

Research Paper: Prevalence of Work-related Musculoskeletal Disorders and Injuries in Occupational and Physical Therapists and Its Comparison



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ABSTRACT

Objectives: Musculoskeletal disorders (MSD) are the most prevalent occupational diseases that are serious, fundamental and costly in nature.

Methods: This analytical descriptive study included 45 individuals of occupational and physiotherapy community in Hamedan, Nahavand and Malayer cities of Iran.

The standardized Nordic questionnaire was used to collect data. Data analysis was done by SPSS software, chi-square test, T-test and Kay Score tests.

Results: Study results revealed the prevalence of MSD accounting for 65.9% (n=27) of the study population who at least had one part of their body infected. In a 12 months study period, the disorder symptoms were seen in wrist (34.1%), lumbar (31.7%), knee (29.3%), neck (26.8%), shoulder (19.5%), and back (17%). A significant relation was seen between the symptoms of the wrist and hand. This was more common among occupational therapists. The results also showed that the disorders in occupational therapists affected all the limbs, except the neck. In addition, the females were more susceptible to the disorders compared to the males.

Discussion: This study confirmed the rate of prevalence of work-related musculoskeletal disorders and injuries in occupational and physical therapists, with wrist and lumbar being the most affected. The promotion of therapist's knowledge about MSD and following ergonomic principles and new approaches in the treatment may lower or prevent MSD.



1. Introduction

Work-related injuries and Musculoskeletal Disorders (MSD) generally

occur in people doing jobs. This is because of their poor physical postures that can lead to many ill consequences, such as job loss, job restrictions, fatigue, or job change [1-4]. The most common work-related injuries are the

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MSD, which are the main source of downtime and related costs in our country [5]. Injuries and diseases affect 78% of the total population. However, only 14% of them get doctor appointments and 15% get hospital admissions. According to medical statistics, 62% of people with MSD suffer from restrictive movement [6, 7].

Several factors lead to the occurrence of such disorders. One of these factors is repetitive movement. In some jobs, such as occupational and physical therapy, because of the risk factors, such as activity repetition, force, awkward postures and lack of leisure time, there is an increased risk of work-related injuries [5, 8]. Recent evidence suggests that the annual incidence of these diseases in occupational therapists and physiotherapists is on the rise. For example, in the US, the incidence of these work-related disorders in the case of therapists increased from 2% to 10% in 2004, from 5% to 10% in 2005, and from 5% to 13% in 2006 [1]. Researchers suggest The therapist who goes for therapy sessions during an 8-hour day work on 15 to 20 patients experiences more risk of work damage [9].

The purpose of this study was to examine the prevalence of MSD in occupational therapists and physiotherapists along with the determination of the risk level for them. The findings will help improve their working conditions and prevent work-related disorders.

2. Methods

This is a cross-sectional study that was conducted during the period 2013–2014 to examine the rate of incidence of MSD among occupational and physical therapists and comparing the symptoms seen in the therapists. Therefore, all the participants were occupational and physical therapists who were short listed from the Hamedan, Malayer and Nahavand cities of Iran through a numeration method. Demographic characteristics of the study population (N=41) are presented in Table 1. The study aim and the method used were explained to the therapists to participate consciously or leave the test if they did not want to participate. The exclusion criteria included less than one year of work experience, incomplete questionnaires, and congenital or accidental physical disabilities.

All of them were asked to fill a Nordic musculoskeletal questionnaire, which is one of the most common questionnaires about symptoms of MSD from the work presented by Kuorinka and his colleagues in Occupational Health Institutes of Scandinavian countries [10]. This questionnaire can be used as a suitable standard to gather necessary data and information about MSD and disease

epidemiology and related work MSD. The questionnaire included two sections:

1) The first section: It had 18 questions that were further divided into two parts: the first part included nine questions to review the participant's personal information and demography (height, weight, prior acute injuries, surgery, relevant systemic diseases, alcohol intake, tobacco use, sports, and hobbies). Subjects reporting musculoskeletal symptoms in the year preceding the interview were asked additional questions, such as year of onset, symptom frequency, and duration within the past year. In the second part, there were nine questions to examine the participant's information about their (year) work experience, working hour, and job circulation.

2) The second section: The Nordic questionnaires consisted of 27 binary choice questions (yes or no). There were three questions in the questionnaire, which also had three separate parts that examined the MSD in nine body areas (neck, shoulders, wrist/hands, upper back, low back, hips/thighs, knees, ankles/feet) at different times during the previous one year of the study period.

The first was "had some troubles or pain in the last 12 months", the second was "in the last 12 months felt some limitation caused by work in the daily activities", and the third was "had some troubles or pain in the last 7 days".

All statistical analyses were performed with the SPSS software (Version, company, country). In order to examine the relationship between the gender, lateral advantages and MSD, the chi-square test had been applied. For deriving the relationship between age, weight, weekly working hours, yearly work experiences and MSD, the T-test was used.

3. Results

Forty-five occupational and physical therapists have been included in the study; of them, four were excluded from the study because of less than one year of work experience or incomplete questionnaires.

From 41 occupational and physical therapists, 23(56.1%) were male and 18(43.9%) were female; 17 were occupational therapists and 24 (58.5%) were physical therapists; 33(80.48%) were married and 8 (19.52%) were single; and 36 were right handed and 5 were left handed. None of the participants were smokers.

The result showed no significant relationships between age, height, weight, and gender with the rate of incidence of musculoskeletal disorders ($P < 0.05$) (Table 2).

Table 1. Demographic characteristics of the study population (N=41)

Variable	Mean	Maximum	Minimum	SD
Age (y)	36.49	51	24	7.406
Weight (kg)	70.71	95	52	11.358
Height (cm)	171.15	187	151	8.999
Hours per week	46.37	72	14	12.876
Work experience (y)	10.95	25	1	6.914

SD: Standard Deviation

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Table 2. Relationship between age, height, weight, gender, and musculoskeletal disorders

Variable	P
Age	0.151
Weight	0.542
Height	0.794
Gender	0.925

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Table 3. Prevalence of disorder in different body parts and limitations in activities of daily living among occupational and physical therapists

Variables	Do You Have a Problem During the Past 12 Months, Such as Pain, Discomfort and Numbness in the Extremities?		Do You Have a Problem During the Last 7 Days as Pain, Discomfort and Numbness in the Limbs?		Are You Unable to Do Everyday Activities, Such as Occupational Activities, Recreation and Housework During the Last 12 Months Due to MSD?	
	Yes Number(%)	No Number(%)	Yes Number(%)	No Number(%)	Yes Number(%)	No Number(%)
Neck	11(26.8)	30(73.2)	4(9.8)	30(73.2)	6(14.6)	35(85.4)
One or both shoulders	8(19.5)	33(80.5)	2(4.9)	33(80.5)	2(4.9)	39(95.1)
One or both elbows	5(12.2)	36(87.8)	0	36(87.8)	1(2.4)	40(97.6)
Wrists/Hands	14(34.1)	27(65.9)	4(9.8)	27(65.9)	4(9.8)	37(90.2)
Upper back	7(17.1)	34(82.9)	2(4.8)	34(82.9)	1(2.4)	40(97.8)
Low back	13(31.7)	28(68.3)	7(17.1)	28(68.3)	6(14.6)	35(85.4)
One or both hips	3(7.3)	38(92.7)	2(4.9)	38(92.7)	1(2.4)	40(97.6)
One or both knees	12(29.3)	29(70.7)	6(14.6)	29(70.7)	5(12.2)	36(87.8)
One or both ankles	3(7.3)	38(92.7)	0	38(92.7)	2(4.9)	39(95.1)
Total	27(65.9)	14(34.1)	15(36.6)	14(34.1)	15(36.6)	26(63.4)

Note: MSD: Musculoskeletal Disorders

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Table 4. The difference between occupational therapists and physiotherapists extremity involvement in the past 12 months

Jobs	Ankle (n)	Knee (n)	Hip (n)	Lumbar (n)	Wrist (n)	Elbow (n)	Shoulder (n)	Neck (n)
Occupational therapists	2	3	7	3	10	4	4	4
Physiotherapists	1	0	6	4	4	1	4	7

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It also showed that the relationship between weekly working hours and work experience in the present station (year) was not significant, yielding an amount of possibility (P) for both variables, 0.065 that is really close to $P < 0.05$. The participants also reported absence of medical history related to MSD in the past or right before the work. The incidence of MSD based on body parts indicated that the majority of disorders were related to hand/wrist, affecting 10 (58.8%) and 4 people (16.6%) in occupational and physical therapies, respectively.

The results showed that in last 12 months, the MSD symptoms were commonly seen in the wrist and hand, back, knees and neck, and in last 7 days, they were mostly seen in the waist and knees. During this period, the major limitations caused by MSD in performing the daily activities were due to the immobility in the neck, back, knees, and wrist. Table 3 shows the frequency of having MSD in nine different areas of the body and the limitation in performing the daily life activities.

Out of 17 occupational and 24 physical therapists who were included in the study, 13 (76.4%) and 14 (58.3%) of them, respectively, experienced symptoms of MSD. The result showed that the occupational therapists experienced more serious problems than the physical therapists, and in addition to this, the females suffered more than the male.

Furthermore, the rate of incidence of MSD in therapists at the wrists and hands has been significant in last 12 months, and this was more in occupational therapists, affecting the limbs except the neck.

4. Discussion

According to view point of health organizations, health is not only having no disease but having great physical, mental and social comfort. Health complications emerging out of the professional lifestyle has led to a decrease in work efficiency and low job satisfaction [11]. The present study showed that the incidence rate of MSD among occupational and physical therapists is about 65.9%. Most of the therapists who have less than one year of work experience and the students (seniors) who were not part of our study population also reported the

symptoms of MSDs. This level of high incidence was in the same direction with the study performed by Darragh and Nordin in Ohayo Public University of the USA and Malaysia, respectively [1, 9]. The rate incidence of MSD among occupational therapists was 76.4% and among physical therapists was 58.3%. The high incidence rate among the occupational therapists might be because they performed technical jobs manually. Table 4 shows the rate of affected areas based on the limbs.

Moreover, most of the patients of occupational therapists in Iran are neurologic (high spastic) and suffer from cerebral palsy, CVA, and other chronic diseases, whereas physical therapist's jobs are highly focused on related tools and machines and orthopedic patients. Also, the therapy sessions demand the occupational therapists to put their patients in different positions, which force them to get extremely connected with their patients. Such repetitive actions led to more symptoms of MSDs. The present study also showed that the disorders were mostly in hand/wrist (34.1%), back (31.7%), knee (29.3%), and neck (26.8%) and that has been proved by Bork et al.'s study in Lava university I in the year 1996 [12].

Additionally, our study results were in the same direction with Nordin's study, which showed the difference in MSD symptoms between male and female medics that was not taken into consideration, although it was about 1.5% more in females [9]. Moreover, the results showed that inappropriate body mass, repetitive actions, working time period, and positioning while working were effective in MSD, which are unanimous with Cromie and Nordin et al in Australia and Malaysia, respectively [5, 8, 9, 13]. The results were also similar to King et al.'s study, which showed that more experienced therapists reported increased symptoms and similar disorders, which led to low quality job and more sick leaves [2]. However, apparently the relationship between MSD and weekly working hours and experiences was not significant [9]. It should be noted that the physical profession medics like CPs, adults orthopedists and neurologists have shown more disorder symptoms and have mentioned their dissatisfactions during interviews or queries than mentalists and psychologists [14].

5. Conclusion

The present study showed that 24 of the therapists (65.9%) reported suffering from at least one type of MSD. The disorders were more common in occupational therapists than physical therapists; however, the gender was not effective. Most of the disorders were reported by occupational therapists, especially in their hands and wrists during the last 12 months. Considering the enormous difference between the rate of incidence among occupational therapists and physical therapists, we suggest occupational therapists should use other approaches plus their manual practices and follow ergonomic basis while handling and transferring their patients.

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Conflict of Interest

The authors declared no conflicts of interest.

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