Prevalence of musculoskeletal disorders among administrative staff at the healthcare office during COVID-19 pandemic

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ABSTRACT: Administrative staff in the healthcare office exposed to a higher risk of developing musculoskeletal disorders (MSDs) with the increasing daily office workload, especially during the COVID-19 pandemic. This paper aims to determine the prevalence of MSDs among administrative staff in a healthcare office in Selangor. A total of 103 respondents participated in this study. The result shows the prevalence of MSDs was present in all body regions among administrative staff at the healthcare office, with the highest percentage in the lower back region. The majority of male administrative staff had lower back pain or discomfort (n=13, 61.9%). However, the majority of female administrative staff had neck pain or discomfort (n=56, 68.3%). In conclusion, the prevalence of MSDs among administrative staff in the healthcare office was most common in the lower back region. Therefore, preventive and mitigation of MSDs among administrative staff at the healthcare office are essential during the COVID-19 pandemic, such as improving ergonomics in the office.

Keywords: *Office; ergonomics; musculoskeletal disorders (MSDs)*

1. INTRODUCTION

Musculoskeletal disorders (MSDs) could impose high costs for treating and training new personnel for administrative offices. For example, the annual estimate of direct and indirect costs of MSDs and their consequences in the United States in 2007 is nearly 250 million dollars [1].

Taebeum Ryu, investigated the prevalence of MSDs among hospital workers and revealed that the pain in the shoulder was the most prevalent among the workers as 52% and the low back (37%) and leg discomfort (36%) [2].

Risk factors of MSDs among the administrative staff were associated mainly with demographic characteristics [3], static posture [4], organisational [5], office equipment [6].

Many MSDs studies focus on clinical staff or fieldwork staff during the COVID-19 pandemic, and administrative staff or office workers always neglected. Therefore, this study focuses on MSDs among administrative staff at the healthcare office as this group of workers is predicted to develop MSDs with the increasing workload during the COVID-19 pandemic.

2. METHODOLOGY

This study was conducted between January to April 2021. During this period, the Government of Malaysia has declared an extended Movement Control Order (MCO) in Selangor. However, the essential businesses and services were opened according to the Standard Operating Procedure (SOP). A private healthcare office was selected in Selangor, Malaysia. Since the Government has imposed MCO, the first author could physically access one private healthcare office with permission to conduct the study. A total of 103 administrative staff from various healthcare office departments agreed to participate in this study as respondents. Three office departments involved in the study were, Outpatient Admission Center, Information Technology, and Finance. Due to their busy daily work schedule, we use a convenience sampling technique to select respondents based on their time availability to answer our questionnaire. The questionnaire was derived from a standardized Dutch Musculoskeletal Questionnaire [7]. The authors analyzed all data by using SPSS version 20.

3. RESULT AND DISCUSSION

Table 1 shows a high prevalence of lower back pain (68%) in the lifetime of the administrative staff. The 12-months majority of lower back pain (68%), and the 7-days prevalence of lower back pain (54.4%). The administrative staff also reported high prevalence in the neck, upper back, shoulders, hands or wrists, knees, feet or ankles, and hip or thighs in their lifetime, in 12-months and 7-days prevalence, respectively.

Table 1. Prevalence of MSD in a lifetime, 12 months, and 7 days among administrative staff at the healthcare office (N=103)

Body region	Frequency (%)		
	Lifetime	In 12 months	In 7 days
Neck	63 (61.2)	57 (55.3)	55 (53.4)
Upper back	34 (33.0)	31 (30.1)	29 (28.2)
Lower back	70 (68.0)	70 (68.0)	56 (54.4)
Shoulders	48 (46.6)	35 (34.0)	34 (33.0)
Elbows	11 (10.7)	7 (6.8)	7 (6.8)
Hands/wrists	33(32.0)	30 (29.1)	21 (20.4)
Hips/thighs	17(16.5)	9 (8.7)	11 (10.7)
Knees	21 (20.4)	16 (15.5)	11 (10.7)
Feet/ankles	33 (32.0)	23 (22.3)	21 (20.4)

The number of administrative staff who participated by gender was 21 male (20.4%) and 82 female (79.6%). Table 2 shows that most male respondents had Lower Back pain or discomfort (61.9%), followed by Upper Back, Neck, Lower Limbs, Upper Limbs, and Shoulders. However, most female respondents had Neck pain or discomfort (68.3%), followed by Lower Back, Shoulders, Upper Limbs/Lower Limbs, and Upper Back. In this study, females were found to show a higher percentage of MSDs in most body regions than males except Upper Back pain or discomfort. This result is similar to a study in China which found that female workers had a higher incidence of MSDs than male workers [8].

Table 2 Percentage of pain or discomfort among administrative staff at the healthcare by gender (N=103)

Body regions	Gender, Frequency (%)	
	Male (n=21)	Female (n=82)
Neck	6(28.6)	56(68.3)
Upper Back	9(42.9)	25(30.5)
Lower Back	13(61.9)	53(64.6)
Shoulders	3(14.3)	44(53.7)
Upper Limbs	4(19.0)	27(32.9)
Lower Limbs	5(23.8)	27(32.9)

The list of job tasks performed by the administrative staff at the healthcare office has been identified by the respondents (Prolonged standing; Prolonged sitting; Moving heavy loads; Exertion of arms/hands; Twisting posture; Repetitive tasks; Prolonged squatting/Kneeling; Prolonged computer use; Prolonged head down posture; Prolonged same position; Prolonged uncomfortable position; and Poor back support). All of them worked a regular working hour (eight hours per day and five working days per week). Although the total working hours before and during the COVID-19 pandemic were the same, we observed that the daily administrative workload during the pandemic was higher than before. The results show that prolonged computer use (57.3%) and the same prolonged position (41.7%) have been reported as "always" job tasks performed by respondents at the healthcare office.

This study also found a significant association between level of education and lower back pain or discomfort for the repetitive job task among administrative staff at the healthcare office (χ^2=10.01, p=0.04). Therefore, administrative staff who had MSD was associated with their demographic factor.

Moreover, differences of pain or discomfort of body region between males and females are possibly due to the segmented job tasks by gender at the healthcare office.

4. CONCLUSION

Administrative staff at the healthcare office found to have the risk of MSD, especially during the COVID-19 pandemic. Although administrative staff at the healthcare office were not directly involved in handling the COVID-19 patients, their office workload tremendously increased. As a recommendation, every administrative staff at the healthcare office must apply good working practices regardless of their work scope. The healthcare office must continuously improve ergonomics in the office and provide a healthy working environment to all the staff to reduce the risk of MSDs.

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REFERENCES

[1] Marucci-Wellman HR, Courtney TK, Corns HL, Sorock GS, Webster BS, Wasiak R, Noy YI, Matz S, Leamon TB. The direct cost burden of 13years of disabling workplace injuries in the U.S. (1998-2010): Findings from the Liberty Mutual Workplace Safety Index. J Safety Res. 2015, 55:53-62.

[2] T.-B. Ryu, J.-B. Song, M.-H. Yun, and J.-H. Lim. Relationships of Musculoskeletal Disorder Symptoms and Perceived Workload among Hospital Workers. Journal of the Ergonomics Society of Korea. 2012, 31(5):687–694.

[3] Madadizadeh F, Vali L, Rafiei S, Akbarnejad Z. Risk factors associated with musculoskeletal disorders of the neck and shoulder in the personnel of Kerman University of Medical Sciences. Electron Physician. 2017, 9(5):4341-4348.

[4] Tânia M. Lima, Denis A. Coelho, Ergonomic and psychosocial factors and musculoskeletal complaints in public sector administration – A joint monitoring approach with analysis of association, International Journal of Industrial Ergonomics. 2018, 66:85-94.

[5] Escobar Galindo C.M., Rodriguez Rojas R.R., Villalobos Tupia J.E., Veliz Terry P.M. Work-Home System Analysis and Musculoskeletal Discomfort of Workers in Covid-19 Pandemic Context. In: Black N.L., Neumann W.P., Noy I. (eds) Proceedings of the 21st Congress of the Int'l Ergonomics Association. 2021. 222.

[6] Gholami T, Maleki Z, Ramezani M, Khazraee T. Application of Ergonomic Approach in Assessing Musculoskeletal Disorders Risk Factors among Administrative Em-ployees of Medical University. International Journal of Musculoskeletal Pain Prevention. 2018, 3(2):63-67.

[7] Hildebrandt VH, Bongers PM, van Dijk FJ, Kemper HC, Dul J. Dutch Musculoskeletal Questionnaire: description and basic qualities. Ergonomics. 2001, 44(12):1038-55.

[8] Yu W, Yu IT, Li Z, Wang X, Sun T, Lin H, Wan S, Qiu H, Xie S. Work-related injuries and musculoskeletal disorders among factory workers in a major city of China. Accid. Anal. Prev. 2012, 48:457-63.