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Musculoskeletal discomfort (MSD) in female office workers: An exploratory investigation

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ABSTRACT

Predictors associated with musculoskeletal discomfort (MSD) are multi-factorial, including physical, psychosocial, and individual factors. However, with most of the studies on musculoskeletal disorders being undertaken in developed countries; it is plausible that the findings might not be relevant due to differences in work culture and organizational practices in various developing countries. Given this, the current study aimed to examine the prevalence rate of MSD among female office workers in public organizations. A questionnaire survey was employed to measure job satisfaction, work-life balance, mental health, and MSD levels among female office workers (N=333) from four public sector organizations. The 6 months MSD prevalence was 93.4% (95%CI = 90.9-95.8%). Besides, the most frequently experienced MSD among participants in this present study was on the neck/shoulder (92%), lower back (87.5%), lower extremity (82.4%), and hand/fingers (75%). The findings suggested that female office workers in Malaysia did experience MSD and suffer from it in various body regions. In addition, the results further demonstrate the need to develop MSD risk management in the workplace, particularly among female office workers. Nevertheless, further examination of MSD in various types of occupations that employed women to minimize MSD at the workplace is also needed.

Keywords: musculoskeletal discomfort, prevalence, female, office workers, body region

1.0 INTRODUCTION

Work-related musculoskeletal disorders (MSD) are common among numerous occupations in both developed and developing countries [1][2]. The effect of MSD is quite enormous and was considered a work-related disease that is eligible for compensation in various developed countries [2][3]. Given this, it was predicted that the increasing number of MSD particularly in developing countries is evidenced by the rising number of cases [2][3].

The aetiology of MSD is multi-factorial: a range of physical, psychosocial, and individual hazards contribute to the development and exacerbation of these disorders [2][4]. However, most of the studies on MSD were undertaken in developed countries and may not apply in developing countries. This is shown by the variation in both prevalence and predictors associated with MSD between countries [5] [6]. Differences in the socio-cultural context that exists between countries such as work practices and culture have been reported to influence the differences in the prevalence and risk factors associated with MSD [7][8].

Given that, studies on the prevalence and predictors that contributed to MSD were lacking in developing countries [9][10]; the present study aims to investigate the prevalence of MSD and the frequency of MSD experienced by female officers based on body regions. The outcome of the study could assist in the development of strategies and interventions to minimize MSD in the workplace, particularly in developing countries.

2.0 DATA AND METHODOLOGY

Respondents

Three hundred and thirty-three (52.3% response rates) female office workers participated in this study. The justification for selecting only women's participation was based on the higher reported prevalence of MSD in females compared to their male counterparts [4][11]. Participants were from a supporting group (lower group) that has an average of 10 years of working experience and the mean age is 34.6 years. Approval from the University's Institutional Review Board (IRB: FPP: 2019-02-018) was received for the present study.

Variables

The dependent variable for the study was musculoskeletal disorders which were measured using a self-reported MSD questionnaire [12]. The discomfort/pain ratings (both frequency and severity) were recorded separately for five body regions including neck and shoulder, hand and fingers, and middle to lower back. The frequency was recorded on a scale of 0-4 (never, to almost always), and severity from 1 to 3 (mild, moderate to severe discomfort). The Cronbach alpha for this scale is .92.

Data analysis

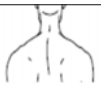
All statistical analysis was conducted using IBM SPSS Statistics 22 (IBM Corp. Released 2012, Armonk, NY). Corrective tests using Harman's one-factor test were used to examine common method variance [13]. A single factor did not emerge, and the general factors did not account for 50% of the total variance indicating that common method variance was not a significant issue in this study [14]. Also, frequency distributions were used to describe the individual characteristics of the study population, the frequency, and the prevalence of MSD.

3.0 RESULTS

Descriptive data

Participants in the study were 333 female workers with a mean age of 34.6 (SD=9.12). The 6 months prevalence of MSD was 93.4% (95%CI = 90.9-95.8%). Most workers were in the youngest age group (i.e., 20-39 years), working between 40 and 54 hours per week. Table 1 shows the frequency of MSD based on body regions. Based on body region respondents reported that they suffered the most on their neck/shoulder (92%), followed by middle to lower back (87.5%), hips, bottom, legs, and feet (lower extremity) (82.4%), hands/fingers (75%), and finally at their arms (57.1%).

Table 1: MSD based on body regions

	Body regions	Frequency (%)
	Neck/shoulder	92%
	Middle to lower back	87.5%
	Hips, bottom, legs & feet (lower extremity)	82.4%
	Hands/fingers	75%
	Arms	57.1%

4.0 DISCUSSION AND CONCLUSIONS

The study found the prevalence rate of MSD among participants was very high consistent with previous studies conducted in Malaysia [9] and other previous studies [15]. However, other studies that investigated similar types of occupations also reported a low level of prevalence rates that might be attributed to definitions used to identify those individuals with symptoms, methodologies, or the underlying population [1][16]. Other influences on the different prevalence rates between countries may be explained by the availability of compensation systems and financial support for health-related incapacity for work. Thus, it may contribute to the reporting of such injuries in developed countries by workers [17]. Besides, other differences might be explained by differences in exposure to various workplace hazards [17], pain thresholds [18], and socioeconomic conditions [8] between each of the populations. Further, organizational practices and work culture differences might influence the workers' perception and tolerance of pain and their willingness to report MSD [6]. Moreover, another possible explanation is women bore more heavy housework responsibilities than men in daily life, and differences in household task participation may also explain musculoskeletal differences between men and women [19][20].

In terms of body regions, female office workers in this study reported having suffered from MSD on their neck/shoulder (92%). This finding is consistent with previous studies [21]. Further, the result also shows that other bodily regions such as the middle to the lower back of female office workers also experience MSD which is in line with previous studies [22]. The study also reported that female office workers suffer from MSD in their hands/fingers and arms which is similar to the previous studies [23]. The plausible explanation of various bodily regions that female office workers from MSD are due to the fact of the nature of the office workers. Previous studies show that office workers experienced MSD (e.g., neck/shoulder pain) because of the placement of the mouse or input device too far which may explain why their shoulders are in an abducted position that may increase the risk of experiencing MSD [23]. Furthermore, evidence also shows that office workers also suffer from neck/shoulder pain due to their posture remaining the same throughout the working period [21]. Moreover, Rajput et al., [21] also contended the association between the severity of incorrect posture and MSD, particularly head, neck, and shoulder pain. This claim might be true if we take into account the nature of the work performed by office workers. The usage of computers by office workers has been linked to MSD [24]. Hence, office workers are also frequently exposed to repetitive movement, awkward posture, and manual handling tasks which are risk factors for developing MSD symptoms.

This study has several strengths and limitations. One of the study's strengths is that it investigates the prevalence of 6 months of MSD which was higher for females that were consistent with previous literature. This is further supported that past evidence that female office worker groups have an increased risk of developing MSD compare to their male counterparts. However, the present study also suffers from some drawbacks. The sample used in the study was female workers in the public sector only. This self-selected sample may hinder the generalizability of the findings to other occupational groups, in the public and private sectors. Likewise, other limitations such as lack of information on the nature of work, the variations in exposure to risk factors, and the workplace are also present in this study. Data were collected using self-report and therefore are subject to limitations such as recall bias. Besides, other factors that might contribute to the development and exacerbation of MSD among office workers have not been included in the present study such as physical and psychosocial factors. Given this, not only careful interpretation of the findings should be applied, but also a further investigation of predictors such as physical and psychosocial factors concerning MSD, particularly in developing countries such as Malaysia. Further, a 'healthy worker' effect is also possible as workers with MSD might have moved to other organizations and thus, they were not represented in the current study, however, the high prevalence rates would suggest this is an unlikely finding.

Malaysian female office workers experiencing MSD are similar to their counterparts around the world. Although studies on the prevalence and predictors associated with MSD have been extensively explored in developed countries, it has not been a key focus in developing countries such as Malaysia. Thus, it is the task of the responsible authority to conduct more studies concerning the prevalence of MSD based on the body diagram which can assist in early detection, developing prevention strategies,

and risk management to help improve health outcomes. Future research should also cover studies on the prevalence of MSD in various occupations that employed women since they are the vulnerable group that easily develops MSD symptoms.

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