ERGONOMICS EFFECT OF PROLONG STANDING AT WORK (STATIC AND DYNAMIC) IN MANUFACTURING DIVISION

By

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ABSTRACT

Standing at work is a common practice in today's manufacturing environment. It is believed that standing at work produce higher productivity as it is not restrain workers movement compares to sitting at work.

In this research study, the researcher is exploring the ergonomics effect of prolong standing at work (static and dynamic) in Peripheral Device manufacturing Division of Sony EMCS (Malaysia) Sdn. Bhd. In this research study, the variables influence the ergonomics effect of standing at work had been explored and analysed.

There are three (3) independent variables identified, they are Management Commitment, Employee Behaviour and Workplace Design and one (1) dependent variable for this project paper, in the Ergonomic effect of prolong standing at work which is measured by using Body part symptoms. Total of 168-sample size has been taken from various level groups that consist of manufacturing operators, supervisors, line leaders and repairers.

Study survey has been conducted through stratified sampling. Quantitative survey has been used for this study. From analysis result it shows that two (2) hypotheses supported with significant value. The result concludes that Management Commitment, and Workplace Design give significant impact in influencing the ergonomic effect of prolong standing at work while Employee Behaviour does not have significant impact to the ergonomic effect of prolong standing at work.

The study has revealed that the working condition can be further improves by taking action in the areas of study especially involving management awareness and commitment, and by improving the workplace design.

ABSTRAK

Bekerja sambil berdiri adalah merupakan satu amalan yang menjadi kebiasaan di bidang pembuatan. Adalah dipercayai, bekerja sambil berdiri dapat meningkatkan daya produktiviti kerana ianya tidak mengekang keupayaan pergerakan berbanding ketika bekerja sambil duduk.

Di dalam kajian ini, penyelidik meneroka kesan-kesan ergonomik terhadap pekerja-pekerja yang bekerja sambil berdiri (secara pegun ataupun secara bergerak) di bahagian pembuatan "Peripheral Device" di Sony EMCS (Malaysia) Sdn Bhd. Di dalam kajian ini juga, pelbagai pemboleh ubah yang mempengaruhi kesan-kesan ergonomik ketika bekerja sambil berdiri telah diambil kira dan dikaji.

Terdapat tiga (3) pembolehubah tidak bersandar iaitu komitmen pihak pengurusan, perlakuan pekerja serta rekabentuk tempat kerja, serta satu (1) pembolehubah bersandar iaitu Kesan ergonomic terhadap pekerja yang diukur melalui penggunaan simptom pada bahagian badan. Pada keseluruhannya, 168 saiz sampel telah diambil dari pelbagai lapisan jawatan iaitu pekerja am pembuatan, penyelia, ketua barisan dan jurubaik-pulih.

Pemilihan sampel dibuat berasaskan pemilihan secara berstrata dan kajian secara kuantitatif telah dipilih dalam kajian ini. Berdasarkan analisa keputusan kajian ini, terdapat hubungan yang signifikan terhadap dua (2) pembolehubah tidak bersandar. Keputusan telah merumuskan komitmen pihak pengurusan dan rekabentuk tempat kerja memberikan hubungan yang signifikan dalam mempengaruhi kesan-kesan ergonomik akibat bekerja sambil berdiri, manakala perlakuan pekerja tidak memberikan kesan yang signifikan keatas kesan-kesan ergonomik ketika bekerja sambil berdiri.

Kajian telah merumuskan keadaan tempat kerja masih boleh diperbaiki terutamanya membabitkan komitmen pihak pengurusan serta rekabentuk tempat kerja.

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ABBREVIATIONS

1	U.S	United States of America
2	Sony Corp.	Sony Corporation
3	Blu-Ray Disc	Optical disc format jointly developed by the Blu-ray Disc Association (BDA)
4	P.D	Peripheral Device
5	SOCSO	Social Security Organization
6	OD	Occupational Disease
7	WRMSD's	Work Related Musculoskeletal Disorders
8	MSD's	Musculoskeletal Disorders
9	ILO	International Labour Organization
10	MODAPTs	Modular Arrangement of Predetermined Time Standard
11	PMTS	Predetermined Motion Time System
12	DOSH	Department of Occupational Safety and Health Malaysia
13	IV	Independent Variable
14	DV	Dependent Variable
15	SPM	Sijil Persekolahan Malaysia
16	STPM	Sijil Tinggi Persekolahan Malaysia
17	HIRADC	Hazard Identification, Risk Assessment, Determining Control

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Ergonomics is a combination of Greek words that carry the meaning of law of work effort or the way of works to be carry out. Ergonomics is also defined by the International Ergonomics Association as the interaction of employees to the surrounding elements such as machines, workplace and tools (Karwowski, 2012). Ergonomics deals with people or employees in the workplace and the working environment. Everything the worker handles, the surrounding environment, including the temperature and humidity of the shop floor, illumination brightness, workbench height, and proximity between employees falls under the domain of ergonomics studies. Therefore, ergonomics is an application of knowledge, based on the understanding of employee's capability, their limitation and behaviour in designing the work system (Czaja & Sankaran, 2012)

In the manufacturing sector, employees use synchronized physical body movements to complete tasks. For the purposes of productivity and efficiency, job are breaks into several smaller task and employees will concentrate doing this task repetitively. Specialization of task enables the worker to learn faster and efficient. Smaller and simpler task makes the training process easier for the new employees (Adeyoyin et al, 2015). Task specialization in assembly production is causing repetitive of movement that will over-exerting certain single muscles and leading to ergonomics problem.

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