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OCCUPATIONAL STRESS AND ITS RISK FACTORS AMONG ZOOKEEPERS IN MALAYSIA

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BY

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ABSTRACT

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INTRODUCTION: Work-related stress is the important mental health elements in an organization but their presence always be neglected. Work in taking care of animals such as veterinarian, animal shelter workers and zookeepers always confronted with stressful and demanding situation on their task. The implication of occupational stress can affect their performance and engagement. **Objective:** The aim of this study is to determine the prevalence of occupational stress and its related risk factors among the zookeepers in Malaysia. **Method**: This a cross-sectional study among 40 zookeepers in two main zoos in Malaysia. One zoo is a privately-owned zoo (Zoo A) and the other is governmental zoo (Zoo B). This study was conducted by using a Malay-translated structured set of questionnaire consisting of socio-demographic information, job specific factors, psychosocial risk factors and stress symptoms from DASS-42. Occupational stress was measured based on occupational strain assessment from Job-Demand Control (JDC) from Job Content Questionnaires (JCQ). **Result:** Response rate was 54.54%. The prevalence of occupational stress among the zookeepers was 50% (N=20). Work risk to stress faced by the zookeepers able to identified. About 80% (N=32) and 60% (N=24) of the zookeepers did the cleaning and feeding task once to twice in daily respectively. In terms of risky working environment, most of them were responsible in taking greater risk animal and their perception on cage on the strength, accessibility, resistance and clear view of cage design were good. Next, the social support of the zoos individually relatively high. However, the job insecurity were slightly higher for Zoo A which showed about 76% (N=20). Next, only 30% (N=12) of the total of zookeepers in both zoos developed the personal stress symptoms while 34.6% (N=9) and 21.4% (N=3) respectively for Zoo A and Zoo B. The association of personal stress symptoms with occupational stress showed significance association (X^2 = 7.096, p-value= 0.014) and (X^2 = 6.873, p-value= 0.027) respectively for Zoo A and Zoo B, which presented that those who in occupational stress may not developed the stress symptoms. **Conclusion**: From this study, it is clear that zookeepers were exposed to work risk such as cleaning and feeding frequency, cage safety, social support and job insecurity. The finding of this study found that half of the zookeeper population were stress over their work. Therefore, stress management program should be implemented on these risk factors to reduce the risk of occupational stress among the zookeepers.

Keywords: *Occupational strain, psychosocial risk factors, Zoo, Malaysia, JCQ*

ABSTRAK

TEKANAN PEKERJAAN DAN FAKTOR RISIKO DALAM KALANGAN PENJAGA ZOO DI MALAYSIA

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Pengenalan: Tekanan berkaitan pekerjaan merupakan elemen penting dalam kesihatan mental dalam sesebuah organisasi namun kehadirannya kerap kali diabaikan. Impak tekanan pekerjaan boleh memberi kesan kepada pekerja melalui merendahkan motivasi bekerja dan komitmen seterusnya memberi kesan terhadap prestasi mereka. Bekerja dalam menjaga haiwan seperti doktor haiwan, pekerja di pusat perlindungan haiwan dan penjaga zoo sering kali berhadapan dengan tekanan dan situasi demanding dalam tugas mereka. Implikasi tekanan pekerjaan akan mempengaruhi prestatsi dan penglibatan pekerjaan dalam kalangan pekerja. **Objektif:** Tujuan kajian ini adalah untuk menentukan kelaziman tekanan pekerjaan dan faktor risiko dalam kalangan penjaga zoo di Malaysia. **Metodologi:** Ini merupakan kajian keratan rentas dalam kalangan 40 penjaga zoo di zoo utama di Malaysia. Zoo yang pertama merupakan zoo swasta (Zoo A) dan satu lagi merupakan zoo di bawah pengurusan pihak berkuasa tempatan (Zoo B). Kajian ini menggunakan borang soal selidik berstruktur dalam Bahasa Melayu yang terdiri daripada maklumat sosio-demografi, faktor-faktor khusus pekerjaan, faktor risiko psikososial dan gejala-gejala stres dari DASS-42. Tegasan pekerjaan diukur berdasarkan penilaian terikan pekerjaan daripada Kawalan Permintaan Kerja (JDC) dari Question Content Content (JCQ). **Keputusan dan perbincangan:** Kadar tindak balas adalah 54.54%. Penyebaran tegasan pekerjaan di kalangan penjaga zoo ialah 50% (N = 20). Risiko pekerja terhadap tekanan yang dihadapi oleh penjaga zoo dapat dikenalpasti. Sekitar 80% (N = 32) dan 60% (N = 24) dari penjaga zoo melakukan pembersihan dan memberi makan sekali kepada dua kali dalam setiap hari. Dari segi persekitaran kerja yang berisiko, kebanyakan mereka bertanggungjawab untuk menjagal haiwan yang mempunyai risiko yang tinggi dan persepsi mereka terhadap reka bentuk sangkar mengenai kekuatan, kebolehaksesan, ketahanan dan pandangan yang jelas adalah baik. Seterusnya, sokongan sosial zoo secara individu secara relatifnya tinggi. Walau bagaimanapun, ketidakamanan pekerjaan adalah tinggi Zoo A menunjukkan kira-kira 76% (N = 20). Seterusnya, hanya 30% (N = 12) daripada jumlah penjaga zoo di kedua-dua zoo menghadapi simptom tekanan diri manakala 34.6% (N = 9) dan 21.4% (N = 3) masing-masing untuk Zoo A dan Zoo B. Hubungan tekanan diri dengan tekanan pekerjaan menunjukkan persamaan penting (X2 = 7.096, p-value = 0.014) dan (X2 = 6.873, p-value = 0.027) masing-masing untuk Zoo A dan Zoo B, menunjukan tekanan pekerjaan tidak menyebabkan simptom tekanan diri. **Kesimpulan :** Hasil daripada kajian ini, penjaga zoo terdedah pekerjaan yang berisioko seperti aktiviti pembersihan dan pemberian makanan, keselamatan kandang, sokongan sosial dan keamanan pekerjaan.Selain itu, separuh daripada populasi penjaga zoo tertekan dengan pekerjaan mereka. Jadi, program pengurusan tekanan harus diaplikasikan terhadap faktor-faktor ini untuk mengurangkan risiko tekanan pekerja dalam kalangan penjaga zoo.

Kata kunci : *Beban pekerjaan, faktor risiko psikososial,Zoo, Malaysia, JCQ*

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LIST OF ABBREVIATION

ILO	International Labor Organization
CVD	Cardiovascular Disease
MSD	Musculoskeletal Syndrome
HSE	Health & Safety Executive
JDC	Job-Demand-Control
JCQ	Job Content Questionnaire
ABWAK	Association of British and Irish Wild Animal Keepers

CHAPTER 1

1.0 INTRODUCTION

1.1 Background

Zoo or zoological park is a place where captive animals were kept and living for the purpose of conservation. Modern public zoo was established since 18th century, where their focus not only for public display only, but also for educational purpose to study the animals for scientific purpose such as animal behavior and their anatomy. As many species get extinct, zoo establishment is to prevent those endangered species from totally extinct on the earth. To preserve and conserve endangered species, zoos are the often center for advance breeding for the species (National Geographic, 2017).

Not only for conservative purpose only, nowadays zoo also play a role in educate the public. Due to habitat loss, over hunting, climate change and other anthropogenic changes to environment suffered by animals, it is estimated about 1-5% of the species will go extinct by every 10 years. Therefore, zoo plays a big role in giving conservation education to the public. Urban area may not have a suitable environment enough for animals to live due to urbanization process, so less interaction between human-animals. Thus, zoos giving a medium for them to learn and understand about zoo animals and global conservations in zoo setting (Torpie, 2014).

Zookeeper or animal caretaker is the most visible team in a zoological park. They are responsible in taking care of their animals to ensure they are healthy physically and

psychologically. Usually they have distributed to specific group of animals under their care such as reptile, amphibians, mammals and birds. Their daily tasks include basic cleaning the animal enclosures which are sweeping, hosing and scrubbing. In taking care of the animals, zookeepers are also needed in food preparation and feeding to give the best and all nutrients needed for their growth. Other than that, they are the one who observed and monitored the health condition of their animals. They are the first who able to spot any injuries or illness suffered by them and report it to veterinary department for quick treatment and also maintained essential healthcare record of the animals. Apart from that, they also play a big role in educate the public regarding wildlife conservation and other environmental issues related to it to bring the awareness of animal conservation (Association of British Wild Animal Keepers, 2017).

Studies found that job field in working and tacking care of animals faced many demands and stressor in their daily task. According to Kolstrup et. al (2013), stated that animal farming one of the most stressful occupations in the world. They need to attend to farm early in the morning and back home late, feed and tacking care their domestic animals just like how zookeeper does. Their work task also includes intense physical demands and time pressure, plus with low self-control in order to keep up with desired amount of productions. As in Karasek model, high job demands coupled with low control can develop a job strain, can lead to occupational stress as one of the mental health concern nowadays.

Scotney et. al (2015) also agreed that animal-related occupations encountered occupational stress. Compassion fatigue and burnout are the most common terms in assessing mental stress among employees in this field. Compassion fatigue refers to

exhaustion due to demand to be compassionate and helping animals in needs. Meanwhile, for burnout is exhaustion in physically or emotionally due to prolonged stress (Figley & Roop, 2006). These two factors have greatly interfere with the job performance and job satisfaction in the field which causing stress. Moreover, their tasks also include high intensive workload and long working hours giving a high strain to the workers. Due to job dissatisfaction, those unengaged employees are most likely facing burnout in performing their task. To conclude, animal tacking care related job proven as a stressful work which causing strain to the workers, and due to lack of study regarding stress on this field in Malaysia, thus the aim of this study to be conducted is to study the stress issues faced by zookeepers in Malaysia and as well with measuring the job engagement and their risk factors contribute to it.

1.2 Problem Statement

Figley and Roop (2006) justified that animal caretakers or any job relevant to it are stressed over their work. Approximately 30% of them faced high and moderate risk of burnout due to stress while working. The table below showed burnout test or physical or emotional exhaustion because of prolonged stress, among the animal-control workers. Burnout also can be defined as feeling of give up and frustration in doing job that develops when an individual faced too much pressure due to intensive job demand with lack of decision freedom as well with social supports and causing them have trouble to cope or response well with the stressor. It is also found that the consequences of this, they are having problems in health and addiction to smoke and alcoholic and then eventually affect their job performance.

Score	Risk Level	Percent Self-Reporting
76–85	Extremely high risk	0.9
51–75	High	17.8
31–50	Moderate risk	34.9
36 or below	Extremely low risk	46.3

Figure 1 : Burnout self-test among 100 shelter and animal-control workers

Burnout refers to exhaustion due to prolonged stress. Animal control workers mostly reported their feeling of burnout as they confronted with stress for years.

Source : Compassion Fatigue in the Animal-Care Community

The task done by zookeeper can classified as dirty work as referred to Burderson and Thompson (2005). This is because they are responsible to clean up animal's enclosure including remove animal's feces and feed them. Dealing with the task given might drives stress to them. According to ABWAK (2017), cleaning animal's enclosure is keeper's

daily workload because this is a high physical demanding. Plus, the section given might be different for each zookeepers depends on the species under their care, this factor also contribute for their job physical demand as well. Some people can cope and some may not with the stressor. So, the level of stress among zookeepers in animal section is still a questioned. Besides that, it is the best to detect stressor at first place in a work setting. Zookeeper or animal caretaker are in stress but yet there are lack of studies regarding mental health especially in stress issues.

In Malaysia, a focus towards ensuring safety and health of zookeeper are still not available. According to Occupational Safety and Health Act 1994 (Department Occupational Safety and Health, 1994), section 15, it is responsibility of employer to ensure safety, health and welfare of employee at workplace. The guidelines endorsed by Department of Occupational Safety and Health (DOSH) that relates to domestic animal handling is Guidelines on Occupational Safety and Health in Agriculture and Guidelines on Occupational Safety and Health in Fishing and Aquaculture Operation. However, these guidelines is not fully compatible to be implemented in zoo setting as zoo also kept other group of animals such as carnivore, reptiles and amphibians as well. Dealing with domestic animal and those endangered species will be different in term of risk so how hazardous their job is cannot be sure yet. Therefore, this study was conducted to determine the risk factors of occupational stress among the zookeepers.

1.3 Study Justification

Occupational stress is might not be a serious problem yet in Malaysia, but this situation if not tackled well at early stage, the consequences of this issues will affect individual, organization and country as well. Such impact can cause reduce in capability of individual to cope with stressor. Health-related impairment and unhealthy coping behaviors will be develop due to prolonged high stress level such as cardiovascular disease, burnout, depression, suicide, alcohol and drug abuse, unhealthy diet, sedentary lifestyle and sleep disorder (International Labour Organization,2016).

The significance of the variable in this study is believed can open up the eyes of how the zookeepers dealing with their task and stress daily. Early detection will enhance the productivity and economic cost in the organization involved which are decreased absenteeism, increase motivation and job satisfaction, reduced turnover and increased efficiency and accuracy in performance.

The result of this study served as a baseline data which can help the zookeeper by highlighting their problem whether in decision latitude, psychological job demand, social support or job insecurity element. Then management can take it as a consideration in improving their work setting. Appropriate action might be taken as well based on the result to tackle the problem efficiently and effectively. Plus, the data produced will help the other researchers in further studies among zookeepers.

To have a safe workplace and safe working environment are under worker's right including in mental issues. It is responsibility of employer to ensure the workplace and work environment are safe from hazards that may exist in that work area. Plus, employers

are also responsible for ensuring safety, health and welfare of all employee (OSHA, 1994). Thus, to protect the workers from psychosocial hazards they are facing, the study need to be conducted to identify the level of stress and how it can affect them mentally and physically.

1.4 Conceptual Framework

Figure 2 shows the conceptual framework of this study that highlights the independent variables and dependent variable. The independent variables are sociodemographic information, job specific factors and psychosocial risk factor. The study was conducted among the zookeepers in two public zoos of Malaysia. The sociodemographic information includes of age, gender, ethnic group, educational background and salary information. For the job specific factors, the contents consisting of working period information, animal risk categorization, cleaning and feeding frequency in a day and cage safety. Next, psychosocial risk factors include of job demand, decision latitude, co-worker and supervisor support and job insecurity. Lastly, the dependents variable is occupational stress

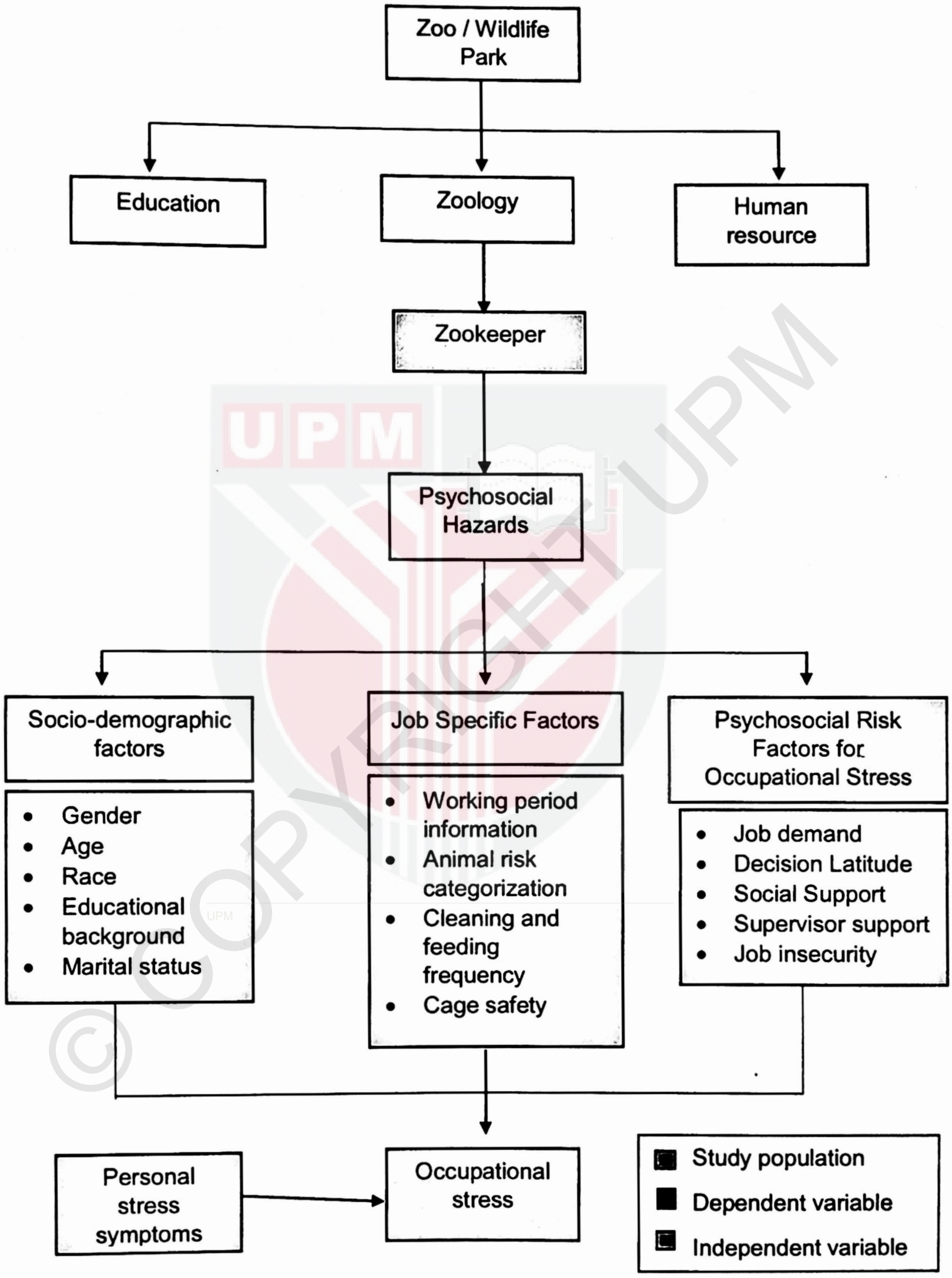

Figure 2: Conceptual Framework

1.5 Study Variables

1.5.1 Independent Variables

The socio-demographic factors, job specific factors and psychosocial factors

1.5.2 Dependent Variable

Occupational stress experienced by the zookeepers.

1.6 Objectives

1.6.1 General Objective

- To determine the prevalence of occupational stress among the zookeepers in Malaysia

1.6.2Specific Objectives

- To determine the sociodemographic factors and its association with occupational stress
- To determine the job specific factors and its association with occupational stress
- To determine the psychosocial risk factors and its association with occupational stress
- To determine the association between personal stress symptoms with occupational stress

1.7 Hypothesis

- There are significant association between sociodemographic factors and occupational stress
- There are significant association between job specific factors and occupational stress
- There are significant association between psychosocial risk factors and occupational stress
- There are significant association between personal stress symptoms and occupational stress

1.8 Definition of Term

1.8.1 Conceptual Definition

a. Occupational stress

Occupational stress refers to stressed workers when they unable to respond or cope well with task due mismatch the task with their capability

b. Psychosocial risk factors

The psychosocial risk factors of work-related stress include of long work hours, relationship with family and friends and social isolation due to different cultural differences that can greatly influence the satisfaction performance of the workers (Kolstrup et al., 2013)

c. Personal stress symptoms

Stress symptoms can be observed through psychologically and physical health. Psychology stress symptoms can be seen when the individuals easily loss of temper and depressed. Meanwhile physical symptoms through frequent headache and high blood pressure

1.8.2 Operational Definition

a. Occupational stress

Occupational stress is defined through job strain term ratio calculation between job demand and decision latitude from Job-Demand Control Model. If the strain value more than 1, job strain present. Meanwhile if the occupational strain has a value of less than 1 hence, it is considered as no job strain. Then, the job strain classified into occupational stress and no job strain as no occupational stress.

b. Psychosocial risk factors

The psychosocial risk factors evaluated in this study by using the questionnaire adopted from Job Content Questionnaires (JCQ). The questionnaire was determine the occupational stress risk factor such as social support and job insecurity.

c. Personal stress symptoms

The personal stress symptoms evaluated in this study by using the questionnaire adopted from Depression, Anxiety and Stress Scale (DASS-42). The questions are series of how the individual response in stress situation psychologically such as feeling impatient and disappointment, irritation, and difficulty to relax.

CHAPTER 2

2.0 LITERATURE REVIEW

2.1 Occupational stress

Stress can be defined as a response on how an individual react to environmental stimuli. It is a dynamic process by how the external and internal factors for stress interact each other thus cause strain to the individual in physically, mentally or emotionally. An individual will experience stress when those factors continues put a pressure to he/she beyond their capability to cope (Zainal Abidin & Ismail, 2007).

Occupational stress or work-related stress defines as perceived imbalance between job demands and an individual's capability to perform their task in which challenge their ability to cope. It is a harmful physical and emotional response towards those factors that experience by the worker (ILO, 2016). Centers of Disease Control and Prevention (2014) demonstrate the types of job conditions that may lead to stress. First, task designed, which are heavy workload, long work hours, and lack sense of control by the workers. Management style also contributes to stress by lack decision-making in an organisations. Besides that, job security is one of the concerns in job stress as workers have a very little chance to grow and promote. Last but not least, unfavorable workplace condition such as too crowded, small space and noisy have led to stress among the workers.

2.2 Impact of occupational stress

The consequences of stress in the workplace firstly can be seen through attendance of the workers. Stressed workers tend to absent or fail to report for scheduled job. One of the reasons why they attempt to be absent is because they feel lack of job satisfaction over their work as they unable to cope well with stress. Hence, their motivation to work and commitment in the organization will drop. Indirectly, job turnover and intention to quit among the workers in an organization will be increased. As all these happen, the efficiency in the production will reduced thus affect productivity image of the organization as well (ILO, 2016).

2.3 Local study on occupational stress

Many studies on occupational stress has been done among workers in educational and health sectors in Malaysia. It was found that stress were significantly affected from internal sources such as the financial problem and relationship with the loved ones. Those who are stressed will cope with the stress by isolation, self-blaming, and emotional upset (Johari & Ismail, 2009). In occupational stress context, the intense workload have been proved to cause strain to the workers. Besides that, the negative social support in workplace setting can trigger stress due to conflict and argument among the workers. The workers tend isolate themselves from others to cope with the stress however this would not reduce or solve the occupational stress issues in the organisations (Zainal Abidin & Ismail, 2007). Ismail and Ismail (2010) added that long working hours, lack of co-worker and competitive career development can also cause stress among the workers. The impact

of this not only can affect the other workers in the organization, but also to surrounding people such as family.

2.4 Occupational stress in animal care taking field

Occupational stress have been measured in those who work in animal care taking world widely. According to Kolstrup er. Al (2015), the prevalence of occupational stress in animal farming sector in Finland was 33%. Meanwhile, Scotney et. al (2015) revealed that about 40% the animal workers of veterinary clinics and animal shelters in Australia reported stress with their task in taking care of animal. Plus, Figley and Roop (2006) found that 30% of veterinarian in America showed the moderate risk of burnout and Plat et. al (2012) reported that due to prolonged stress, 16% of veterinarian in New Zealand reported that they have the serious intention to commit suicide due to work pressure in their job field.

2.4 Personal stress symptoms

The impact of stress also can be seen through psychologically, behaviors and physical health perspective. Psychological effects of stress are anxiety, depression, burnout and short temper. This personal stress can be assessed anyone by using the Depression, Anxiety and Stress Scale (DASS-42). When the individuals are stress, they are unable to control themselves form over-reacting in some situation especially the situation that needs waiting. They will behave differently such as losing their temper, feeling impatient, annoyed and disappointed. Besides, they tend to cope by unhealthy behaviors such as drug abuse, increased of smoking, sleep deprived and unhealthy diet (ILO, 2016). As for physical health are headache, upset stomach and high blood pressure.

Many studies proved that prolonged effect of unmanageable stress increase the risk of getting chronic disease such as cardiovascular disease (CVD), musculoskeletal disorder (MSD) and even death (Mallow, 2016).

2.5 Animal care workers

Most people choose to be part in an animal care service setting because that is their sense of calling, love animals and feel the enjoyment better when taking care the animals. They are dealing various stressor including external and internal stressor. The external stressors they are dealing with public perception, non-supportive family members and negative media. As for internal stressor include working hours, nature of works and number of animals. In return they are in great suffering and personal pain while performing their daily task. Despite all these factors, they continue to stay in their position as their passion in the field is strong (Figley & Roop, 2006).

It is believed that workers in animal care industry are dealing with stress in their work. The common effect of their psychological well being are compassion fatigue and burnout. Compassion fatigue are result of stress that showed exhaustion and depression in a care giver setting, while burnout is feeling of give up in doing job effectively and associated with very high workload and lack of environment support. A study done in Australia regarding occupational stress among veterinary nurses showed that this workforce is in high risk of occupational strain as it is reported under high demand-low control work conditions. Plus, it was also found that their job demands were correlates with high work burnout and lower job satisfaction (Black et al, 2011).

2.6 Occupational risk factors for stress

Job Content Questionnaire (JCQ) is a tool to measure social and psychological aspects in the work environment. This tools help to identifies if the job classified as high or low strain through these 3 measures; psychological scales ,decision latitude, and social support. Job psychological demands are referred to workload and time pressure, in which cognitive and emotional effort required to complete the task given forcing them to work beyond their capability. Figley and Roop (2006) states that animal care-workers are working long hour of period and they did not get enough break. As for job control, refers to the freedom of workers to determine how and when they do their work and avoiding task interference with autonomy power which can lead to stress for the example, veterinary nurses tends to experience high level of stress as they have low autonomy power in their job (Black et al, 2011).

A job demand control model have developed by Karasek and Theorell (1998), they stated that high job strain can develop when job demands are high and decision latitude is low. Meanwhile, if both job demands and decision latitude is high, they are in active which are they are less likely to be stressed out and is motivated in learning new behavior and cope with task well. Meanwhile, if both job demand and decisions latitude falls under low, they are in passive state and less likely to develop new behavior patterns. Figure 1 shows the Job-Demand-Control model.

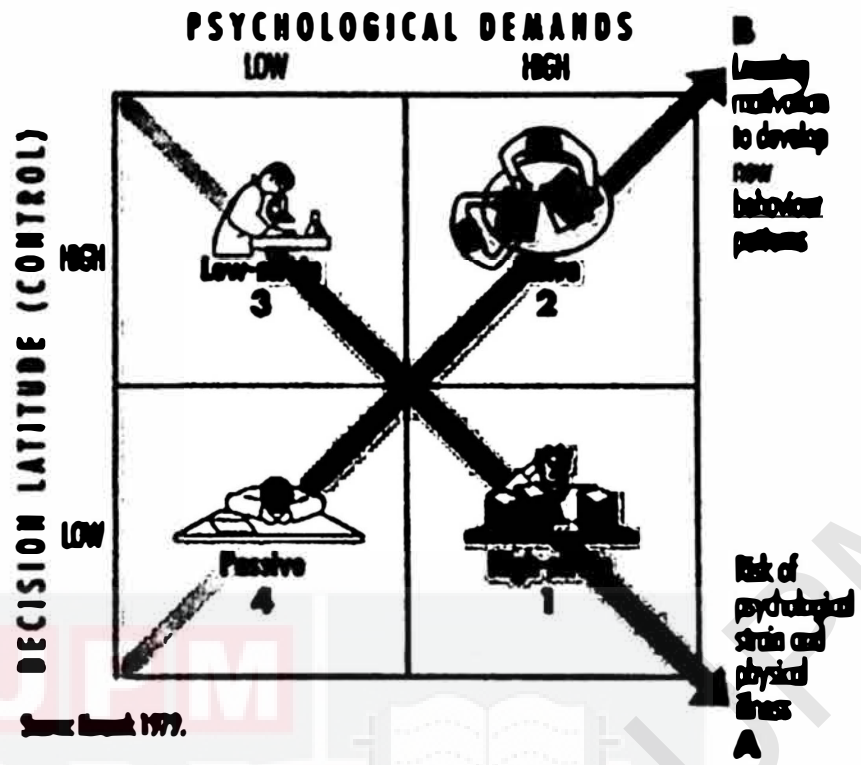

Figure 3: Job demand control model (Karasek & Theorell, 1998).

Another risk factor in JCQ are social support and job insecurity in workplace setting. The social relationship in workplace setting is commonly from the supervisor and co-worker. According to Figley and Roop (2006) the positive relationship form both group can affect the job performance through supportive and care with each other. The result of this can increase the sense of trust and job motivational plus affect a good morale in the population. Moreover this positive relationship can reduces the stress among the workers as they have supportive colleague and supervisor to reduce the emotional upset due to task given.

Next, the job insecurity is defined as a threat of losing the job. The workers will feel doubt how stable their position is for few years ahead. The job insecurity will affect the worker's wellbeing through psychologically and physically by causing anxiety and increase the blood pressure. Hence, the workers tends to be stress with their work and decreases the job satisfaction (De Witte, 2005) .

2.7 Animal risk categorization

Zookeepers are the team who confronted the risk of getting injuries from the animals. The animals may attacked the zookeepers due to its size or species, natural behavior of attacking and reaction of fear. HSE (2012) suggested that the animals under zoo management must be categorize into their risk level that includes severity of injury, threat to life and size of the animals. The categorization as follow:

Group 1: Greater risk animal: Cause serious injury or life-threatening such as big carnivores.

Group 2: Less risk animal: Cause injury/diseases but not life-threatening such as medium-size primates or mammals

Group 3: Least risk animal: May cause minor injury such as smaller mammals and fish

For the greater risk animals, it is recommended for the zookeepers to practice no-direct contact with the animals. In the case of they need to contact animals directly, the animals must been tranquilized or the zookeepers able to trained the animals into desired behavior. Meanwhile for animals in least and less risk, direct contact are allowed as long the zookeepers have been attended safety training and practice it.

2.8 Animal cage safety

Cage or enclosure be use to keep the animals inside and prevent them from escaping. Animal escape not only can affect the workers in zoo, but the visitor as well. Therefore, the design of animal's cage must take into consideration. Rundmo (1992) stated

that risky work environment can affect the behavior of the workers in which their capability with the task will be reduced and caused them stress.

The design and construction of cage must consider the animal size and behavior such as capable of jumping and climbing. The safety aspect in cage safety is its strength. The bar's cage must be strong enough to withstand from animals attacked as some animals have the ability to stamp towards the cage and make it broken. Next, cage accessibility refers to easy access and exit by the workers while doing their task inside the cage or enclosure. The difficulty in accessing the cage can cause problem to zookeepers such as trapped inside or trip and falls. It is recommended that the cage design have another access to be isolate the animals for a while during zookeepers enter the cage for cleaning and feeding. Besides that, the cage must be able withstand repeated wear and tear with minimal rusting or corrosion. The cage must be check and maintained at regular time to ensure the cage is capable to keep the animals inside. Finally, the cage design must consider the clear view inside the cage form the outside. The co-workers should be able to see the other workers inside the cage to ensure they are safe from animals attacked (HSE, 2012).

2.9 Cleaning and feeding task

The main sub-section daily task performed by zookeepers includes of cleaning the animal's cage and preparation and feed the animals. Cleaning can be referred as sweeping, hosing and scrubbing. Bunderson and Thompson (2008) classified these two taskS as 'dirty workload' as the zookeepers need to remove the animal's feces, clean up the bodily fluid and feed them. The cleaning and feeding must be once or twice in a day however this is depends on the species of the animals are. For an example, birds eat more than 3 times

in a day. Woodland Park Zoo (n.d) agreed that these tasks are the unfavorable task among the zookeepers as the task involves a lot manual handling and repetitive task, as a result they easily feel fatigue and trigger stress.

2.10 Job tenure, work engagement and burnout

Job tenure refers to how many years have the workers have worked in the organization. The job tenure has significant interaction with job performance, work engagement and stress or burnout. It is proven that when the job tenure is increase, the job performance of the workers will increase as well. This can be explained by the longer the experience of the workers in their field, they able to understand and cope well with the job demand or stressor. As they able to cope well with stress, their performance increases and thus indirectly increase the engagement of the workers in the organization. This will give advantages to the management as their workers have better performance, able to cope with the task given and engaged to the organization for longer period (Cheng & Kao, 2012).

2.11 Management factors

Buelens and Broeck (2007) stated that management of different sectors; governmental and private provide differences resources that benefit the workers. In governmental sector, some of the resources includes of salary increment, retirement incentives and stable job position were provided to the workers. This supportive working environment factors positively influence the job motivation and engagement among the workers. However, those values were lacking in private sectors. As a result, the workers

be less engaged with their position and this increase the possibility of intention to quit (Corporate Staffing Service, 2016).

2.12 Other Risk Factor for Stress

Some of sociodemographic factors also influence the stress experienced by the workers. In gender, relatively female tend to stress compared to male and their stress score is high than male (Bradley, 2014). Moreover, age and marital also play role in stress. Aldwin et. al (1996) justified that middle aged people around 40 years and above tends to report stress in their life. This is because through these age, they met many emotional life event rather than younger people. For example, at the middle age, more people get married and found that parenting is challenging. Plus they met stressful life event as death their loved one and development of chronic diseases. Therefore, this emotional life event put them in stress. Besides that, ILO (2016) reported that stress could trigger unhealthy behavior such as start or increase the smoking behavior. Last but not least, Zukri and Hassim (2010) stated that among the workers population, the group of workers who earned the least amount of salary are in the risk of getting stress.

CHAPTER 3

3.0 METHODOLOGY

3.1 Study Design

The cross-sectional study designs was used to study the occupational stress and its risk factors among zookeepers in Malaysia.

3.2 Study Location

This study was conducted at two public zoos in Malaysia. The first zoo, Zoo A located in Kuala Lumpur and the other one, Zoo B in Perak. Zoo A is a privately-owned zoo meanwhile Zoo B is governmental zoo which is under City Council management.

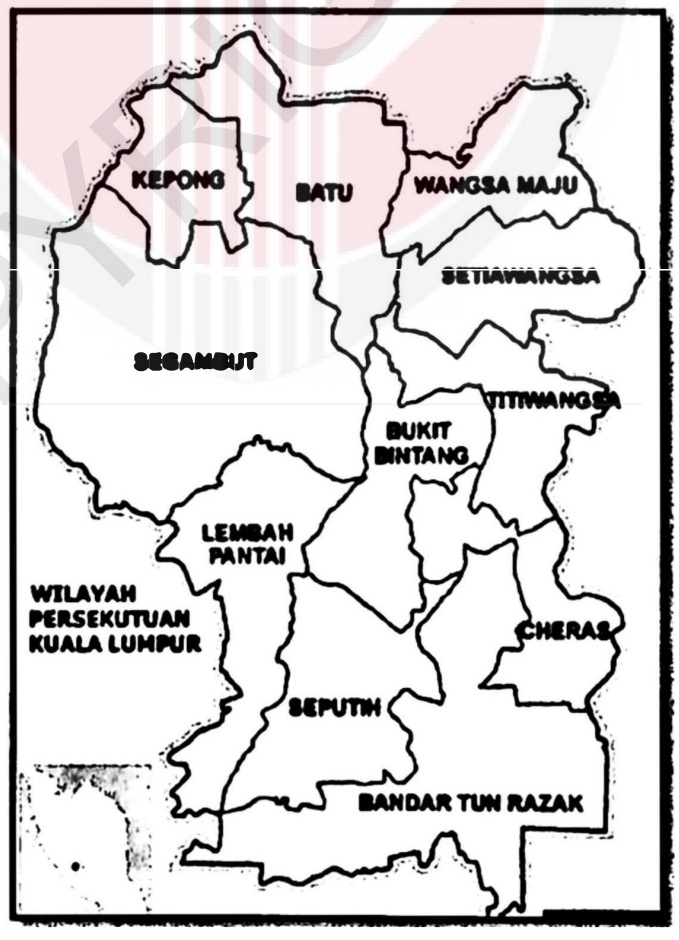

Figure 4: Location of Zoo A in Kuala Lumpur

Source : http://mengenalnegarakita.blogspot.com/p/wilayah-persekutuan.html

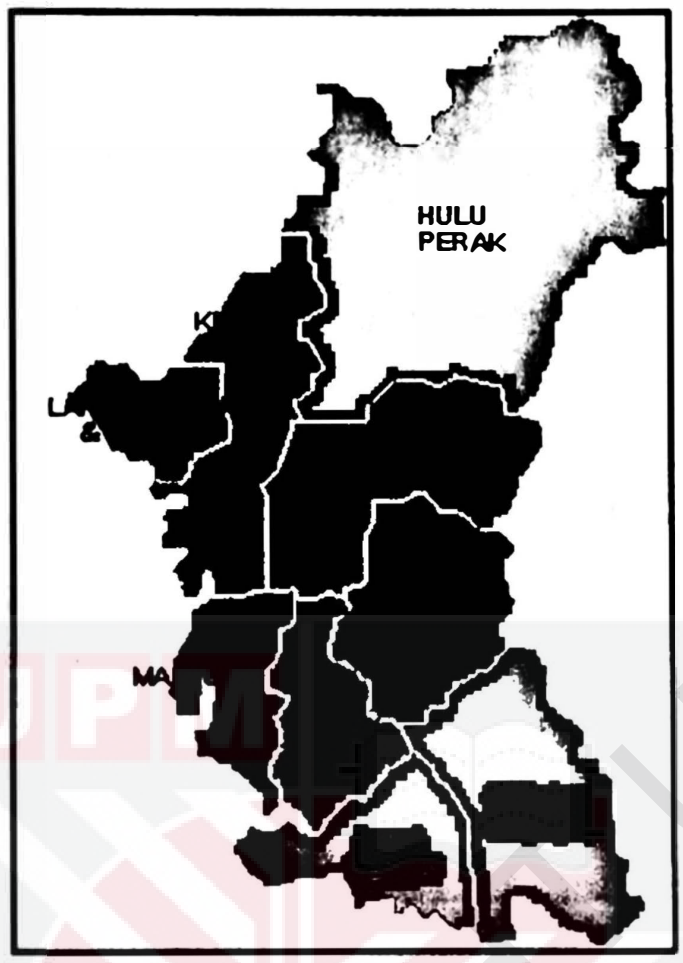

Figure 5: Location of Zoo B in Perak

Source: https://commons.wikimedia.org/wiki/File:Districts_in_Perak.svg

3.3 Sampling Method

3.3.1 Study Population

The study population is zookeeper's workers in both zoos.

Inclusion criteria:

- 18 years old and above
- Have work in the organization as zookeepers for at least 3 months to avoid them from exaggerated the stress symptoms

Exclusion criteria

- Zookeeper's supervisor who did the administrative task as well due to less contact with animals

- Non Malaysian zookeepers to avoid effect of nationality differences in work-related stress

3.3.2 Sampling Method

Sampling method that will be used in this study is non-random sampling that is purposive sampling among the zookeepers in both zoos. The respondent will be sorted by their sections and classify based on their sections before handover the set of questionnaire.

3.3.3 Sampling Size

Sampling size estimation calculated based on Lemeshow (1990) calculation..

$$N = [Z^2_{1-\alpha/2} P(1-P)] / d^2$$

Where N = Sample size

$Z^2_{1-\alpha/2} = 1.96$

P = 0.03

The value of prevalence is 0.03 (3%) according to Plat et. al (2011) on severe depressive symptoms among veterinarian.

$$N = [1.96^2 \times 0.03 (1- 0.03)] /0.05^2$$

$$= 44.7 \approx 45$$

$$= 45$$

To recover from non-response respondent, 20% of the minimum sample size was added.

20% of 45 = 9

$$N = 45 + 9$$

N = 54 respondents in total.

3.4 Instrumentation

3.4.1 Observation

Walk-through and observation had been done to observe the conditions of the area and the targeted respondent in order to understand the environment of that area and how they are working. The input from this observation had been added in construction of questionnaire.

3.4.2 Questionnaire

The instrument in this study is set of questionnaires that have been adopted from previous study. The set of questionnaire was translated back-to-back into Malay version and consists of 4 sections:-

- Part A : Socio-demographic information
- Part B : Job specific factors
- Part C : Psychosocial risk factors
- Part D : Stress symptoms

Part A: Socio-demographic Information

The information included under this part are gender, age, ethnicity, educational background, monthly salary, marital and smoking status.

Part B: Job specific factors

The content on this part was self-constructed based on guideline from Health Safety Executive (Managing Health and Safety in Zoo). The contents include of working period information such as job tenure, hours of working in a day and number of days

working in a week. The animal risk categorization with perception on cage safety were also included. Lastly, the frequency of cleaning and feeding in day. The questions were constructed in open-ended format and reliability test was accepted with cronbach alpha value is 0.73.

Part C: Psychosocial risk factors

The standardized and validated questionnaires for psychological work factors adopted from the Job Content Questionnaire (JCQ) with cronbach alpha value is 0.74. It was the first model for job-demand-control (JDC) formulated by Karasek and Theorell (1998) which consists of factors of job stress that are psychological job demand, decision latitude, physical demands, job strain, co-worker and supervisor support and job insecurity. Respondent will rate the questionnaire using Likert scale that ranged from strong disagree (1) to strongly agree (4).

Part D: Personal stress symptoms

To evaluate the personal stress symptoms, this part adopted from Depression, Anxiety and Stress Scales (DASS-42). Only stress part of the manual included for the questionnaires constructed. The questions were focusing on the sensitivity on how the individuals response towards stressful situation. The response included of feeling impatient, irritability, loss of temper and disappointment.

3.5 Procedure of Data Collection

3.5.1 Questionnaire

Name list of respondent corresponding to their section were obtained from administration section and a short briefing on how to answer the questionnaire will be given as well as the consent form. The respondents were be given 20 -30 minutes to answer the questionnaire. After they finished, the questionnaire had collected and kept in secure files. Then, the data from the questionnaires had carefully key in into Statistical Package for the Social Science (SPSS) version 22 for analysis.

3.6 Quality Assurance and Quality Control of Questionnaire of Questionnaire

The questionnaires given to the zookeepers was in Malay version as they understand questionnaires better in Bahasa Melayu. Back-to-back translation of English version into Malay version questionnaires was conducted before the questionnaires were administered to respondents. Pre-test of the questionnaires were performed among 8 number of respondents who were not included in the data collection of this study. Ambiguous term identified during the pre-test of this study were corrected to ensure all terms used were understood by the zookeepers

3.7 Ethics

The ethical approval for this study was obtained from ethical review board of Universiti Putra Malaysia for research involving human subject. The approvals from the zoo's management were also obtained prior to the research. The participation in this study

was on voluntary basis and consent was obtained from all participants prior to data collection.

3.8 Statistical Analysis

The analysis of data will be using Statistical Package for Social Science (SPSS) Version 22. The data will put carefully and cross check back to prevent any redundant data entry.

Objective 1: To determine the prevalence of occupational stress among the zookeepers in Malaysia

Statistical analysis: Descriptive analysis

Objective 2: To determine the sociodemographic factors and its association with occupational stress

Statistical analysis: Descriptive analysis and Chi square/ Fischer-exact test

Objective 3: To determine the job specific factors and its association with occupational stress

Statistical analysis: Descriptive analysis and Chi square/ Fischer-exact test

Objective 4: To determine the psychosocial risk factors and its association with occupational stress

Statistical analysis: Descriptive analysis and Chi square/ Fischer-exact test

Objective 5: To determine the association between personal stress symptoms with occupational stress

Statistical analysis: Descriptive analysis and Chi square/ Fischer-exact test

CHAPTER 4

4.0 RESULTS

The aim for this study is to determine the prevalence of occupational stress and its risk factors among zookeepers in Malaysia. This study was successfully conducted in 2 main zoos in Malaysia, Zoo A and Zoo B. Total of 74 questionnaires have been distributed to the zookeepers and only 40 were satisfactorily completed and this bring the response rate of 54.05%

4.1 Socio-demographic Information

Table 4.1 shows the socio-demographic information of respondents in this study, which include of age, ethnicity, education background, marital status, salary per month and smoking status. All the respondents who participated in this study are male in gender. The least number of the respondents 2.5% (N=1) was 20 years old and below. Most of the respondents were in the age range of 21 to 30 years old (40%, N=16), meanwhile 35% (N=14) in the range of 31 to 40 years old, about 17.5% (N=7) in the range of 41 -50 years old and another 5% (N=2) for more than 50 years old. The ethnic group among of them are two which are Malay for 85% (N=34) and Indian for 15% (N=6). About 87.5% (N=35) of them finished school while another 12.5% (N=5) were university or college graduates. As for marital status, 72.5 % (N=29) of them were married and 27.5 %(N=11) were single. For their monthly income, 65% (N=26) of them earned RM 2000 and less while another 35% (N=14) earned more than RM3000. For the smoking behavior, about 40%

(N: 16) of them were smoking and 60% (N 24) of them were not smoking. Table 4.1 shows the distribution of sociodemographic information of the zookeepers.

Table 4.1: Socio-demographic information of the zookeepers (N=40)

Variables	N (%)	Median (IQR)	Mean (SD)
Age			
20 and below	1 (2.5)		
21 - 30	16 (40)		
31 - 40	14 (35)		2.83 (0.93)
41 - 50	7 (17.5)		
More than 50	2 (5)		
Ethnicity			
Malay	34 (85)	1 (0)	
Indian	6 (15)		
Educational Level			
Finished schooled	35 (87.5)	1 (0)	
University/College Graduates	5 (12.5)		
Marital status			
Single	11 (27.5)	2 (1)	
Married	29 (72.5)		
Salary			
Less than RM 2000	26 (65)	1 (1)	

RM 2000 and more	14 (35)		
Smoking status			
Yes	16 (40)	1 (1)	-
No	24 (60)		

Descriptive analysis

4.2 Job Specific Factors

This section is job specific factors, which focusing on working period, animal section information, cleaning and feeding frequency and animal cage safety.

4.2.1 Working period information

Working period information consists of job tenure, hours per day of work, and number of days per week of work. Based on Table 4.2.1, 35% (N=14) of the respondents worked up to 5 years and another 65% (N= 26) worked more than 5 years in the organization. For number of hours work for a day, majority of them, 95% (N=38) worked for 8 hours daily and about 5% (N=2) worked for more than 8 hours daily. Approximately half of the zookeepers worked for 5 days in a week while another worked for more than 5 days in a week. Table 4.2.1 represents the working period information of the zookeepers.

Table 4.2.1: Working period information of the zookeepers (N=40)

Variables	N (%)	Median (IQR)
Job Tenure (Years)		
Up to 5 years	14 (35)	2 (1)
More than 5 years	26 (65)	

Hours per day		1 (0)
8 hours	38 (95)	
More than 8 hours	2 (5)	
Days per week		2(1)
5 days	19 (47.5)	
More than 5 days	21 (52.5)	

Descriptive analysis

4.2.2 Animal risk categorization

The types of animal have been categorized based on the risk level of danger to the workers (Managing Health and Safety in the Zoo, 2012).

Group 1: Greater risk animal: Cause serious injury or life-threatening such as big carnivores.

Group 2: Less risk animal: Cause injury/diseases but not life-threatening such as medium-size primates or mammals

Group 3: Least risk animal: May cause minor injury such as smaller mammals and fish

17 out 40, 42.5% of the respondents responsible in tacking animal section under greater risk animal, 8 or 20% of them worked for less risk animal and 15 or 37.5% of them for least risk animal. Table 4.2.2 shows the distribution of animal risk categorization under care of the zookeepers.

Table 4.2.2: Animal risk categorization among the zookeepers (N=40)

Animal Risk Categorization	N (%)	Median (IQR)
Greater Risk	17 (42.5)	
Less Risk	8 (20)	2 (2)
Least Risk	15 (37.5)	

Descriptive analysis

4.2.3 Cleaning and feeding frequency

In the table 4.2.3, majority of them, 80% (N=32) do the cleaning of animal's cage once to twice per day. Another 20% (N=8) do the cleaning for more than twice per day. As for feeding, about 60% (N=24) of them do the feeding task once to twice in a day and 40% (N=16) for more than twice in a day. Table 4.2.3 represent the cleaning and feeding frequency in daily among the zookeepers.

Table 4.2.3: Cleaning and feeding frequency in daily among the zookeepers (N=40)

Variables	N (%)	Median (IQR)
Cleaning Frequency in a day		
1-2	32 (80)	1 (0)
More than twice	8 (20)	
Feeding frequency in a day		
1-2	24 (60)	1(1)

More than twice	16 (40)

N= 40. Descriptive analysis

4.2.4 Animal's cage safety

The perception of cage safety were enquired form the questionnaires among the respondents. From the survey, a majority of the respondents, about 80% (N=32) of them agreed that the cages in the zoos are strong enough to withstand attack by animals. Meanwhile for cage accessibility, 67.5% (N=27) of them agreed that the cage can be easily entered and exited by them. About half of them, 47.5% (N=19) do not agreed the cage can resist corrosion or rusting for time to time. Lastly, majority of them, 82.5 (N=33) agreed they see clearly animals and workers inside the cages from the outside. Table 4.2.4 represents the perception on animal cage safety by the zookeepers.

Table 4.2.4: Animal cage safety perception by the zookeepers (N=40)

Variables	N (%)	Median (IQR)
Cage strength		
No	8 (20)	1 (0)
Yes	32 (80)	
Cage accessibility		1 (1)
No	13 (32.5)	
Yes	27 (67.5)	
Cage resistance		1(1)
No	19 (47.5)	

Yes	21 (52.5)	
Cage clear view		1 (0)
No	7 (17.5)	
Yes	33 (82.5)	

N= 40. Descriptive analysis

4.3 Psychosocial risk factors for occupational stress

The psychosocial risk factors that have been evaluated were decision latitude, job demand, and co-worker and supervisor support and job insecurity. Table 4.3 showed the psychosocial risk factors for occupational stress among the zookeepers

Table 4.3: Psychosocial risk factors for occupational stress among the zookeepers (N=40)

Variables	Mean (SD)	Median (IQR)	Range (Min-Max)
Decision Latitude	65.70 (8.22)	66 (12)	48-84
Job Demand	32.45 (4.39)	32 (7)	24-46
Co-worker support	12.96 (2.12)	12 (3)	9-16
Supervisor Support	10.18 (2.99)	10 (4)	4-16
Job Insecurity	6.70 (3.67)	5 (4.75)	3-17

N= 40. Descriptive analysis

4.3.1 The distribution of decision latitude

Scores lies below than median cut-off value (Median cut-off=66), classified as low decision latitude while scores lies on median cut off value and higher classified as

high decision latitude. Therefore, about 57.5% (N=19) of the respondents have low decision latitude whereas 42.5% (N=21) have high decision latitude. Table 4.3.1 represents the distribution of decision latitude among the zookeepers.

Table 4.3.1: The distribution of decision latitude of the zookeepers (N=40)

Decision Latitude	N (%)
Low	19 (47.5)
High	21 (52.5)

Descriptive analysis

4.3.2 The distribution of job demand

Scores lies below than median cut-off value (Median cut-off=32), classified as low job demand while scores lies on median cut off value and higher classified as high job demand. 42.5% (N=17) of the respondents have low decision latitude whereas 57.5% (N=23) have high decision latitude. Table 4.3.2 represents the distribution of job demand among the zookeepers.

Table 4.3.2: The distribution of job demand of the zookeepers (N=40)

Job demand	N (%)
Low	17 (42.5)
High	23 (57.5)

Descriptive analysis

4.3.3 The distribution of co-worker support

Scores lies below than median cut-off value (Median cut-off=12), classified as low co-worker support while scores lies on median cut off value and higher classified as high co-worker support. About 15% (N=6) of the respondents have low co-worker support whereas 85% (N=34) have high co-worker support. Table 4.3.3 shows the distribution of co-worker support among the zookeepers.

Table 4.3.3: The distribution of co-worker support of the zookeepers (N=40)

Co-worker support	N (%)
Low	6 (15)
High	34 (85)

Descriptive analysis

4.3.4 The distribution of supervisor support

Scores lies below than median cut-off value (Median cut-off = 10) classified as low supervisor support while scores lies on median cut off value and higher classified as high supervisorr support. About 40% (N=16) of the respondents have low supervisor support whereas 60% (N=24) have high supervisor support. Table 4.3.2 represents the distribution of supervisor support among the zookeepers.

Table 4.3.4: The distribution of supervisor support of the zookeepers (N=40)

Supervisor support	N (%)
Low	16 (40)
High	24 (60)

Descriptive analysis

4.3.5 The distribution of job insecurity

Scores lies below than median cut-off value (Median cut-off= 5) classified as low job insecurity while scores lies on median cut off value and higher classified as high job insecurity. About 32.5% (N=13) of the respondents have low job insecurity whereas 85% (N=27) have high job insecurity. Table 4.3.5 shows that distribution of job insecurity among the zookeepers.

Table 4.3.5: The distribution of job insecurity of the zookeepers (N=40)

Job insecurity	N (%)
Low	13 (32.5)
High	27 (67.5)

Descriptive analysis

4.4 Personal stress

Personal stress was evaluated among the respondents based on DASS-42 of the stress part. From the finding, about 70% (N=28) of the respondents were in normal stress, 17.5% (N=7) for mild stress, 10% (N=4) for moderate stress and 2.5% (N=1) for severe stress. Table 4.4 shows the distribution of personal stress among the zookeepers.

Table 4.4: The distribution of personal stress of the zookeepers (N=40)

Personal stress	N (%)	Median (IQR)
Normal	28 (70)	1 (1)
Mild	7 (17.5)	
Moderate	4 (10)	
Severe	1 (2.5)	

Descriptive analysis

4.5 Prevalence of Occupational Stress among the respondents

Occupational stress was measured through Karasek Model of job strain. The calculation of job strain was followed based on the Job-Demad-Control Model. The indication of job strain is when the job strain value is more than 1, while less than 1 is low job strain. Low job strain means no work-related-stress whereas high job strain means work-related stress exist. It was found that 50% (N=20) of the respondents were in occupational stress while another 50% (N=20) were not. Table 4.5 shows the prevalence of occupational stress among the zookeepers.

Table 4.5: Prevalence of occupational stress of the zookeepers (N=40)

Occupational stress	N (%)	Mean (SD)
No	20 (50)	0.50 (0.51)
Yes	20 (50)	

***Occupational stress based on Karasek Model of job strain = 1 and above. Less than 1 fall on no occupational stress.

4.6 Association of sociodemographic factors with occupational stress

Table 4.6 shows the association of sociodemographic factors with occupational stress. The p-value is significant at $p<0.005$, therefore there were significant association between age with occupational stress as ($X^2 = 5.01$, p-value = 0.025). The other variable such as ethnicity, educational background, marital status, monthly salary and smoking status does not have significant association with occupational stress as the p-value exceed 0.05.

Table 4.6: Association between sociodemographic factors with occupational stress (N=40)

Variables	Occupational stress N (%)		X^2	df	p-value
Age	**No**	**Yes**	5.01	1	*0.025
19 to 30 years old	12 (70.6)	5 (29.4)			
31 years old and above	8 (34.8)	15 (65.2)			
***Ethnicity**					
Malay	16 (47.1)	18 (52.9)	0.78	1	0.661
Indian	4 (66.7)	2 (33.3)			
***Educational background**					
Finished school	17 (48.6)	18 (51.4)	0.229	1	1.000
University/college graduates	3 (60)	2 (40)			

Marital status					
Single	6 (54.5)	5 (45.5)	0.125	1	0.723
Married	14 (48.3)	15 (51.7)			
Monthly salary					
Less than RM 2000	11 (42.3)	15 (57.7)	1.758	1	0.185
RM 2000 and more	9 (64.3)	5 (35.7)			
Smoking status					
No	14 (58.3)	10 (41.7)	1.667	1	0.197
Yes	6 (37.5)	10 (62.5)			

*p-value is significant at $p<0.05$

***Statistical test –Fischer exact test

4.7 Association of job specific factors with occupational stress

The job specific factors consists of working experience information, animal section categorization, frequency of cleaning and feeding and perception on animal's cage safety. The association of these factors have been analyzed together with occupational stress to find the relationship between them.

4.7.1 Association of working period information with occupational stress

Table 4.7.1 shows the association between working period information such as job tenure, number of hours per day of working and number of days per week of working. There were significant association between job tenure with occupational stress (X^2 = 3.956, p-value = 0.047). However, for hours and days of working does not have significant association with occupational stress.

Table 4.7.1: Association between working period information with occupational stress (N=40)

Variables	Occupational stress N (%)		X^2	df	p-value
Job tenure	**No**	**Yes**		1	*0.047
Up to 5 years	10 (71.4)	4 (28.6)	3.956		
More than 5 years	10 (38.5)	16 (61.5)			
***Hours per day**					
8 hours	19 (50)	19 (50)	0.000	1	1.000
More than 8 hours	1 (50)	1 (50)			
Days per week					
5 days	11(57.9)	8 (42.1)	0.902	1	0.342
More than 5 days	9 (42.9)	12 (57.1)			

*p-value is significant at $p<0.05$

***Statistical test –Fischer exact test

4.7.2 The association between animal section risk categorization with occupational stress

Table 4.7.2 shows the association between animal section risk categorization; greater risk, less risk and least risk with occupational stress. It was found that there were no significant association of this factor towards the occupational stress as p-value greater than 0.05.

Table 4.7.2: Association between animal section risk categorization with occupational stress (N=40)

Variables	Occupational stress N (%)		X^2	df	p-value
Animal risk categorization	**No**	**Yes**	2.571	2	0.277
Greater risk	6 (35.3)	11 (64.7)			
Less risk	5 (62.5)	3 (37.5)			
Least risk	9 (60)	6 (40)			

p-value is significant at $p<0.05$

4.7.3 The association between cleaning and feeding frequency with occupational stress

Table 4.7.3 shows the association between cleaning and feeding frequency in a day with occupational stress among the respondents. As p-value is significant $p<0.05$, hence for both cleaning and feeding frequency does not have significant association with occupational stress.

Table 4.7.3: Association between cleaning and feeding frequency with occupational stress (N=40)

Variables	Occupational stress, N (%)		X^2	df	p-value
***Cleaning	No	Yes	0.000	1	1.000

1-2	16 (50)	16 (50)			
More than twice	4 (50)	4 (50)			
Feeding					
1-2	11 (45.8)	13 (54.2)	0.417	1	0.519
More than twice	9 (56.3)	7 (43.8)			

*p-value is significant at p<0.05

***Statistical test –Fischer exact test

4.7.4 The association between animal cage safety with occupational stress

Table 4.7.4 shows the association between animal cage safety with occupational stress. Since the p-value is significant at p>0.05, therefore, the strength of cage, accessibility of entrance, cage resistance and cage clear view does not have significant association with occupational stress.

Table 4.7.4: Association between animal cage safety with occupational stress (N=40)

Variables	Occupational stress N (%)		X^2	df	p-value
***Strength	No	Yes			
No	4 (50)	4 (50)	0.000	1	1.000
Yes	16 (50)	16 (50)			
Accessibility					
No	8 (61.5)	5 (38.5)	1.026	1	0.311
Yes	12 (44.4)	15 (55.6)			
Cage resistance					

No	10 (52.6)	9 (47.4)	0.100	1	0.752
Yes	10 (47.6)	11 (52.4)			
***Clear view					
No	3 (42.9)	4 (57.1)	0.173	1	1.000
Yes	17 (51.5)	16 (48.5)			

*p-value is significant at p<0.05

***Statistical test –Fischer exact test

4.8 Association of psychosocial risk factors with occupational stress

Table 4.8 shows the association between psychosocial risk factors with occupational stress. The psychosocial factors were include of co-worker support, supervisor support and job insecurity. As p-value is significant at p<0.05, thus these 3 factors does not have significant association with occupational stress.

Table 4.8: Association between psychosocial risk factors with occupational stress (N=40)

Variables	Occupational stress, N (%)		X^2	df	p-value
***Co-worker support	No	Yes			
Low	4 (66.7)	2 (33.3)	0.784	1	0.661
High	16 (47.1)	18 (52.9)			
Supervisor support					
Low	6 (37.5)	10 (62.5)	1.667	1	0.197

High	14 (58.3)	10 (41.7)			
Job Insecurity					
Low	8 (61.5)	5 (38.5)	1.026	1	0.311
High	12 (44.4)	15 (55.6)			

*p-value is significant at p<0.05

***Statistical test –Fischer exact test

4.9 Association of personal stress with occupational stress

Table 4.9 shows the association between personal stress with occupational stress. Normal stress categorized into no stress while moderate, mild and severe categorized into stress Since the p-value is significant at p>0.05, therefore, the personal stress does not have significant association with occupational stress.

Table 4.9: Association between personal stress with occupational stress (N=40)

Variables	Occupational stress N (%)		X^2	df	p-value
Personal stress	**No**	**Yes**			
No	13 (46.4)	15 (53.6)	0.476	1	0.490
Yes	7 (58.3)	5 (41.7)			

p-value is significant at p<0.05

4.10 Analysis on respective zoo

4.10.1 The association of psychosocial risk factors with occupational stress of Zoo A and B respectively

About 84.6% (N=22) of the zookeepers in Zoo A received high co-worker support whereas another 15.4% (N=4) received low co-worker support. For supervisor support, 50% (N=13) of the zookeepers in Zoo A received high support while the others do not. The job insecurity among the zookeepers in Zoo A were high for 76.9% (N=20) of them and 23.1% for low job insecurity. Table 4.10.1 represent the distribution of psychosocial risk factors among zookeepers in Zoo A.

Table 4.10.1.1: The distribution of psychosocial risk factors among zookeepers in Zoo A (N=26)

Variables	N (%)
Co-worker support	
Low	4 (15.4)
High	22 (84.6)
Supervisor support	
Low	13 (50)
High	13 (50)
Job insecurity	
Low	6 (23.1)

	High	20 (76.9)

Descriptive analysis

When cross-tabulated psychosocial risk factors and occupational stress among zookeepers in Zoo A, as the p-value is significant at p>0.05, therefore, the psychosocial risk factors does not have significant association with occupational stress. Table 4.10.1.2 shows the association between psychosocial risk factors with occupational stress.

Table 4.10.1.2: The association of psychosocial risk factors with occupational stress among zookeepers in Zoo A (N=26)

Variables	Occupational stress N (%)		X^2	df	p-value
***Co-worker support	No	Yes	0.115	1	1.000
Low	2 (50)	2 (50)			
High	9 (40.9)	13 (59.1)			
Supervisor support					
Low	4 (30.8)	9 (69.2)	1.418	1	0.234
High	7 (53.8)	6 (46.2)			
***Job insecurity					
Low	3 (50)	3 (50)	0.189	1	1.000

High	8 (40)	12 (60)

*p-value is significant at p<0.05

***Statistical test –Fischer exact test

For psychosocial risk factors in Zoo B, about 85.7% (N=12) of the zookeepers in Zoo B received high co-worker support whereas another 14.3% (N=2) received low co-worker support. For supervisor support, 78.6% (N=11) of the zookeepers in Zoo B received high support while another 21.4% (N=3) received low supervisor support. The job insecurity among the zookeepers in Zoo B were high for 50% (N=7) of them and others were low. Table 4.10.1.3 represent the distribution of psychosocial risk factors among zookeepers in Zoo B.

Table 4.10.1.3: The distribution of psychosocial risk factors among zookeepers in Zoo B (N=14)

Variables	N (%)
Co-worker support	
Low	2 (14.3)
High	12 (85.7)
Supervisor support	
Low	3 (21.4)
High	11 (78.6)
Job insecurity	
Low	7 (50)

High	7 (50)

Descriptive analysis

When cross-tabulated psychosocial risk factors with occupational stress of zookeepers in Zoo B, as the p-value is significant at p>0.05, therefore, the psychosocial risk factors does not have significant association with occupational stress. Table 4.10.1.4 shows the association between psychosocial risk factors with occupational stress

Table 4.10.1.4: The association of psychosocial risk factors with occupational stress among zookeepers in Zoo B (N=14)

Variables	Occupational stress N (%)		X^2	df	p-value
	No	Yes			
***Co-worker support					
Low	2 (100)	0 (0)	1.296	1	0.505
High	7 (58.3)	5 (41.7)			
***Supervisor support					
Low	2 (66.7)	1 (33.3)	0.009	1	1.000
High	7 (63.6)	4 (36.4)			
***Job insecurity					
Low	5 (71.4)	2 (28.6)	0.311	1	1.000

High	4 (57.1)	3 (42.9)

*p-value is significant at p<0.05

***Statistical test –Fischer exact test

4.10.2 The association of personal stress with occupational stress among zookeepers in Zoo A and Zoo B respectively

Since the p-value is significant at p>0.05, therefore, the personal stress symptoms does have significant association with occupational stress (X^2=7.096, p-value = 0.014). Table 4.10.2.1 shows the association between personal stress symptoms with occupational stress of zookeepers in Zoo A.

Table 4.10.2.1: The association of personal stress with occupational stress among zookeepers in Zoo A (N=26)

Variables	Occupational stress N (%)		X^2	Df	p-value
***Personal stress	No	Yes	7.095	1	*0.014
No	4 (23.5)	13 (76.5)			
Yes	7 (77.8)	2 (22.2)			

*p-value is significant at p<0.05

***Statistical test –Fischer exact test

When cross-tabulated personal stress and occupational stress of zookeepers in Zoo B, as the p-value is significant at p>0.05, therefore, the personal stress symptoms does have

significant association with occupational stress (X^2=6.873, p-value = 0.027). Table 4.10.2.1 shows the association between personal stress symptoms with occupational stress of zookeepers in Zoo B.

Table 4.10.2.1: The association of personal stress with occupational stress among zookeepers in Zoo B (N=14)

Variables	Occupational stress N (%)		X^2	df	p-value
***Personal stress	No	Yes	6.873	1	*0.027
No	9 (81.8)	2 (18.2)			
Yes	0 (0)	3 (100)			

*p-value is significant at p<0.05

***Statistical test –Fischer exact test

CHAPTER 5

5.0 DISCUSSION

This study was about the occupational stress of zookeepers in Malaysia. To the best of our knowledge, this is the first study done among the zookeepers in Malaysia. The selection of the two zoos, Zoo A and Zoo B is expected to represents all the zoos in Malaysia. We have tried our best to include a minimum of four zoos but approvals were not obtained. Although this study only consisted of two zoos, we hope that the results of this study can be extrapolated to the population of zookeepers in other zoos located in Malaysia. The management of both zoos are different, Zoo A is a privately-owned zoo and Zoo B is under City of Council. Hence some of the risk factors been evaluated according to respective zoo as management style difference greatly can affect the factors in workplace setting (Corporate Staffing Service,2016).

5.1 Socio-demographic information of zookeepers

About 74 questionnaires were distributed to the respondents. The dissemination of questionnaires in Zoo A performed by the management. Meanwhile in Zoo B, the questionnaires distributed by the researchers however many of the zookeepers were absent on the day. As a result, only 40 questionnaires were satisfactorily completed.

From the survey, it was found that all of the zookeepers were male in gender. There are zookeepers of female in gender but by coincidence, they did not participate in this study. Least number of zookeepers was in the age range of 30 years old and below as the intention to quit among the young workers is high. The ethnicity found among the zookeepers were Malays and Indians as majority of the other workers in the zoo were Malay and Indian as well from the observation.

5.2 Job specific factors among zookeepers

5.2.1 Working period information

In summary, most of the zookeepers worked for more than 5 years in their organization. Their working schedule is 8 hours per day in normal work-shift. Number of workers worked for less than 5 years were minimal due to high job turnover among the zookeepers in the organization. Only a few of them worked for more than 8 hours because need extra time to complete the task given to them. However, about half of them need to work for more than 5 days. They need to come to work on weekend as well; Saturday and Sunday. From further communication (no data reported), this is due to less number of co-worker available to support the time demand, excess task needs to be completed and there is the need to standby for any special occasions such as national celebration. Plus, because of the number of visitors higher on weekends, therefore they must have backup among themselves in each animal sections. As they are rarely able to get day-off on weekend, they were allowed to apply day-off for at least 2 days during weekdays.

Another potential caused of stress is long working hours and days. The workload given must be fit to the worker's capability, otherwise they cannot make it in the provided time. As a results, they tend to extend their task into hours or days. These can affect their work performance and health (Sankar, 2013).

5.2.2 Animal risk categorization

According to Rundmo (1992) working under risk work environment can affect the workers by their behaviors when he/she feel unsafe. Their capacity to cope with the risk situation will be decreased thus cause stress. Therefore, animal categorization based on level of danger has been inquired by referring to the Health and Safety Executive (HSE), Managing Health and Safety in Zoos (2012). The level of dangers as follow:

Group 1: Greater risk animal: Cause serious injury or life-threatening such as big carnivores

Group 2: Less risk animal: Cause injury/diseases but not life-threatening such as medium-size primates or mammals

Group 3: Least risk animal: May cause minor injury such as smaller mammals and fish

Most of the zookeepers responsible in taking care of animals under greater animal risk which include the tiger, elephant, snakes and other big reptiles . The risk of getting attacked and get serious injury by these animal is high due to animal size and their natural behavior and reaction to humans. Dealing with risk condition in a workplace can affect the worker's performance and mental health. Thus, the risk of getting attacked by the animals should be minimized and controlled. Therefore, the zookeepers need to practice

'no direct contact' with these animals while working. If they need to contact directly with animals, the animals should be under anesthetic or zookeepers able to train them into the desired behavior (HSE, 2012)

5.2.3 Cleaning and feeding frequency

The cleaning and feeding the animal are the main daily task reported by the respondents. The procedure of this task involves with a lot of manual handling and repetitive work. About 80% of the zookeepers need to do the cleaning or scrubbing the animal cages once or twice in a day. Woodland Park Zoo (n.d) discovered that these activity is the least liked by the zookeepers as it is involves a lot of physical exertion which influence negative job satisfaction and cause stress.

Approximately half of the zookeepers are responsible to feed the animals more than twice in a day. They need to prepare the food and bring it to the cage. Further communication with zookeepers (no reported data) found that, if their section has about 8 carnivores and each of the animals need approximately 7 kg of meat in a day, they need to prepare total of 56 kg of meat and bring the meat to the cage. This task involves a lot of manual handling with heavy loads, hence a lot of physical demands are required which could also trigger stress.

The cleaning and feeding the animal is the main daily task by the respondents, the procedure of this involve with a lot of manual handling and repetitive work. Therefore, this two task is important to be include to have a clear picture on their workload.

5.2.4 Animal cage safety

According to HSE (2012), to ensure the safety and health among zookeepers, the enclosure or cage safety design must be taken into consideration. The foreseen problem in cage safety is the strength of the cage. About 8 out 40 of them do not agree their animal cage strength enough. This is may be because of the big size animals such as elephant and rhinoceros have the tendency and ability to stamp on their cage and make it broken.

Cage accessibility refers to easy access and exit by the workers while doing their task inside the cage or enclosure. For the greater risk animal, the zookeepers should minimize the possible direct contact with the animals. Therefore, the cage safety design is crucial to protect themselves from the harm. The animals should be place to another cage and double check on it to ensure all locked before the zookeepers can go in (European Association of Zoo and Aquaria, 2013). From the survey, more than half of the zookeepers reported the cage design were easy for access and exit by them.

HSE (2012) explained that another important safety element in cage design is the cage resistance. The bar or cage should be designed to withstand repeated wear and tear with minimal rusting or corrosion. About half of the respondents do not agree to this. They explained that some of the animal urine such as tiger could promote the rusting process of the cage bar and make it easily broken. As a result, they need to regularly check on the cages and maintained it from time to time.

HSE (2012) also explained that having a clear view from outside of the cage is important in order to monitor the animals and the workers who need to be in the cage. When the workers are in dangerous situation such as getting attacked by the animals, the

co-worker from the outside are able to come to help or report to the management for support. Majority of the zookeepers believed that the cage design is appropriate for them to monitor the animals and co-workers inside the cage.

5.3 Psychosocial risk factors of occupational stress among zookeepers

5.3.1 The distribution of decision latitude

From Table 5.3.1 represent the distribution of decision latitude among the zookeepers. It showed that approximately of them have low decision latitude. Decision latitude or job control is one of the stressor in a workplace. Hessel et al (2016) justified that decision latitude is the freedom for individual to perform their task given with minimal control from another individuals.

As from the survey in this study, the zookeepers claims that they their tasks based on management instruction. In other words, they need to follow all the instruction and follow with the timeline given. Hence, they only have a little control over their work.

5.3.2 The distribution of job demand

Job demand can be described as how many or how intense the task should be done and amount of time needed to complete it. High job demand is when the task given consisted of heavy workload that should be done in short period. As in the survey, it was found that most of the zookeepers have high job demand.

Scotney et al (2014) saying that their daily task is very physically demanding in which involved of many manual handling and repetitive. Mastenbroak et al (2014) explained that high job demand can greatly influence the worker's performance. They

need to put a lot of energy in their work. As a result, they exhausted and decreasing in job satisfaction then lead to stress.

5.3.3 The distribution of co-worker support

From the Table 4.3.3, the distribution of co-worker support among the zookeepers were mostly high. This support are include of the willingness of each workers to help and support each other when in need. As in survey, they greatly able to work as a team within their animal section so that their task can be done according to the time given.

5.3.4 The distribution of supervisor support

About 6 out of 10 of the zookeepers feel the support from their supervisor were high. They can share their problems or any difficulty in work with their supervisor and discuss on how to overcome it. Figley and Roop (2006) explained that the support from higher administration is crucial in order to bring the sense of belongings in the organization. A good supervisor is the one that who take attention what their workers problem and support them.

5.3.5 The distribution of job insecurity

The survey conducted present that about 67.5% of the zookeepers have high insecurity regarding their job in the zoo organization. This showed the uncertainty how stable their position as a zookeepers will be remained. The insecurity in job can affect negatively the job satisfaction.

5.4 The prevalence of occupational stress among zookeepers

Based on Job-Demand-Control by Karasek and Theorell (1998), the job strain was calculated based on job demand and decision latitude. They stipulated that if job demand higher and decision latitude is low, that indicates job strain. To analyse the job strain, the job strain ratio term have been used, where Job Demand*2/ Decision latitude. If the value less than 1, they falls into no job strain or low job strain and if the value 1 or more, falls into job strain. Job strain contributes to work-related stress, therefore the job strain classified as occupational stress meanwhile for low or no job strain as no occupational stress.

Globally the occupational stress studies have been done among the various animal caretakers group such as veterinarian, workers in animal shelter and animal farming. From the results, it was found that 50% of the population of zookeepers in Malaysia are stress over their work. To compare, Kolstrup et. al (2015) reported that workers in animal farming sectors in Finland, the prevalence of work-related stress was 33%. Meanwhile, Scotney et. al (2015) revealed that about 40% the animal workers of veterinary clinics and animal shelters in Australia reported stress with their task in taking care of animal. Plus, Figley and Roop (2006) found that 30% of veterinarian in America showed the moderate risk of burnout and Plat et. al (2012) reported that veterinarian in New Zealand found that 16% of them have the serious intention to commit suicide due to work pressure in their job field.

Half of the respondents in this study were reported experience occupational stress. The finding were supported by Sankar et. al (2013), in which authors reported that the indication of occupational stress by high job demand with low decision latitude. Workers who worked with animals such as veterinary and workers in animal shelter are always

confronted with demanding workload in time constraint and must follow the instructions given by the management. Mismatch between job demands with the capability of workers trigger stress among the workers.

5.5 Personal stress among zookeepers

The personal stress were administered among the zookeepers by using the validated questionnaires; DASS-42. The stress part consisted of 14 questions represent how the sensitivity the individuals react to stressful condition such as difficulty to relax, loss of temper, agitated and feeling impatient and disappointment. Based on the manual of DASS-42, the classification of personal stress comprised of 5; normal, mild, moderate, severe and extremely severe and score. From the survey conducted, it was found that most of the respondents were in normal stress as they believed that they able to control themselves from over-react on stressful event.

5.6 Association of socio-demographic factors with occupational stress

Different individual will having different capability in coping with stress. In term of the association between sociodemographic factors and the occupational stress, the result of this study show that age have significant association with occupational stress. Meaning to say that, more than half of 31 years old and above the zookeepers, will tend to have occupational stress.

The results supported by Aldwin et al (1996) which the middle aged people around 40 years and above tends to report stress in their life. This is because through these age, they met many emotional life event rather than younger people. For example, at the middle

age, more people get married and found that parenting is challenging. Plus they met stressful life event as death their loved one and development of chronic diseases. Therefore, this emotional life event put them in stress.

5.7 Association of job specific factors with occupational stress

The job specific factors tested include of working period information, animal risk section, cleaning and feeding frequency and cage safety. From the results, only job tenure have significant association with occupational stress. In other words, the workers who worked more than 5 years in the organization were stressed with their job.

This is contrast with previous finding by Chen and Kao (2013). They found that the longer job tenure among the workers, the less their perceived stress in their job. They tend to resist stress better when their experience in the field is longer in period. Bradley (2007) also support this, the workers who worked longer in an organization able develop psychological and social resources to fit the job demands given.

5.8 Association of psychosocial risk factors with occupational stress

The psychosocial factors that have evaluated consisted of decision latitude, job demand, co-worker and supervisor support and job insecurity. In association with occupational stress, decision latitude and job demand not included as those were used in calculation of occupational stress.

The social support and job insecurity play as the important internal stressor in a workplace setting. Social support is the predictor factors of stress and job turnover. It is agreed that lack of support will determine the job turnover of the workers in the

organizational. The positive support from both co-worker and supervisor is important to influence positively job satisfaction and performance among the workers (Bradley, 2007).

The feeling of doubtful will upset the workers as their job insecurity is high. This is a threat they will lose the job in the future. The feel of doubtful greatly give impact on individual's health and well-being by reducing the life satisfaction and increasing the possibility of burnout. In fact, the job insecurity will affect them physically and psychologically through anxiety, stress and increase of blood pressure (Witte, 2005).

However, in the association of social support and job insecurity with occupational stress, they were no significant association. The results may be affected by small sample size in conducting this study.

5.9 Association of personal stress with occupational stress

The personal stress evaluated in this survey consisted of series of questions on sensitivity reaction of individuals towards stressful events. These reaction present the feel of agitated, impatient and easily upset. As in results, most of the zookeepers have no signs of personal stress. They claimed that they able to control themselves from over-react on stressful event.

In occupational stress that take into account their job demand and freedom in making decision, half of the population were in job strain, which mean an occupational stress. However, the association of personal stress and occupational stress showed no significant association. Therefore, the proportion of occupational stress was the same for those who having personal stress and those who were not.

5.10 Additional analysis for respective zoo

5.10.1 The association of psychosocial risk factors with occupational stress in Zoo A and Zoo B respectively

Zoo A and Zoo B are two different zoos under different management. Zoo B is under Local Authority meanwhile Zoo A is privately own zoo. The social support for both of the zoos were high which indicates the positive internal stressor of the organization. However in job insecurity, it was found that zookeepers in Zoo A have high job insecurity than Zoo B. Corporate Staffing Service (2016) supported that in term of job insecurity for private and government sector, there are huge different. In governmental sector, the workers were provided with lot of resources to ensure their job security. Some of the resources include of salary increment, retirement incentives and stable job position. These values were lack in private sectors. As a result, the zookeepers less engaged with their position and increase the possibility of intention to quit.

5.10.2 The association of personal stress with occupational stress among zookeepers in Zoo A and B respectively

For the Zoo A, majority of them they were not in stress personally as they believed that they able to control themselves from over-react in any situation. However, in the context of occupational stress, it was found that more than half of them were in stress with their job. The association of personal stress and occupational stress showed the significant association. Meanwhile for the Zoo A, it is reported that majority of them not in personal stress and same goes to the occupational stress. This is due to the positive internal stressor they gained from the organization such as high social support and high job security. It was

found that there were significant association between personal stress and occupational stress. As in result of the association of personal stress and occupational stress, occupational stress experienced by the zookeepers may not necessarily manifest itself into personal stress symptoms.

CHAPTER 6

6.0 CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Based on the statistical analysis that have been conducted, all hypothesis have been answered. Below are the conclusion based on study hypothesis:

Hypothesis 1: To determine the prevalence of occupational stress of zookeepers in Malaysia

The prevalence of occupational stress of zookeepers in this study is 50% of the population were stressed over their work.

Hypothesis 2: To determine the sociodemographic factors among the zookeepers in Malaysia and association with occupational stress.

The sociodemographic information such as age, ethnicity, educational level, marital status and salary information among the zookeepers have been identified. There are significant association sociodemographic information on age towards the occupational stress which those who in the age range of 31 years old and above tend to have occupational stress

Hypothesis 3: To determine the job specific factors among the zookeepers in Malaysia and association with occupational stress.

The job specific factors such as working period information, cleaning and feeding frequency in a day, animal risk categorization and cage safety have been identified. There are significant association between job tenure and occupational stress in this study. The zookeepers worked more than 5 years in the organization have tendency to be stressed over their work.

Hypothesis 4: To determine the psychosocial risk factors among the zookeepers in Malaysia and association with occupational stress.

The psychosocial risk factors such as co-worker support, social support and job insecurity have been identified. The social support for both zoos individually were high. Meanwhile, the job insecurity in privately-owned zoo was high compared to governmental zoo. There were no significant association of these psychosocial risk factors with occupational stress.

Hypothesis 5: To determine the prevalence of occupational stress and its association personal stress symptoms.

The prevalence of occupational stress among the zookeepers was 50% (N=20). The personal stress symptoms reported was 30 (N=12). The association of occupational stress and personal stress symptoms in respective zoo showed significant association

which justified that occupational stress experienced by the zookeepers may not developed the stress symptoms.

To conclude, it was found that zookeepers experienced stress related to their work. They are confronted with occupational risk when performing their work task such as cleaning and feeding frequency, animal risks, cage safety, social support and job insecurity. However not all are related to occupational stress. The analysis of psychosocial risk factors showed that there are zookeepers who have high job insecurity, which is threat of losing the job but this is based on specific type of zoo management. Finally, occupational stress experienced by the zookeepers may not necessarily manifest itself into personal stress symptom. Due to half of the population are stressed, it is recommended for the management to conduct management stress program with focusing the stressor they confronted.

6.2 Limitation and Strength

This study has limitation to be considered. The limitation of this study is low power of study. The invitation of zookeepers were 74 in total but only 40 voluntarily satisfactorily join the survey. Plus, during the survey conducted, many of zookeepers not able to join as many of them absent on the day. Furthermore, this study also have less of control of respondents bias. The dissemination of the questionnaires to the zookeepers can only be done by the management of the zoo. Thus, the respondents were not be able to response accurately and truthfully due to unfamiliarity with questions format and faulty recall.

The strength of this study provides a data on occupational stress among the animal caretakers in Malaysia together with their work risk. The data provided will be useful in conducting intervention program such as stress management program that suits the best to the population under this field. Further research on job satisfaction, job engagement and intention to quit would be useful to be conducted to explore more on the mental health problem experienced by the workers.

6.3 Recommendation

There are some recommendations need to be improved from the finding in this study. In order to increase the power of study, the invitation of the zookeepers into the survey should be extend to many zoo as possible. Next, the administration of questionnaires among the zookeepers must be assisted by the researchers to minimize the bias. Plus, it is recommended for management to be separated from respondents during data collection. So that they can give truthful and accurate responds towards the questions given. Plus, as the job security was high among the zookeepers, therefore it is recommended to conduct the survey on job satisfaction, job engagement or intention to quit to understand on their problem in threat of losing the job

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APPENDICES

APPENDIX 1:
Ethical Approval

ETHICS COMMITTEE FOR RESEARCH INVOLVING HUMAN SUBJECTS (JKEUPM)
UNIVERSITI PUTRA MALAYSIA

Research title	:	**Occupational Stress, Its Risk Factors and Job Engagement Among Zookeepers in Zoo Negara**
Study Site	:	**Zoo Negara**
JKEUPM Ref No.	:	**JKEUPM-2017-183**
Researcher	:	**Nur Izzaty Natashah bt Ismail**
Supervisor	:	**Dr. Emilia Zainal Abidin**

Documents received and reviewed with reference to the above study:

1. Ethics Application Form, Version 1 dated 31/10/2017
2. Respondent Information Sheet & Consent (English), Version 1 dated 31/10/2017
3. Respondent Information Sheet & Consent (Malay), Version 3 dated 18/12/2017
4. Proposal (English), Version 2 dated 4/12/2017
5. Questionnaire (Malay), Version 3dated 18/12/2017
6. Curriculum Vitae of:
    a. Dr. Emilia Zainal Abidin
    b. Dr. Irniza bt Rasdi

The University Research Ethics Committee, Universiti Putra Malaysia (JKEUPM) operates in accordance to the ICH-GCP Guidelines.

Decision by JKEUPM:

[X] Approved

[X] **Permission MUST BE OBTAINED from the respective hospitals/ institutions before conducting the research**

[ ] Disapproved

Please note that the approval is **VALID UNTIL 20 DECEMBER 2018**

Researchers should comply with the following:

I. Complete a Study Final Report upon study completion (Form 3.2).

II. Ethical approval is required in the case of amendments/ changes to the study documents/ study sites/ study team.

APPENDIX 2:
Consent Form

JAWATANKUASA ETIKA UNIVERSITI UNTUK PENYELIDIKAN MELIBATKAN MANUSIA (JKEUPM)
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG, SELANGOR, MALAYSIA

BORANG 2.4: PENERANGAN DAN PERSETUJUAN RESPONDEN

Sila baca maklumat berikut dengan teliti. Sekiranya anda mempunyai sebarang pertanyaan, sila kemukakan kepada penyelidik.

1.TAJUK KAJIAN

Tekanan pekerjaan dan faktor risiko dalam kalangan penjaga zoo di Malaysia.

2. PENGENALAN

Kajian menunjukkan mereka yang bekerja dalam bidang penjagaan haiwan sering mengalami masalah psikososial iaitu tertekan ketika bekerja. Penjaga zoo merupakan salah satu bidang pekerjaan tersebut di mana tugas-tugas harian mereka merupakan tugas yang berat dan akan menyebabkan masalah tekanan ketika bekerja. Tujuan kajian ini dijalankan adalah untuk mengkaji sama ada pekerja zoo di Malaysia mengalami masalah tekanan dalam menjalankan tugas-tugas harian mereka. Di samping itu, faktor-faktor penyebab tekanan turut dikaji bersama.

3. APAKAH YANG PERLU ANDA LAKUKAN?

Anda hanya perlu menandatangani borang persetujuan ini untuk menyertai kajian ini. Responden dikehendaki untuk melengkapkan borang soal selidik yang disertakan bersama dengan borang ini. Borang soal selidik yang lengkap dijawab hendaklah dipulangkan semula kepada penyelidik. Sekiranya anda mempunyai soalan, anda boleh meminta bantuan daripada penyelidik.

4. SIAPA YANG TIDAK BOLEH MENYERTAI KAJIAN INI?

i. Pekerja di bawah umur 18 tahun
ii. Pekerja bukan warganegara

5. APAKAH FAEDAH MENYERTAI KAJIAN INI?

a) KEPADA ANDA SEBAGAI PESERTA?

Hasil daripada kajian ini akan menghasilkan satu data kesihatan mental yang boleh digunapakai oleh pihak pengurusan untuk mengadakan program kesihatan yang bersesuaian kepada anda. Di samping itu, kajian ini juga akan meningkatkan kesedaran dalam kalangan responden dalam pengurusan tekanan.

b) **KEPADA PENYELIDIK?**

Kajian ini akan membantu penyelidik untuk mengkaji masalah tekanan dan faktor-faktor risiko dalam kalangan responden. Di samping itu, data daripada kajian ini akan menjadi rujukan kepada mana-mana pihak yang berminat untuk mengkaji dan membuat menambahbaikan lagi isu-isu tekanan dalam bidang pekerjaan yang berkaitan.

6. ADAKAH IA BERISIKO?

Kajian ini tidak memberikan sebarang risiko kepada responden.

7. ADAKAH MAKLUMAT DAN IDENTITI SAYA KEKAL RAHSIA?

Semua maklumat yang telah dikumpulkan semasa kajian akan dirahsiakan. Keputusan daripada kajian ini akan dihantar dan dilaporkan sekiranya terdapat permintaan.

8. SIAPA YANG SAYA PERLU HUBUNGI SEKIRANYA SAYA MEMPUNYAI SOALAN TAMBAHAN SEMASA MENGIKUTI PENYELIDIKAN INI?

Jika anda mempunyai sebarang pertanyaaan semasa penyelidikan, sila hubungi kami untuk maklumat yang lebih lanjut:

Nur Izzaty Natashah Binti Ismail **(Pelajar Ijazah Sarjana Muda)**	**Dr. Emilia Binti Zainal Abidin** **(Penyelia Projek)**
Email: izzatynatashah95@gmail.com	**Email**: za_emilia@upm.edu.my
Tel:019-3259586	**Tel**: 03-8947 2643
Jabatan Kesihatan Persekitaran dan Pekerjaan,	

Fakulti Perubatan dan Sains Kesihatan,

UPM, 43400, Serdang, Selangor Darul Ehsan

Sila tandatangan di sini sekiranya anda telah membaca dan memahami kandungan halaman ini _____

9. PERSETUJUAN

Saya..... No Kad Pengenalan. .....
beralamat.....
.....dengan ini bersetuju untuk mengambil bahagian secara sukarela dalam penyelidikan yang tersebut di atas soal selidik yang akan dijalankan.

Saya telah diberi penjelasan secara menyeluruh mengenai penyelidikan ini dari segi metodologi, risiko dan komplikasi (seperti tertulis pada Helaian Penerangan Responden). Saya memahami bahawa saya berhak menarik diri dari penyelidikan ini pada bila-bila masa tanpa memberi sebarang alasan.Saya juga memahami bahawa sebarang maklumat yang berkaitan identiti saya akan dirahsiakan.

Saya* berminat / tidak berminat untuk mengetahui keputusan kajian yang melibatkan saya.

I *setuju/tidak bersetuju untuk imei/gambar/rakaman video/ rakaman suara digunakan dalam apa jua bentuk penerbitan atau pembentangan. (sekiranya berkaitan).

*potong yang tidak berkenaan

Tandatangan .....
(*Responden*)

Tandatangan .....
(*Saksi*)

Tarikh :.....

Nama :.....

No. K/P: .....

Saya mengesahkan bahawa saya telah menerangkan kepada responden ini sifat dan tujuan penyelidikan yang tersebut di atas.

Tarikh .....

Tandatangan .....
(*Penyelidik*)

APPENDIX 3:

Questionnaire

JABATAN KESIHATAN PERSEKITARAN DAN PEKERJAAN

FAKULTI PERUBATAN DAN SAINS KESIHATAN

UNIVERSITI PUTRA MALAYSIA

TEKANAN PEKERJAAN DAN FAKTOR RISIKO DALAM KALANGAN PENJAGA ZOO DI MALAYSIA

1. Soal selidik ini mengandungi 4 bahagian :-
   - Bahagian A : Maklumat sosiodemografik
   - Bahagian B : Faktor Pekerjaan Spesifik
   - Bahagian C : Faktor Psikososial
   - Bahagian D : Tekanan/Stres

2. Anda diminta untuk menjawab semua soalan yang terdapat di dalam buku ini.
3. Untuk menjawab, sila jawab dalam ruang yang telah disediakan.
4. Jawapan adalah peribadi dan sulit, untuk tujuan pembelajaran sahaja.
5. Buku soal selidik ini harus dipulangkan semula kepada penyelidik selepas menjawab semua soalan yang diberikan.

No pekerja : .....

Organisasi : .....

Tarikh : .....

Bahagian A: Maklumat sosiodemografik

Sila tanda pada ruang jawapan yang disediakan

1. Umur

	Tahun

2. Jantina

	Lelaki
	Perempuan

3. Kumpulan etnik

	Melayu
	Cina
	India
	Lain-lain :_____

4. Tahap pendidikan tertinggi

	UPSR		Diploma
	PMR		STPM
	SPM/		Ijazah

5. Status perkahwinan

	Bujang
	Berkahwin
	Balu/Duda/Janda

6. Jumlah pendapatan

	Lebih dari RM 3,000
	RM 2,001 – RM 3,000
	RM 1,001 – RM 2,000
	RM ,1000 dan ke bawah

7. Adakah anda merokok ?

	Ya
	Tidak

Bahagian B: Faktor Kerja Spesifik

Sila jawab soalan di ruang yang disediakan.

i. **Maklumat tempoh pekerjaan**

1. Sudah berapa lamakah anda sudah berkhidmat di organisasi ini ?

2. Berapa jam anda bekerja dalam sehari ?

3. Berapa harikah anda bekerja dalam seminggu ?

ii. **Maklumat seksyen**

1. Sila nyatakan seksyen haiwan anda bekerja sekarang ini.

2. Sudah berapa lamakah anda telah berkhidmat di seksyen haiwan tersebut?

3. Sila nyatakan haiwan jagaan anda dalam seksyen tersebut dan bilangannya

Haiwan	Bilangan

4. Termasuk anda, berapakah bilangan penjaga zoo/ rakan sekerja anda yang bertanggungawab dalam seksyen haiwan tersebut

iii. **Maklumat kekerapan mencuci dan memberi makan**

1. Berapa kalikah anda perlu mencuci kandang haiwan dalam sehari?

2. Berapa kalikah anda perlu memberi makanan kepada haiwan dalam sehari?

iv. <u>Persepsi terhadap keselamatan penghadang/pagar/kurungan</u>

1. Pada pendapat anda, bagaimanakah tahap kekukuhan dan keselamatan penghadang/ pagar/ kurungan haiwan tersebut ketika anda perlu memasuki kawasan tersebut untuk melakukan tugas-tugas harian? (Anda boleh tanda lebih daripada satu)

	Kuat dan kukuh daripada serangan haiwan		Memudahkan pergerakan keluar dan masuk pekerja
	Tahan lama (Tidak cepat karat atau reput)		Boleh melihat dengan jelas keadaan di dalam kurungan

<u>Bahagian C : Faktor Psikososial</u>

Bagi soalan di bawah, sila bulatkan dalam petak jawapan yang paling hampir.

Q.	Soalan	Sangat tidak setuju	Tidak setuju	Setuju	Sangat setuju
1.	Pekerjaan saya memerlukan saya untuk mempelajari perkara baru	1	2	3	4
2.	Pekerjaan saya melibatkan kerja yang berulang-ulang.	1	2	3	4
3.	Pekerjaan saya memerlukan kreativiti	1	2	3	4
4.	Pekerjaan saya membenarkan saya membuat keputusan sendiri	1	2	3	4
5.	Pekerjaan saya memerlukan kemahiran yang tinggi	1	2	3	4
6.	Saya mempunyai hak untuk menentukan pekerjaan saya	1	2	3	4
7.	Semasa bekerja, saya berupaya melakukan berbagai perkara yang berbeza-beza	1	2	3	4

8.	Saya mempunyai peluang untuk cadangan saya berkaitan dengan dasar jabatan dipertimbangkan.	1	2	3	4
9.	Saya berpeluang untuk mengembangan kebolehan saya	1	2	3	4
10.	Pekerjaan saya memerlukan saya bekerja dengan pantas	1	2	3	4
11.	Pekerjaan saya memerlukan saya bekerja bersungguh-sungguh	1	2	3	4
12.	Pekerjaan saya memerlukan kekuatan fizikal yang banyak	1	2	3	4
13.	Saya tidak diminta/ disuruh untuk melakukan kerja-kerja berlebihan	1	2	3	4
14.	Saya mempunyai masa yang cukup untuk menyudahkan kerja saya	1	2	3	4
15.	Saya bebas daripada permintaan yang bercanggah daripada orang lain	1	2	3	4
16.	Pekerjaan saya dijamin baik	1	2	3	4
17.	Rakan-rakan sekerja saya berkemampuan dalam melakukan kerja mereka.	1	2	3	4
18.	Rakan-rakan sekerja mengambil berat tentang saya	1	2	3	4
19.	Rakan kerja saya adalah peramah	1	2	3	4
20.	Rakan-rakan sekerja saya membantu bagi memastikan kerja-kerja disiapkan	1	2	3	4
21.	Majikan saya mengambil berat mengenai kebajikan orang bawahannya	1	2	3	4
22.	Majikan saya memberikan perhatian terhadap apa yang saya katakan	1	2	3	4
23.	Majikan saya memberi bantuan dalam memastikan kerja-kerja dapat disiapkan	1	2	3	4
24.	Majikan saya berjaya mengajak orang lain bekerja bersama-sama	1	2	3	4

Q	Soalan	Tetap	Sementara	Kerap berhenti	Sementara dan kerap berhenti	Lain-lain
25.	Berapa stabilkah kerja anda?	1	4	4	4	9

Q	Soalan	Tidak pernah	Sekali	Lebih daripada sekali	Sentiasa	Sememangnya diberhentikan
26.	Dalam tempoh setahun lepas, berapa kerapkah anda berdepan dengan masalah kehilangan pekerjaan atau tidak bekerja?	1	2	3	4	5

Q	Soalan	Tidak mungkin sama sekali	Ada sedikit kemungkinan	Ada kemungkinan	Kemungkinan besar
27.	Ada kemungkinankah anda akan kehilangan pekerjaan anda sekarang dalam beberapa tahun lagi?	1	2	3	4

Bahagian D: Stres

Sila baca setiap kenyataan di bawah dan bulatkan pada nombor 0, 1, 2, atau 3 bagi menggambarkan keadaan anda sepanjang minggu yang lalu. Tiada jawapan yang betul atau salah. Jangan mengambil masa yang terlalu lama untuk menjawab mana-mana kenyataan.

Skala permarkahan adalah seperti berikut:-

0- Tidak langsung menggambarkan keadaan saya

1- Sedikit atau jarang-jarang menggambarkan keadaan saya

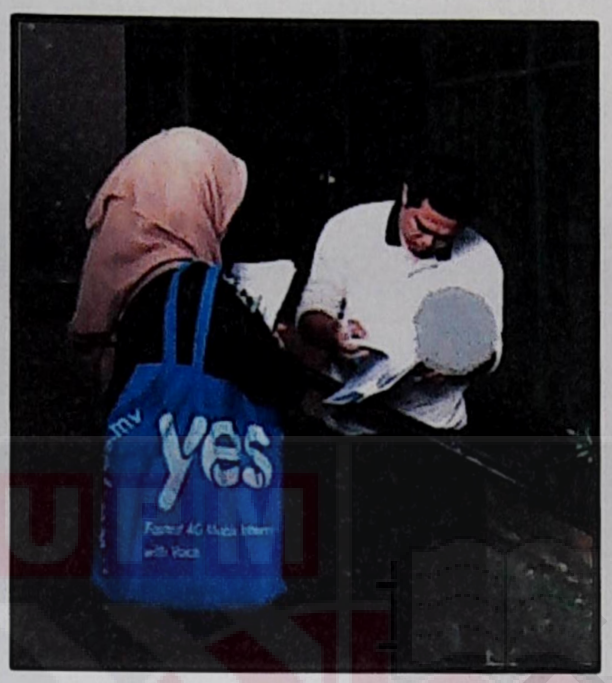
2- Banyak atau kerap kali menggambarkan keadaan saya

3- Sangat banyak atau sangat kerap menggambarkan keadaan saya

1.	Saya dapati diri saya menjadi kesal/marah disebabkan perkara-perkara yang kecil	0	1	2	3
2.	Saya cenderung untuk bertindak keterlaluan dalam sesuatu keadaan	0	1	2	3
3.	Saya rasa sukar untuk relaks	0	1	2	3
4.	Saya dapati diri saya mudah merasa kesal	0	1	2	3
5.	Saya rasa saya menggunakan banyak tenaga dalam keadaan cemas	0	1	2	3
6.	Saya dapati diri saya hilang kesabaran sekiranya saya dilambatkan oleh sesuatu (seperti lif, lampu trafik, terpaksa lama menunggu)	0	1	2	3
7.	Saya rasa yang saya mudah tersentuh	0	1	2	3
8.	Saya dapati diri saya sukar ditenteramkan	0	1	2	3
9.	Saya dapati diri saya mudah marah	0	1	2	3
10.	Saya dapati sukar untuk bertenang setelah sesuatu membuatkan saya kesal	0	1	2	3
11.	Saya sukar bersabar pada gangguan terhadap perkara yang sedang saya lakukan	0	1	2	3
12.	Saya di dalam keadaan terlalu gementar	0	1	2	3
13.	Saya hilang pertimbangan pada perkara yang menghalang saya meneruskan apa yang saya lakukan	0	1	2	3
14.	Saya dapati diri saya semakin gelisah	0	1	2	3

-TERIMA KASIH-

Appendix 4:
Picture of Data Collection



Picture 1: The respondent was answering the questionnaires

Picture 2: Dissemination of questionnaires by researcher