The copyright © of this thesis belongs to its rightful author and/or other copyright owner. Copies can be accessed and downloaded for non-commercial or learning purposes without any charge and permission. The thesis cannot be reproduced or quoted as a whole without the permission from its rightful owner. No alteration or changes in format is allowed without permission from its rightful owner.



ERGONOMICS FACTOR AND THEIR RELATIONSHIP TO JOB STRESS

By

MD ASRAN BIN JAILAN



Thesis submitted to
School of Business Management, Collage Of Business,
Universiti Utara Malaysia
In Fulfillment of the Requirement for the Degree of Master Of Science
Occupational Safety and Health Management

PERMISSION TO USE

In presenting this project paper in partial fulfillment of the requirements for the Post

Graduate Master from the University Utara Malaysia (UUM), I agree that the Library of

this university may make if freely available for inspection. I further agree that

permission for copying this project paper in any manner, in whole or part, for scholarly

purposes may granted by my supervisor(s) or in their absence, by the dean of Othman

Yeop Abdullah Graduate School of Business where I did my project paper.

It is understood that any copying or publication or use of this project paper parts of it for

financial gain shall not be allowed without my written permission. It is also understood

that due to recognition shall be given to me and to the UUM in any scholarly use which

may be made of any material in my project paper.

Request for permission to copy or to make other use of material in this project paper in

whole or in part should be addressed to:

Dear of Yeop Abdullah Graduate School of Business Universiti Utara Malaysia 06010 UUM Sintok

Kedah darul Aman

ii

ABSTRACT

In this study, it is more emphasis on the impact and effects of ergonomic factors related to workplace stress. It is also to check whether there is a relationship between ergonomic factors such as job design, work environment, such as indoor air, lighting and noise, as well as the factor of job rotation, work hours and workloads with work pressure. Data were collected from 122 employees at a manufacturing company located in Kampong Janda Baik, Bentong, Pahang, mainly working on the production line. They were chosen because the environment and how to work more or less the same. The results showed there was a relationship between the variables workload and humidity with job stress in this manufacturing company. Five other variables, job design, lighting, working hours, noise, and shift work have no significant relationship to the job stress. A good implication can be seen if both sides, if employees and employer can work together in implementing and promoting the concept and work practices of ergonomic. Awareness of safety and health at work is important for employers and employee's a like good benefit.

ABSTRAK

Dalam kajian ini, ia lebih menekankan tentang kesan- kesan faktor ergonomik dan kaitannya dengan tekanan tempat kerja. Ia juga untuk memeriksa sama ada terdapat hubungan antara faktor-faktor ergonomik seperti rekabentuk kerja, persekitaran kerja seperti udara dalaman, pencahayaan dan bunyi bising, begitu juga dengan faktor pusingan kerja, waktu bekerja, dan bebanan kerja dengan tekanan kerja. Data kajian ini diperolehi dan dikumpulkan daripada 122 orang pekerja di satu syarikat pembuatan yang terletak di Kampung Janda Baik, Bentong, Pahang. Mereka dipilih kerana persekitaran serta cara kerja yang lebih kurang sama. Hasil kajian menunjukan terdapat hubungan antara pemboleh ubah beban kerja serta kelembapan persekitaran tempat kerja dengan tekanan kerja di syarikat pembuatan ini. Lima pemboleh ubah lainnya, rekabentuk kerja, pencahayaan, waktu bekerja, bunyi bising, serta kerja syif tidak mempunyi hubungan yang signifikan terhadap tekanan kerja. Implikasi yang baik boleh dilihat jika kedua- dua belah pihak jika dapat bekerjasama dalam melaksanakan dan mengalakkan konsep ergonomik dan amalan-amalan kerja secara ergonomik. Kesedaran tentang keselamatan dan kesihatan di tempat kerja adalah penting agar majikan dan pekerja sama-sama mendapat manafaat dan faedah yang baik.

ACKNOWLEDGEMENT

In the name of Allah, Most Gracious and Most Merciful Alhamdulillah, praised to Allah

S.W.T for the completion of this thesis. I would like to express my gratitude and

appreciation to those who helped, supported and encouraged me, and made this

accomplishment possible.

First, I would like to thank my supervisor, Dr. Zuraida binti Hassan. There is no word to

thank you for all that you have done for me. Your guidance and constant support has

made this project possible. I could not end without thanking and dedicated this

achievement to my wife, Norizah Bte Ali, my sons and daughter, Muhammad Akmal,

Muhammad Ikram and Nurizzati for the motivation and endless morale support that

make me end this project successfully.

This dedication also specially for my late son, Allahyarham Muhammad Izzuddin, which

is pass away while on the way to register their degree study at UiTM Shah Alam on 1

March 2014.

Finally, I wish to thank my course mate and my lecturers in Universiti Utara Malaysia

Kuala Lumpur Branch, for all of their help during my learning here. To my respondents,

my sincere appreciation for taking the time and effort to participate in this research.

Thank You.

Md Asran Bin Jailan

College of Business

Universiti Utara Malaysia

V

TABLE OF CONTENT

COVE	ER PAGE	i
CERT	IFICATION OF THESIS WORK	
PERM	IISSION TO USE	ii
ABST	RAC	iii
ABST	RAK	iv
ACKN	NOWLEDGEMENT	v
TABL	E OF CONTENT	vi
LIST (OF TABLE	ix
LIST (OF FIGURE	X
LIST (LIST OF APPENDIX	
CHAP	TER ONE: INTRODUCTION Background of the study	1
1.2	Problem statements Universiti Utara Malays	4
1.3	Research question	7
1.4	Research objective	7
1.5	Significant of study	8
1.6	Scope of the study	8
1.7	Organization of the thesis	9
1.8	Conclusion	9
СНАР	TER TWO: LITERATURE REVIEW	
2.1	Introduction	10
2.2	Job Stress	10
2.3	Factor that effect job stress among workers	11

	2.3.1	Work design	12
	2.3.2	Humidity	13
	2.3.3	Noise (Acoustic)	14
	2.3.4	Lighting	16
	2.3.5	Working hours	16
	2.3.6	Shift work	17
	2.3.7	Work load	17
	2.3.8	Ergonomics	19
2.4	Theor	y of job stress or underpinning theory of the research	20
2.5	Concl	usion	23
		UTAR	
CHA	TER T	HREE: METHODOLOGY	
3.0	Introd	uction	24
3.1	Resear	rch framework	24
3.2	Resear	rch design Universiti Utara Malay	S 25
3.3	Defini	ition of term	26
3.4	Measu	arement of variable or instrumentation	27
3.5	Sampl	ling techniques	30
	3.5.1	Population and sampling size	31
3.6	Data c	collection method	32
3.7	Data a	analysis technique	32
3.8	Concl	usion	35

CHAPTER FOUR: FINDING

4.0	Introduction	
4.1 Respond rate		36
	4.1.1 Section A: Demographic information	36
	4.1.2 Section B: Reliability on independent and	
	dependent variable	40
4.2	Correlation	42
4.3	Multiple regressions	
4.4	Summary of the result	44
СНА	PTER FIVE: DISCUSSION AND CONCLUSION	
5.0	Introduction	46
5.1	Summary of the result	46
5.2	Limitation	48
5.3	Recommendation to the company	Malaysi ₄ 9
5.4	Conclusion	50
Refer	rences	52
Appe	endix	56

LIST OF TABLE

Table 1:	Definition of term	26
Table 2:	Measurement of variables or instrumentation	28
Table 3:	Range of Alfa Cronbach value	33
Table 4:	Range of correlation value	34
Table 5:	Range of correlation coefficient and coefficient of	
	Determination	34
Table 6:	Respondent's demographic information	37
Table 7:	Reliability analysis- scale alpha	40
Table 8:	Correlation between dependent variable and	
(2)	independent variable	42
Table 9:	Result of multiple regression in evaluating	
UNIV	The relationship of independent variable and dependent	
(-1	Variable. Universiti Utara Malays	43
Table 10:	Multiple correlation coefficient R	46
Table 11:	Result of hypothesis	47

LIST OF FIGURE

Figure 3.1: Research framework





LIST OF APPENDIX

Appendix A:	Questionnaire	56
Appendix B:	Frequency data	61
Appendix C:	Correlations	66
Appendix D:	Multiple Regression	67



CHAPTER ONE

INTRODUCTION

This chapter will brief introduction of the study. This chapter also discusses the background of the study, problem statement, research question, objective of the study, scope of the study, significant of the study and brief operation of the keywords.

1.1 Background of the study

Continuous or repetitive stress to our body or emotion which our body or feels cannot cope up will give bad or negative impact to our body, especially in today's modern lifestyle, very complex and challenging compared to last decade. These also give impact to our action or response to certain situation which may wrongly, or without reasonable and practicable way. From the earlier study, has been identified generally in the world that stress having big impact and concern from both employees and employers. An individual could experience stress if he/she perceives negatively towards his/her work environment.

An ergonomic factor includes many aspects like humidity, lighting, work design, noise and etc. Research shows that ergonomics factor that characterized by extreme heat, dim lighting, and congested works area can be associated to stress at the workplace (Sutton and Rafaeli, 1987). Cited by Zafir and Durraishah (2009), statement by Yeow and Nath Sen, (2003): Mohamad Khan et al., (2005), mentioned, in the

The contents of the thesis is for internal user only

REFERENCES

- H.S Loo and Stanley Richdarson (2012), *Journal of Social Science, Volume 1*, page 61-65.
- Syou Maki, Yasutaka Ogawa, Hiroki Itoh, Rui-Sheng Wang, Zuquan Weng, Hiroyuki Saito, Nobuhiko Miura, Huizen Shang, Yougong Su, Qian Niu, Masaya Takahasi (2015): Oxidative stress level among workers in two shift work system at stainless steel plants: Journal of Occupational Safety and Health, Vol 12, No. 2: 7-14.
- Grade AH, Hansen AM, Hansen J.(2009) Sleep length and quality, sleepiness and urinary melatonin among healthy Danish nurses within shift work and leisure time, Occup Environ Health; 82:1219-28.

Universiti Utara Malaysia

- Sharifah L.S.Y.(2009). Effect of Work Shift on Occupational Fatigue, Job Stress and Sleep Quality among Firefighter in Malaysia. Journal of Occupational safety and Health June, Vol. 6 No 1, Page 15-22.
- Zafir Mohamed Makhbul, and Fazilah Mohamad Hasun (2008), *Ergonomics Workstation Design*. Journal Occupational Safety and Health 5:7-17.
- Zafir Mohamed Makhbul, Durrisah Idrus, Mat Rebi Abdul Rani (2008). "The importance of ergonomic workstations to the health of a multinational organization in Malaysia". IJMS 15(2), pp 205-226.

- Karasek, R.A (1979), "Job Demands, Job Decision latitude, and Mental Strain:

 Implication for Job redesign". Administrative Science Quarterly, Vol. 24,
 No.2, pp. 285-308.
- Krejic, R. Morgan D (1970), "Determining Sample Size for Research Activities". Educational & Physiological Measurement, 30, pp.607-610.
- Alireza Choobineh, Sayed Hamidireza Tabatabaei, Abbas Mokhtarzadeh and Maryam Salleh (2007) "Musculoskeletal Problem among workers of an Irian Rubber factory". J. Occupational Health, 49, pp 418-423.
- Selye, H (1950). "Stress and the general adaptation syndrome". Br. Med. J. 1 (4667): 1383–92. doi:10.1136/bmj.1.4667.1383.PMC 2038162. PMID 15426759.
- Hagberg, M., Vilhemsson, R., Wigaeus Tornqvist, E., Toomingas, A.(2007) incident of self-reported reduced productivity owing to musculoskeletal symptom: association with workplace and individual factor among computer users, Ergonomics, 50, 11, 1820-1834.
- Cannon, W. (1939). The Wisdom of the Body, 2nd ed., NY: Norton Pubs.
- Palmer S, Cooper C and Thomas K, 'Model of organisational stress for use within an occupational health education/promotion or wellbeing programme A short communication', Health Education Journal, Vol. 60 No.4, _001.

- Evans, Gary W, Cornell U, dept of Design & Environmental Analysis, Ithaca, NY, US. Journal of Applied Psychology, Vol 85(5). Pp.779-783.
- Rummell, C. M. (2015, November 2). *An Exploratory Study of Psychology Graduate*Student Workload, Health, and Program Satisfaction. Professional Psychology: Research and Practice. Advance online publication.
- Vanworterghem K (1996): Work related musculoskeletal problems: some ergonomics consideration. J Hum Ergol 25, 5-13.
- Fraenkel, J.R and Wallen, N.E .(2006) How to design and evaluate research in education. New York: Mc Graw-Hill.
- Creative research system (2007). The survey system http://www.surveysystem.com/sdesign.htm

www. Hse.gov.uk/stress/standards/demands.htm.

www.cdc.gov/niosh/wp.

- L.Edward and P.Torcellini." A literature Review of the Effect of Natural Light On Building Occupants". NREL/Technical Report-550-30769.
- Zafir Mohamed Makhbul, Durrishah Idrus (2009)"Work Stress Issues in Malaysia".

 Malaysia Labour Review Vol.3. No 2, 13-26.

E.M Sterling, A. Arundel, T.D Sterling (1985), "Criteria for Human Exposure to Humidity in Occupied Building" ASHRAE Transactions, Vol.91, part 1.

Randall B.Dunham (1977)." Shift work: A review and the theoretical analysis".

Academic of Management Review.

A Shift work and vascular events: Systematic review and meta-analysis. BMJ 2012.

