



Research article

Prevalence and patient characterization of Work Related Musculoskeletal Disorders in patients visiting the physical therapy department in Karachi, Pakistan

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Abstract

Work Related Musculoskeletal Disorders (WRMSD) are the sort of disorders which involves soft tissues. The involvement of soft tissues can be due to the over use, restlessness and improper use. The main target of WRMSD are working individuals. It may cause muscle strain, ligament strain, tendon strain, tendinitis and bursitis. The cross section survey was conducted and data was collected from July to October 2018 from Jinnah Post graduate medical Centre Karachi, Pakistan. A self-constructed proforma was used among the 194 patients who meet the inclusion and exclusion criteria and Spss version 23 was used. The majority (n=98, 50.5%) were belongs to age group of 21 to 35 and were (n=102, 52.6%) were male. In marital status majority (n=128, 66%) were married. In involvement of part majority (n=56, 28.9%) were suffering from lower back problem. After checking the type of injury (n=56, 49.5%) were suffering from muscular strain. In the context of onset of injury majority (n=82, 42.3%) were experienced their problem suddenly. The study finalized that WRMSD is most common in working individuals especially in older and females. The WRMSD puts heavy burden on the society, annually. As the participants who belongs to low socio economic status are more vulnerable for WRMSD.

Introduction

Work Related Musculoskeletal Disorders (WRMSD) are the sort of disorders which may include, muscles, tendons nerves and other soft tissues as well. Mainly they may appear in the form of muscular strain, tendon strain, tendinitis and ligament sprain [1,2]. They may appear in the different conditions

like, carpal tunnel syndrome, epicondylitis, thoracic outlet syndrome, tension neck syndrome, rotator cuff tendinitis, tenosynovitis and Bursitis and many other disorders [2-4]. In working adults the more common cause of disability is the WRMSD [5]. The older and female workers reported with higher disability rate on comparison with younger and male workers [5,6]. The WRMSD are more common among



the physiotherapist, paramedics, machine operators, office workers, carpenters, grocery store workers and truck drivers [7,8]. During an activity when a person, over uses the muscle, improper uses of their muscle feeling of fatigue for longer time can cause a muscle pain that may called as a muscle strain [1,2]. The over stretching of muscle fibers that usually connects the bone to muscle is called as tendon strain and the inflammation of that fibers is known as tendinitis [2,3]. The tear of ligament is known as ligament sprain. There are mainly three grades of ligament tear. In I grade there is minimal tear of ligament and patients experiences worst pain, in grade II there is partial tear of ligament and patient experiences less pain then grade I but in this grade patient will also suffer from un-stability. In the last there is grade III in which there is complete tear of ligament and patient experiences no pain along with inflammation but patient's knee will be completely un-stable [9]. In younger age WRMSD mainly involves the upper extremity of a worker and in older and females the lower back and neck are involved in most of the cases, because the bones of older and females are more fragile as compare to younger males [10,11]. The WRMSD which are reported by older individuals are mostly irreversible because the degenerative process get started in older age individuals which is also a leading cause of irreversible WRMSD [11,12]. Therefore its necessary to assess the Prevalence and Patient Characterization of Work Related Musculoskeletal Disorders among the Patients Visiting the different Physical Therapy Departments.

Materials and methods

Study design, settings and duration

A cross sectional survey was conducted and data was collected from July to October 2018 from the Jinnah post Graduate medical Centre Karachi, Pakistan.

Sampling

Convenient Non-Probability Sampling Technique was used among 194 male & female working participants and were agreed to participate in the study, while, patients with any pathology, central nervous system alteration, with any surgical intervention and unwilling to sign inform consent were excluded.

Data collection tool

A self-constructed proforma was used to collect the data, which include the demographic Characteristics (age, gender & marital status) while the included work related musculoskeletal disorders characteristics were, involvement of part (shoulder, wrist, neck, lower back, knees & ankle) type of injury (muscle strain, tendinitis, sprain & degenerative disorders) and onset of injury (sudden, gradual & accident).

Data collection procedure

During the assessment of patient, trained physiotherapists were asked to fill the questionnaire on the spot.

Data analysis procedure

Data was analyzed and presented in frequency and percentages for categorical variables & Spss (Statistical Package for Social Sciences) 23 version was used.

Ethical consideration

Permission for data collection from the medical superintendent of respective hospital were taken. The approval for this study was taken from the ethical review committee of Isra Institute of Rehabilitation Sciences, Karachi.

Results

Demographic characteristics

Demographic Characteristics are shown in Table 1, which shows that majority (n=98, 50.5%) were belongs to age group of 21 to 35 and were (n=102, 52.6%) were male. In marital status majority (n=128, 66%) were married.

Involvement of part

Involvement of Part is shown in Table 2, which shows that majority (n=56, 28.9%) were suffering from lower back problem followed by (n=48, 24.7%) neck problem.

Type of Injury

Type of injury is shown in Table 3, which shows that majority (n=124, 63.9%) were suffering from muscular strain followed by (n=38, 19.6%) were suffering from Tendinitis.

Onset of Injury

Onset of Injury is shown in Figure 1, which shows that majority (n=82, 42.3%) were experienced their problem suddenly followed by (n=58, 29.9%) experienced their problem during an accident.

Table 1: Demographic Characteristics.

Variable	Frequency(n=194)	Percentage (%)
Age		
21 to 35	98	50.5
36 to 45	72	37.1
46 and above	24	12.4
Gender		
Male	102	52.6
Female	92	47.4
Marital Status		
Married	128	66
Un-married	66	34

Table 2: Involvement of Part.

Part Involved	Frequency(n=194)	Percentage (%)
Shoulder	36	18.6
Wrist	24	12.4
Neck	48	24.7
Lower back	56	28.9
Knees	10	5.2
Ankle	20	10.3

Frequency

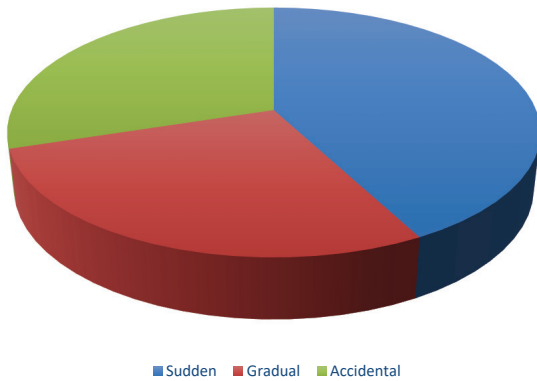


Figure 1: Onset of Injury.

Table 3: Type of Injury.

Variable	Frequency(n=194)	Percentage(%)
Muscle strain	124	63.9
Tendinitis	38	19.6
sprain	04	2.1
Degenerative changes	28	14.4

Discussion

The current study revealed that most of population were experiencing the issue of lower back followed by neck problem. As they generally experienced muscular strain followed by tendinitis. In our study the duration is covered in our review into three (unexpected, progressive, accidentally) primary settings and a large portion of the patients announced that they encountered their very suddenly followed by accidental issues.

The different Studies were conducted in different parts of the world by Hagberg et al in 1982 & Sormunen et al in 2006 and concluded in work related musculoskeletal disorders mostly patients suffer from muscular strain and in that condition generally patient experiences pain and discomfort. It is also revealed that the workers who are working in cold environment like cold stores, truck drivers, carpenters and paramedical staff are more prone to develop the muscular strain in context of work related musculoskeletal disorders during their scheduled work as compare to the other workers. The participants who used to work in Construction Company they also experienced the muscular strain more [11,13,14]. In old days muscular strains are more common among doctors, especially in urologists during the transurethral resections, but now it's reduced due to the availability of endoscopic procedures [2,15]. Furthermore the tendinitis is second most common among workers because the tendinitis is an inflammation of tendon (bunch of fibers which connects bone to muscle) which is cause by the sudden trauma or gradual repetitive injury [2,13]. As work related musculoskeletal disorders are common among the paramedic staff as well because during the shifting of patients they are more likely to expose to minor trauma in wrist which can leads to carpal tunnel syndrome as well

[2,4]. The physiotherapists are more likely to have the work related musculoskeletal disorders as compare to other workers due to their nature of work [8]. The physiotherapists who are working in chest ward they can also develop the work related musculoskeletal disorders in upper extremity because they continuously perform the percussion among chest patients [16]. Annually the work related musculoskeletal disorders put huge burden, over the worker among general population [17]. Work related musculoskeletal disorders are more common in working females on comparison with men [5,17]. The working women's are more prone to work related musculoskeletal disorders because they are not strong as like male workers. The bones and soft tissues of a female individuals are not much stronger. The working women's can get disable earlier than men and that can cost huge burden on their family and on society as well [17,18].

Conclusion

The work related musculoskeletal disorders are common in workers especially who belongs with low socio economic status like truck drivers, machine operators, carpenters, cold store workers and factory workers. It put huge burden over the effected individual personal life as well as on society. Working females are more prone to develop work related musculoskeletal disorders.

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Author contributions

All authors contributed equally

References

- Jonsson B (1982) Measurement and evaluation of local muscular strain in the shoulder during constrained work. *J Hum Ergol (Tokyo)* 11: 73-88. [Link: https://bit.ly/3CiijaL](https://bit.ly/3CiijaL)
- Tanaka S, Petersen M, Cameron L (2001) Prevalence and risk factors of tendinitis and related disorders of the distal upper extremity among US workers: comparison to carpal tunnel syndrome. *Am J Ind Med* 39: 328-335. [Link: https://bit.ly/3vHY2Ja](https://bit.ly/3vHY2Ja)
- Stanish WD, Rubinovich RM, Curwin S (1986) Eccentric exercise in chronic tendinitis. *Clin Orthop Relat Res* 65-68. [Link: https://bit.ly/30ST6pm](https://bit.ly/30ST6pm)
- Piligian G, Herbert R, Hearn M, Dropkin J, Landsbergis P, et al. (2000) Evaluation and management of chronic work-related musculoskeletal disorders of the distal upper extremity. *Am J Ind Med* 37: 75-93. [Link: https://bit.ly/3vMzZst](https://bit.ly/3vMzZst)
- Beaton DE, Cole DC, Manno M, Bombardier C, Hogg-Johnson S, et al. (2000) Describing the burden of upper-extremity musculoskeletal disorders in newspaper workers: what difference do case definitions make? *Journal of Occupational Rehabilitation* 10: 39-53. [Link: https://bit.ly/3EflFf8](https://bit.ly/3EflFf8)
- Leijon O, Bernmark E, Karlqvist L, Härenstam A (2005) Awkward work postures: association with occupational gender segregation. *Am J Ind Med* 47: 381-393. [Link: https://bit.ly/3pyhZRE](https://bit.ly/3pyhZRE)
- Hedberg GE, Niemi K (1986) Physical and muscular strain in Swedish tanker truck drivers. *Ergonomics* 29: 817-826. [Link: https://bit.ly/30WffmF](https://bit.ly/30WffmF)



8. Glover W (2002) Work-related Strain Injuries in Physiotherapists: Prevalence and prevention of musculoskeletal disorders. *Physiotherapy* 88: 364-372. [Link: https://bit.ly/3pBaA3R](https://bit.ly/3pBaA3R)
9. Holme E, Magnusson S, Becher K, Bieler T, Aagaard P, et al. (1999) The effect of supervised rehabilitation on strength, postural sway, position sense and re-injury risk after acute ankle ligament sprain. *Scand J Med Sci Sports* 9: 104-109. [Link: https://bit.ly/3vMX6DI](https://bit.ly/3vMX6DI)
10. Yun MH, Lee YG, Eoh HJ, Lim SH (2001) Results of a survey on the awareness and severity assessment of upper-limb work-related musculoskeletal disorders among female bank tellers in Korea. *International Journal of Industrial Ergonomics* 27: 347-357. [Link: https://bit.ly/2Zv4mbg](https://bit.ly/2Zv4mbg)
11. Krishnan AR (2016) Prevalence of musculoskeletal pain and its correlates with ergonomic risk factors among middle aged women home makers in Athiyanoor block Panchayat, Thiruvananthapuram. Dissertation. Sree Chitra Tirunal Institute for Medical Sciences and Technolingu. [Link: https://bit.ly/3pLMnb4](https://bit.ly/3pLMnb4)
12. Barbe MF, Jain NX, Massicotte VS, Popoff SN, Barr-Gillespie AE (2015) Ergonomic task reduction prevents bone osteopenia in a rat model of upper extremity overuse. *Ind Health* 53: 206-221. [Link: https://bit.ly/2ZncnOS](https://bit.ly/2ZncnOS)
13. Hagberg M (1982) Local shoulder muscular strain-symptoms and disorders. *J Hum Ergol (Tokyo)* 11: 99-108. [Link: https://bit.ly/3EikJXn](https://bit.ly/3EikJXn)
14. Sormunen E, Oksa J, Pienimäki T, Rissanen S, Rintamäki HJ (2006) Muscular and cold strain of female workers in meatpacking work. *International Journal of Industrial Ergonomics* 36: 713-720. [Link: https://bit.ly/3vKR2v2](https://bit.ly/3vKR2v2)
15. Luttmann A, Sökeland J, Laurig WJ (1998) Muscular strain and fatigue among urologists during transurethral resections using direct and monitor endoscopy. *Eur Urol* 34: 6-13. [Link: https://bit.ly/3nnJVoo](https://bit.ly/3nnJVoo)
16. Papandreu M, Vervainioti AJ (2010) Work-related musculoskeletal disorders among percussionists in Greece: a pilot study. *Med Probl Perform Art* 25: 116-119. [Link: https://bit.ly/3ntbYTE](https://bit.ly/3ntbYTE)
17. Macpherson RA, Lane TJ, Collie A, McLeod CB (2018) Age, sex, and the changing disability burden of compensated work-related musculoskeletal disorders in Canada and Australia. *BMC Public Health* 18: 758. [Link: https://bit.ly/3EetaTC](https://bit.ly/3EetaTC)
18. Punnett L, Prüss-Ütün A, Nelson DI, Fingerhut MA, Leigh J, et al. (2005) Estimating the global burden of low back pain attributable to combined occupational exposures. *Am J Ind Med* 48: 459-469. [Link: https://bit.ly/3pE1BPq](https://bit.ly/3pE1BPq)

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