

THE DARK SIDES OF WORKSTATION: ERGONOMICS ASPECTS AND OCCUPATIONAL DISEASES TOWARDS JOB PERFORMANCE AT GENERAL HOSPITAL IN MALAYSIA

Noor Azzura Mohamed*, Siti Normah Awang Tuah, Azhana Othman

UiTM Cawangan Melaka

Abstract

The purpose of this study is to identify the ergonomic aspects in the workplace and examining the occupational diseases due to ergonomics issues. This study provide the analysis of the ergonomic aspects and occupational diseases towards job performance nurses in general hospitals in Malaysia. In order to conduct this study, the researchers will collect the data from primary and secondary data. The survey will be stratified from peoples who are working at hospital specifically, nurses. The expected outcomes and implication of this study is the development of employees' health and wellbeing in which basically it is in line with the government's commitment of "1Care for 1Malaysia", that was implemented under the Economic Transformation Program (ETP) and to respond Industrial Revolution 4.0. Due to the increasing cases of Musculoskeletal Disorders (MSDs) and job stress among employees, especially among nurses, a study of the ergonomic aspects and occupational diseases towards job performance is crucial.

Keywords: Ergonomics, Musculoskeletal Disorders, Nurses

1.0 INTRODUCTION

Ergonomics is the scientific discipline concerned with the understanding of interactions between human and other elements of the system in order to optimize human well-being and overall system performance. The word ergonomics stems from the Greek words “Ergon,” meaning work, and “nomos,” meaning natural laws or arrangements (Andrew & Maykel, 2019).

Dr. Paola Cenni, European Ergonomist, defined Ergonomics as a science or governance of work which refers to a culture and technique useful to design a man-centered working system which aims to psychophysical wellbeing, safety and quality of performance (Faentia Consulting, 2020). Ergonomic hazards can cause diseases such as physical and psychology. This study concerns on physical disease, which is, the injury suffered by workers known as musculoskeletal disorders (MSDs) and it is the ultimate problem in term of occupational safety and health. According to Tan Sri Lee Lam Thy, chairman of the National Institute of Occupational Safety and Health (NIOSH), the number of MSDs cases in Malaysia is steadily increasing from year to year. For example, there are 708 cases was reported in 2015 compared to only 10 cases in 2005. It showed a jump of almost 70 times in just within a span of ten years.

Developed countries such as United States, Sweden, United Kingdom and Japan are so concerned about safety and health. This is because the issue has a significant relationship with the productivity of human resources that could have an impact on a country's economy. Good care of employees in these aspects were paramount not only to the individual employee, in fact, could give strength and profit to national economy (American Federation of Labour – Congress of Industrial Organizations, 2018). Therefore, as a developing country, Malaysia considers human resources as a national asset and become a catalyst for national development, in which the contribution of each employee is important and valuable to the economy. The issue of safety and health has become the main agenda to ensure a safe working environment and does not pose a risk to employees. Hence, the Malaysian government through the Department of Occupational Safety and Health (DOSH) has enacted an Act in 1994, called the Occupational Safety and Health Act of 1994 (OSHA 1994), which emphasizes the responsibility of the employer and employee to create an atmosphere and environment that is safe and healthy (Hapriza, 2004). Indirectly, OSHA 1994 is intended that work is not a 'factory' of torturing or abusing his employees and can lead to injuries, illness or misery to them (Kamal Halili, 2015).

Occupational Safety and Health Act 1994 (OSHA 1994) has stated that working environment should be conducive and comfortable to meet the physiology and psychology need of the staff. The numbers of occupational accidents and diseases are reported to be consistently high and increasing due to lack of attention given to ergonomics aspects in the workplace. It is essential for the staff to have a workplace that is comfortable and safe and in good condition. If this aspect gives less attention, less discussed and less done the research will lead to misunderstanding. Furthermore, studies related to occupational safety and health issues in the hospital give less attention, while more focus emphasized on the construction site (Official Website of the Ministry of Human Resources

The International Labor Organization (ILO) estimates that each year around 2.3 million workers die as a result of occupational accidents and work-related disease. Latest estimate based on 2017 data indicates that fatal occupational accidents are about 358 000 every year. Across the globe, there are some 337 million occupational accidents and 160 million occupational diseases each year. Fatal work-related disease is around 1.95 million per year (Judson & Bugra, 2017). In Malaysia, it was reported to the Department of Safety and Health (DOSH) that 6562 cases of occupational accidents until October 2019 (International Policy and Research Development Division, 2020). This huge number is due to the workplace that is not ergonomically safe for them.

According to Nazar and Sabitha (2003), some equipment designs do not fit directly with the human functions, however, some are suitable. Without a thorough review by management of the supply of office equipment provided to employees has resulted in workers exposed to hazards on the use, and further, employees may have occupational diseases, such as physical and psychological illnesses. The purpose of the duty of every employee is different, therefore, their work is unlike and their tasks are also exposed to dissimilar hazards. Because of these differences, health status and level of exposure of each worker needs to be assessed separately. Employees will also be exposed to different occupational diseases. It involves the health problems of the existing workers and may affect their job performance. As the number of employees who work in an office environment increases, so do the number of common office injuries. This is because many offices do not have an ergonomically-correctional facility for their workers. In recent years, having an ergonomically-correct work environment has become as important as pay scales and benefits packages. Employees want to know that the time they put in the office on a daily basis is not contributing to a decline in their health with the onset of afflictions like Musculoskeletal Disorders (MSDs), Carpal Tunnel Syndrome or Repetitive Stress Injury (Peter, 2018).

In 2019, problems associated with musculoskeletal disorders (MSDs), were reported in large numbers as occupational diseases in Malaysia (Official Website of Department of Occupational safety and Health) as mentioned before, it is reported 708 cases MSDs reported until October 2019. Companies have received more information over the last decade about how to set up a more ergonomically-correct environment, in order to decrease the number of MSDs. However, the numbers are still much higher than they should be given the wealth of information available about ergonomics and the workplace. Specifically, study by Sukadarin et al., (2016) on work-related musculoskeletal disorders (WRMDs) and the stress level among nurses in general hospital in Malaysia, they found that the most prevalent musculoskeletal complaints are lower back pain, upper back, knees, neck, ankle/feet, and shoulder pain. Moreover, cited by Silva et al., (2018) among the various occupational, biological and environmental hazards to which nursing workers are exposed, such as long periods of standing work, low back pain, disc herniation, complaints related to the musculoskeletal system represent one of the greatest causes of suffering of this working class, due to the physical effort required of these professionals, especially during the movement and removal of patients.

As workers contribute service to the public and societies, it is essential for them to have a workplace that is comfortable and safe and in good condition. Indirectly, this can reduce employee absenteeism due to health problems resulting from the work place that is not comfortable and not protected. The more information that individual companies have, the better they can serve their employees and assist them in staying well and producing better results (Robin, 2018 and Chancai et al., 2016). This is why training for companies about the benefits of being ergonomically correct is so important.

In addition, according to Robin (2018), human factors are very complex, especially in terms of technology. This aspect gives less attention, less discussed and less done the research, and perhaps lack of understanding. Studies related to occupational safety and health issues in the office are given less attention especially among nurse or medical staffs, while more focus emphasized on the construction site (Official Website of the Ministry of Human Resources). Furthermore, currently, there are many cases of occupational diseases caused by ergonomics have been reported to the Department of Occupational Safety and health (DOSH). Indirectly, this can affect labor productivity, profitability and costs of compensation.

2.0 LITERATURE REVIEW

2.1 Human Factors and Ergonomics Aspects

Human factors in Healthcare was suggested by Prof. Sara Albolino, at the IEA Triennial Congress in 2015 (Melbourne, Australia) as current Chair of the International Ergonomics Association (IEA) Technical Group on Healthcare (Hignett, Albolino & Catchpole, 2018). Human factors contribute to the area of workplace safety, from systems (macro-ergonomics) analyses to specific, relatively contained interactions and interfaces (micro-ergonomics). According to the book titled 'Titik Semakan Ergonomik' (2003) published by the International Labor Department, Geneva states that there are some major issues in the aspect of ergonomics that should be given serious attention.

The aspects of ergonomics are including dimensions of storage, handling things manually, hand tools, workstation design, lighting, premises, facilities and welfare services and employment management. It is the purpose and aims to provide a workplace that is safe, healthy and efficient to workers (Titik Semakan Ergonomic, 2003). Among the elements of ergonomics in the office are discussed in this book, including the work environment, equipment, computer workstations, manual handling of goods, welfare and facilities of employees and the relevant legislation. Subsequently, Judson and Bugra (2017) and Robin (2018) has outlined a number of matters relating to ergonomics have practiced in an environment of employee workstations to improve efficiency and effectiveness of workers employed, except that employees can work safely and healthy. Among the issues outlined in the review of occupational safety and health and to develop an ergonomic workstation environment is electric wiring, exit and entrance, fire protection, care to working conditions, protection of workers and machinery and equipment.

Chancai et al., (2016) also states the aspects of the ergonomics that should be given due attention by the employer to ensure that every employee can work in an environment that is safe and healthy such as chairs, desks, lighting, noise levels, vibration, humidity, temperature, visual display terminals/computers and paint color in the office building. This is because, according to him, if this aspect is ignored, it can affect the health of workers in terms of vision, hearing, and also the problems associated with the skin. Furthermore, in the book of Guidelines on Occupational Safety and Health in the Office (Department of Occupational Safety and Health, 2017), a combination of working in an office environment is included lights, temperature, humidity, air quality, colours and decorations. An office can become a place that is safe, healthy and comfortable when all the combinations

and the element to be maintained in good condition. In a fairly large office, the workers may be exposed to physiological and psychological illness in the office environment such as, headaches, dull, watery eyes, nasal congestion, stress and so forth. To prevent the occurrence of disease in the office, employers need to ensure that issues such as temperature, humidity, ventilation, air poll space, good facilities and cleanliness should be noted that accordingly.

Report from Guidelines on Occupational Safety and Health in The Office (Department of Occupational Safety and Health, 2017) exerted that, convenience and welfare aspects should be taken seriously and appropriately to the workers. Convenience and welfare aspects of this include the matters relating to the pantry, toilets, first aid and personal protective equipment for workers. For example, first-aid kit should be placed in a conspicuous place and shall always be achieved and are maintained and updated medical equipment it. Meanwhile, the toilet is to be examined in a clean condition at all times. In addition, each office should be prepared for the pantry adds convenience and welfare of the workers. Meanwhile, according to Kamal Halili (2015), health and safety issues are given attention by the government. Thus, the welfare of the workers should be given priority by all organizations, including factories, workshops and offices. Section 25 (1) of the Factories and Machinery Act has laid down general guidelines to be followed by employers such as ease-aid kits, first aid, rest room, canteen (cafeteria), mosque or prayer room for Muslim workers and personal protective equipment (PPE).

In addition, according to Guidelines on Occupational Safety and Health in the Office (Occupational Safety and Health, 2017), on the physiology of an employee injury can be avoided if workers are correct posture when using computers and the lighting is adequate. Thus, one of the things that help workers when using computers should be considered and included, the list of workstations that include elements such as the work surface height, chair, computer position, the position of the screen, desk-top layout, document holders and posture and body movement for employees who use computers, workstations dimensions, lighting for the Video Display Units (VDUs), glare and reflected light, using a mouse, computer equipment and radiation as well as computer and telephone operators. Among the elements found in the work organization aspects including employee involvement in planning their daily work, providing the necessary training of workers by management and the management in consultation with workers before giving the assignment to them. In addition, employee participation in the preparation room at their workstations is also included in the work organization aspects (Titik Semakan Ergonomik, 2003).

2.2 Ergonomics and Occupational Disease

Ergonomic problems in the workplace and bad work organization are part of the contributing risk factors to the accidents and injuries. A number of situations within the workplace are conjectured to contribute to the increasing magnitude of musculoskeletal disorders (MSDs) suffered by the workers, including postural stress from prolonged sitting, standing, or awkward position; stereotyped and repetitive tasks leading to chronic injury; peak overload injuries to the axial or peripheral skeleton; environmental factors; and psychosocial factors including psychological stresses, job dissatisfaction, and complex social issues, such as compensation laws and disability system (Shengli, 2010). Westgaard and Winkelb (2010) suggest that to improve musculoskeletal and mental health of workers through improved ergonomics and psychosocial work environment is included to substantiate the assertion of minimal effect of ergonomic interventions such as focus on improvement of physical and/or psychosocial working conditions for the individual worker, or strengthen resilience to negative factors in the work environment.

Ergonomic hazards can cause several types of diseases in terms of physiology and psychology. Psychological illness is associated with mental illness, such as trauma, phobias, stress and others. Whereas physiology of disease is the injury suffered by workers known as musculoskeletal disorders (MSDs) and it is the biggest problem in terms of occupational safety and health. A study conducted by the Bureau of Labour Statistics in 1999, found that more than 600 000 workers have been suffering due to accidents and injuries at work caused by repetitive movements and extreme fatigue. While, a study related to Musculoskeletal Disorders and the Workplace in January 2001, which was conducted by the National Academy of Science (NAS) and Institute of Medicine (IOM) has reported that more than one million cases involving injuries were caused by the ergonomics work among workers. According to the report, found that most companies in the United States had suffered losses between \$13 to \$20 billion dollars to compensate the workers (American Federation of Labour - Congress of Industrial Organizations, 2004).

Ergonomic problems in the workplace and bad work organization are part of the contributing risk factors to the accidents and injuries. A number of situations within the workplace are conjectured to contribute to the increasing magnitude of musculoskeletal disorders (MSDs) suffered by the workers, including postural stress from prolonged sitting, standing, or awkward position; stereotyped and repetitive tasks leading to chronic injury; peak overload injuries to the axial or peripheral skeleton; environmental factors; and psychosocial

factors including psychological stresses, job dissatisfaction, and complex social issues, such as compensation laws and disability system (Niu, 2010). Furthermore, according to Bandeira et al., (2012), the ergonomic constraints are included; the place where the medications are stored has insufficient dimension; equipment in poor condition, old and has poor maintenance; insufficient space to sit down and do the paperwork; inadequate use of masks and venous medications without the gloves. Therefore, Loo and Richardson, (2012) suggested that many changes need to be made, integrate the concept of social science to technological advances into Malaysian culture to enhance productivity, while achieving health and safety goals. From the discussion above, it shows that there is a strong bond between ergonomics and industry revolution 4.0 as it is a smart interconnected pervasive environment to improve job performance in the workplace.

3.0 CONCLUSION

Ergonomics developed after the Second World War. Ergonomics is used in the military, psychology and engineering. Each year, about 10,000 workers in Malaysia were injured on the job. The main problem is related to bone disease and muscle correlates with the design, composition and the use of various components in the workplace. Due to various problems arising in relation to safety and health at work, the researchers felt the need to assess the attitudes and knowledge on issues that may be underestimated by some other parties.

Therefore, the employer or the administration has a responsibility that is necessary to provide a working environment free from hazards that may cause safety and health. In general, health and safety of employers and workers in Malaysia are covered under the Occupational Safety and Health Act. Thus, companies and industries in Malaysia must comply with the enforcement of the Act. Among the examples of the proper responsibilities as an employer or management, including providing information, instruction, training and supervision to ensure the safety and health at work, maintain a workplace that is safe and without risks to health and to provide procedures for ensuring the safety and health of use, handling, and storage of documents and everything related to ergonomics in the workplace.

In addition, employees themselves must also comply with all instructions and orders contained in the Occupational Safety and Health Act. However, the Occupational Safety and Health Act does not state or explain the proper position and responsibilities as a worker at the construction site. However, workers should emphasize safety and health of themselves and others while working. As an employee, they must cooperate with the employer or the management and other

workers to meet its obligations as provided under the Act or any regulations relating to the work station.

ACKNOWLEDGMENTS

The authors would like to extend their acknowledgement of the support given by Center of Islamic Philanthropy and Social Finance (CIPFS) UiTM Cawangan Melaka.

REFERENCES

- Andrew T. Schlussel, Justin A. Maykel (2019). *Ergonomics and Musculoskeletal Health of Surgeon*. Thieme Medical Publishers 333 Seventh Avenue, New York, NY 10001, USA.
- American Federation of Labor – Congress of Industrial Organizations. Retrieved Mac 5 (2018). Retrieved from https://www.aflcio.org/yourjobeconomy/safety/ergo/ergo_why.cfm.
- Bandeiraa M. G., Dinizb R. L., Ana A. H., (2012), Ergonomic constraints among nursing workers in the sectors of emergency care in two public hospitals in Brazil. *Work* 41, 1849-1854 DOI: 10.3233/WOR-2012-0396-1849
- Colligan, M. J., & Cohen, A. (2004). The Role of Training in Promoting Workplace Safety and Health. *The Psychology of Workplace Safety*, 223-248.
- Department of Occupational Safety and Health, Ministry of Human Resource, Malaysia. (2017). *Guidelines on Occupational Safety and Health in the Office*.
- Faentia Consulting, (2020). *Ergonomics and Industry 4.0: Man Is Central*. Retrieved from <https://www.faentia-consulting.com/en/news/ergonomics-and-industry-40-man-centra>
- Hapriza Ashari (2004, Jun 3). Keselamatan dan Kesihatan Pekerjaan: Tanggungjawab Siapa?. *Jurnal Kemanusiaan*, Bil. 3.
- Hignett, S., Albolino, S., Catchpole, K. (2018). *Health and Social Care Ergonomics: Patient Safety in Practice*.

- Judson Caskey & N. Bugra Ozel (2017, May 18). Workplace Injuries Are More Common When Companies Face Earning Pressure. Harvard Business Review.
- Kamal Halili Hassan (2015). Corporate Liability under Malaysian Occupational Safety and Health Legislation. *International Journal of Business and Society*. Vol. 16(2). 281-294.
- Mahmood Nazar Mohamed, Sabitha Marican. (2003). Hubungan Manusia Dalam Organisasi. Kuala Lumpur: Utusan Publications & Distributors Sdn. Bhd.
- Maman Paul, (2019), Health and Wellbeing of Women Workers, *International Journal of Physiology Nutrition and Physical Education*, Vol. 4(1), 369-370.
- Peter Velikanov. (2018). Ergonomics in the Workplace. Retrieved Mac 21, 2018, from Article Snatch.com website: <http://www.articlesnatch.com/Article/Ergonomics-In-The-Workplace/4861>
- Robin Burgess-Limerick (2017). Participatory Ergonomics: Evidence and Implementation Lesson. *Applied Ergonomics*. Vol. 68. 289-293.
- Rose, J. (1994). Human Stress and the Environment. Switzerland: Gordon and Breach Science Publishers S.A.
- Shengli Niu. (2010). Ergonomics and occupational safety and health: An ILO perspective. (Electronic version). *Applied Ergonomic*, 41 (6), 744 – 753.
- Silva F. A. L. Silva, Araújo C. L O., Galvao H. M., Matias N. T, (2018). The Elderly Nursing Personnel According to Ergonomic Aspects. *Journal of Ergonomics*, 8:5 DOI: 10.4172/2165-7556.1000240
- Sukaradin E. H., Pim N. U., Zakaria J., Deros B. M., Nawi N. S. M. (2016). The Prevalence of Work-Related Musculoskeletal Disorders and Stress Level Among Hospital Nurses. *Malaysian Journal of Human Factors and Ergonomics*, Vol. 1(1). 40-44.
- Titik Semakan Ergonomi: Kaedah-KaedahPenyelesaian Mudah dan Praktikal untuk Memperbaiki Keselamatan, Kesihatan dan Keadaan Kerja. (2003). Malaysia: MDC Publishers Sdn. Bhd.

- Westgaard, R.H., Winkelb, J. (2010). Occupational Musculoskeletal and Mental Health: Significance of Rationalization and Opportunities to Create Sustainable Production Systems – A Systematic Review. *Applied Ergonomic*, 42 (2), 261 – 296.
- Withaya Chancai et al (2016). The Impact of an Ergonomics Intervention on Psychosocial factors and Musculoskeletal Symptoms among Thai Hospital Orderlies. *International Journal of environmental Research and public Health*. Vol. 13(5). 464-475.

