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Knowledge, Attitude And Practices Of Ergonomic Care Among Health Care Workers In Tertiary Care Hospital

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ABSTRACT

Introduction: *Ergonomics involves designing work environments to align with workers' physical and cognitive capacities, aiming to reduce injury risks and improve efficiency. In healthcare, poor ergonomic practices such as improper patient handling, repetitive movements, and prolonged standingare strongly associated with work-related musculoskeletal disorders (WMSDs), which compromise staff health and patient care. Despite physically demanding roles, healthcare workers in tertiary hospitals often inconsistently apply ergonomic principles. Awareness exists, particularly among physiotherapists, but practical adoption is limited in nurses and other groups due to insufficient training, inadequate infrastructure, and lack of organizational support. Similar gaps occur in dental practice and among healthcare students. Evidence shows that ergonomic interventions and structured training can improve workplace behavior and reduce musculoskeletal risks. However, even in advanced settings, WMSDs remain prevalent, indicating that knowledge and resources alone are insufficient without behavioral change, policy reinforcement, and institutional commitment. This study assessed knowledge, attitudes, and practices (KAP) related to ergonomics among healthcare workers and identified barriers to adoption.*

Methods: *An observational survey was conducted over six months at Tertiary Hospital, Karad, with 168 participants recruited via simple random sampling. Physicians, surgeons, dentists, physiotherapists, nurses, and pharmacists were included, while administrative and support staff were excluded. Data were collected using a validated, self-administered questionnaire, with informed consent obtained from all participants.*

Results: *Among 305 respondents, knowledge and attitudes toward ergonomics were high: 95.1% were aware of the concept, over 84% recognized its preventive role, and most prioritized ergonomic care and training. However, practice was moderate: although 91.5% reported musculoskeletal discomfort, only 70.2% made workspace adjustments, and 72.5% took breaks to reduce physical strain.*

Conclusion: *Healthcare workers demonstrated strong knowledge and positive attitudes toward ergonomics, yet practical implementation remains inadequate. These findings highlight the need for targeted strategies, including training, policy support, and workplace modifications, to reduce WMSDs and promote safer, more efficient healthcare delivery.*

Keywords: *Knowledge, Attitude, Practices, Ergonomic, Health Care, Tertiary Care Hospital*

INTRODUCTION

Ergonomics is a vital component of occupational health that focuses on designing and adapting work environments, tools, and practices to suit the physical and cognitive capabilities of workers[1]. In healthcare, professionals are regularly exposed to physically and mentally demanding tasks such as prolonged standing, patient lifting and transfer, repetitive manual procedures, and the use of specialized instruments in awkward or constrained positions. When ergonomic principles are neglected, these activities contribute significantly to work-related musculoskeletal disorders (WMSDs)[2], which can manifest as chronic pain, joint stiffness, or fatigue, ultimately affecting performance and well-being. Such disorders not only compromise the physical health, job satisfaction, and efficiency of healthcare workers but also negatively impact the quality, safety, and continuity of patient care[3], as fatigued or injured staff may be less alert or slower in responding to patient needs. Tertiary care hospitals, which provide specialized and advanced healthcare services, place additional ergonomic strain on professionals including physicians, surgeons, nurses, physiotherapists, laboratory staff, and dentists. These workers face high workloads, long duty hours, and complex responsibilities requiring

precision, coordination, and resilience, often in high-pressure environments. Despite the intensity of these demands, research consistently shows that ergonomic awareness and practices are applied inconsistently, particularly in resource-limited environments. While physiotherapists and certain other professionals may demonstrate relatively higher ergonomic knowledge, the translation of this knowledge into everyday clinical practice remains inadequate due to barriers such as lack of institutional support, insufficient training, limited infrastructure, and the constant pressure of patient care. For instance, nurses and biomedical scientists often recognize the risks associated with poor ergonomics but struggle to implement preventive measures due to staff shortages, high patient loads, and infrastructural limitations. Comparable findings in Nigeria revealed that healthcare workers held positive attitudes toward ergonomics yet exhibited low levels of practical application, highlighting a significant gap between awareness and behavior. Similarly, dentists, who are particularly prone to static postures and repetitive procedures, frequently fail to integrate preventive measures despite being aware of musculoskeletal hazards.Evidence from India reinforces these concerns, showing that healthcare students, while possessing theoretical knowledge of ergonomics, face difficulties applying these principles during clinical postings[11]. Comparable observations among laboratory practitioners in Nigeria highlight systemic neglect, minimal training opportunities, and inadequate ergonomic infrastructure as major obstacles[12]. Dental practitioners emphasize the importance of incorporating ergonomics into continuous professional development, underscoring the need for lifelong reinforcement of best practices[13]. Studies also demonstrate that structured ergonomic interventions, training programs, and supportive policies can significantly reduce WMSDs and improve compliance. Yet, even in modern healthcare settings, gaps persist between awareness and practice, suggesting the need for ongoing evaluation, behavior-focused interventions, and institutional commitment.

MATERIAL AND METHODOLOGY

This survey-based observational study was conducted at Tertiary Hospital, Karad, over a period of six months. The calculated sample size was 168, based on the formula $n = Z^2 \times p \times q / L^2$, using a 95% confidence level ($Z = 1.96$), $p = 88\%$, $q = 12\%$, and $L = 25$. A simple random sampling method was employed to select participants from various healthcare departments. The study included physicians, surgeons, dentists, physiotherapists, nurses, and pharmacists, while clerks, receptionists, administrators, management personnel, dressing staff, and cleaning staff were excluded. Data were collected using a validated, self-filled questionnaire along with a consent form. The procedure involved distributing questionnaires to randomly selected healthcare workers to assess their knowledge, attitudes, and practices regarding ergonomic care. Collected data were then statistically analyzed and summarized in a report, with the entire process completed within a six-month period.

RESULTS:

Gender:

Gender	Frequency	Percentage
Male	187	61.3%
Female	117	38.4%
Others	1	0.3%
Total	305	100%

Out of 305 respondents, 61.3% were male and 38.4% were female; and 0.3% were recorded under the "Others" category.

Knowledge:

Question	Yes (Frequency, %)	No (Frequency, %)
1. Are you familiar with the concept of ergonomics?	290 (95.1%)	15 (4.9%)

The highest response was "Yes" with 290 responses (95.1%), while the lowest was "No" with 15 responses (4.9%).

Question	Strongly Agree (n, %)	Agree (n, %)	Neutral (n, %)	Disagree (n, %)	Strongly Disagree (n, %)
2. Do you agree that ergonomic care will prevent musculoskeletal disorders?	56 (18.4%)	202 (66.2%)	46 (15.1%)	0 (0.0%)	0 (0.0%)

The highest response was "Agree" with 202 responses (66.2%), while the lowest were both "Disagree" and "Strongly Disagree," each with 0 responses (0.0%).

Question	Strongly Agree (n, %)	Agree (n, %)	Neutral (n, %)	Disagree (n, %)	Strongly Disagree (n, %)
3. Are you able to identify the common ergonomic hazards in workplace (e.g. poor posture, repetitive strain)?	88 (28.9%)	174 (57.0%)	42 (13.8%)	0 (0.0%)	0 (0.0%)

The highest response was "Agree" with 174 responses (57.0%), while the lowest were both "Disagree" and "Strongly Disagree," each with 0 responses (0.0%).

Question	Strongly Agree (n, %)	Agree (n, %)	Neutral (n, %)	Disagree (n, %)	Strongly Disagree (n, %)
4. Do you agree that poor ergonomic practices can lead to short term and long term health problems?	96 (31.5%)	162 (53.1%)	45 (14.8%)	0 (0.0%)	0 (0.0%)

The highest response was "Agree" with 162 responses (53.1%), while the lowest were "Disagree" and "Strongly Disagree," each with 0 responses (0.0%).

Question	Increase Productivity (n, %)	Enhance Safe & Comfortable Workplace (n, %)	Prevent Workplace Injuries (n, %)	All of the Above (n, %)
5. What do you think is primary goal of ergonomics?	27 (8.9%)	33 (10.8%)	33 (10.8%)	227 (74.4%)

The highest response was "All of the above" with 227 responses (74.4%), while the lowest was "To increase productivity" with 27 responses (8.9%).

Attitude:

Question	Strongly Agree (n, %)	Agree (n, %)	Neutral (n, %)	Disagree (n, %)	Strongly Disagree (n, %)
6. Do you believe that proper ergonomic practices should be a priority in health care environment?	82 (26.9%)	185 (60.7%)	36 (11.8%)	2 (0.7%)	0 (0.0%)

The highest response was "Agree" with 185 responses (60.7%), while the lowest was "Strongly

Disagree" with 0 responses (0.0%).

Question	Strongly Agree (n, %)	Agree (n, %)	Neutral (n, %)	Disagree (n, %)	Strongly Disagree (n, %)
7. Do you agree that ergonomic practices in the workplace can reduce risk of injury?	76 (24.9%)	179 (58.7%)	49 (16.1%)	0 (0.0%)	0 (0.0%)

The highest response was "Agree" with 179 responses (58.7%), while the lowest were "Disagree" and "Strongly Disagree," each with 0 responses (0%).

Question	Strongly Agree (n, %)	Agree (n, %)	Neutral (n, %)	Disagree (n, %)	Strongly Disagree (n, %)
8. Are you confident in applying ergonomic principles in daily tasks?	71 (23.3%)	152 (49.8%)	81 (26.6%)	0 (0.0%)	0 (0.0%)

The highest response was "Agree" with 152 responses (49.8%), while the lowest were "Disagree" and "Strongly Disagree," each with 0 responses (0%).

Question	Strongly Agree (n, %)	Agree (n, %)	Neutral (n, %)	Disagree (n, %)	Strongly Disagree (n, %)
9. How do you feel about receiving regular ergonomic training in Healthcare professionals during their career?	80 (26.2%)	157 (51.5%)	66 (21.6%)	0 (0.0%)	0 (0.0%)

The highest response was "Agree" with 157 responses (51.5%), while the lowest were "Disagree" and "Strongly Disagree," each with 0 responses (0%).

Question	Yes (n, %)	No (n, %)
10. Do you believe that buying ergonomic equipment can benefit both workers and hospital?	259 (84.9%)	46 (15.1%)

The highest response was "Yes" with 259 responses (84.9%), while the lowest was "No" with 46 responses (15.1%).

Practices:

Question	Yes (n, %)	No (n, %)
11. Have you ever encountered any work related musculoskeletal pain or discomfort?	279 (91.5%)	26 (8.5%)

The highest response was "Yes" with 279 responses (91.5%), while the lowest was "No" with 26 responses (8.5%).

Question	Always (n, %)	Often (n, %)	Sometimes (n, %)	Rarely (n, %)	Never (n, %)
12. How frequently do you take breaks or adjust your posture to reduce tiredness while performing tasks that demand prolonged standing or sitting?	78 (25.6%)	141 (46.2%)	76 (24.9%)	6 (2.0%)	4 (1.3%)

The highest response was "Often" with 141 responses (46.2%), while the lowest was "Never" with 4 responses (1.3%).

Question	Yes (n, %)	No (n, %)
13. Have you made any changes in workspace to improve ergonomics (e.g., using a supportive chair)?	214 (70.2%)	91 (29.8%)

The highest response was "Yes" with 214 responses (70.2%), while the lowest was "No" with 91 responses (29.8%).

Question	Always (n, %)	Often (n, %)	Sometimes (n, %)	Rarely (n, %)	Never (n, %)
14. How often do you change your position to keep a comfortable posture?	62 (20.3%)	132 (43.3%)	95 (31.1%)	16 (5.2%)	0 (0.0%)

The highest response was "Often" with 132 responses (43.3%), while the lowest was "Never" with 0 responses (0.0%).

Question	Yes (n, %)	No (n, %)
15. Do you take frequent breaks to avoid physical strain?	221 (72.5%)	84 (27.5%)

The highest response was "Yes" with 221 responses (72.5%), while the lowest was "No" with 84 responses (27.5%).

Interpretation:
The survey conducted among 305 healthcare professionals revealed high levels of awareness and generally positive attitudes toward ergonomics, though practical adherence was found to be less consistent. A large majority of respondents (95.1%) reported familiarity with the concept of ergonomics, reflecting strong baseline knowledge within the workforce. Furthermore, more than 84% recognized its critical role in preventing work-related musculoskeletal disorders (WMSDs) and identifying potential workplace hazards, underscoring the recognition of ergonomics as an essential element of occupational health and safety.Attitudinal responses were similarly encouraging. A significant proportion of participants (87.6%) emphasized that ergonomic care should be considered a priority in healthcare, while 83.6% agreed that adherence to ergonomic principles directly reduces the risk of injuries. Additionally, 77.7% highlighted the importance of regular training programs, and 84.9% supported investment in ergonomic equipment, reflecting strong professional willingness to adopt ergonomic measures if institutional support is provided.Despite this high awareness and positive outlook, practical implementation showed only moderate adherence. Alarmingly, 91.5% of healthcare professionals reported experiencing work-related musculoskeletal discomfort, indicating a substantial burden of WMSDs. While many respondents reported taking breaks and making minor posture adjustments during work, only 70.2% reported making ergonomic modifications to their workspace. Furthermore, although 94.7% reported changing positions for comfort, just 72.5% took breaks specifically aimed at reducing strain, suggesting that preventive behaviors are not systematically integrated into daily routines.These findings point to a clear gap between knowledge, attitudes, and practices. While healthcare professionals recognize the importance of ergonomics, consistent application remains limited due to barriers such as heavy workloads, insufficient training, and lack of institutional reinforcement. Addressing this gap requires regular ergonomic training programs, provision of appropriate equipment, and organizational support to promote sustained behavioral change. Such measures are essential to reduce the prevalence of WMSDs, protect staff well-being, and ensure safer, more efficient patient care.

DISCUSSION

The present study assessed the knowledge, attitudes, and practices (KAP) of ergonomic care among 305 healthcare workers in a tertiary care hospital. The findings reveal a consistent pattern: while awareness and attitudes toward ergonomics are strong, practical application remains insufficient. Nearly all participants (95.1%) recognized ergonomics as essential for preventing musculoskeletal disorders (MSDs), and 87.6%

emphasized its importance as a healthcare priority. These responses reflect a workforce that is both informed and motivated to adopt ergonomic measures. However, implementation tells a different story. Despite 91.5% of participants reporting work-related discomfort, only 70.2% had made modifications to their workstations, indicating a significant gap between knowledge and behavior.This disconnect can be attributed to several factors. At the individual level, insufficient hands-on training, lack of role-specific ergonomic guidance, and minimal exposure to ergonomics within formal healthcare curricula limit the translation of theoretical knowledge into practice. Systemic barriers also play a critical role, including inadequate availability of ergonomic equipment, resource constraints, time pressures in high-demand clinical settings, and an organizational culture that often prioritizes patient throughput over worker well-being. These barriers mirror findings from global literature, where similar gaps have been documented across healthcare systems in both developed and resource-limited contexts.The consequences of poor ergonomic practices extend beyond physical discomfort. They contribute to reduced efficiency, occupational burnout, increased absenteeism, higher healthcare costs, and ultimately compromised patient safety. Addressing these challenges requires a multifaceted strategy. Integrating ergonomics into undergraduate and postgraduate healthcare curricula can ensure early exposure and sustained emphasis. Regular, role-based training programstailored for nurses, physicians, dentists, physiotherapists, and laboratory staffcan enhance practical skills and adaptability. Institutional investment in ergonomic infrastructure, such as adjustable workstations, lifting aids, and posture-supportive equipment, is equally essential.Beyond training and equipment, long-term change requires supportive policies, leadership commitment, and a participatory approach that involves healthcare workers in shaping ergonomic interventions. A multidisciplinary strategy that brings together hospital administrators, occupational health experts, and frontline workers can foster a culture of safety and well-being. Ultimately, bridging the gap between knowledge and practice demands embedding ergonomics into the organizational fabric of healthcare. Doing so not only protects staff from injury but also enhances efficiency, job satisfaction, and the quality of patient care.

CONCLUSION:

Based on the collected data from healthcare workers in a tertiary care hospital, it has become evident that the average knowledge, attitude, and practices (KAP) concerning ergonomic care are relatively high, yet there still exist certain gaps. Most respondents are acquainted with the concept of ergonomics, and a majority agree that ergonomic care prevents musculoskeletal disorders.The figures indicate a keel base knowledge among the participants.

Attitudes reflected positive views toward ergonomic practices. Most participants are of the opinion that ergonomic care has priority in healthcare settings, it can prevent injuries. Furthermore, many participants expressed confidence or moderate confidence in applying ergonomic principles; Majority strongly support continuous ergonomic Education for healthcare professionals and also believe spending on ergonomic equipment is good for both staff and institutions-another indicator of favorable attitudes toward ergonomic solutions. Nevertheless, some of the practical application appears a little difficult to follow

Conflict Of Interest: The study had no conflict of interests

Ethical clearance: The study was approve by institutional ethical committee of Krishna Vishwa Vidyapeeth (DU), Karad (345/2025-2025) dated 23.01.25

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