

# Musculoskeletal Injury Patterns At An Occupational Health Physiotherapy Clinic In The United Kingdom

L Chetty

## Citation

L Chetty. *Musculoskeletal Injury Patterns At An Occupational Health Physiotherapy Clinic In The United Kingdom*. The Internet Journal of Rheumatology. 2009 Volume 6 Number 2.

## Abstract

**Background:** Musculoskeletal injuries (MSIs) persist as the leading category of occupational injury amongst healthcare employees. As a result, research on occupation-related MSIs is gaining pace. **Methods:** A quantitative, retrospective approach was used to collect data regarding employee demographics and MSI patterns of employees. Relevant information was extracted from clinical records and a computerised cohort database. **Results:** Injuries made worse by work was recorded as the most frequent classification with 140 (46%) reported cases. The spine was recorded as the most injured anatomical region with 172 (57%) reported cases. Acute injuries was the most common stage at which injuries presented (n=176, 58%). The month with the highest reported occupational injuries was July (n=29, 9.5%). The highest employee group referred were staff nurses (23%). Following discharge, 76% of employees were advised to remain at work. **Conclusions:** The need for a prompt and effective OH physiotherapy services for injured employees is advocated by the author. There must be a consistent professional and organisational focus on both developing and evaluating injury prevention strategies. More physiotherapists must be encouraged to work with occupational health departments, trade unions and employers in order to identify steps that would prevent or reduce MSIs.

## INTRODUCTION

Musculoskeletal injuries (MSIs) account for significant occupational problems and disabilities among healthcare employees [1]. The term MSIs affects muscles, tendons, ligaments, joints, peripheral nerves and blood vessels [2]. Work-related musculoskeletal injuries (WMSIs) occur as a result of work-related events [3]. Extrinsic risk factors include manual handling tasks, heavy lifting, strenuous tasks, repetitive activities and an inadequate working environment [4-6]. Intrinsic risk factors include age, tobacco smoking and body size variations and psychological risk factors include limited work support, frequent low mood and poor job satisfaction [7-10].

The role of physiotherapy in facilitating the return to work process is well recognised [11]. Several studies have shown that patients with MSIs benefit from physiotherapy intervention and generally have high expectations of recovery once physiotherapy has been initiated [12]. Although many prevalent studies have investigated MSIs, most research has been undertaken in sporting or primary care physiotherapy settings. Therefore a knowledge gap exists in the literature regarding musculoskeletal injury

patterns within an occupational health setting. This present study sought to fill this gap by documenting musculoskeletal injury patterns in this setting in order to assist the occupational physiotherapist to better prepare and adequately plan for a particular injury.

Therefore the aim of this study was to determine the musculoskeletal injury patterns of employees seen at an occupational health physiotherapy clinic based in London, United Kingdom area.

## STUDY OBJECTIVES

The objectives of this study were to determine the:

- Demographic characteristics
- Classification of occupational injury
- Anatomical regions affected
- Stage of occupational injury
- Month of occupational injury
- Occupational health physiotherapy service referrals and session usage

- Occupational health physiotherapy recommendations following discharge

## MATERIALS AND METHOD

### SETTING

This study was conducted at an occupational health physiotherapy clinic based at the Health and Work Centre, Royal Free Hospital. This is a tertiary, teaching National Health Service (NHS) hospital located in London, United Kingdom. In addition to physiotherapy provision, the occupational health service also consists of consultants and specialist registrars in occupational medicine, occupational health advisors (specialist nurses), clinical psychologists and administrative staff.

### DESIGN

A quantitative, retrospective approach was used to collect data regarding employee demographics and MSI patterns of employees. Relevant information was extracted from clinical records and a computerised cohort database.

### SAMPLE

All employees at the hospital that reported to the occupational health physiotherapy service during the 1-year retrospective period with musculoskeletal disorders were included in the analysis. Therefore sampling was not necessary.

### PROCEDURE

This study commenced after permission was obtained from the relevant authorities. A retrospective review of the injury data was carried out as follows. Initially, query formulas were designed by a research assistant and entered into the computerised database to capture relevant information. The computerised database was limited in what information could be captured and so clinical records were analysed by the principle researcher in order to retrieve the outstanding information. This information was then transferred onto a Microsoft Excel spreadsheet designed by the principle researcher. In order to ensure reliability and accuracy of the injury data extracted, all information on the spreadsheet was validated by the research assistant. The final information on the data capturing spreadsheet comprised of information that was required to meet the study objectives.

### DATA ANALYSIS

The required information was extracted and the data obtained was analysed using descriptive statistics of

frequency and percentages. Figures and tables were used to depict the data set.

## RESULTS

### DEMOGRAPHIC CHARACTERISTICS

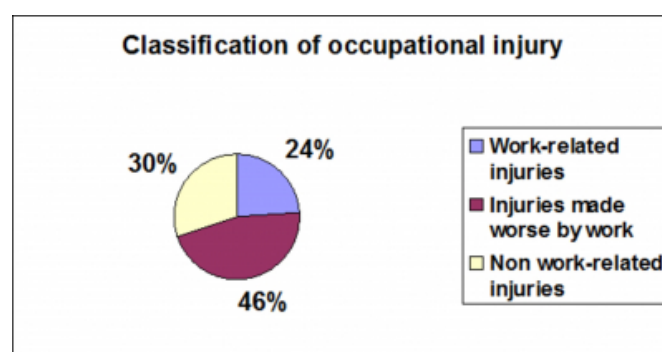
A total of 303 employees reported to the OH physiotherapy centre during the 1-year retrospective review and their records were accessed and reviewed. A total of 1182 physiotherapy sessions were booked during the review period, of which 862 were attended and 320 were cancelled. The mean age for this group was 43.5 years and the range was 20 to 78 years. Self-referrals made up 87% of referrals and the remaining 13% were referred by their manager. With regards to gender, the majority of the caseload was female (73%) with the remaining 27% being males. All cancelled sessions were excluded from the analysis. This indicates a 72.9% attendance rate.

### CLASSIFICATION OF OCCUPATIONAL INJURIES

The frequency distribution for the different classifications of occupational injury is shown in Figure 1. Injuries made worse by work was recorded as the most frequent classification with 140 (46%) reported cases. This was followed by non-work related injuries (n=91, 30%) and then work-related injuries (n=72, 24%).

**Figure 1**

Figure 1: Classification of occupational injuries

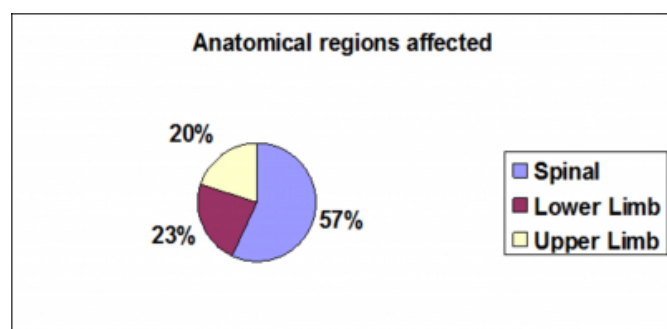


### ANATOMICAL REGIONS AFFECTED

The spine was recorded as the most injured anatomical region with 172 (57%) reported cases, following by the lower limb with 70 (23%) reported cases and then closely followed by the upper limb with 61 (20%) reported cases (Figure 2).

**Figure 2**

Figure 2: Anatomical regions affected



### STAGE OF OCCUPATIONAL INJURY

Acute injuries was the most common stage at which injuries presented (n=176, 58%) followed by chronic injuries (n=127, 42%).

**Figure 3**

Figure 3: Stage of occupational injuries



### MONTH OF OCCUPATIONAL INJURY

The month with the highest reported occupational injuries was July (n=29, 9.5%), while November was the month with the least number of reported occupational injuries (n=21, 6.9%) as depicted in Table 1.

**Figure 4**

Table 1: Number of reported musculoskeletal injuries per month

| Month        | Number of Injuries | %          |
|--------------|--------------------|------------|
| January      | 26                 | 8.7        |
| February     | 25                 | 8.2        |
| March        | 27                 | 8.9        |
| April        | 26                 | 8.7        |
| May          | 23                 | 7.5        |
| June         | 24                 | 7.9        |
| July         | 29                 | 9.5        |
| August       | 28                 | 9.3        |
| September    | 22                 | 7.2        |
| October      | 24                 | 7.9        |
| November     | 21                 | 6.9        |
| December     | 28                 | 9.3        |
| <b>Total</b> | <b>303</b>         | <b>100</b> |

### OCCUPATIONAL HEALTH PHYSIOTHERAPY SERVICE REFERRALS AND SESSION USAGE

The highest 3 staff groups for referrals to the occupational health physiotherapy service were for staff nurses (23%), domestic assistants (12%) and healthcare assistants (9%). The highest session usage was for staff nurses (23%) with domestic assistants and administrative staff equal on 11% each of session usage (Table 2).

**Figure 5**

Table 2: Percentage of physiotherapy referrals and session usage

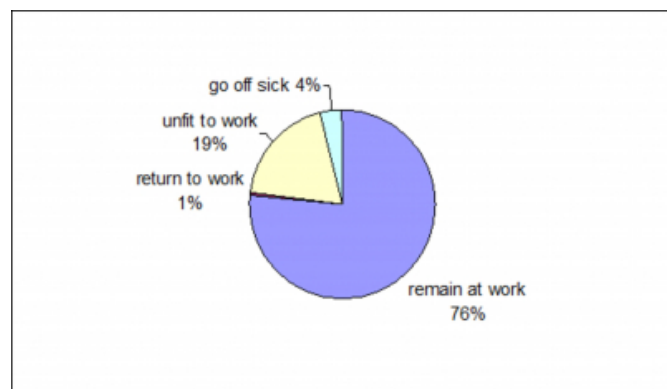
| Highest staff groups referred for physiotherapy | %  |
|---|----|
| Staff Nurses                                    | 23 |
| Domestic assistants                             | 12 |
| Healthcare assistants                           | 9  |
| Highest physiotherapy session usage             | %  |
| Staff Nurses                                    | 23 |
| Domestic assistants                             | 11 |
| Administrative staff                            | 11 |

## **OCCUPATIONAL HEALTH PHYSIOTHERAPY RECOMMENDATIONS FOLLOWING DISCHARGE**

Figure 1 depicts the recommendations following discharge from OH physiotherapy. The recommendations given on discharge were as follows: 76% to remain at work, 1% to return to work, 19% were unfit to work and 4% to go off sick.

**Figure 6**

Figure 4: Physiotherapy discharge recommendations



## **DISCUSSION**

This study is the first to describe occupational injuries reported at the occupational health physiotherapy clinic in the United Kingdom. The total number of injuries reported in this 1-year retrospective study was 303 which appear to be lower when benchmarked to other studies in similar settings [13-15]. However, comparisons of injury are not reliable as there may be variances in the data collection, analysis, recording and methods of reporting injuries from clinic to clinic resulting in poor data quality. Therefore the total number of occupational injuries recorded may not be a true reflection of the actual number of occupational injuries that occurred during this study period. Another possible reason for the low number of reported cases may be due to the fact that in occupational health there are several reasons an employee might decide not to report an injury, ranging from fear of reprisal and social stigma to a lack of knowledge of the reporting requirements [16].

This study revealed that injuries made worse by work was the most common type of occupational injury reported. The literature concerning the most common type of reported injury to occupational health departments differs. Some studies have reported work-related injuries as the most frequently reported injury [17-20] while others have reported non-work related as the most common reported injury

[21-23]. This is probably due to the different occupational settings at which these studies were carried out. Spinal injuries were reported as the most common anatomical region affected and a significant occupational health issue [24-26], while some studies reported that upper limbs as a frequent anatomical region affected [27-29]. This is possibly due to the manipulative and repetitive action of the upper limbs.

Acute injuries were reported as the most common stage at which injuries were presented to the occupational health clinic. This is likely due to the fact that in primary care physiotherapy provision there are long waiting times and higher number of treatments and so injuries are seen at a later stage, compared to the OH physiotherapy clinic which provides a rapid access service [30]. Therefore, timely access and appropriately funded OH physiotherapy services should be seen as a priority policy issue across organisations. The most frequent reporting of injury was July. In the UK, this is the summer period and therefore it is possible that staff sustain more injuries during the summer period due to dehydration and general fatigue. However, this however requires further research.

Staff nurses were the highest group to be referred for OH physiotherapy. This is consistent with current literature which reports that heavy manual handling requirements of the job, with limited staff resources such as hoisting equipments and the general shortage of staff nurses in the wards as some of the contributing factors [31]. Interestingly, a large amount of physiotherapy sessions were used by the administrative staff. This implies that prevention efforts for MSIs should also be directed to non-patient care occupations and consideration must also be given to their occupation-specific causes and activities [15]. A large number of staff were recommended to stay or return to work following OH physiotherapy intervention. This is largely due to the rapid access service provision, which enables staff to get better quicker and hence return to work sooner.

## **CONCLUSION**

The majority of the MSIs recorded at the occupational health physiotherapy clinic were spinal. The need for a prompt and effective OH physiotherapy service for injured staff is advocated by the author. Educational programmes aimed at prevention and coping strategies for MSIs must be given top priority. This study stimulates further discussion and encourages further studies into MSI in order to reduce incidence of these injuries in the workplace. While MSIs

cannot be totally eliminated, there must be a consistent professional and organisational focus on both developing and evaluating injury prevention strategies. Clear recording of MSIs is necessary to identify injury patterns in order to better prepare for preventive strategies. Finally, more physiotherapists must be encouraged to work with occupational health departments, trade unions and employers in order to identify steps that would prevent or reduce MSIs or early retirement of staff members and ultimately promote efficiency in patient care.

## References

1. Smith DR, Leggat PA: Musculoskeletal disorders in nursing. *ANJ*; 2003; 11: 1-4
2. Punnett L, Wegman DH: Work-related musculoskeletal disorders: the epidemiologic evidence and the debate. *J Electr Kinesiol*; 2004; 14: 13-23
3. Salik Y, Özcan A: Work-related musculoskeletal disorders: A survey of physical therapists in Izmir-Turkey; 2004; *BMC Musculoskelet Disord* 18: 5-27
4. Smedley J, Egger P, Cooper C, Coggon D: Manual handling activities and risk of low back pain in nurses. *Occup Environ Med*; 1995; 52: 160-163
5. Yip YB: A study of work stress, patient handling activities and the risk of low back pain among nurses in Hong Kong. *J Adv Nurs*; 2001; 36: 794-804
6. Chiou WK, Wong MK, Lee YH: Epidemiology of low back pain in Chinese nurses. *Int J Nurs Stud*; 1994; 31: 361-368
7. Botha WE, Bridger RS: Anthropometric variability, equipment usability and musculoskeletal pain in a group of nurses in the Western Cape. *Appl Ergon*; 1998; 29: 481-490
8. Niedhammer I, Lert F, Marne MJ: Back pain and associated factors in French nurses. *Int Arch Occup Environ Health*; 1994; 66: 349-357.
9. Smith DR, Leggat PA, Smyth W, Wang RS: Musculoskeletal disorders among female Australian nurses working in a unique tropical environment. *Ergon Aust*; 2003; 17: 14-17
10. Lagerström M, Wenemark M, Hagberg M, Hjelm EW: The Moses Study Group: Occupational and individual factors related to musculoskeletal symptoms in five body regions among Swedish nursing personnel. *Int Arch Occup Environ Health*; 1995; 68: 27-35
11. The Boorman's review of NHS workforce health and wellbeing: The final report; 2009
12. Metcalfe CJ, Moffett AK: Do patients' expectations of physiotherapy affect treatment outcome? Part 1: Baseline data. *IJTR*; 2005; 12(2): 55-62
13. Baker J, Scott D, Watkins K, Keegan-Turcotte S, Wyon M: Self-reported and reported injury patterns in contemporary dance students. *Med Probl Perform Art*; 2010; 25(1): 10-15
14. Ngan K, Drebit S, Siow S, Yu S, Keen D, Alamgir H: Risks and causes of musculoskeletal injuries among health care workers. *Occup Med (Lond)*; 2010; 60(5): 389-394
15. Alamgir H, Cvitkovich Y, Yu S, Yassi A: Work-related injury among direct care occupations in British Columbia, Canada. *Occup Environ Med*; 2007; 64(11): 769-775
16. Azaroff LS, Levenstein C, Wegman DH: Occupational injury and illness surveillance: conceptual filters explain underreporting. *Am J Public Health*; 2002; 92(9): 1421-1429
17. Booyens SJ, van Wyk PJ, Postma TC: Musculoskeletal disorders amongst practising South African oral hygienists. *SADJ*; 2009; 64(9): 400-403
18. Capone AC, Parikh PM, Gatti ME, Davidson BJ, Davison SP: Occupational injury in plastic surgeons. *Plast Reconstr Surg*; 2010; 125(5): 1555-1561
19. Darragh AR, Huddleston W, King P: Work-related musculoskeletal injuries and disorders among occupational and physical therapists. *Am J Occup Ther*; 2009; 63(3): 351-362
20. Tinubu BM, Mbada CE, Oyeyemi AL, Fabunmi AA: Work-related musculoskeletal disorders among nurses in Ibadan, South-west Nigeria: a cross-sectional survey. *BMC Musculoskelet Disord*; 2010; 20: 11-12
21. Mehlum IS, Veiersted KB, Waersted M, Wergeland E, Kjuus H: Self-reported versus expert-assessed work-relatedness of pain in the neck, shoulder, and arm. *Scand J Work Environ Health*; 2009; 35(3): 222-232
22. Thomason R: Non-work related injuries and leaves of absence Hawaii Dent J; 2006; 37(1): 14
23. Conn JM, Annest JL, Ryan GW, Budnitz DS: Non-work-related finger amputations in the United States, 2001-2002. *Ann Emerg Med*; 2005; 45(6): 630-635
24. Alperovitch-Najenson D, Santo Y, Masharawi Y, Katz-Leurer M, Ushvaev D, Kalichman L: Low back pain among professional bus drivers: ergonomic and occupational-psychosocial risk factors. *Isr Med Assoc J*; 2010; 12(1): 26-31
25. Genevay S, Cedraschi C, Courvoisier DS, Perneger TV, Grandjean R, Griesser AC, Monnin D: Work related characteristics of back and neck pain among employees of a Swiss University Hospital. *Joint Bone Spine*; 2010 [Epub ahead of print]
26. Briggs AM, Bragge P, Smith AJ, Govil D, Straker LM: Prevalence and associated factors for thoracic spine pain in the adult working population: a literature review. *J Occup Health*; 2009; 51(3): 177-192
27. van Eijsden-Besseling MD, van den Bergh KA, Staal JB, de Bie RA, Smeets RJ, van den Heuvel WJ: The influence of work and treatment related factors on clinical status and disability in patients with non-specific work-related upper limb disorders. *Work*; 2010; 37(4): 425-432
28. Chaumont Menéndez C, Amick Iii BC, Joe Chang CH, Dennerlein JT, Harrist RB, Jenkins M, Robertson M, Katz JN: The epidemiology of upper extremity musculoskeletal symptoms on a college campus. *Work*; 2009; 34(4): 401-408
29. De Smet E, Germeys F, De Smet L: Prevalence of work related upper limb disorders in hairdressers: a cross sectional study on the influence of working conditions and psychological, ergonomic and physical factors. *Work*; 2009; 34(3): 325-330
30. Casserley-Feeney SN, Bury G, Daly L, Hurley DA: Physiotherapy for low back pain: differences between public and private healthcare sectors in Ireland - A retrospective survey. *Man Ther*; 2008; 13(5): 441-449
31. Choobineh A, Movahed M, Tabatabaie SH, Kumashiro M: Perceived demands and musculoskeletal disorders in operating room nurses of Shiraz city hospitals. *Ind Health*; 2010; 48(1): 74-84

**Author Information**

**Laran Chetty, MSc**

Senior Physiotherapist, Royal Free Hospital Health and Work Centre, National Health Service