

# Measuring Absenteeism and Presenteeism among Workers with Work-Related Musculoskeletal Disorders (WRMDs)

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## Abstract

Productivity is a major concern in any organization. The success and failure of the organization are determined by this factor. The indicator of worker productivity (index) could be measured using absenteeism, disability (consisting of scattered illness and short-term disability absences) and presenteeism. One of the antecedents of productivity is work-related musculoskeletal disorders (WRMDs). The scarcity of empirical evidence on the prevalence of WRMDs has prompted the present study to be undertaken in the effort to create cognizance of the issue among the management and other parties concerned so actions can be taken to resolve it. The present study was undertaken involving administrative workers in one of the public universities in Malaysia using a quantitative research approach. They were purposively selected based on certain criteria decided by the researchers to ensure the representativeness of the samples. Using logistic multiple regression analysis, the results of the analysis revealed that five regions of the body: shoulders, elbows, wrists/hands, hips/thighs, and ankles/feet are prone to WRMDs, and these regions negatively influence absenteeism and presenteeism of the administrative workers. The findings should not be taken lightly by the management as the consequences are severe. Several strategies are recommended to be taken by the management and followed by the workers to address the problem of WRMDs among them so that the problem of low productivity can be resolved.

**Keywords:** Absenteeism, Presenteeism, Work-Related Musculoskeletal Disorders

## Introduction

Work-related musculoskeletal disorders (WRMDs) are the major causes of lost workdays, increased presenteeism and treatment costs, as well as occupational diseases in all countries around the world (Abdullah et al., 2015, Saberipour et al., 2019, Heidarimoghdam et al., 2020). It has also become a critical workplace problem affecting occupational health, productivity, the careers of employees, and leading to economic loss. The use of computers in the office environments has increased dramatically, which is consequently accompanied by a number of health problems such as work-related musculoskeletal disorders (WMSDs), mostly in the neck and upper extremities (Juul-Kristensen et al., 2006; Arman, 2019; Sohrabi & Babamiri, 2021; Tersa-Miralles et al., 2022).

Office workers are often required to sit for long hours in front of a computer. Sitting for more than half a workday, in combination with poor working postures, has been found to increase the risk of experiencing low back pain (Lis et al., 2007). Furthermore, sitting at work (more

than 95% of the working time) has been found to be a risk factor of neck pain in office workers (Chinedu et al., 2020). Prolonged sitting in a constrained or fixed posture has been found to be associated with the development of perceived discomfort in the neck, upper extremity, and low back (Nakphet et al., 2014; Waongenngarm et al., 2015). A study conducted by Waongenngarm et al. (2020) among office workers demonstrated that 4 hours of sitting led to increased perceived musculoskeletal discomfort in all body regions over time. The body regions with the highest perceived discomfort were the low back, buttocks, upper back, thigh, and neck.

In Malaysia, WRMDs are an increasing trend, as shown in the SOCSO report in 2014. Following the annual report of SOCSO in 2014, the number of cases increased sharply from 15 cases in 2006 to 517 cases in 2013, which is an increment of 34 folds within seven years (SOCSO, 2014). Based on the annual report of SOCSO, the number of cases rose to 1,607 in 2016 (SOCSO, 2016). Most research related to WRMDs has been undertaken in developed countries. Therefore, given the different regulatory and cultural practices, it is plausible that the hazard and risk factors' contributions may be different (Maakip, 2016). Thus, this study aims to investigate the effects of WRMDs on absenteeism and presenteeism among office workers.

## **Literature Review**

### *Absenteeism and WRMDs*

The indicator of worker productivity (index) could be measured using absenteeism, disability (consisting of scattered illness and short-term disability absences) and presenteeism (Burton et al., 1999). Absenteeism can occur when an employee is sick, injured on the job (and draws workers' compensation), goes on short or long-term disability, takes family medical or unpaid leave, or is lost to the workforce (e.g., due to a chronic illness). Absenteeism can lead to increased use of substitute temporary workers and overtime and can also create team dysfunction. Many companies find it difficult to develop tracking systems that measure all elements of absenteeism. Absenteeism has been defined as the number of days missed from work or the time missed from work due to health problems (Boles et al., 2004) and may include personal illness days, short and long-term disability, or workers compensated days (Lowe, 2003). According to Burton et al. (1999), absenteeism refers to time loss as a result of being away from work (sometimes called sickness absence), while presenteeism refers to time loss as a result of being at work but not performing at full capacity (sometimes called sickness presence).

WRMDs are a major occupational health problem and the main cause of sickness absence from work in France in terms of reduced worker productivity and product/work quality and increased costs. It is accepted that WRMDs have a significant impact on people's ability to work. However, only a few studies have quantified the influence of WRMDs on work status. One study showed that a third of French workers had not returned to work in the same company two years after acceptance of their compensation claims for upper-limb WRMDs. This study showed the impact of musculoskeletal pain on employment outcome and the difficulty of keeping workers with musculoskeletal problems at work (Sérazin et al., 2013). In a cross-sectional study by Alexopoulos, Stathi and Charizani (2004), the result shows that a high prevalence for back, neck, shoulder and hand/wrist pain lead to a significant proportion of the subjects reporting chronic complaints, medical care seeking and absenteeism. Therefore, it can be concluded that musculoskeletal sickness absence is related to perceived exertion and family situation and holds a central role in absenteeism and medical care seeking.

### *Presenteeism and WRMDs*

The word presenteeism is defined by many authors as coming to work regardless of impaired physical or psychological health issues (Demerouti et al., 2009) and attending work in spite of health problems (Johns, 2010). It is a state in which an individual comes to work while being sick (Palo & Pati, 2013) and may imply physical presence and psychological absence (Karanika-murray, Pontes, Grif, & Biron, 2015). Presenteeism according to Malaysia's Healthiest Workplace by AIA Vitality (2018) survey means, employees are present at work but are constrained by health problems to carry out their daily activities. A recent study by Ruhle, et al., (2020) defines presenteeism as the behaviour of working in a state of ill-health. Indeed, presenteeism occurs when a worker continues to work despite the fact that he or she is not physically fit or, sometimes, they show up for work but do not actually perform at their best.

Presenteeism has been linked to many medical issues including musculoskeletal discomfort. Although the workers are in pain, they feel compelled to be physically present at work. Past studies have revealed that self-reported general health is strongly linked to less severe somatic symptoms including musculoskeletal symptoms which are less severe (Karanika et al., 2015). This is consistent with the results obtained by Santos, Marziale and Felli (2018), that also showed presenteeism is significantly correlated with WRMDs. This demonstrates that musculoskeletal diseases can impair worker performance, even if they are present at work notwithstanding pain.

Administrative personnel are prone to presenteeism since they spend so much of their time in a sedentary position. Maakip, Keegel, Tessa and Oakman (2015) recorded a high prevalence rate for self-reported musculoskeletal disorders/discomfort of 92.8% in their study of public sector office workers in Malaysia. Similarly, Noorhashirin et al., (2018) study reported that the prevalence of musculoskeletal disorders among office workers in Lembaga Tabung Haji Malaysia Kuala Lumpur was 82.3%, which was considered high too. A recent study conducted in three public sector organizations in Malaysia, by Ayman Shamsul, Ng and Karmegam (2020) described those workers who were more likely to report presenteeism also reported musculoskeletal symptoms. Employees may be hesitant to take time off owing to many personal reasons or company culture. They may opt to come to work despite being sick if they are afraid of losing their employment, or their working culture is less encouraging and more restrictive about absenteeism.

### *Presenteeism and Work Productivity*

Individuals are affected differently by WRMDs. Although there are numerous works that lead WRMDs to presenteeism, there were other studies that discussed this issue with a decrease of productivity. A study by Collins et al. (2005) claims that working while sick reduces overall productivity even more than absenteeism. Meanwhile, John (2010) explains that presenteeism might worsen medical conditions, lower the quality of working life and lead to perceived decreased work efficiency as a result of reduced productivity. Even though Schultz, Chen, and Edington (2009) believe that presenteeism is difficult to determine, a number of studies have demonstrated evidence that loss of productivity is greater with presenteeism than absenteeism (Baker et al., 2010; Agaliotis et al., 2013; Brunner et al. 2013). Likewise, Evans-Lacko & Knapp (2016) state that presenteeism causes more direct and indirect productivity loss and is more costly than absenteeism. The results of some studies have also shown a significant association between the reported prevalence of musculoskeletal disorders and productivity loss in terms of "presenteeism" (Ng et al., 2014). There are many studies that linked productivity loss caused by attending work with health problems (Burton, Chen, Li, Schultz & Abrahamsson, 2014), and these include the effect of musculoskeletal disorders among office workers on productivity (Winona-Pit & Hansen,

2016; Daneshmandi et al., 2017). This shows that presenteeism increases the likelihood of workers making mistakes and obstructing their ability to be totally efficient, leading to a drop in production.

Management is also becoming increasingly concerned about presenteeism in the workplace. According to the findings of AIA-Vitality's Malaysia's Healthiest Workplace report, in the year 2017, workers in Malaysia lost an average of 67 days per year due to absenteeism and presenteeism, with an average yearly cost per organization of roughly RM2.7 million. The finding further revealed that presenteeism was responsible for 58.8 days (87.7%) of the 67 days lost. Another AIA Vitality (2018) survey indicated that 85% of employees had been reported to have one or more musculoskeletal conditions. In a 2019 survey by AIA Vitality, Malaysians also continued to be largely sedentary, whereby 8 out of 10 workers were suffering from at least one musculoskeletal condition, and productivity loss was 73.3 days per employee per year. On the contrary, Ruhle et al. (2020) argue that not every health problem necessarily leads to productivity loss or negatively impacts employees' future health and working ability. Despite their bad physical state, some workers were present in order to show their commitment and still able to retain work performance.

### **Methodology**

The purpose of this study is to investigate the association between WRMDs and absenteeism and presenteeism among respondents. The sampling frame was based on a list of office workers who held the job position as administrative assistant-clerical and operation (N-17), senior administrative assistant-clerical and operation (N-22), administrative assistant-financial (W-17) and senior administrative assistant-financial (W-22) from the Universiti Teknologi MARA (UiTM) in Peninsular Malaysia. The respondents' criteria included working full time in the office, spending over six hours per day at their workstation, and working in the same position over 12 months. The data were collected through printed questionnaires that were personally administered to the respective respondents within 3-months (July-September 2017). This study was approved by the Administrative Office (Pejabat Pentadbiran) of each campus to conduct and collect the data.

The questionnaire was adapted from the established questionnaire, and the items were modified to get the required response to the research questions. The questionnaire consisted of two sections. Section A focused on measuring the prevalence of WRMDs among respondents. The survey was adapted from the shortened version of the Nordic Musculoskeletal Symptom Survey. Previous studies had shown the validity of the Nordic Questionnaire in assessing WRMDs (Descatha et al., 2007). Section B focused on measuring productivity, i.e., presenteeism using the Quantity and Quality (QQ) instruments (Meerding, Ijzelenberg, Koopmanschap, Severens & Burdorf, 2005). The questionnaire utilized closed-ended questions with a fixed range of possible answers as well as a 5-point Likert scale with the following values: 1 = never, 2 = seldom, 3 = sometimes, 4 = fairly often, and 5 = very often to measure absenteeism and presenteeism. The section pertaining to the WRMDs symptoms used the "yes" or "no" type of response. The collected data were analyzed using the statistical software, i.e., SPSS Version 23. The study employed both descriptive and inferential statistics. The descriptive statistics included mean and standard deviation. Besides, multiple regression analyses were used to measure the effects of WRMDs on absenteeism and presenteeism.

### **Results**

#### *Profile of respondents*

For data collection, a total of 393 sets of questionnaires were distributed. In addition, the data were personally collected from the respective respondents. After three months, 368

questionnaires were collected. These data were equivalent to the response rate of 93.6%. The analysis of the data indicated that 68.8% of the respondents who participated in this study were female, and 31.3% were male. Most of them, 25%, were from the age group of 25 to 30-year-olds, followed by 24.5% in the age group of 31 to 35-years-old, 14.1% of them were from the 46 to 50 age group, 12.8% of them were above 50, 11.1% were in the age group of 36 to 40-year-olds and 8.2% were from the category of 41 – 45-year-olds. However, only 4.3% of the respondents were below 25. For the current job position, 56.3% of the respondents worked as Administrative Assistant-Clerical and Operation (N17), 19% of them were Senior Administrative Assistant-Clerical and Operation (N22), 15.8% were Administrative Assistant-Finance (W17), and 9% of them were Senior Administrative Assistant-Finance (W22).

In the context of the respondents' experience in their current position at the workplace, it was found that 112 (30.4%) of them had been working for 6 to 10 years, and 109 (29.6%) of them have had the working experience of 1 to 5 years. Besides, 82 respondents (22.3%) had working experience of more than 20 years while 39 (10.6%) of them had 11 to 15 years and only a minority of them, namely 14 respondents (3.8%) had been working for 16 to 20 years, and 12 (3.3%) of them had less than 1-year of working experience. Concerning marital status, the majority of the respondents were married, comprising 306 respondents (83.2%), 52 of them (14.1%) were single, and only 10 (2.7%) of them were divorced.

#### *Multiple Regression Analyses*

In order to test the research hypotheses, a series of multiple regression analyses were conducted. The analysis examined to what extent WRMDs dimensions consisted of nine body regions such as the neck, shoulders, upper-back, elbows, wrists/hands, lower back, hips/thighs, knees, and ankles/feet predicted productivity among office workers (absenteeism and presenteeism). Musculoskeletal disorders were gauged using categorical data. They were coded into binary codes (0 and 1). 0 is considered as a reference group and 1 is considered as a treatment group. However, only the treatment group was entered into the regression model. The results of this treatment group were compared with the reference group.

Table 1 summarizes the results of multiple regression analyses between WRMDs and productivity i.e., absenteeism and presenteeism. Pertaining to the evaluation of work productivity, both regression models (absenteeism and presenteeism) show significance F change ( $F(10, 362) = 8.152, p = 0.000$ ;  $F(10, 362) = 13.753, p = 0.000$ , respectively), indicating that the inclusion of independent variables improved the models significantly.  $R^2$  Change of 0.173 and 0.259 indicates that the inclusion of independent variables in the respective models explained additional variance of 17.3% and 25.9% for work productivity evaluation that was represented by absenteeism and presenteeism, respectively. However, this additional effect size is, by no means, small (Cohen, 1992).

However, small effects can be significant not only because they have practical consequences, nor because they accrue into more significant effects, nor because they lead to theoretical revision, but because they hold steadily even under the most inauspicious circumstances (Prentice & Miller, 1992). Besides, the size of an effect depends not just on the relationships between the independent and dependent variables but also on the operations used to generate the data (Prentice & Miller, 1992).



Table 1: Summary of the Influence of WRMDs Dimensions on Productivity Dimensions

Independent variables	Productivity Dimensions	
	Absenteeism	Presenteeism
Neck	.092	.084
Shoulders	.092	.154**
Upper-Back	.085	.053
Elbows	.160***	.081
Wrists/Hands	-.029	.097*
Lower-Back	.022	.049
Hips/Thighs	.123**	.144***
Knees	-.028	.010
Ankles/Feet	.116*	.123**
R <sup>2</sup>	.173	.259
Adjusted R <sup>2</sup>	.152	.240
R <sup>2</sup> Change	.173	.259
F Change	8.152	13.753
Significance F Change	<b>.000</b>	<b>.000</b>
Durbin-Watson	1.861	1.896

Notes: \*\*\* significance at the .01 level; \*\* significance at the .05 level; \* significance at the .1 level

Five independent variables significantly influence the dependent variables. It is apparent that the respondents reported that shoulders disorder during the last 12 months has significantly influenced their work productivity. The evaluation of work presenteeism such as working with the lack of concentration, working at a slower pace, putting off some of the routine work and having more difficulty in making decisions ( $\beta = .154$ ,  $p < .05$ ). Besides, it is noticeable from the result that the respondents report that elbow pain during the last 12 months has significantly influenced their work productivity in terms of the evaluation of work absenteeism – being absent from work, taking sick leave and emergency leave ( $\beta = .160$ ,  $p < .1$ ).

On the other hand, wrists/hands disorders during the last 12 months have been reported by the respective respondents as well. Another significant influence on productivity evaluation is work presenteeism ( $\beta = .097$ ,  $p < .01$ ). Furthermore, the result revealed that the hips/thighs disorder that the respective respondents have reported during the last 12 months have significantly influenced productivity evaluation of work absenteeism ( $\beta = .123$ ,  $p < .05$ ) and work presenteeism ( $\beta = .144$ ,  $p < .1$ ). In addition, ankles/feet disorders during the last 12 months, as reported by the respondents, significantly influence productivity evaluation of work absenteeism ( $\beta = .116$ ,  $p < .01$ ) and work presenteeism ( $\beta = .123$ ,  $p < .05$ ). The result reveals that the other regions of WRMDs, such as neck, upper-back, lower-back, and knees disorders, do not significantly affect productivity.

## Discussion

### WRMDs

The results showed that WRMDs have been prevalent among administrative workers during the last 12 months, especially at the shoulders (73.4%), upper-back (70.1%), neck (67.1%), which was very high. The results of this study are consistent with numerous findings from previous work in this field. For example, a survey conducted by Swanson and Sauter (2006)

on office workers reported that the percentage of participants with musculoskeletal disorders for the regions, mainly, neck, shoulders and upper back was very high compared to other regions. Furthermore, a study conducted by Heidarimoghdam et al. (2020) also revealed that the highest prevalence of musculoskeletal disorders was found in the neck (52.13%), right shoulder (41.16%) and right forearm (37.2%), respectively. A similar study by Noorhashirin (2018) exposed that the highest prevalence of WRMDs for the last twelve months was on the shoulders (68.1%), followed by neck (63.8%), lower back (56.0%), upper back (54.3%), knee (39.7%), wrist/hand (30.6%), hip (24.6%), ankle (22.0%), and elbow (15.5%). Besides, a 12-month study on the prevalence of WRMDs on body parts was conducted by Adegoke, Akodu and Oyeyemi (2008) among physiotherapists in three countries involving Nigeria, the United Kingdom and Australia. The findings revealed that most respondents claimed that they suffered from neck, shoulders, upper-back and lower-back disorders.

Furthermore, the present study results indicated that due to the prevalence of WRMDs on certain parts of the body such as knees, upper-back and shoulders, administrative workers were prevented from carrying out their normal activities such as jobs, housework, and hobbies during the last 12 months. This suggests that the problem of WRMDs had prevented them from performing daily activities and hobbies. The results also specified that almost half of the respondents who claimed they suffered from WRMDs had seen a physician during 12 months. This indicated that those who suffered from WRMDs required treatment from medical practitioners either in panel clinics or hospitals.

The results of the present study revealed that within the last seven days, the prevalence of WRMDs, as reported by respondents, was slightly high for shoulder disorder (40.5%), upper-back disorder (38%) and neck pain (35.9%). Only 6.5% of the respondents had pain/tingling in the elbows. This is consistent with the findings from previous studies (Swanson & Sauter, 2006; Adam et al., 2007). People who work in office environments were most likely to suffer from lower back pain and neck stiffness due to long hours of sitting with minimal movement. The mundane day-to-day routine of hunching over the computer keyboard and cradling the phone between the ear and shoulder caused the administrative workers to become more vulnerable to pain in their back and neck. After a review of more than 31 studies associated with posture-induced musculoskeletal disorders in various industries, the U.S. Department of Health and Human Services (Bernard, 1997) concluded that there were strong evidence and verification on the relationship between static and/or extreme postures and WRMDs, especially those concerning the neck, shoulder and lower back. A recent study by Basakci Calik et al. (2022) revealed that WRMDs are increasing due to overuse of desktop computers. The most painful areas of participants using desktop computers were the upper back, neck, lower back and shoulder.

#### *Productivity (Absenteeism and Presenteeism)*

The levels of absenteeism and presenteeism reported by administrative workers during the past six months due to musculoskeletal disorders are also discussed. In the analysis of absenteeism among respondents, most of them had rarely taken sick leave and annual leave and claimed they were sometimes absent from work due to musculoskeletal disorders. Thus, the results provided clues that WRMDs might significantly affect and contribute to the level of absenteeism among administrative workers.

With regard to the investigation on work presenteeism, the current results revealed that they went to work. Still, due to health problems, most of them (more than 50%) claimed that they had problems concentrating, they worked at a slower pace, and they had to seclude themselves from others. They also found that decision-making became more complex, they had to put off some of the work, and they claimed that others had to take over some of their work. The present findings seemed to be consistent with other research. For example, a study

was conducted across the Swedish workforce, and it demonstrated that during a period of 12 months, about 37% of all workers experienced sickness presenteeism (Aronsson, Gustafsson & Dallner, 2000).

#### *The Influence of WRMDs on Productivity*

The current study results revealed that elbow, hips/thigh and ankle/feet disorders have a significant influence on absenteeism. It can be interpreted that people who suffer from disorders in the three regions of the body, namely elbows, hips/thighs and ankles/feet are more probably to be absent from their job. These results are consistent with those of the previous studies, which revealed that the effects of WRMDs, especially involving elbows and ankles/feet, on workers' absenteeism had been a common subject in previous studies (Lotters, Meerding & Burdorf, 2005; Beaton & Kennedy, 2005). The current results revealed that the WRMDs, especially elbow, hips/thigh and ankles/feet disorders suffered by the workers were considered serious and caused them to take time off from work, such as sick leave and emergency leave.

However, the outcomes of multiple regression analyses showed that these results were not statistically significant between WRMDs. This can mainly be seen in the outcomes involving upper extremities and absenteeism. For example, in a cross-sectional study, Alexopoulos, Stathi and Charizani (2004) found that a high prevalence of back, neck, shoulder and hands/wrists' pain was high. In addition, a significant proportion of the subjects reported chronic complaints and absenteeism. Furthermore, the prevalence of absenteeism due to WRMDs, especially lower-back pain among the general worker population, was high, i.e., between 9% – 18% (Widanarko et al., 2012; Hooftman, Beek, Bongers & Mechelen, 2009). Therefore, it can be concluded that absence due to musculoskeletal sickness is related to perceived exertion and family situation, and it holds a central role in absenteeism (Alexopoulos et al., 2004). The discrepancy in the results of this study is likely to be due to the differences between the populations studied, i.e., the population of administrative workers in this study versus general working populations in the other studies. In addition, the differences may also be due to differences in demographic factors such as the background of the respondents.

On the other hand, the shoulders, wrists/hands, hips/thighs and ankles/feet disorders had significant effects on presenteeism. It seems that work presenteeism depends on musculoskeletal injuries, especially wrists/hands, hips/thighs as well as ankles/feet. A previous study proved that workers with shoulder disorders worked reduced hours (Roy, Desmeules & MacDermid, 2010). The results of the current study highlighted that those workers who suffered from WRMDs had mainly shoulder, wrists/hands, hips/thighs and ankles/feet disorders causing a high impact on work presenteeism such as “work with problem in concentrating on their task, work at a slower pace, put off some of the routine work and more difficult in deciding their routine work”.

However, this study could not demonstrate the relationship between musculoskeletal disorders such as upper-back, lower-back and knee disorders and presenteeism. For example, in the United Kingdom, the impact of presenteeism due to lower-back pain may well be higher due to the loss of productivity (Wilkie & Pransky, 2012). A possible explanation for this might be that although administrative workers suffered from WRMDs, it did not limit them from concentrating on their job in the workplace. They can normally perform their work, thus their performance and productivity are not affected.

#### **Implications of the study**

There are a few practical and theoretical implications that can be derived from the findings of the present study. First, administrative workers are required to follow the SOP when performing their tasks; for example, having regular breaks between the work activities help



workers from experiencing WRMDs. Doing one task at one time prevents them from engaging WRMDs. Second, asking for help and following the right procedures when lifting heavy loads reduce the risks of having WRMDs. Finally, positioning office supplies and equipment at the right place helps reduce the unintended consequences to the workers.

All the examples in lowering the risks from experiencing WRMDs will be in vain if the management does not properly enforce the required rules and regulations onto the employees. The rules and regulations, and the process and the procedures must be clearly communicated to the workers. In addition, stern punishment will be taken on those who fail to obey the rules and regulations. In the beginning, it would seem hard on the workers, but later, they will find it helpful in reducing the negative consequences of their defiance.

The findings of the present studies provide empirical evidence on the prevalence of WRMDs on administrative workers' productivity, which was measured using absenteeism and presenteeism. The study confirmed that different parts of the body would be affected when performing different office tasks. These different regions of WRMDs will negatively affect productivity; absenteeism, and presenteeism. Future studies are suggested in order to develop the nomological networks of the effect of WRMDs on different regions of the bodies and the subsequent final outcome of these effects, such as work engagement and the likes.

### **Conclusion**

The findings of the present studies provide empirical evidence on the prevalence of WRMDs on administrative workers' productivity, which was measured using absenteeism and presenteeism. The study WRMDs are common problems faced by administrative workers. They are expected to negatively affect their productivity. This study was undertaken to provide hard evidence on this claim. This study found that two regions of WRMDs; namely the hips/thighs and ankles/feet, are important regions associated with productivity. According to Horsley (2011), presenteeism measures workplace productivity and the ability of the injured or ill workers to meet work demands, given his/her health and work status. Reduced workplace productivity can be the result of persistent pain, reduction in power or the effects of medication. Also, in his study, Horsley (2011) concluded that 'presentees' were more likely to return to full-time duty and full-time work schedules compared to 'absentees'. However, Anderson & Smith (2021) recently discovered that presenteeism is not necessarily detrimental to productivity, as approach motives appear to reduce the presenteeism's negative impacts on productivity.

The second major finding was that the prevalence of WRMDs among administrative workers during the last 12 months, especially in the shoulders, upper-back and neck was very high. This study showed that 20% of the respondents were prevented from carrying out their normal activities such as jobs, housework and hobbies during the last 12 months due to knee disorders, followed by upper-back pain and shoulder disorders.

Furthermore, the result of the current study also revealed that one-third of the administrative workers had seen a physician due to upper-back discomfort as well as neck and shoulder pain. Based on the information obtained from this study, it was evident that most of the administrative workers had rarely taken sick leave and annual leave and claimed that they were sometimes absent from work due to musculoskeletal disorders. The results proved that WRMDs significantly contribute to the level of absenteeism among administrative workers. In addition, the current results reveal that there is a significant relationship between WRMDs and work presenteeism. confirmed that different parts of the body would be affected when performing different office tasks. These different regions of WRMDs will negatively affect productivity; absenteeism, and presenteeism. Future studies are suggested in order to develop the nomological networks of the effect of WRMDs on different regions of the bodies and the subsequent final outcome of these effects, such as work engagement and the likes.

### Recommendation for Future Research

This study employed a cross-sectional design, so causation cannot be inferred. The study sample was obtained from Malaysian office workers in the public sector, so the generalisability of the findings to private-sector employees may not be appropriate. Nevertheless, we encourage future researchers, especially in other developing countries, to replicate our results and validate our model with a larger sample of office workers. In particular, longitudinal designs are needed to develop more definitive conclusions about the relationship between causal factors and WRMDs. Results in Table 1 indicate that all the variables are non-stationary at level but become stationary after the first differences. This implies that all the variables are integrated with the same order of integration.

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