UNIVERSITI PUTRA MALAYSIA

FACTORS ASSOCIATED WITH JOB STRAIN AND JOB DISSATISFACTION AMONG RESEARCH LABORATORY STAFF OF A MALAYSIAN PUBLIC UNIVERSITY

NEHZAT FADAEI

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By

NEHZAT FADAEI

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfillment of the Requirements for the Degree of Master of Science

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DEDICATION

TO

This thesis is especially dedicated to my beloved parents, and my lovely sisters for unconditional patience, support and encouragement through this project and my life

Abstract of thesis presented to the senate of University Putra Malaysia in fulfillment of the requirement for the degree of Master of Science

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Chairman: Huda binti Zainuddin- PhD

Faculty: Medicine and Health Sciences

One of the most common and costly health problems at the work environment is job stress. Job strain or job stress is widely studied among various occupations. However, not many studies on job strain and job dissatisfaction have been done among research laboratory staff in Malaysia. A cross-sectional study was conducted among research laboratory staff in 9 faculties and 8 institutes of University Putra Malaysia. The objectives are to determine the prevalence of job strain and job dissatisfaction, and also to ascertain the association between job strain,job dissatisfaction, socio-demographic and occupational factors among laboratory staff of UPM. Probability appropriate to size sampling and simple random sampling method was used and data were collected via Job Content Questionnaire (JCQ) from September 2012 to February 2013. The estimated sample size for this study was 312 laboratory staff. A total of 285 laboratory staff with at least one year job tenure participated in this study. The finding revealed that 20.7% of research laboratory staff had high job strain and 47% of them reported job dissatisfaction. Four factors were found to be significantly associated with job strain; gender (χ^2 =4.996, *df*= 1, *p*= 0.025), educational level (χ^2 =4.861, *df*= 1, *p*= 0.027), created skill (χ^2 =17.156, *df*= 1, *p*= 0.001), physical exertion (χ^2 =8.988, *df*= 1, *p*= 0.003). Four factors were significantly associated with job dissatisfaction; age (χ^2 =10.140, *df*= 1, *p*= 0.001), social support(χ^2 =5.494, *df*= 1, *p*= 0.019), hazardous conditions(χ^2 =11.451, *df*= 1, *p*= 0.001), toxic exposures(χ^2 =14.617, *df*= 1, *p*= 0.001). Logistic regression analysis indicated that male laboratory staffs were two times more likely to complain of job strain (adjusted OR= 2.130, 95% CI: 1.106-4.101, *p*= 0.024). Laboratory staffs with lower created skill are 4 times more likely to experience job strain (adjusted OR= 3.572, 95% CI: 1.746-7.310, *p*= 0.001); however, research laboratory staff with higher physical exertion were 3 times more likely to complain of high job strain (adjusted OR= 2.696, 95% CI: 1.216-5.979, *p*= 0.015). Furthermore, laboratory staffs with age 35, and less had 2 times more job dissatisfaction than the older staff (adjusted OR= 2.108, 95% CI: 1.241- 3.582, *p*= 0.006). Laboratory staffs with higher toxic exposures 2 times more dissatisfied of their job (adjusted

OR= 1.887, 95% CI: 1.062-3.353, *p*= 0.030). Created skill is the most important factor associated with high job strain among research laboratory staffs. Meanwhile, the most significant factor in related with job dissatisfaction is age. Therefore, emphasis on training the research laboratory staff and encouraging them to increase their skill level would be effective to reduce high job strain. The management should have the training plans to increase the knowledge on toxic exposures among younger laboratory staff to reduce job dissatisfaction among them.

Abstrak tesis dikemukakan kepada senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

FAKTOR YANG BERKAITAN DENGAN TEKANAN KERJA DAN KETIDAKPUASAN KERJA KALANGAN MAKMAL PENYELIDIKAN KAKITANGAN UNIVERSITI AWAM MALAYSIA

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Salah satu masalah kesihatan yang paling biasa dan mahal di dalam persekitaran kerja ialah stres kerja.Kajian tentang tekanan atau stres kerja dilaksanakan secara meluas ke atas banyak jenis pekerjaan.Walau bagaimanapun, tidak banyak kajian dilakukan di kalangan kakitangan makmal penyelidikan di Malaysia.Satu kajian keratan-rentas telah di lakukan terhadap kakitangan makmal penyelidikan di 9 fakulti dan 8 institut di Universiti Putra Malaysia.Objektif kajian adalah untuk mengenal pasti prevalens tekanan kerja dan ketidakpuasan kerja serta hubung kait antara tekanan kerja dan ketidak puasan kerja dan sosio-demografik serta faktor- faktor kerja di kalangan kakitangan makmal penyelidikan UPM.Kebarangkalian yang sesuai untuk sampel mudah dan kaedah sampel rawak mudah telah digunakan dan data telah di kumpul melalui soal selidik kandungan kerja dari Sept 2012 hingga Feb. 2013.Saiz sampel anggaran kajian ini adalah 312 penyelidikan.Sejumlah 285 kakitangan makmal yang telah berkhidmat sekurang-kurangnya satu (1) tahun telah menyertai kajian ini.Hasil kajian mendapati bahawa 20.7% daripada kakltangan makmal penyelidikan mengalami tekanan kerja yang tinggi dan 47% daripada mereka melaporkan ketidak puasan kerja. Empat faktor utama yang berkaitan dengan tekanan kerja: jantina (χ^2 =4.996, *df*= 1, *p*= 0.025) tahap pendidikan (χ^2 =4.861, *df*= 1, *p*= 0.027), kebebasan berkemahiran (χ^2 =17.156, *df*= 1, *p*= 0.001), kerahan fizikal (χ^2 =8.988, *df*= 1, *p*= 0.003), Empat faktor yang berkait rapat dengan ketidakpuasan kerja pula; umur (χ^2 =10.140, *df*= 1, *p*= 0.001), sokongan sosial (χ^2 =5.494, *df*= 1, *p*= 0.019), keadaan berbahaya (χ^2 =11.451, *df*= 1, *p*= 0.001), pendedahan terhadap bahan toksik (χ^2 =14.617, *df*= 1, *p*= 0.001). Analisis regresi logistic menunjukkan bahawa kakitangan makmal lelaki adalah dua kali lebih berkemungkinan untuk mengadu tentang tekanan kerja (OR= 2.130, 95% CI: 1.106-4.101, *p*= 0.024). penyelidikan yang rendah kebebasan berkemahiran yang dilatih 4 kali lebih pengalaman tekanan kerja (OR= 3.572, 95% CI: 1.746-7.310, *p*= 0.001). Walau bagai manapun, kakitangan yang lebih melakukan senaman fizikal 3 kali berkemungkinan untuk mengadu tekanan kerja yang tinggi (OR= 2.696, 95% CI: 1.216-5.979, *p*= 0.015). Disamping

itu, kakitangan makmal yang berumur 35 adalah kurang 2 kali ketidakpuasan kerja berbanding kakitangan yang lebih tua (OR= 2.108, 95% CI: 1.241- 3.582, *p*= 0.006). Kakitangan makmal yang lebih terdedah dengan bahan toksik 2 kali lebih tidak berpuashati dengan kerja mereka (diselaraskan OR= 1.887, 95% CI: 1.062-3.353, *p*= 0.030). Kebebasan berkemahiran yang dilatih adalah faktor utama yang berkait rapat dengan tekanan kerja yang tinggi dikalangan kakitangan makmal penyelidikan.Sementara, umur pula adalah faktor utama berkaitan dengan ketidak puasan kerja.Oleh yang demikian, penekanan latihan terhadap kakitangan makmal penyelidikan dan menggalakkan mereka meningkatkan tahap kemahiran adalah ber keson untuk mengurangkan tekanan kerja.Pihak pengurusan perlu mempunyani pelan latihan untuk meningkatkan pengetahuan tentang pendedahan terhadap bahan toksik dikalangan kakitangan makmal yang muda untuk mengurangkan ketidak puasan kerja dikalangan mereka.

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the Degree of Master of Science. The members of the Supervisory Committee were as follows:

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Declaration by graduate student

I hereby confirm that:

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This is to confirm that:

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Signature: _____	Signature: _____
Name of Chairman of Supervisory Committee: _____	Name of Member of Supervisory Committee: _____

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LIST OF ABBREVIATIONS

CCOHS	**Canadian Centre for Occupational Health and Safety**
DASS	**Depression Anxiety Stress Scales**
DC	**Demand Control model**
EFILWC	**European Foundation for the Improvement of Living and Working Conditions**
ERI	**Effort Reward Imbalance questionnaire**
EU-OSHA	**European Agency for Safety and Health at Work**
GHQ	**General Health Questionnaire**
HSE	**Health and Safety Executive**
ILO	**International Labor Organization**
JCQ	**Job Content Questionnaire**
JDC	**Job Demand Control model**
JDCS	**Job Demand-Control-Support**
JSS	**Job Satisfaction Scales**
JSQ	**Job Stress Questionnaire**
MASTIC	**Malaysian Science and Technology Information Center**
MLT	**Medical Laboratory Technician**
NIOSH	**National Institute for Occupational Safety and Health**
OSI	**Occupational Stress Indicator**
SOSS	**Source of Occupational Stress Scale**
SPSS	**Statistical Package of Social Science**
UKM	**Universiti Kebangsaan Malaysia**
UNESCO	**United Nations Educational, Scientific and Cultural Organization**
UPM	**Universiti Putra Malaysia**
USM	**Universiti Sains Malaysia**
VDU	**Visual Display Unit**
WHO	**World Health Organization**
WRMDs	**Work Related Musculoskeletal Disorders**

CHAPTER 1

1 INTRODUCTION

1.1 Background

One of the most important parts of social life that provides worker's well-being (social support, self-confidence, security and control) is working life. Some issues make the work environment unhealthy; one of these factors is job stress (Centre for the Promotion of Health in the New England, 2010).Recently, concern about job strain is increasing, some researchers have found that job strain and its psychosocial risk factors have detrimental effects on health (Chien et al., 2011). Stress has been studied in many various frameworks. It has been recognized as a precedent, result, response and stimulus (Jennings, 2008).Furthermore, a study has been done by (Chen & Lien, 2008) pointed out that role conflict, role ambiguity and role overload have an noticeable impact on job stress among bank employees in Taiwan and job stress is increasing among employees in this sector, thus it possibly can be leading to adverse effects on economy. It can be said that job stress is of great importance to the public health and the employees (Kinman and Mc Dowall, 2009). Moreover, some evidence suggests that job strain plays an important role in some types of chronic health problems, such as cardiovascular diseases, musculoskeletal disorders and psychological illness (Phoon, 1999). Furthermore, the economic costs of job stress in general (absenteeism, lost productivity) are difficult to estimate, but it is most importantly, there is a potentialfor preventing much illness and death. Occupational stressors are also commonly linked with lower levels of job satisfaction and higher turnover (Kinman and Mc Dowall, 2009). Job stress is,the detrimental emotional and physical responses at work, that happen when employee's potentials, demands, and needs do not match with job requirements (included; skill and knowledge) (HSE, 2012). Moreover, job strain is one of important source of occupational stress (Park, 2007).Two dimensional model of job strain (demand- control model) shows psychological job demands on horizontal dimension and decision latitude (control) on vertical dimension. According to thedemand-control model orKarasek's two dimensional model jobs are described as high strain, low strain, active and passive based on two important dimensions of model, namely psychological job demands and decision latitude. However, high psychological demands on the job in workers with low decision latitude cause job strain (high strain) (Karasek and Theorell, 1990). In contrast, low strain occurs when psychological demands are low, and the job control is high.Furthermore, when both psychological job demands and decision latitude (control on the work) are high, the workers are said to have active job.When psychological demands and job control are low, the workers will experiencepassive job (Karasek and Theorell, 1990). Job strain has been reported in wide range of occupations and in various countries.Based on the survey that was done among Finnish employees job strain plays an important role amongindividuals in high socio-economicpositions, and high job strain was a significant factor for absenteeism of work among Finnish employees (Virtanen et al., 2007). According to a research in North America, job stress has a high prevalence among truck drivers due to lack of job satisfaction and job control, chronic fatigue, insufficient sleep and crash fatality risks

(Anderson, 2004; Anderson & Reed, 2002; Saltzman & Blezer, 2007).High prevalence of job stress (strain) has been showed among nurses for several decades (Jennings et al., 2008).High job stress also has been reported among Canadian healthcare providers. Moreover, high job stress is not only among nurses, and doctors. It is increasing among; technicians, therapists, and ambulance attendants (Canadian Community Health Survey, 2003). Based on a research among male automotive assembly workers in Malaysia, it was shown that most workers experienced mild to severe job stress (Edimansyah et al., 2007). It has been reported that prevalence of job strain among lecturers in School of medical sciences University Sains Malaysia was 23.3% and in faculty of medicine University Kebangsaan Malaysia was 17.5%(Huda et al., 2004). The prevalence of job strain among dental health care workers in Malaysia was 22.2% (Rusli, et al.,2006).

1.1.1 Job strain

Job strain is one of the important sources of occupational stress (Park, 2007). However, it refers to the negative physical and psychological toll that job stress takes on employee when their jobs involve high demands and they have little decision-making power(Laschinger et al., 2001).

In this study phrase of job stress and job strain in some parts are used interchangeably.

1.1.2 Job stress

The detrimental, emotional and physical responses at work, that happen when employee' spotentials, demands, and needs do not match with job requirements (included; skill and knowledge) (NIOSH, 1999 and HSE, 2012). However, job stress generally refers to the demands at work that experienced as stressful. In addition, job strain is distinct from job stress but the two are related.

1.1.3 Job dissatisfaction

Defined asunpleasant or negative emotional state resulting from the appraisal of one's job or job experiences (Rosse and Saturay, 2004, Vangel, 2011).

1.1.4 Laboratory staff

Laboratory is a place that is used for many scientific researches in various fields with several disciplines, laboratory of biology, medicine and chemistry are a few such examples. In a laboratory some scientific activitiessuch as diagnostic evaluations and experiments under controlled circumstances are done(EU-OSHA, 2007).Laboratory staffs perform some experiments for determining physical and chemical characteristics of materials or composition of them. It is probably that they be responsible for maintaining of laboratory equipments (ILO, 2000). Laboratory workers work as a researcher in research laboratories or are employed for controlling of quality. Most laboratory workers perform their tasks on-the-bench (Biotalent, 2009). In this study laboratory staff includes everybody who works with some materials such asbiochemical materials, tissue, blood, chemical materials, etc in laboratories and use some devices; such as, microscope,pipette, etc. They include a range of laboratory workers, laboratory supervisors, laboratory scientists and

laboratory researchers, under various job tittles; for example, biotechnologists, and laboratory staff who work in medical laboratories and veterinarymedicine laboratories, and biological science related laboratories.

1.2 Statement of problems

One of the most common and costly health problems at the work environment is job stress (WHO, 2000). Job strain may have adverse effects on efficiency and well-being of employees; it may also cause physiological and psychological disabilities among workers (Aziah et al., 2004).To estimate the economic expenses of occupational strain is difficult, although it could be several hundred billion dollars annually (Aziah et al., 2004).Job strain in fact leads to reduction of company productivity; it also causes to increase the rates of turnover, and absenteeism among personnel.Occupational strain would be an important reason for economic loss at work environment (Aziah et al., 2004). Furthermore, one- third of workers complain about extreme job stress at their work place. Thirty six percent of male employees and 44% of female want to quit of their jobbecause of job stress (APAPO, 2010). According to the Swedish Work Environment Authority (2006) 60% of sickness at work place is because of job stress, and work load. The Canadian Community Health Survey in 2003 reported high job strain among medical laboratory technicians (MLTs), the prevalence of job strain among MLTs was from 58% to 64%. In Malaysia, prevalence of job strain among MLTs in University Sains Malaysia hospital was 33.3%, and 26.8% among MLTs who worked in Malaysian ministry of health hospitals in Kelantan during 2003 (Aniza et al.,2010). 86.5% of Malaysian laboratory technologists have experienced the stress at work or suffer from stress in their work environment (Eddin, 2009). Based on the fact discussed, a number of stress related consequents including high prevalence of job strain among laboratory technicians, high economic loss due to job strain (stress) at work environment and mental and physical diseases related to job strain; emphasizes the essentials to determine the risk factors of job strain among laboratory staffs with the intention of preventing the increment of job strain among them.

Since a few studies on job strain have been done among laboratory technicians in universities of Malaysia, however there's no study seem to be done so far regarding job strain and job dissatisfaction among research laboratory staff at UPM.

1.3 Significance of study

According to the (Altbachet al., 2009), the number of researchers who work in developing countries have increased in 5 recent years by 50 percent. Based on the policies assigned by "Malaysian Ministry of Science, Technology and Innovation" in 2006, the budget of investigations and researches on science and technology in Malaysian universities has been increased (Fadzilah and Krishna, 2006). Based on Malaysian Science and Technology Information Center (MASTIC) report, the total number of research personnel in 1998 were 12,127, but it increased to 24,588 in 2008. Total number of support staff and technicians increased from1871 in 1998 to 5567 in 2008, this information shows the importance of the researches in Malaysia.Based on United State Department of Labor in 2012, many biological researches is done in laboratories, and one of the common places that medical research is done there, is

universities laboratory. Hence, laboratory staffs play an important role in scientific investigation and experiments, publishing scientific articles and upgrade the university level. Therefore, the job characteristics and job scope has become more challenging. Therefore, determining the prevalence of job strain (stress) and its related risk factors among laboratory workers who work at university's laboratories as a researchers or co-researchers is a considerable issue, since it is very important that the universities understand the needs of its employees and provide what is best for the employees (Ahsan et al., 2009). Furthermore, study to determine the prevalence of job strain and its associated risk factors among researchers who work in laboratories of universities has not been extensively explored in Malaysia. The result of this study can be used as a basis for promoting the quality of work among laboratory staff and increase their job satisfaction (Idris, 2009).

1.4 Study objectives

1.4.1 General objectives

To determine the prevalence of job strain, job dissatisfaction and theirassociatedfactors among laboratory staff at Universiti Putra Malaysia.

1.4.2 Specific objectives

1. To determine the socio-demographic characteristics (age, marital status,gender, ethnic group, educational level, job title), occupational factors, the prevalence of job strain and prevalence of job dissatisfaction.
2. To determine the association between selected socio-demographic factors (age, marital status, gender, educational level, job title) and job strain among laboratory staffsinUniversiti Putra Malaysia (UPM).
3. To identifythe association between occupational factors(physical exertion,social support,hazardous conditions,toxic exposures, and created skill) and job strain among respondents.
4. To determine the relationship between selected socio-demographic factors (age and gender) and job dissatisfaction.
5. To assess the association of occupational factors (physical exertion, social support, hazardous conditions, toxic exposures, and created skill) with job dissatisfaction among research laboratory staffs in UPM.
6. To determine the association between job dissatisfaction and job strain among laboratory staffs.
7. To identify the predictors of job strain and job dissatisfaction.

1.5 Research hypothesis

1 Ha1:There is association between socio-demographic (age, marital status, gender, education, working experience, job title) factors and job strain among laboratory staff.

2 Ha2:There is association between occupational factors (physical exertion,social support, hazardous conditions, toxic exposures, and created skill) and job strain among respondents.

3 Ha3: There is association between socio-demographic factors (age, gender) and job dissatisfaction among laboratory staff.

4 Ha4: There is relationship between job dissatisfaction and occupational factors (physical exertion,social support, hazardous conditions, toxic exposures, and created skill) among laboratory staffs.

5 Ha3: There is relationship between job dissatisfaction and job strain among respondents.

1.6 Conceptual framework

Job strain is affected by some risk factors, these risk factors are classified into; socio-demographic factors, occupational factors and other factors.

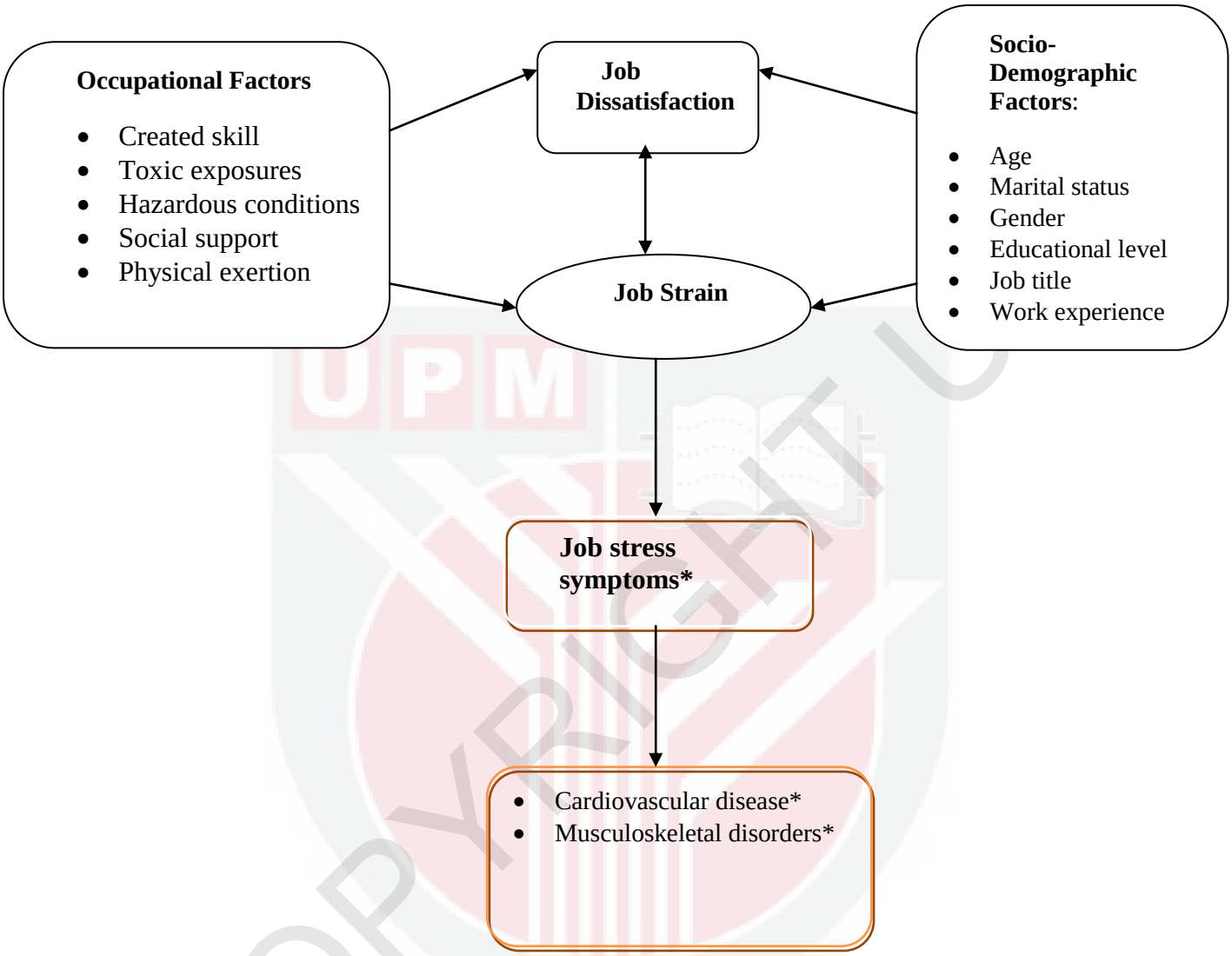

Figure 1.1.The conceptual framework

*Not within the scope of study

Reference: Karasek, 1997

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