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The Importance of Work Environment Facilities

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ABSTRACT

A healthful work environment brings safety to employees' physical and mental capabilities in performing their daily routine. In order to reach the healthful work environment, providing the healthful facilities must be taking into account. The examples of facilities are chair seating and lighting. A proper chair seating and sufficient lighting play important role in ensuring employees' welfare are protected as well their work performance goes up. The ignorance of these important healthful work environments will lead to work stress. Office ergonomics can be provided and used in any type of workplaces like permanent office, home office, virtual office, or even mobile office which the employees working at construction sites for temporary. Employees, who are spending time in office, sitting on chair, interacting with computer and switching on lamp from 8:00 a.m. till 5:00 p.m. is suggested to be provided ergonomics facilities like adjustable chair seating and appropriate lighting level.

Keywords: *Ergonomics, Chair Seating, Lighting, Work Stress*

1. INTRODUCTION

Physical and mental capabilities of worker can be influenced by the facilities provided

by organization in workplace. Healthful workplace environment such as a proper office design and appropriate arrangement of furniture may cause higher productivity, higher morale among employees, and less stress outcome. This healthful work environment has connection with ergonomics. Ergonomics can be defined as the science of designing to fit the worker, rather than physically forcing the workers body to fit the job (Zafir, Durrishah & Mat Rebi, 2007). It also can be considered as physical and mental capabilities which it limits the worker as he or she interacts with tools, equipment, work methods, tasks and the working environment (Washington State Department of Labor and Industries, 2002). The limitation and interaction ensure reducing of work stress, absenteeism, low productivity, and job strain as long as it correctly be provided and used in workplace.

However, Zafir, Durrishah and Mat Rebi (2007) stated if management does not address ergonomics discomfort, anemployee will act on a subconscious level, adapting his/her behavior to lighten the pain thus affect his/her performance and it becomes safety issue. The safety issues are such as work stress, absenteeism, and low productivity. Work stress was defined as the harmful physical and emotional responses that occur when job requirement do not match the worker's capabilities, resources, and needs (National Institute of Occupational Safety and Health, 1999). Previous studies also proved that the stress levels at the workplace today are greater than what has been experienced by the past generation (Minter, 1999). This is due to the fact that the current job situations required employees to stand in a longer period (Konz & Rys, 2002/2003). In addition, Most of the researchers agree that work stress is caused by the work design and workplace environment (Zafir, Durrishah & Mat Rebi, 2007). Despite work stress, absenteeism and low productivity, approximately 10,000 workers in Malaysia suffer injuries at workplace due to poor ergonomics per year (Azhar Jamil, 2009).

2. Work Environment Facilities

Many previous study shows that the poor practice of ergonomics in work stations will contribute to the stress problems among workers. As consequence of this work stress, worker productivity will be affected and as we know productivity is money. So that, in order to avoid this unhealthy situation happen, we should provide a comfortable and appropriate working enviroment facilities that suits to humans needs. A mismatch between the physical requirements of the job and the physical capacity of the worker can result in Work Related Musculoskeletal Disorders (WMSD's). WMSD's happen when we are using our body more than our body capability. A research done by Washington State Department of Labor and Industries (2002) found that, 40% of all Washington State Fund workers' compensation claims among office workers are from WMSD's injuries. The worst case are, these injuries cause total medical and time costs of over $12 million per year to State Fund employers.

Thus, as a profit motive organization, they should take a preventive measure by providing suitable working environment facilities and practice an ergonomic work station. These facilities or ergonomic work station should incorporate with the elements of human factors design and follow the Occupational Safety & Health Administration (OSHA)

compliant. In applying a healthful working environment, there are 12 ergonomics principles should be followed:

1. Keep everything easy to reach.
2. Work at proper heights.
3. Reduce an excessive force.
4. Work in good postures.
5. Reduce excessive repetition.
6. Minimize fatigue.
7. Minimize direct pressure.
8. Provide adjustability and change posture.
9. Provide clearance and access.
10. Maintain a comfortable environment.
11. Enhance clarity and understanding.
12. Improve work organization.

By following these 12 ergonomics principles, the WMSD's injuries can be avoided. Thus worker can proceed with their working life in the office without any pain; stress and it improve the organization productivity.

A physical workstation environment includes many aspects such as chair or office seating, humidity, lighting and working hours. However for this purpose, we only focus on 2 facilities; chair seating and lighting.

2.1 Chair Seating

Today, most of the time people are sitting in handling their daily activities. They are sitting while having breakfast, in classrooms, in meetings, in offices, during dinner and at home while watching television. Although sitting requires less physical effort than standing or walking but it puts a lot of stress on lumbar area. Combined effects of a sedentary lifestyle and a job that requires sitting can lead to many health problems. The prolonged hour's use of chair without a comfortable one will bring a hazard to them. An ergonomic seating refers to chairs that are designed to comfort the user when they are working. Using an ergonomics chair, people will work with the least amount of tension and stress on their bodies.

According to Harel (2008) one of the most important features of an office is the chair. The researcher also explained every office should have ergonomic office chairs so that every person will be able to make the necessary adjustments to comfort him/herself. It follows the study done by Chelsea (2010), explained that chairs that are not properly meet the needs of the user body may cause back pain, eye strain from not being properly positioned in front of the computer screen, fatigue from poor circulation and numerous other health issue. According to Zafir and Durraishah (2009) and Beckett (1995), the physical problems associated with prolonged use of the poor office seating do not end with the twinge discomfort. However, they can easily extend to repetitive strain injury (RSI's) causing chronic or permanent damage.

These injuries may cause higher costs to the organization because the workers whom suffer from these injuries will take a long time to get back to work. Thus it will result a higher medical and time loss payments. In addition, while the symptom of RSI's is developing, there can be higher hidden costs since workers will use more sick leaves and slow their work pace or productivity.

So that in terms of every day office use, an ergonomic chair is one of the best solutions to organization. The ergonomic chair shall be stable and allow the user moves easily and sits in a comfortable position. The ergonomic chair will affect the workers performance through minimization of fatigue and stress (Cook et al., 2004). Therefore it is a crucial decision should be taken by an organization by providing the workers with ergonomic chair.

Ergonomic chairs are specifically designed to minimize strain on the body and prevent pain from occurring, as well as other health related problems commonly associated with poor sitting posture (Chelsea, 2010). It should be design specifically suit with a range of people. Lot of people has mistakenly purchase an ergonomic chair just simply because there are labeled ergonomic. A chair become ergonomic when it suits with the worker body's size, his workstation and the task he is perform.

The best ergonomic chair should follow certain criteria. It should be adjustability where the worker can adjust the height of chair according to his/her needs. Besides, it should has a backrest which can be adjust both vertically and in frontward and backward direction. Lastly, the best chair should be stable for a worker to use it for the whole working day.

By having an ergonomic chair, basically it should bring an easiness and comfort position to a worker. A well-designed chair allows the user to sit in a balanced position. However, an expected outcomes may also happen because the actual positions depends on individual habits. Some people tends to bend foreward and down or sit with shoulders hunched. So that, to make sure an ergonomics chair give a best result depends on that individu to learn how to sit properly.

2.2 Lighting System

Normally, people will take lightly on lighting system. Most ergonomist rank lighting to be one of the top three items to be concern in designing a healthy working environment. If we look around of us, most office which have a lighting problems are due to flicker and hum of old electro-magnetic ballasts, glare on monitor, over lit office or excessive background light and because of general fatigue from staring at the monitor screen.

The gloomy, dull and dark working place will result in eye strain especially when the workers are working with paper. Contrary, over lighting working place will bring other problem, where the workers have to glare to their work because of excessive lighting in the

place. Windows and direct sunlight can create this problem because it gives more light than a working place should be.

This unfavorable situation will force worker's eyes to readjust when their sight moving from one light level to the other. If the situation is keep on continuing, it will lead to some typical health related symptoms such as headaches, indigestion, nausea, blurred or double vision, flickering sensations, itching and burning eyes, tension, and vision fatigue.

As a result of suffering from all these injuries, worker will start to feel stress and slowly their productivity will decrease and finally a return to an organization will be affected. Therefore, an organization should provide and monitor the best lighting system to the workplace. The best lighting system will allow workers to see and work productive in best condition and fatigue and stress are reduced (Harel, 2008).

However, the amount of light that need by individual are differ . It depends on the nature of task, type of surface of the office whether it is absorb the light or not, the worker's vision and of course the age of the worker. For example, young worker normally have a clear vision than older worker. Thus the working place should be provide depends on the need of the worker.

The amount of light falling on a surface is measured in units we called as lux, lux refer to lumens (quantity of light) per square metre. As we refer to the factors above, an adequate general lighting is usually between 500 and 1000 lux when measured 76 cm (30 inches) above the floor. According to the Illuminating Engineering Society of North America (IESNA), the recommended light levels are as in the Table 1.

Table 1: recommended Illumination

Recommended Illumination levels	
Type of Activity	Ranges of Illuminations (LUX)
Computer only	300 - 500
Computer and paper document	500 -750 (with supplementary lighting)
Paper document only	750 - 1000

As we refer to the above table, if the nature of task is using papers, the lighting should be more than computer base task. It is due to the fact that, the computer itself already has their own light, while paper depends on surroundings light. If the Light levels for computer use should be lower than those for reading from paper documents. Using computer will need

lighting which is similar to the amount of the light of the monitor screen. If the space behind or beside the monitor are lighter, it will annoy the worker and their attention may distracted.

According to Occupational Safety and Health Administration (OSHA), studies in United State (U.S.) has estimated that 90% of the U.S. workforce using computers for more than 3 hours per day will experience computer vision syndrome (CVS). As a result it will bring the work stress to the workers. This is consistent with the study done by Zafir, Durrishah and Mat Rebi (2007) and Sutton and Rafaeli (1987) which found that the high level of glare, lack of natural light, and level of lighting that are too low for a given task will have negative effects on the outcomes organizations. The study also said that it is difficult to make specific statement about the best level of lighting since their appropriateness depends heavily on the nature of a task.

Therefore an organization which concern about their profit should consider the best lighting system as the first thing when they set up the workplace. The best lighting system will contribute back to the organization. Zafir, Durrishah and Mat Rebi (2007) and Wojcikiewicz (2003) explained that workplace lighting contributes to the increase of workers capability and fatigue minimization. And other research also found a negative relationship between darkness and employee's reactions including job satisfaction and well-being (Oldham and Rotchford, 1983).

Lighting and task conditions that improve visibility lead to better task performance (Veitch, Newsham, Mancini, & Arsenault, 2010). The worker are more satisfied with their lighting system in the workplace will feel their place as more attractive and are more comfortable and thus they are more happier and satisfied with their environment and their work. Thus they will feel motivated to complete their task successfully with the best environment they have.

3. The Implication of Unhealthful WorkEnvironment Facilities: Work Stress

According to White (1999), physical ergonomics deals with the human body's responses to physical and physiological stress. Stress could be positive or negative, depending on how the worker perceived the stress. Stress is not inherently deleterious however it is individual cognitive appraisal give perception and interpretation, give meaning to events and determine whatever events are viewed as threatening or positive (Jennings, 2008). An individual could experience stress if he/she perceives negatively towards his/her work environment (Zafir & Durrishah, 2009). Other than that, stress is also known as the course to mental health problem which the latter could affect the industry's management course (Cooper & Marshall, 1976).

Works stress is recognized worldwide as a major challenge to workers, health and the healthiness of their organization (Leka, Griffiths & Cox, 2003; International Labor Organization, 1986). According to previous researcher the factors in the workplace that have been identified to be associated with stress and health risks can be categorized into those

related to the content of work and those related to social and organizational context of work (Swee, Anza & Noor Hassim, 2007).

According to Mika, Paivi, Ritva, Hilkka, Jussi and Juhani (2002) a job strain (which happens due to high demands and low job control) and effort-reward in balance (high demands, low security, and few career opportunities) could draw out stress at work. The researchers also added employees who do not change their job or workplace for quite some time are more likely in stable level of work stress. Park (2007) also stated job strain is the only one stressor for workers may face at the workplace together with physical effort and job insecurity. According to Jennings (2008), work stress on occupations continues to his interest other than healthcare. His study focus on work stress and burn up that influenced the work environment and working condition. From his study the effect of the work stress can contribute to absenteeism and turn over, both are of which detract from the quality of care. By turning toxic work environments into healthy work places, the Jennings (2008) believes that environment can affect worker outcomes.

4. Conclusion

The two examples of important facilities in order to achieve healthful work environment are chair seating and lighting. Acomfortable chair seating with necessary adjustments on it and sufficient level of lighting in office can have positive effects on employees' productivity hence minimized work stress. Ergonomics chair is designed to reduce employees' body pain while doing their daily tasks. This chair can be adjusted according to the body size and necessity of employees. Despite lights the work environment naturally, lighting system also plays virtual role in increasing employees' morale and motivation which it can reduce fatigue. Being exposed too much on light with long time can cause fatigue and pressure employees' eyesight and eventually strain their jobs.

Work stress happens due to employees encounter body pain, fatigue, eyes pain and job strain for certain period of time especially long period. Stress in work can affects productivity, morale and motivation of employees. Work stress can be minimized by providing the two ergonomics facilities like chair seating and lighting. Office ergonomics can be provided and used in any type of workplaces like permanent office, home office, virtual office, or even mobile office which the employees working at construction sites for temporary. Employees, who are spending time in office, sitting on chair, interacting with computer and switching on lamp from 8:00 a.m. till 5:00 p.m. is suggested to be provided ergonomics facilities like adjustable chair seating and appropriate lighting level. The well-being of employees must be taken in account by employers and organizations so that all parties can reach own beneficial objectives.

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