

## Prevalence of musculoskeletal disorders in computer operators

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### Abstract

**Background:** Musculoskeletal disorders [MSD's] are injuries which includes many types of strain, sprain, carpal tunnel syndrome, tendonitis, sciatica and low backache etc and also includes disorders to muscles, nerves, tendons, ligaments, bones, joints, cartilages, and spinal discs. Our study aim at prevalence and identify most commonly affected body region among computer operator. To identify prevalence of musculoskeletal disorder among computer operator an appropriate scale : Standardised Nordic musculoskeletal questionnaire (NMQ) was selected.

**Procedure** : Ethical approval from institutional ethical committee was obtained. Subjects fulfilling inclusion criteria was selected for the study. Written consent from the subjects was obtained. Study procedures was explained to the subjects. Standardised Nordic Questionnaire was taken. Data was analyzed. **Result** : The study was conducted to find the prevalence of musculoskeletal disorders in computer operator. The highest no. of MSD was found in upper back. Out 50 participants, 20 computer workers are having pain in upper back region followed by shoulder, low back, neck & wrist. **Conclusion** : MSDs, particularly upper limbs disorders and back problems, occurred in high rate among computer operators. In the present study, upper back pain is the most frequently reported. Low back pain, wrists/hand, and shoulder pain is the next frequent type.

**Introduction** : Musculoskeletal disorders [MSD's] are injuries which includes many types of strain, sprain, carpal tunnel syndrome, tendonitis, sciatica and low backache etc and also includes disorders to muscles, nerves, tendons, ligaments, bones, joints, cartilages, and spinal discs<sup>[1]</sup>. Musculoskeletal disorders are work-related when the work environment and performance of work are significant contributors to their development or exacerbation, but are not the sole determinant of causation. Thus a disorder is work-related when work

procedures, equipment, or environment contribute significantly to the cause of the disorder (WHO, 1985). The WRMSDs are inflammatory and degenerative disease conditions that result in pain and functional impairment affecting the neck, shoulders, elbows, wrists/hands. Computer has become an integral part of our life. However, its use is not free from health hazards. Intensive computer work puts stress and strain on muscles, as well as joints, because of continuous and repetitive nature of movements. Individual factors, prolonged awkward postures, poor workstation design and psycho-social environment can lead to development of symptoms of musculoskeletal discomfort (MSD). If these symptoms are ignored and if no preventive measures are taken, cumulative trauma disorders such as myalgia, myofascial syndromes, nerve entrapment syndromes, tendonitis, epicondylitis and tenosynovitis can develop<sup>[2]</sup>. Muscles and tendons can become inflamed due to greater periods of sitting on PC's. Carpal tunnel syndrome is a common example of an overuse injury associated with computer work. The computer has been considered as a device that posses a unique potential to improve the quality of health care systems as well as the study efficiency of health workers both in the developed and developing countries. Physical activity at its extremes could also be a potential risk factor for musculoskeletal pain for example neck/shoulder pain<sup>[3,4]</sup>. Computer work increases the risk of musculoskeletal disorders and according to studies, musculoskeletal pain occurs usually in the neck and in the lower back<sup>[5]</sup>. Use of the computer mouse is widespread with most software packages now, requiring movement of a screen cursor controlled via a pointing device. Computer mouse usage has been demonstrated to account for up to two-thirds of computer operation time, depending on the software used and the task performed. It has been suggested that mouse use may be related to musculoskeletal discomfort and injury<sup>[6]</sup>. Prevalence of musculoskeletal disorders among keyboards users has also been reported to be as high as 81%. Prolonged static muscle load, workstation factors have been identified as risk factors for musculoskeletal diseases (MSD)<sup>[7,8,9]</sup>.

### Material and Methodology

- 1) Ethical approval from institutional ethical committee was obtained.
- 2) Subjects fulfilling inclusion criteria was selected for the study.
- 3) Written consent from the subject was obtained.
- 4) Study procedure was explained to the subjects.

- 5) Standardized Nordic questionnaire was obtained.
- 6) Data was analyzed.

## RESULT

Table no.1

AGE	TOTAL	WORKING YEARS	TOTAL	MUSCULOSKELETAL PAIN									
				NECK	SHOULDER	ELBOW	WRIST	UPPER BACK	LOW BACK	HIP	KNEE	ANKLE	
25-35	26	1-5	18										
36-45	16	6-10	14	6	14	0	2	20	8	0	0	0	
46-55	8	11-15	18										

**Discussion :** The present study is the documentation of the prevalence of MSD in computer operator. Several studies concluded that computer use could be a risk factor in developing musculoskeletal problems<sup>[10, 11]</sup>. The age group of all the subjects recruited for this study range from 25 to 55, in which probability of the occurrence of degenerative changes in the joints were uncommon. K. Oha1, V. Viljasoo1 et al, in this study, they concluded that, among all respondents, 80.4% had musculoskeletal pain in different parts of the body during the last 12 months. Half of all workers (51.5%) reported pain in neck and a little less than half (41.7%) of workers reported pain in lower back. About one-third reported pain in hand/wrist (34.5%), in shoulders (30%), in knees (29.9%) and a small portion of workers reported pain in elbows (14.6%). Shoulder, elbow, hand/wrist and knee pain was studied both in the right and the left limb as well as in both sides of the body, although this presented no statistical differences. In this study total 50 subjects were participated. Among 50 subjects, 20 persons has found pain in upper back. Musculoskeletal complains(87%) is more in this age group i.e. between 25 to 35yrs; & the musculoskeletal complains(57%) is also more in those who has experienced working years between 11 to 15yrs. WRMSD's are disorders of the muscles, skeleton and related tissues which has been empirically shown or are suspected to have been caused by a workplace activity particularly a repetitive activity. Throughout this study, the term WRMSD's is used since most of the ailments are arising out of low load static exertions and static postures sustained for prolonged duration of the computer work<sup>[12]</sup>. Further, for the purpose of this study the term WRMSD's related to nine body segments are captured. To facilitate that, the Nordic musculoskeletal questionnaire is used and it has been applied to a wide

range of occupational groups to evaluate musculoskeletal problems, including computer workers<sup>[13]</sup>. The reliability of the Nordic musculoskeletal questionnaire as a screening tool was proved by earlier studies using a test-retest methodology<sup>[14]</sup>. Other studies also indicated that Nordic musculoskeletal questionnaire tool is repeatable, sensitive and can be used for screening and surveillance purpose<sup>[15]</sup>.

In the present study, upper back pain is the most frequently reported. Low back pain, wrists and hand, and shoulder pain is the next frequent types of WRMSDs

**Conclusion :** MSDs, particularly upper limbs disorders and back problems, occurred in high rate among computer operators. In the present study, upper back pain is the most frequently reported. Low back pain, wrists/hand, and shoulder pain is the next frequent types of WRMSD's.

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