Original Article

Frequency of work related musculoskeletal disorders and its associated factors among physical therapists of Faisalabad

Aiza Nasir, Ayesha Rehman, Rafia Tariq, Nazia Sarfraz, Muhammad Umar Sadiq

The University of Faisalabad and CMH Medical and Dental College, Lahore, Pakistan

Objective: To investigate the frequency of work related musculoskeletal disorders (WRMDs), job risk factors and coping strategies in response to these injuries among the physical therapists of Faisalabad.

Methodology: In this cross-sectional study, data were collected from public and private settings of Faisalabad for 12-months prevalence of WRMDs. Eight-page questionnaire was used consisting of four parts. These included demographic data, occupational history, injury related data, job-risk factor, coping strategies adopted by the participants and standardized modified Nordic questionnaire. 56 copies of questionnaire were distributed and response rate was 76.7%. Data were analyzed by the using SPSS version 17.

Results: A total of 42 responses were received. The frequency of WRMDs was 93%. The neck was the most affected body part at 62.8% followed by the low back in 55.8%. Half the participants (n=21) experienced their work-related injuries within the first five years of their graduation. Not enough rest breaks during the day was reported by most of respondents as the leading work factor for their WRMDs. Modifying patient's or therapist's position was common coping strategy by therapists (65.1%).

Conclusion: The frequency of WRMDs was higher in the PTs of Faisalabad. Disorders among them had association with gender and ergonomic training. (Rawal Med J 202;45:392-395).

Keywords: Work related musculoskeletal disorders, coping strategies, job risk factors, Nordic questionnaire, ergonomic training.

INTRODUCTION

Work related musculoskeletal disorders (WRMDs) are defined as the disorders occurring from work-related episodes or by just one time direct exposure in the job-setting that can lead to mortality, hospital care rather than first aid, lost work time, limitation at work setting, change job to another specialty or loss of consciousness.[1] Musculoskeletal (MSK) disorders in the workplace have significant adverse effects on the health.[2] Some studies described lower back pain as work-linked soreness, irritation and displeasure[3,4]

Most WRMDs begin after some time and then they are provoked due to different factors like nature of the job, circumstances of work environment and of work setting.[5] These types of disorders are commonly present in the nurses and PTs. MSK disorders are highly related to the handling techniques which demand an amount of body effort for movement, pull, drive, lift, the patients and the equipment's at the work setting.[6] WRMDs have most common association with the pain, some have joint stiffness, decreased sweating of hand, skin color changes and numbness.[7] Despite of proper ergonomic training and instructions, health care workers are at risk of WRMDs that have association with the patient handling.[1,3,4,8]

WRMDs develop in therapists as they do not take breaks just to meet the patient's treatment demands.[9] PTs who have WRMDs and continue their work, they make modifications in their work.[10] Most PTs developed symptoms before 30 years of age and majority had initial episode within five years after graduation.[11] More female PTs had WRMDs than males, like spinal symptoms.[12] Because of ability of self-treatment, to access clinical colleagues and learn the initial symptoms of any injury, PTs are at low rate to obtain care and take time off work.[13] The aim of this study was to investigate the frequency of WRMDs, job risk factors and coping strategies in response to these injuries among the physical therapists of Faisalabad.

METHODOLOGY

In this cross sectional study, convenient sampling technique was used and qualified PTs who were in clinical practice and academics were included. All technicians and Physical therapist assistant, who had any recent accident, had any systemic illness

and all those who were not practicing and who did not agree to participate in the study were excluded. Duration of the study was the four months. Sample size was estimated by WHO calculator to be 56 by using 95% confidence interval and precision of 4.91%. Respondent rate was 43.

We use the self-administered questionnaire and the Standardized Nordic questionnaire which are valid and reliable. Questionnaire was divided into sections. We delivered each questionnaire personally to every PTs in the Faisalabad at their work settings (hospitals, institutes and private clinics). Data were collected after informed consent.

Statistical Analysis: Data analysis was done by SPSS version 17.0. Nordic part of questionnaire was explained in percentages. Chi-square test was used to check the association between WRMDs, gender, BMI, work setting and ergonomic training of participants. The Level of significance was set at $p<0.05$.

RESULTS

Out of 42 respondents, 40(93.02%) had WRMDs. The Mean of age (years), height (meters), weight (kg), BMI, Professional experience and hours per week were 27.30±5.365, 1.6512±0.6555, 61.47± 13.396, 22.8140±5.01548, 4.335±4.5775 and 41.21 ±11.434, respectively. Neck was the most common site of pain (Table 1)

For most of the respondents, the onset of WRMDs was gradual in 78.57% and most developed in first five years of graduation (Fig.).

Table 1. Affected body parts.

Area	Previous 12 month prevalence (%)
Neck	62.8
Shoulders	
Right shoulder	11.6
Left shoulder	9.3
Both	23.3
Elbows	
Right	4.7
Left	2.3
Wrists/Hands	9.3
Upper Back	39.5
Lower Back	55.8
Hips/Thighs	14.0
Knees	11.6
Ankles/Feet	4.7

Fig. Time of appearance of pain.

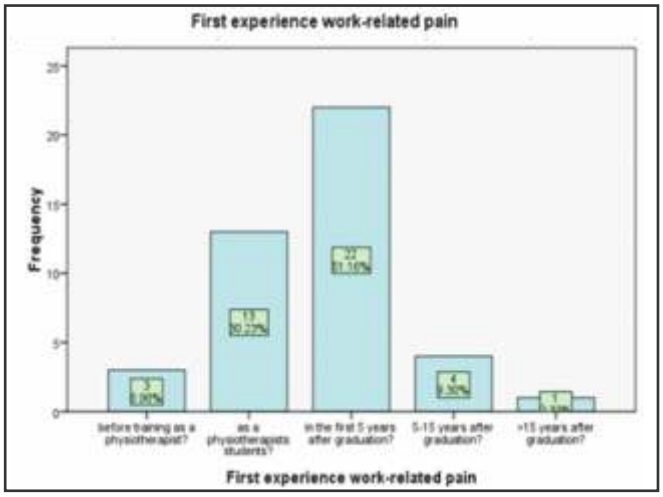

Table 2. Work factors identified as contributing to WRMDs.

Job Tasks	Irrelevant n (%)	Minor or Insignificant Way n (%)	Moderately Significant n (%)	Major significant way n (%)
Performing same tasks over and over	3(7.0)	9(20.9)	15(34.9)	16(37.2)
Treating a large number of patients in one day	4(9.3)	13(30.2)	11(25.6)	15(34.9)
Not enough rest breaks during the day	2(4.7)	11(25.6)	11(25.6)	19(44.2)
Performing manual techniques	8(18.6)	9(20.9)	12(27.9)	14(32.6)
Working in cramped positions	5(11.6)	11(25.6)	10(23.3)	17(39.5)
Working in same position for long periods	4(9.3)	7(16.3)	12(27.9)	20(46.5)
Bending or twisting back in an awkward way	5(11.6)	10(23.3)	12(27.9)	16(37.2)
Reaching or working away from your body	4(9.3)	14(32.6)	19(44.2)	6(14.0)
Unanticipated sudden movement or falls by patient	15(34.9)	12(27.9)	13(30.2)	3(7.0)
Assisting patient during gait training	7(16.3)	18(41.9)	10(23.3)	8(18.6)
Lifting or transferring dependent patients	7(16.3)	14(32.6)	15(34.9)	7(16.3)
Working with confused or agitated patients	16(37.2)	15(34.9)	9(20.9)	3(7.0)
Lifting heavy material or equipment	14(32.6)	12(27.9)	13(30.2)	4(9.3)
Working at or near your physical limits	6(14.6)	16(37.2)	14(32.6)	7(16.3)
Continuing to work when injured or hurt	9(20.9)	7(16.3)	14(32.6)	13(30.2)
Work scheduling (overtime, length of work day)	8(18.6)	10(23.3)	11(25.6)	14(32.6)
Inadequate training in injury prevention	16(37.2)	14.(32.6)	8(18.6)	5(11.6)

Table 3. Coping strategies used by respondents.

Strategies	Almost Always	Sometimes	Almost Never
I get someone else to handle a heavy patient	9(20.9)	27(62.8)	7(16.3)
I modify patient's position/my position	28(65.1)	13(30.2)	2(4.7)
I use different part of my body to administer a manual Technique	14(32.6)	25(58.1)	4(9.3)
I warm up and stretch before performing manual Techniques	11(25.6)	14(32.6)	18(41.9)
I use electrotherapy instead of manual techniques	3(7.0)	26(60.5)	14(32.6)
I pause regularly so I can stretch and change posture	11(25.6)	25(58.1)	7(16.3)
I adjust plinth or bed height before treating a patient	22(51.2)	12(27.9)	9(20.9)
I select techniques that will not aggravate or provoke my discomfort	19(44.2)	20(46.5)	4(9.3)
I stop a treatment if it causes or aggravates my Discomfort	13(30.2)	20(46.5)	10(23.3)

The association of WRMDs with gender, BMI, work setting and ergonomic training was tested by chi square and the p values were 0.497, 0.631, 0.63 and 0.015, respectively. Not enough rest breaks during the day was the most common factor related to WRMDs (Table 2). Warm up and stretch before performing manual therapy and use electrotherapy instead of manual techniques were common strategies used to cope with WRMDs (Table 3).

DISCUSSION

People suffering from WRMDs often go to surgeons or physicians and PT to alleviate their suffering. On the other hand, these health care workers reported as sustaining the MSK disorders, in the course of their work routine. The amounts of these are considerable, in money and work time lost.[3] Cromie et al reported frequency of WRMDs to be 91% among PTs.[4] According to West and Gardner mostly injured parts are neck (62.8%) and lower back (55.8%).[8] By this documentation therapists can get awareness about the prevention, coping strategies and improve performance of PTs in the treatment of the patient.[11]

Al-Eisa et al reported that more younger PTs experienced WRMDs as 66.1% and 73% in the age group of 20-30 years for Egyptian and Saudi PTs, respectively. We found that more injured PTs were in the age group of 23-30 with frequency of 79.1%. The frequency of WRMDs in our survey was higher among PTs with normal BMI (65.1%) than overweight (18.6%) and obese ones (4.7%).

Babatunde et al have concluded that PTs with lower BMI (p=0.045) had more chances to develop the WRMDs.[11] Other studies reported that females were more prone to the occurrence of WRMDs.[3,15] The higher prevalence of WRMDs among females is may be due to their body structure and height.[3] Working in the same position for long periods of time has been major contributor for WRMDs.[3,4,8] Lifting or transferring patients,[1] and performing manual therapy techniques[8] were the most common job related factors.

Warm up and stretch before performing manual maneuvers, break for change their position or for stretching of their body parts, getting assistance just to handle the bulky patient, use some other techniques rather than manual maneuvers like use of some electrotherapy techniques were coping strategies used by participants of our study. Although there was high prevalence of WRMDs among PTs in Faisalabad, they did not leave the profession. Some of the PTs treat their WRMDs by themselves or seek treatment by their colleagues.[3,4,8,14]

Emphasis should be placed on reporting of injury by PTs themselves. Proper monitoring procedures corresponding injury should be developed and implemented by the profession. Further studied should work on the development of effective control measures, to specify the association of WRMDs with specific work-factors, effective prevention or ergonomic strategies that can be applied in the clinic to reduce WRMDs

Limitations of study were small sample size, which may affect the generalizability of our study results.

Questionnaire consist of close ended question, due to this the additional responses of PTs may be limited. Some PTs refused to fill questionnaire by considering it is not important.

CONCLUSION

The prevalence of WRMDs was high among PTs of Faisalabad. Neck and low back were commonest site of pain. The most common work risk factor reported by PTs was not having enough rest breaks during a day. The most important coping strategy was to change the therapist's position and the position of patient.

Author Contributions:
Conception and design: Ayesha Rehman, Aiza Nasir
Collection and assembly of data: Rafia tariq, Ayesha Rehman
Analysis and interpretation of the data: Aiza Nasir, Ayesha Rehman
Drafting of the article: Umar sadiq, Ayesha Rehman
Critical revision of the article for important intellectual content: Nazia sarfraz
Statistical expertise: umar sadiq
Final approval and guarantor of the article: Nazia Sarfraz
Corresponding author email: Ayesha Rehman: ayesharehman195@gmail.com
Conflict of Interest: None declared
Rec. Date: Sep 27, 2019 Revision Rec. Date: Mar 2, 2020 Accept Date: Mar 30, 2020

REFERENCES

1. Holder NL, Clark HA, DiBlasio JM, Hughes CL, Scherpf JW, Harding L, et al. Cause, prevalence, and response to occupational musculoskeletal injuries reported by physical therapists and physical therapist assistants. Physical Ther 1999;79:642-52.
2. Yasobant S, Rajkumar P. Work-related musculoskeletal disorders among health care professionals: A cross-sectional assessment of risk factors in a tertiary hospital, India. Indian J Occupat Environ Med 2014;18:75.
3. Bork BE, Cook TM, Rosecrance JC, Engelhardt KA, Thomason M-EJ, Wauford IJ, et al. Work-related musculoskeletal disorders among physical therapists. Physical Ther 1996;76:827-35.
4. Cromie JE, Robertson VJ, Best MO. Work-related musculoskeletal disorders in physical therapists: prevalence, severity, risks, and responses. Physical Ther 2000;80:336-51.
5. Buddhadev NP. Work-Related Musculoskeletal disorders: A survey of physiotherapists in saurashtra region. Age (years). 2012;21:27.5.
6. Al-Eisa E, Buragadda S, Shaheen AA, Ibrahim A, Melam GR. Work related musculoskeletal disorders: causes, prevalence and response among egyptian and saudi physical therapists. Middle-East J Sci Res 2012;12:523-9.
7. Salik Y, Özcan A. Work-related musculoskeletal disorders: a survey of physical therapists in Izmir-Turkey. BMC Musculoskeletal Disord 2004;5(1):27.
8. West DJ, Gardner D. Occupational injuries of physiotherapists in North and Central Queensland. Australian J Physiotherapy 2001;47:179-86.
9. Passier L, McPhail S. Work related musculoskeletal disorders amongst therapists in physically demanding roles: qualitative analysis of risk factors and strategies for prevention. BMC Musculoskeletal Disord 2011;12(1):24.
10. Campo M, Darragh AR. Impact of work-related pain on physical therapists and occupational therapists. Physical Ther 2010;90:905-20.
11. Adegoke BO, Akodu AK, Oyeyemi AL. Work-related musculoskeletal disorders among Nigerian Physiotherapists. BMC Musculoskeletal Disord 2008;9:112.
12. Chung SH, Her JG, Ko T, Ko J, Kim H, Lee JS, et al. Work-related musculoskeletal disorders among Korean physical therapists. J Physical Ther Sci 2013;25:55-9.
13. Darragh AR, Huddleston W, King P. Work-related musculoskeletal injuries and disorders among occupational and physical therapists. Am J Occupat Ther 2009;63:351-62.
14. Glover W, McGregor A, Sullivan C, Hague J. Work-related musculoskeletal disorders affecting members of the Chartered Society of Physiotherapy. Physiotherapy 2005;91:138-47.
15. Nordin NAM, Leonard JH, Thye NC. Work-related injuries among physiotherapists in public hospitals: a Southeast Asian picture. Clinics 2011;66:373-8.