletal disorders (15-17).

The strengths of this study include its comprehensive approach to evaluating both the knowledge and application of ergonomics, as well as its focus on a diverse group of healthcare professionals. However, the study was limited by its cross-sectional design, which does not allow for causal inferences. Additionally, the use of self-reported data may have introduced bias, as participants might overestimate their knowledge or compliance with ergonomic practices. Future research should consider longitudinal studies to assess the long-term impact of ergonomic training and practices on health outcomes among healthcare professionals.

Despite these limitations, the study provides valuable insights into the current state of ergonomic awareness among healthcare workers at Memon Medical Institute Hospital. The findings suggest that while the majority of healthcare professionals are knowledgeable about ergonomics, there is still room for improvement in translating this knowledge into consistent practice. This is particularly important given the high prevalence of musculoskeletal disorders in the healthcare sector, which can lead to increased absenteeism, reduced productivity, and compromised patient care (18-23).

To address these challenges, healthcare institutions should prioritize the development and implementation of comprehensive ergonomic training programs that are tailored to the specific needs of healthcare professionals. Such programs should focus not only on raising awareness but also on providing practical tools and strategies for integrating ergonomic principles into everyday tasks. Additionally, regular monitoring and evaluation of ergonomic practices should be conducted to ensure compliance and identify areas for improvement.

This study highlighted the importance of ergonomic awareness and practice among healthcare professionals in mitigating the risk of musculoskeletal disorders and enhancing workplace efficiency. By fostering a culture of ergonomic excellence, healthcare institutions can improve the well-being of their staff and the quality of care provided to patients. Future efforts should focus on expanding ergonomic education and training, promoting a safe and healthy work environment, and conducting further research to explore the long-term benefits of ergonomic interventions in healthcare settings.

5 Conclusion

In conclusion, the study at Memon Medical Institute Hospital revealed that a majority of healthcare professionals possess a solid understanding of ergonomic principles and apply them effectively in their work environments. This awareness and application are crucial in reducing the risk of musculoskeletal disorders, enhancing productivity, and promoting overall workplace safety and efficiency. The findings underscore the need for continuous ergonomic education and training tailored to healthcare settings to ensure these principles are consistently implemented. By prioritizing ergonomic practices, healthcare institutions can significantly improve the well-being of their staff and the quality of patient care, ultimately contributing to a more sustainable and effective healthcare system.

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Disclaimers	
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