Healthy Computing and Ergonomics:
Review of Musculoskeletal Health Problems and Workplace Setting

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1. Introduction

Using computer for work became necessary in the day to day office activities. Researchers suggest that 93% of workers in the United States use a computer for over four hours a day [1]. Many past research studies examined the relationship between the work-related Musculoskeletal Disorders (“MSDs”) and computer work.

A survey by the OSHC in 2002 concluded that office employees reported multiple sources of physical discomfort in relation to computing work and the neck (62.5%), eyes (61.7%) and shoulders (60.1%) were top three reported regions of discomfort [2]. A study conducted in Hong Kong between 2011 and 2012, reported that over 80% of survey employees who reported musculoskeletal symptoms for at least one body region. Furthermore, over 40% of office employees received treatment for musculoskeletal symptoms in the past [3]. In the same study, it retrieved that over 73% of 618 office employees in Hong Kong spent at least six hours a day in DSE operation whereas the study by Occupational Safety and Health Council in Hong Kong (“OSHC”) in 2002, 48% of 368 office employees spent at least four hours a day with using computer. The results indicated that office employees spent much longer hours with using computer at work compared to 10 years ago [2,3].

A study of occupational health condition of government office employees in 2010 concluded that 87.9% of 217 surveyed employees reported musculoskeletal symptoms in the past 12 months and 21.8% of employees who reported musculoskeletal symptoms were occasionally absent from work due to musculoskeletal health problem [4].

2. Aims

The paper reports the most recent musculoskeletal health condition of office employees. It also summarizes the prevalence rate of musculoskeletal symptoms of office ergonomics in Hong Kong and analyse the musculoskeletal health conditions in the past decade. The paper also describes the workplace setting in commercial office environment. Through this study, recommendations for improve the occupational health condition and practical solutions to implement well-structured office ergonomics program will be advised.

3. Methods

Chim’s Ergonomics and Safety Limited conducted 863 individual ergonomics workstation assessments for 27 companies between 2011 and 2014 in Hong Kong. During the face to face individual ergonomics workstation assessment, self-reported musculoskeletal symptoms, received treatment, average working hours with computer operation, rest break and stretching exercise practices were collected during the workstation assessment. The information of the office furniture specification and workplace setting of surveyed companies were collected.

4. Findings & Discussion

The result showed that in 2011 and 2012, 73% of 618 employees who spent at least six hours a day in computing works, whereas in 2013 to 2014, the higher percentage of employees (86.9% of 245 employees)
spent at least six hours a day with using computer. For consolidated period of 2010 to 2014, 83.9% of Hong Kong office employees whose reported musculoskeletal symptoms for at least one body region. If consider the more recent data for 2013 and 2014, 91% of employees who reported musculoskeletal symptoms for at least one body region. 23.7% and 28.6% of employees who reported two body regions and three body regions suffered from musculoskeletal discomfort or injuries.

The most common report discomfort body region was Shoulder – both sides (31.3%) and second highest reported body region musculoskeletal symptoms was Lower Back (25.5%). The third highest report body region with musculoskeletal symptoms was Neck (14.3%). Furthermore, for understanding the healthy computing practices, the study found that over half of the employees (58.4%) who take regular mini-break but only 25.3% of surveyed employees who practice office stretching exercise. For the office setting, there was small issue on lighting condition in the office which only 5.3% employees reported concerned on the lighting setting.

The prevalence of musculoskeletal discomfort/injury of office employees is becoming more common in Hong Kong. Employers have legal responsibilities to protect their employees’ health and safety at work. The Occupational Safety and Health (Display Screen Equipment) Regulation (Cap 509B) [5] was enacted in Hong Kong in 2003 which aims at protecting the health and safety of employees who use computer for prolonged period of time. The similar alarming result of musculoskeletal problems was high for both government and commercial sectors.

5. Conclusions
In conclusion, the reported rate of musculoskeletal discomfort among office employees had been increasing significantly in the past 10 years. Although the Occupational Safety and Health (Display Screen Equipment) Regulation enacted in 2003, further promotion of healthy computing should be enhanced. Employers are suggested to run effective office ergonomics program which shall cover the furniture selection and evaluation, individual ergonomics workstation assessment, education and promotion and stretching exercises. [6]

References