



Ergonomics Risk Control on Occupational Safety of Service Personnel in Muhammadiyah Hospital Bandung

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Abstract

The importance of implementing ergonomics in a hospital environment to improve the occupational safety and health of service workers. Service workers at Rumah Sakit Muhammadiyah Bandung work in an environment that is not ergonomic, they are more vulnerable to health problems such as fatigue, muscle and joint injuries, and even the risk of accidents. The purpose of this study was to determine ergonomic risk control on occupational safety of service personnel at the Muhammadiyah Bandung Hospital. The research method used is a qualitative method with a phenomenological approach. The research techniques were interviews and observations to service officers of the information unit, outpatient registration, and logistics. The results showed that service officers at the Muhammadiyah Bandung Hospital experienced complaints at work due to facilities that were not ergonomic, such as chairs, tables, narrow rooms, and leaking roofs. To reduce the risk of work accidents, hospital management checks the facilities in each room unit every 3 (three) months and conducts training on ergonomic risk control so that officers are more aware and understand the importance of ergonomics to health.

Keywords: Risk management, ergonomics, work safety, service officer, musculoskeletal

1. Introduction

Activities in hospitals carried out by medical and non-medical staff in hospitals for the treatment and recovery of patients require great care and accuracy in order to avoid errors or accidents during the process of service to patients. Work accidents are caused by the workers themselves, such as deliberate work safety violations or lack of work skills, or an unergonomic work environment (1). Therefore, the application of ergonomics in the workplace, especially in a hospital environment, is very important, especially for employees who of course often deal directly with patients who have physical, ergonomic and psychosocial risks, the variety, size type and completeness of facilities that determine the level of ergonomic risk to occupational safety and health.

Risk management is a process that includes comprehensively understanding, evaluating, controlling, and reducing risks within an organisation. Risk management is a continuous and forward-looking effort that involves steps such as recognition, analysis, evaluation, organisation, communication, information, surveillance, risk mapping and evaluation, and implementation of various strategies to manage risks and their potential (Permenkes, 2019). In the field of health services, risks that can arise include linkages to service facilities, limited space, noise, as well as potential risks experienced by staff, patients, the community, and the environment in connection with service facilities (3).



Ergonomics is a field of study that investigates the various dimensions and properties of humans, including abilities, advantages, and limitations that are relevant in work situations, and uses this information to design efficient products, machines, tools, environments, and work systems (4). The main goal of ergonomics is ease, comfort, and work efficiency, while still paying attention to occupational health and safety. Ergonomic aspects in the workspace must be adjusted to anthropometric aspects or dimensions of the human body to ensure the design or work environment matches the size of the worker's body (5). This aims to provide comfort and safety for officers at work. Comfort and safety at work can improve the quality of health services provided by service officers to patients experienced by officers, patients, the community, and the environment in connection with service.

Workspaces that do not pay attention to ergonomics can increase the risk of injury, discomfort and cause short- and long-term health problems and lower worker productivity. Therefore, hospital workers have a higher risk of experiencing work-related accidents compared to workers in other industries (6). One of the potential hazards in hospitals is ergonomic factors (7). This occurs because health workers work in uncomfortable positions, increasing the risk of injury. Heavy workloads and optimal work environments can have a negative impact on health. With the concept of ergonomics in hospitals, it can help reduce injuries to employees and improve the occupational safety and health of hospital service workers.

Hospital occupational health and safety encompasses all efforts to safeguard and protect the welfare of all parties involved, including staff, patient companions, visitors, and the environment, by implementing preventive measures to reduce occupational accidents and diseases. The purpose of occupational safety and health is to ensure worker safety in order to increase work productivity. Ensuring all workers in the workplace use safe and efficient facilities to prevent occupational diseases and accidents (8). With the implementation of good occupational safety will reduce occupational accidents, occupational diseases, provide comfort and welfare for hospital employees. If work safety is not addressed properly, it will cause financial losses for workers and government agencies and can interfere with employee productivity.

Hospital attendants are individuals who work in various fields including healthcare but do not have medical training like other medical personnel. Hospital service officers work in registration, information, and logistics, and others that are not related to patient treatment. Service officers are tasked with serving patients, inputting patient data, providing information on registration procedures, listening to patient complaints in the treatment process, preparing requests for goods from room units in the hospital. Therefore, service officers are very helpful in running the process in the hospital and as a starting point in direct interaction with patients, so that the impression given can affect all services provided at the hospital (9). In a day, almost most of the officer's working time is spent in a sitting position in front of a computer for more than 8 (eight) hours, especially service officers in the outpatient registration and information section.

Based on the description above, the researcher is interested in conducting a study entitled "Ergonomic Risk Control on Occupational Safety of Service Officers at Muhammadiyah Bandung Hospital". This study aims to improve safe and comfortable working conditions, and promote service welfare in order to provide optimal service to patients without compromising occupational health and safety.

2. Methods

This research was conducted qualitatively using a phenomenological approach. The phenomenological approach aims to understand the meaning of individual life experiences, in this case the experience of service officers at Muhammadiyah Bandung Hospital. This approach is used to explore the views, attitudes, and evaluations of officers towards working conditions and the implementation of ergonomic risk control techniques. This research uses ergonomic risk control techniques for the work safety of service officers. The location of the research was at the Bandung Muhammadiyah Hospital. The subjects in this study were 6 (six) service officers at Muhammadiyah Bandung Hospital consisting of 2 (two) outpatient registration officers, 2 (two) information officers, and 2 (two) logistics officers. Data obtained through interviews and observations of service officers at the hospital. The selection of the research location was based on the problems found at the Bandung Muhammadiyah Hospital. This research is expected to provide useful insights for improving the working conditions and safety of service personnel in hospitals, as well as contributing to the understanding of ergonomic risk control in the context of health services.

3. Results and Discussion

This study involved 6 (six) service officers (2 people in the information unit, 2 people in the mesh registration unit, and 2 people in the logistics unit) aged between 22-50 years. The following are the results of interviews from service officers, namely:

Do you think ergonomics is important in daily work at the hospital?

"Ergonomics is very important because the work I do in the logistics unit involves lifting goods or requesting heavy goods. By applying ergonomic principles, it can reduce the risk of injury, and increase comfort while working".

Based on interviews from service officer participants, the application of ergonomics is very important in hospitals in order to provide safety and comfort for officers.

Does your job affect your health posture?

"As information, registration and logistics officers, we often have to sit for long periods of time in front of a computer, which can cause neck strain, headaches, eye fatigue due to computer lighting and back pain, especially chairs and tables that are not ergonomic."

Service workers in the information unit and outpatient registration feel the same complaints, while those in the logistics unit feel pain in the back and shoulders due to lifting or moving goods.

How does the current workspace arrangement affect work comfort and productivity?

"The room is cramped and stuffy with many patients coming in and out of the information room, making it claustrophobic and hot."

The information and logistics officer had the same complaint, with a cramped space with many items and no air-conditioning.

Have you taken steps to address the ergonomics complaint itself?

"I have tried adjusting my sitting position and bringing a cushion to the chair to reduce strain, but there needs to be improvements to make it more supportive of ergonomics."

The registration officer had to bring a cushion to sit on to make the chair more comfortable. Have you received any specialised training on ergonomics?

"I have never received training on labour ergonomics at the hospital". Service personnel have never carried out training on hospital ergonomics or ergonomic hazards to work safety.

How are the facilities and work equipment related to ergonomics in the workplace?

"The facilities are quite good, but there are still broken chairs, hard computer keyboards, air conditioners that often turn off, and there are even rooms with leaking roofs". Participants in the logistics and information room said the same complaints existed in the room.

Do you have any suggestions or requests regarding ergonomic improvements in the workplace?

"I hope that management can expand the room in the information and logistics section and update the equipment with more ergonomics, such as chairs that can be adjusted according to body posture". The logistics officer suggested that each unit should provide a goods trolley so that any requests from other units can facilitate the collection of goods.

Based on the results of interviews and observations, it was found that there are several ergonomic risks in hospital services, namely from air temperature, occupational diseases, lighting, noise, lack of cleanliness, inadequate facilities, and ergonomic aspects.

In ergonomics, the importance of posture is highly emphasised, especially in sitting activities that are carried out every day for hours. Ergonomics emphasises that appropriate work attitudes and positions can reduce fatigue and physical discomfort, thereby increasing comfort in carrying out work (10). Ergonomics is a field that investigates how humans interact with their environment to improve effectiveness and efficiency by taking into account the health, safety and security factors of service personnel by carrying out work activities in a sitting position and facing a computer for 8 (eight) hours per day (11).

The application of working hours of service officers in the information and registration unit uses a shift system which is divided into morning shifts (06.00-13.00), Middle (09.00 - 16.00), afternoon (13.00 - 20.00), night (20.00 - 06.00), while in the logistics unit working time does not use a shift system . Service officers with 8 hours per day still do not do a good sitting position and do not pay attention to chairs with ergonomic concepts that will cause health risks such as headaches, neck pain, shoulder pain, back pain, back pain and eye fatigue due to computer light. Proper application of ergonomics can provide health benefits and reduce the risk of work accidents.

Based on the results of interviews in the information unit said that in the information room there were still damaged chairs that were not suitable for use, the roof leaked, the narrow room resulted in officers feeling claustrophobic and the air temperature decreased even though ac was installed due to the large number of patients coming into the room.

The room in the information unit of the Muhammadiyah Bandung Hospital is narrow, with an area of 2 x 4 metres causing noise in the room caused by the large number of patients who come to get instructions in the registration process or complaints faced in the treatment process, and also the use of electronics such as telephones that ring constantly from patients or from each unit to ask to be connected to other units or other hospitals. In addition, officers also stated complaints experienced due to work, one of the main causes is unbalanced body position and prolonged sitting, which causes neck pain, back pain, hip pain due to chairs that cannot be adjusted to the posture of workers, eye complaints due to constant facing of computers that make officers feel uncomfortable in vision and can hamper service to patients.

Based on the results of interviews in the logistics unit, said that there is still much to be improved in the logistics room, such as a shabby room, leaking roof, chairs that are not suitable for use, the room is not neatly arranged, the room is not air-conditioned, the computer keyboard is hard, and the lack of ventilation. Heavy ergonomic workloads such as lifting goods can cause musculoskeletal conditions that are commonly experienced by officers, such as pain in the neck, shoulders, arms, and hands(12). To prevent work accidents, changes must be made in the design of the placement of goods in logistics so that employees are not overwhelmed in picking up goods, besides that used goods that are damaged are still scattered with new goods. The accumulation of damaged goods in the logistics room is very disturbing in the process of taking requests from hospital units. In an effort to control risks in the logistics unit room, namely by renovating the room or moving the room to a more appropriate and closer to the hospital environment, making a special room for storing goods that are no longer suitable for use, K3RS (Hospital Occupational Health and Safety) officers every 3 (three) months evaluate the facilities used or check each room to anticipate work accidents.

Based on observations in the outpatient registration unit, it was found that the registration room experienced noise due to the absence of a barrier wall separating the registration desk from the patient waiting room which was full every day. In addition, the room is not neatly arranged, there are still many papers scattered under the table, chairs that are not ergonomic with the concept of not using a soft mat, even employees bring seat cushions so they can sit comfortably within 8 (eight) hours.

Based on the results of interviews from the information, registration and logistics units, it was found that ergonomic problems at the Muhammadiyah Bandung Hospital had not been resolved such as chairs that were not ergonomic, computers that had not been installed with anti-radiation which resulted in officers feeling tired in the eyes, narrow rooms, leaky roofs, and unorganised rooms.

Chairs that are not ergonomic and sitting positions that are not suitable, will cause diseases such as neck, shoulder, arm and back pain. One of the causes of neck pain is unbalanced body position and prolonged sitting, which causes neck muscles to become tense and sore. Low back pain is classified as musculoskeletal, the cause of which is the wrong body position such as sitting too long, bowing, bending, which results in pain in the neck and back (13). And complaints will increase with work that requires lifting heavy loads that are at

high risk. Among the worker's factors are aggravating diseases, including musculoskeletal health, congenital diseases, age, diet and exercise habits, and daily physical activity. The use of ergonomic chairs and tables in a hospital setting is essential to prevent the risk of injury and ensure the comfort of service personnel. A well-designed chair will help maintain proper posture and reduce pressure on the back, neck and hips. A table adjusted to the correct height can also help reduce muscle strain and allow for a comfortable working position, ensuring that the chair and table used are suitable for the worker's posture (14). Controlling this risk by replacing chairs and checking room facilities approximately every 3 (three) months, and understanding good sitting positions to avoid the risk of work accidents.

Prolonged computer use can have adverse health effects, particularly in relation to eyestrain. Eye fatigue is a condition where the eyes feel tired because they are forced to constantly focus on objects that are in close range for a long time. This is because the eye muscles work to maintain focus on the computer screen or other objects for too long a period of time. Disorders of the muscles, back, and arm frame are often associated with eye fatigue, which is commonly experienced by service workers who work with computers. These complaints are caused by inappropriate posture and working position, improper monitor placement, non-ergonomic keyboard and mouse position, improper document placement with incorrect posture. Eye fatigue may also be caused by poor or too bright lighting in the work area (15).

From the results of interviews with information, registration, and logistics service officers at the Muhammadiyah Bandung Hospital often complain of sore eyes and dry eyes due to doing their work directly facing the computer for 8 (eight) hours per day and from the observation of the computer screen has not been installed anti-radiation. Eye fatigue can interfere with work productivity and increase errors while working. Lighting intensity must be adjusted to the needs because lighting that is too dim can cause eye fatigue, tension around the eyes, and lighting that is too bright can cause annoying glare. These health problems, if not addressed with proper precautions, can result in decreased visual acuity. Physically, eyestrain can contribute to headaches, increased risk of work accidents and decreased focus leading to decreased work productivity (16). This study supports the finding that appropriate lighting intensity is important to reduce the risk of eyestrain. Factors that affect the occurrence of eye fatigue are the result of room lighting, too long facing the computer, temperature, and lack of eye rest. In addition, the age of workers affects vision and sharpness which decreases with increasing age factors, especially for workers aged 40 (forty) years (17). The results of this study are in line with the opinion conveyed by Kismawati 2023, that eye fatigue is caused by factors, such as age, length of work, lighting levels, and eye distance that are not eligible to see objects, and also some employees are over 40 years old. In line with the opinion conveyed by Asnel and Chaironi in 2020 that functions will decrease with age, senses that include the eyes.

The principles of ergonomic posture and correct working posture are natural ways of working that do not put excessive pressure on the muscles. According to the theory proposed by Tjahayuningtyas (2019), it states that workers can experience disease due to unnatural work postures, such as excessive bending when doing work. With work attitudes carried out by service officers in the information unit, registration, and logistics unit, namely performing tasks such as sitting, bending, standing, walking, typing, and facing the computer. These work attitudes are carried out every day within 8 (eight) hours of work. Work performed

under unhealthy conditions can result in work accidents because it involves unsafe and less ergonomic actions. Therefore, ergonomics is very important in hospitals because the work involves interaction between humans, equipment, and the environment, which can have an impact on the health and safety of employees.

Improper work postures can increase the risk of injury. For example, risks can arise when workers bend their head and neck forwards, backwards or sideways for long periods of time. The use of over-bent wrists or stressed elbows, bending movements, reaching objects and the need to squat or kneel for long periods of time will increase the risk of injury (18).

Improved ergonomics is needed to avoid CTDS (Cumulative Trauma Disorders) caused by uncomfortable working positions, heavy workloads, and long working hours. This can help prevent complaints such as neck pain, low back pain, and other problems (19). Ergonomic risks can be prevented through ergonomic work design, including methods, equipment, environment, and work tools. Therefore, general worker health is important for individuals and organisations, and also for society at large due to its impact on healthcare costs, productivity levels, and quality of life (20).

Based on the results of observations and interviews from 6 (six) service officers, it is known that ergonomic risk control for occupational safety in the information unit room, logistics unit, and outpatient registration unit, is not optimal because there are still officers who do not understand the importance of ergonomics in the workplace. The suboptimal implementation of risk management shows that the implementation of risk management in hospitals is still not effective. Therefore, Muhammadiyah Bandung Hospital should organise training and procedures related to ergonomic risk control in the workplace.

Occupational safety management (OSH) is very important for all workers. Therefore, comprehensive OHS management is needed in all areas, including building a strong safety culture in the workplace. Safety culture is influenced by daily habits, attitudes, and behaviours that are comfortable for workers, all of which play an important role in improving performance and productivity. Occupational safety and health includes all efforts to ensure and protect the safety and health of workers, including preventive measures to prevent occupational accidents and illnesses caused by unsafe or unhealthy working conditions. To reduce the possibility of occupational accidents occurring in hospitals, the government issued Law Number 23 Year 2003, which requires every workplace with at least 10 (ten) employees or has the potential for health hazards or diseases to organise occupational health and safety efforts.

By implementing ergonomic controls at the Bandung Muhammadiyah Hospital, it will be able to reduce the risk of work injuries, increase occupational health and safety efficiency, and improve comfort for hospital staff.

Conclusions

Based on the results of the study, it can be concluded that there are a number of significant ergonomic risks in Muhammadiyah Bandung Hospital, especially related to work environment conditions such as air temperature, noise, inadequate lighting, and inadequate facilities. Service workers in various units such as information, outpatient registration, and logistics, often experience complaints such as neck, shoulder, back, and eye pain because they do not use ergonomic equipment and furniture. The implementation of long working hours without proper posture adjustment is also a risk factor. In addition, the cramped

conditions of the room, lack of ventilation, and the presence of used goods that are not neatly arranged in logistics also increase the risk of work accidents.

To overcome this problem, the hospital management should check every 3 (three) months to each room, to evaluate facilities that are suitable and not suitable for use and replace facilities that are not suitable as a consideration to reduce work accidents or injuries to service personnel at the Muhammadiyah Bandung Hospital, provide trolley tools to move requests from other units to logistics in order to reduce excessive physical workload. In addition, seminars or training on how to control risks are held so that officers are more aware and understand the importance of ergonomics to health. and reduce the risk of injury associated with improper work positions. Through training staff can learn about the correct techniques when lifting or moving goods, and the use of ergonomic assistive equipment.

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Conflicts of Interest

The authors declare no conflict of interest

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