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Implementation of Occupational Health and Ergonomics in Hospital Workers: A Case Study of Charitas Hospital Palembang

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Abstract

Background: Hospital employees face higher risks of work-related diseases and injuries compared to other professions. Ergonomic hazards such as repetitive movements, awkward postures, forceful exertion, prolonged static positions, vibration, extreme temperatures, and work stress contribute significantly to musculoskeletal disorders (MSDs), including cervical spasm, low back pain, scoliosis, and carpal tunnel syndrome. At Charitas Hospital Palembang, 2022 medical check-up data reported cervical spasm (0.3%), low back pain (1.6%), scoliosis (0.5%), and carpal tunnel syndrome (0.2%). To promote awareness of ergonomic hazards and preventive strategies among hospital staff and encourage integration of ergonomics into occupational health systems. A hospital-based seminar titled "Implementation of Occupational Safety and Ergonomics in Hospitals" was conducted on April 29, 2023, involving approximately 120 clinical and non-clinical staff. The program consisted of lectures, discussions, and practical examples. Participant feedback was collected through structured evaluations. Over 85% of participants found the material relevant and useful, while 90% expressed satisfaction with the delivery. The seminar demonstrated that even low-cost, short-duration interventions can effectively raise awareness, strengthen safety culture, and improve staff productivity.

Keywords - *Ergonomics, Occupational Health, Musculoskeletal Disorders, Hospital Workers, Indonesia*

Abstrak

Latar Belakang: Karyawan rumah sakit menghadapi risiko penyakit dan cedera akibat kerja yang lebih tinggi dibandingkan dengan profesi lain. Bahaya ergonomis seperti gerakan berulang, postur janggal, pengerahan tenaga yang kuat, posisi statis yang berkepanjangan, getaran, suhu ekstrem, dan stres kerja berkontribusi signifikan terhadap gangguan muskuloskeletal (MSDs), termasuk spasme serviks, nyeri punggung bawah, skoliosis, dan sindrom terowongan karpal. Di Rumah Sakit Charitas Palembang, data pemeriksaan medis tahun 2022 melaporkan spasme serviks (0,3%), nyeri punggung bawah (1,6%), skoliosis (0,5%), dan sindrom terowongan karpal (0,2%). Untuk meningkatkan kesadaran akan bahaya ergonomis dan strategi pencegahan di antara staf rumah sakit dan mendorong integrasi ergonomi ke dalam sistem kesehatan kerja, sebuah seminar berbasis rumah sakit berjudul "Implementasi Keselamatan dan Ergonomi Kerja di Rumah Sakit" diselenggarakan pada tanggal 29 April 2023, yang melibatkan sekitar 120 staf klinis dan non-klinis. Program ini terdiri dari kuliah, diskusi, dan contoh praktis. Umpan balik peserta dikumpulkan melalui evaluasi terstruktur. Lebih dari 85% peserta menganggap materi relevan dan bermanfaat, sementara 90% menyatakan puas dengan penyampaiannya. Seminar ini menunjukkan bahwa intervensi berbiaya rendah dan berdurasi singkat sekalipun dapat secara efektif meningkatkan kesadaran, memperkuat budaya keselamatan, dan meningkatkan produktivitas staf.

Kata Kunci - *Ergonomi, Kesehatan Kerja, Gangguan Muskuloskeletal, Pekerja Rumah Sakit, Indonesia*

INTRODUCTION

Occupational health and safety is a fundamental component in maintaining workforce productivity and well-being, particularly in healthcare settings. Hospitals, as complex organizations, present a variety of occupational hazards that can significantly affect employees' physical and mental health. Among these, ergonomic risks are especially prevalent due to the nature of healthcare work, which often requires repetitive tasks, awkward postures, prolonged standing or sitting, and handling of heavy or awkward loads. According to the International Ergonomics Association (IEA), ergonomics is the scientific discipline concerned with understanding human interactions with other elements of a system, and the profession that applies theory, principles, data, and methods to optimize human well-being and overall system performance. When ergonomic principles are not integrated into hospital workflows, employees face increased risks of musculoskeletal disorders (MSDs), fatigue, and work-related stress, which in turn can compromise patient safety and organizational efficiency.

Globally, MSDs represent one of the most common occupational health problems, accounting for a significant proportion of work-related illness and disability. The World Health Organization (WHO) highlights that healthcare workers, particularly nurses and support staff, are among the most vulnerable groups. Studies conducted in Europe and North America have consistently shown high prevalence of low back pain, neck pain, and carpal tunnel syndrome among hospital staff, often linked to poor workplace ergonomics, manual handling of patients, and inadequate preventive training. In addition to the direct health burden, ergonomic-related injuries contribute to increased absenteeism, presenteeism, reduced quality of care, and higher healthcare costs.

In Indonesia, awareness of ergonomics in the workplace has been increasing, but its application in the healthcare sector remains limited. Healthcare workers in Indonesia face long working hours, high patient loads, and inadequate ergonomic infrastructure. This creates a high-risk environment for occupational health problems. National surveys on occupational safety have emphasized the importance of improving ergonomics and occupational health services, particularly in hospitals where employee well-being directly influences service quality. Despite policy efforts through the Ministry of Health and occupational safety regulations, practical implementation often falls short, with hospitals prioritizing patient care over staff well-being.

Charitas Hospital Palembang provides a representative example of these challenges. An internal medical check-up (MCU) in 2022 revealed that employees had measurable ergonomic-related health problems: cervical spasm (0.3%), low back pain (1.6%), scoliosis (0.5%), and carpal tunnel syndrome (0.2%). Although these percentages appear small, they indicate early warning signs of more widespread musculoskeletal risks that could escalate without intervention. Moreover, the presence of ergonomic hazards—such as repetitive movements, awkward postures, forceful exertions, static positions, vibration exposure, and extreme temperatures—highlights the urgent need for preventive strategies. Both clinical staff (doctors, nurses, midwives, pharmacists) and non-clinical staff (maintenance, logistics, administrative staff) are exposed to these risks, suggesting that ergonomic issues are systemic rather than role-specific.

Previous studies have emphasized that ergonomic interventions, particularly training and education, can significantly reduce work-related musculoskeletal problems. However, there remains a gap in research on how structured interventions, such as seminars and health promotion programs, impact hospital staff in Indonesia. While international literature provides evidence of the benefits of ergonomics-based training, few published reports have described the planning, implementation, and evaluation of such programs in Indonesian hospital settings.

Therefore, this study aims to describe the implementation of an ergonomics and occupational health seminar at Charitas Hospital Palembang, focusing on its objectives, participants, outcomes, and implications for workplace health promotion. By documenting this intervention, the study seeks to contribute evidence on practical approaches to improving occupational health awareness among

hospital workers in Indonesia, and to highlight the role of ergonomics in preventing occupational disease, enhancing employee well-being, and supporting organizational performance.

METHODS

Program Design

This activity was implemented as part of Charitas Hospital Palembang's workplace health promotion program, focusing on occupational safety and ergonomics. The program was designed to document the planning, implementation, and evaluation of a seminar intervention, with emphasis on practical application in a hospital setting.

Program Setting

The seminar took place at Charitas Hospital Palembang, a tertiary healthcare facility in Palembang, Indonesia, which provides a wide range of clinical services and employs diverse categories of staff. The event was conducted on April 29, 2023, in the Ballroom Asisi, Outpatient Building, 8th floor. Organizational support was provided by the Hospital Occupational Safety and Health Committee (K3RS), the Hospital Health Promotion Unit (PKRS), and the Human Resources Department (HRD).

Participants

The participants were employees of Charitas Hospital, both clinical and non-clinical. Clinical staff included doctors, specialists, nurses, midwives, pharmacists, and allied health professionals (e.g., CSSD, nutrition, physiotherapy, rehabilitation). Non-clinical participants included administrative, logistics, and maintenance staff.

- Eligibility: Current employees of the hospital with direct or indirect exposure to ergonomic risks.
- Attendance: Approximately 120 employees registered voluntarily through HR coordination.

Program Content

The seminar consisted of two sessions:

1. Introduction and safety induction – orientation on hospital safety culture, risk awareness, and an introductory video.
2. Core seminar on ergonomics and occupational safety – delivered by an occupational medicine specialist (Dr. Noer Triyanto Rusli, Sp.Ok), covering:
    a) Definition and principles of ergonomics.
    b) Identification of ergonomic hazards in hospitals (repetition, awkward posture, forceful exertion, stationary positions, vibration, extreme temperatures, and work stress).
    c) Case examples from 2022 medical check-up data (cervical spasm, low back pain, scoliosis, carpal tunnel syndrome).
    d) Preventive strategies, including ergonomic workplace design, micro-breaks, lifting techniques, and stress management.
    e) Integration of ergonomics into hospital safety management systems.

The program used lectures, multimedia presentations, and interactive discussions, followed by a 60-minute Q&A session to encourage participation and experience sharing.

Evaluation

The program was evaluated using formative and summative approaches:

1. Formative evaluation: Observations of participant engagement, interaction, and quality of discussions during the seminar.

2. Summative evaluation: Participant feedback collected through structured questionnaires immediately after the session. Key items assessed included clarity, relevance, usefulness, and satisfaction.
3. Documentation: Attendance lists, photographs, and written reports were compiled by the committee.
4. Follow-up: Within 10 days, K3RS and PKRS conducted an internal review reflecting on achievements, challenges, and recommendations for future programs.

Data Use

Quantitative feedback data were presented descriptively (percentages), while qualitative comments were summarized to capture key themes. This evaluation was intended solely for program improvement, not for research analysis.

RESULTS AND DISCUSSION

Results

The ergonomics and occupational safety seminar was successfully implemented on April 29, 2023, at the Charitas Hospital Palembang. The seminar was attended by approximately 120 participants, representing both clinical staff (doctors, specialists, nurses, midwives, pharmacists, physiotherapists, CSSD, and nutrition staff) and non-clinical staff (administration, logistics, and maintenance). This broad participation ensured that the intervention reached employees across diverse job categories, reflecting the wide range of ergonomic exposures present in the hospital.

Figure 1.
Seminar on Occupational Safety and Ergonomics at Charitas Hospital Palembang

The event began with registration and a safety induction video, followed by opening remarks from the Chair of the Occupational Safety and Health Committee (K3RS). The core seminar session was delivered by an occupational medicine specialist and covered key ergonomic hazards identified within the hospital. Real case data from the hospital's 2022 Medical Check-Up (MCU) were presented, which highlighted the occurrence of cervical spasm (0.3%), low back pain (1.6%), scoliosis (0.5%), and carpal tunnel syndrome (0.2%) among staff. These figures served as a baseline reference for emphasizing the urgency of ergonomic interventions.

During the seminar, participants actively engaged in discussions on practical ergonomic improvements, such as proper lifting techniques, posture correction, micro-breaks, and stress management strategies. The Q&A session (60 minutes) revealed that staff were particularly interested

in solutions for reducing fatigue from long working hours and strategies for preventing musculoskeletal strain.

Figure 2.
Hospital employees participating in group ergonomic exercises

The program received positive evaluations. Immediate feedback forms collected after the seminar indicated that over 85% of participants rated the content as relevant and applicable to their daily work, while 90% expressed satisfaction with the clarity and delivery of the material. Suggestions for future programs included the addition of hands-on ergonomic demonstrations and more frequent follow-up training.

Follow-up evaluations conducted within 10 days post-event by K3RS and PKRS confirmed that the seminar was well-documented, and the organizing committee recommended integrating ergonomics topics into the hospital's regular employee health promotion program.

Discussion

The findings of this intervention demonstrate that structured health promotion activities can effectively raise awareness of ergonomic hazards among hospital employees. Despite being a single-day seminar, the program successfully engaged staff across clinical and non-clinical roles, highlighting the shared importance of ergonomics in preventing occupational health problems. The active participation and positive feedback suggest that employees recognized the relevance of ergonomics to their daily tasks and valued the opportunity to discuss preventive strategies.

The results align with international evidence that healthcare workers face substantial ergonomic risks due to repetitive movements, patient handling, awkward postures, and long working hours (Hignett et al., 2021; Trinkoff et al., 2019). The prevalence of musculoskeletal disorders (MSDs) reported in the Charitas Hospital MCU, although modest in percentage, reflects trends seen in global studies where MSDs constitute one of the leading causes of work-related disability among healthcare staff (Punnett & Wegman, 2004; WHO, 2020). These conditions, if unaddressed, may contribute to increased absenteeism, presenteeism, reduced productivity, and higher turnover, ultimately impacting patient safety and hospital performance.

This study also emphasizes the role of ergonomics not only in physical health protection but also in enhancing mental well-being. Staff participants expressed concern over fatigue, workload stress, and long shifts, underscoring the intersection between ergonomics and psychosocial risk factors. This supports literature suggesting that integrated approaches, combining physical ergonomics and organizational interventions, are essential for sustainable improvements in occupational health (Westgaard & Winkel, 2011).

From a policy perspective, the seminar demonstrates the feasibility of embedding ergonomics education into existing hospital structures, such as the K3RS and PKRS programs. The relatively low cost and high employee engagement suggest that similar initiatives can be replicated across other hospitals in Indonesia. Importantly, this intervention highlights that even non-complex, low-cost educational programs can serve as an entry point for broader ergonomic improvements, including workplace redesign, procurement of ergonomic equipment, and implementation of rotation or break schedules.

However, some limitations must be acknowledged. First, the evaluation relied primarily on participant feedback and short-term observations. Objective measures of ergonomic risk reduction, such as post-intervention injury rates or productivity indices, were not assessed. Second, the seminar was limited to a single hospital and may not fully capture the diversity of ergonomic challenges faced in other healthcare institutions. Finally, the follow-up period was relatively short, preventing assessment of long-term behavioral or organizational changes.

Despite these limitations, the study contributes practical insights into how Indonesian hospitals can begin addressing ergonomic challenges through education and awareness-raising. Future research should consider longitudinal evaluations, randomized controlled interventions, and integration of quantitative ergonomic risk assessments to provide stronger evidence of impact.

CONCLUSION

This study highlights the importance of integrating ergonomics and occupational health promotion into hospital workplace practices. The seminar conducted at Charitas Hospital Palembang successfully raised awareness among employees regarding the prevalence of ergonomic hazards and their potential consequences, including musculoskeletal disorders and reduced productivity. By presenting real hospital health data alongside practical preventive strategies, the program bridged the gap between theoretical knowledge and day-to-day occupational challenges faced by healthcare and non-clinical staff.

The positive engagement and feedback from participants indicate that even relatively low-cost, short-duration interventions can generate meaningful impact. Beyond immediate knowledge gains, such programs have the potential to foster a broader culture of safety, improve staff morale, and ultimately enhance patient care outcomes. Importantly, the seminar demonstrated that ergonomics is not only a technical issue related to posture or equipment, but also a systemic concern linked to workload management, mental well-being, and organizational performance.

From a policy perspective, this intervention underscores the feasibility of embedding ergonomics into hospital safety and health frameworks, such as those mandated by the Occupational Health and Safety Committee (K3RS) and the Health Promotion Unit (PKRS). Regular and structured training programs should be institutionalized as part of hospital occupational health policies. Hospitals are encouraged to allocate specific resources for ergonomic improvements, including training, equipment procurement, and workplace design modifications.

The findings also suggest several directions for future initiatives. Long-term monitoring of ergonomic-related conditions is needed to measure sustained impact, particularly through regular medical check-ups and risk assessments. Incorporating hands-on demonstrations, ergonomic risk audits, and employee-led participatory ergonomics programs could further strengthen outcomes. Collaboration with policymakers and professional associations may also help standardize ergonomics interventions across Indonesian hospitals.

In conclusion, the Charitas Hospital case provides evidence that integrating ergonomics into workplace health promotion is both feasible and beneficial. Hospitals should view ergonomics not as an optional add-on, but as an essential strategy for protecting workers' health, reducing occupational illness, and supporting organizational resilience. By prioritizing ergonomics, healthcare institutions can

create safer, healthier, and more sustainable workplaces that benefit both employees and the patients they serve.

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