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Work Place Self-Management by Academic Cum Clinical Physiotherapist – A Case Study

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Physiotherapist

Work-related musculoskeletal disorders

Rapid entire body assessment

Visual analogue scale

Exercise

Healthy lifestyle

ABSTRACT

One of the main issues in industrialized nations is work-related musculoskeletal disorders (WMSD), which are linked to demanding and repetitive work environments. Repetitive actions and work without leisure can lead to musculoskeletal problems. To prevent this occurrence, promoting healthy lifestyle self-care management is essential. The main objective of this case study was to assess the risk of work-related musculoskeletal disorders in professional physiotherapist and their workplace self-management. Case Description: a case of a 39-year-old male assistant professor cum clinical practitioner with 12 years of experience in the profession, who engages in using the computer for 6 hours a day for his academic and clinical documentation purposes, was assessed in the workstation. He complains of neck and shoulder pain after engaging in front of the computer for more than one hour, which he manages during the routine practice. He manages his pain by doing simple exercises like chin tuck-in and shoulder bracing by taking a short break every hour while working on a computer. Musculoskeletal-related pain was analyzed using the VAS score (visual analogue scale), and the level of the risks was analyzed using the rapid entire body assessment (REBA) scale. The case study showed that professional physiotherapists have a high risk of MSDs due to their engagement in multiple tasks and less attention to body posture. Regular exercise in the workstation and ergonomic workplace awareness would prevent the occurrence of work-related MSD.

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1 Introduction

Physiotherapists are primary healthcare specialists who assess and manage patients of all ages with various conditions, health-related issues, illnesses, or traumas that restrict their ability to mobilize and perform activities of daily living. One of the main issues in industrialized nations is work-related musculoskeletal disorders (WMSDs), which are linked to demanding and repetitive work environments. According to Sekkay et al. (2018) WMSDs are those that are deemed to be caused by the workplace environment and individual performance. By recognizing and realizing the effects of "work-related" musculoskeletal conditions, the World Health Organization (WHO) has described WMSDs as multifactorial, meaning that many risk factors contribute to and exacerbate these illnesses (Sauter et al. 1993). The prevalence of WMSDs among Indian physiotherapists was 89% in males and 96% in females (Iqbal and Alghadir 2015). Likewise, a recent study in 2022 among physiotherapists in Malaysia reported the prevalence of WMSDs was highest in the neck (52.6%), followed by other body segments (YI et al. 2022). In addition to this, the prevalence of WMSDs among physiotherapists in Uttar Pradesh, India, was 82%, with low back and neck pain reported among physiotherapists due to high job demands (Nagar and Nouman 2022). Furthermore, the study reported that lower back and neck pain is more common among dentists, physiotherapists, and surgeons (Suganthirababu et al. 2023). Additionally, a study in 2016 found that persistent muscle contraction and jobs requiring repetitive motion are the common causes of WMSD, and 92% of the dentists in Bhopal, India, experienced pain and discomfort in at least one part of the body region (Batham and Yasobant 2016).

WMSDs have become a global public health issue due to the increased frequency of these injuries, which are caused by the existence of risk factors. Clinically, work-related soft tissue damage is known by a variety of titles, such as WMSDs, repetitive strain injuries (RSI), repetitive motion injuries (RMI), and diseases brought on by cumulative trauma (Nunes 2009). Work-related musculoskeletal disorders (WMSD) can affect the lower back, lower limbs, and upper limb extremities and are caused or exacerbated by work. Impaired body structures such as muscles, joints, tendons, ligaments, nerves, and bones constitute WMSDs and the localized blood circulation system, primarily brought on or exacerbated by the work itself (Okunribido et al. 2011). Aside from physically demanding jobs, the ageing of the workforce also contributes to the prevalence of WMSD because the likelihood of developing a WMSD is more closely linked to the disparity between job demands and the worker's physical capabilities (a decline in work capacity with age). In the medical field, musculoskeletal problems have long been diagnosed (Mahajan et al. 2023).

On the other hand, repetitive actions and work without leisure among healthcare professionals can lead to musculoskeletal problems. To prevent this occurrence, self-care management is essential among healthcare professionals, especially professional physiotherapists. Self-care management between the demanding work cultures will help in the unwinding of the stress that is faced by academic cum clinical physiotherapists. Academic physiotherapists those who are involved in high use of screens affecting the neck and shoulder posture, whereas for the role of a clinician, the workplace revolves around activities related to patients' aid, requiring the greatest amount of physical strength and techniques of loading and unloading of the force on the pylon were discussed (Prall and Ross 2019).

The first person to recognize the WMSD condition was the Italian doctor Bernardino Ramazzini in the eighteenth century. He recognized a link between some musculoskeletal problems and jobs because of the adoption of uncomfortable postures and the execution of abrupt and erratic motions (Campo et al. 2008). It is well established that there is a strong link between WMSD and the workplace, particularly concerning the physical risk factors of specific vocations, such as uncomfortable postures, high repetition, excessive force, static labour, cold, or vibration. Increasing workload and stress are contributing factors, and it increasingly appears that additional psychological elements also play a role in developing those conditions (Nunes and Bush 2012). The risks of MSD during formwork techniques were evaluated using the Rapid Entire Body Assessment (REBA) approach. The REBA method was used to assess WMSD and assigned a single score based on the posture evaluation and factors related to load, coupling, and activity to each body region to evaluate the posture chosen (e.g., the most awkward posture, the most prevalent posture, and the posture with the most force exerted) (Hignett and McAtamney 2000). The prevalence rate is high since physiotherapists' work involves repeated movements and sustained postures (Iqbal and Alghadir 2015; Batham and Yasobant 2016). Despite this prevalence rate, self-care or management in the workplace among physiotherapists needs more attention and has not been addressed in past research. Considering this, the primary goal of the present study was to identify WMSDs among professional physiotherapists and understand workplace self-management.

2 Case description

A 39-year-old male assistant professor cum clinical practitioner with 12 years of experience in the profession, engages in using computers for 6 hours a day for academic and clinical documentation purposes, was assessed at the workstation. His pain was analyzed using a VAS score (visual analogue scale), and the risk of developing MSD was measured using the rapid entire body

Table 1 Participants demographic details

Name	Mr. R	
Gender	Male	
Age	39	
Dominant hand	Right	
Occupation	Working as an Assistant Professor and practising as a clinical therapist	
Work duration	10-12 hours daily	
Workstation assessment for MSD	Pain	Hert's neck and shoulder with VAS score 3/10
	REBA	6 (Moderate risk category)

assessment (REBA) scale. He complained of neck and shoulder pain with a VAS score of 3/10 after sitting in front of the computer for more than one hour, which he managed during the routine practice. He sometimes works for about 12 hours a day without taking a break. He doesn't have any history of mental stress. He follows a typical diet and does not drink alcohol or smoke. Due to his busy work schedule, he does not participate in any sports or other physical activities for fun.

By assessing the work-related risk using the REBA scale, we found that he had a REBA score of 6, which is in the moderate-risk category (Table 1).

3 Results

The postures of the upper limbs (arm, forearm, wrist), trunk, neck and lower limbs (thigh, leg and foot) postures were evaluated using the REBA method; the most prevalent posture, the posture maintained for the longest period during the working cycle, the posture requiring the most physical effort, and the posture that produces the most discomfort. The REBA score represents the level of MSD risk for the job task being evaluated. The minimum REBA score was 1, and the maximum REBA score was 15.

Additionally, he had back and neck problems for the past two years and feels more worn out at the end of the shift. He is entirely aware of the value of ergonomics in the workplace, but he doesn't follow it because of the stress brought on by his workload and his need for medical attention. To prevent uncomfortable pain in the workplace, he does some exercises like chin tucks (Figure 1) for forward neck posture and shoulder bracing (Figure 2) to avoid rounded shoulders, occipital and scalene stretch (Figure 3) for 10 times and 3 repetitions and 2 sets twice a day.



Figure 1 Chin tucks exercise



Figure 2 Shoulder bracing exercise



Figure 3 Occipital and scalene stretch

4 Discussion

The study uses the VAS and REBA scales to assess the risk of a work-related musculoskeletal disorder (WMSDs) in a professional physiotherapist and their workplace self-management. Based on the worksite assessment, the participant's REBA score was 6, in the moderate-risk category; however, the pain intensity was mild, with a VAS score of 3/10. Professional physiotherapists are generally knowledgeable about workplace ergonomics and understand how to manage risk factors and other complications. But few, due to their hectic commitment to the work, will be excused from following the worksite ergonomic or posture care guidelines. This is related to the fact that experienced healthcare professionals learned to modify their work posture to avoid WMSDs or that physiotherapists with WMSDs may change careers or leave physiotherapy entirely (Salik and Özcan, 2004; Maheshwari et al. 2015). Furthermore, physiotherapists with more work experience are more likely to develop musculoskeletal problems because they typically spend 45 to 60 minutes per patient during a single session (Jacquier-Bret and Gorce 2023). The repositioning and mobilization of joints and soft tissues, as well as bent or twisted body positions while transferring patients, have all been found to enhance the risk of WRMDs in physiotherapists (Gorce and Jacquier-Bret 2023). The importance of ergonomics, a healthy work environment, injury prevention, counselling, etc., must be emphasized during physiotherapy to use body force efficiently and effectively without unintentionally loading any particular body part. This will reduce the prevalence of WMSDs and increase productivity (Campo et al. 2008). On the other hand, ergonomic research has shown that using chairs with adjustable height, armrests, and supports is an effective intervention for reducing musculoskeletal pain (Rempel et al. 2006). It is important for a physiotherapist to study self-management, as it is the only way to prevent work-related musculoskeletal disorders and work ergonomically to maintain productivity. However, this case study reports the workstation assessment of a single person, which is limited to generalizing the problems assessed. The authors recommend that future studies include more participants working more than 10 hours daily.

Conclusion

The results of this study can conclude that professional physiotherapists practising self-care exercise at the workplace would reduce susceptibility to work-related musculoskeletal problems. Despite being aware of the significance of ergonomics, adhering to it adequately by the health care professional will prevent the occurrence of work-related musculoskeletal disorders in physiotherapists and promote a healthy lifestyle.

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References

- Batham, C., & Yasobant, S. (2016). A risk assessment study on work-related musculoskeletal disorders among dentists in Bhopal, India. *Indian Journal of Dental Research*, 27(3), 236.
- Campo, M., Weiser, S., Koenig, K. L., & Nordin, M. (2008). Work-related musculoskeletal disorders in physical therapists: a prospective cohort study with 1-year follow-up. *Physical Therapy*, 88(5), 608–619.
- Gorce, P., & Jacquier-Bret, J. (2023). Global prevalence of musculoskeletal disorders among physiotherapists: a systematic review and meta-analysis. *BMC Musculoskeletal Disorders*, 24(1), 265.
- Hignett, S., & McAtamney, L. (2000). Rapid entire body assessment (REBA). *Applied Ergonomics*, 31(2), 201–205.
- Iqbal, Z., & Alghadir, A. (2015). Prevalence of work-related musculoskeletal disorders among physical therapists. *Medycyna pracy*, 66(4), 459–469. <https://doi.org/10.13075/mp.5893.00142>.
- Jacquier-Bret, J., & Gorce, P. (2023). Prevalence of Body Area Work-Related Musculoskeletal Disorders among Healthcare Professionals: A Systematic Review. *International Journal of Environmental Research and Public Health*, 20(1), 841.
- Mahajan, D., Gupta, M. K., Mantri, N., Joshi, N. K., Gnanasekar, S., et al. (2023). Musculoskeletal disorders among doctors and nursing officers: an occupational hazard of overstrained healthcare delivery system in western Rajasthan, India. *BMC Musculoskeletal Disorders*, 24(1), 1–10.
- Maheshwari, P., Soni, R., & Parkash, N. (2015). Work related musculoskeletal disorders: a survey of physiotherapists in tricity. *International Journal of Physiotherapy*, 2(6), 1091–1096.
- Nagar, R., & Nouman, D. (2022). The prevalence of shoulder pain in physiotherapist due to long day practice. *International Journal of Multidisciplinary Educational Research*, 11(8), 20–23.
- Nunes, I. L. (2009). FAST ERGO_X—a tool for ergonomic auditing and work-related musculoskeletal disorders prevention. *Work*, 34(2), 133–148.
- Nunes, I. L., & Bush, P. M. (2012). Work-related musculoskeletal disorders assessment and prevention. *Ergonomics-A Systems Approach*, 1, 30.
- Okunribido, O. O., Wynn, T., & Lewis, D. (2011). Are older workers at greater risk of musculoskeletal disorders in the

- workplace than young workers?—A literature review. *Occupational Ergonomics*, 10(1–2), 53–68.
- Prall, J., & Ross, M. (2019). The management of work-related musculoskeletal injuries in an occupational health setting: the role of the physical therapist. *Journal of Exercise Rehabilitation*, 15(2), 193.
- Rempel, D. M., Krause, N., Goldberg, R., Benner, D., Hudes, M., & Goldner, G. U. (2006). A randomized controlled trial evaluating the effects of two workstation interventions on upper body pain and incident musculoskeletal disorders among computer operators. *Occupational and Environmental Medicine*, 63(5), 300–306.
- Salik, Y., & Özcan, A. (2004). Work-related musculoskeletal disorders: a survey of physical therapists in Izmir-Turkey. *BMC Musculoskeletal Disorders*, 5, 1–7.
- Sauter, S., Hales, T., Bernard, B., Fine, L., Petersen, M., Putz-Anderson, V., Schleiffer, L., & Ochs, T. (1993). Summary of two NIOSH field studies of musculoskeletal disorders and VDT work among telecommunications and newspaper workers. *LUCZAK H., CAKIR A., CAKIR G.-Work with Display Units*, 92, 229–234.
- Sekkay, F., Imbeau, D., Chinniah, Y., Dubé, P.A., de Marcellis-Warin, N., Beauregard, N., & Trépanier, M. (2018). Risk factors associated with self-reported musculoskeletal pain among short and long distance industrial gas delivery truck drivers. *Applied Ergonomics*, 72, 69–87.
- Suganthirababu, P., Parveen, A., Mohan Krishna, P., Sivaram, B., Kumaresan, A., et al. (2023). Prevalence of work-related musculoskeletal disorders among health care professionals: A systematic review. *Work (Reading, Mass.)*, 74(2), 455–467. <https://doi.org/10.3233/WOR-211041>.
- YI, Y., Pillai, S., & Vinodhkumar Ramalingam, O. (2022). Prevalence of work related musculoskeletal disorders (WRMSD) and the associated risk factors among malaysian physiotherapists: A cross sectional study. *Journal of Physical Education and Sport*, 22(32), 239.