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Original Article

Prevalence of Musculoskeletal Disorders Among IT Professionals

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ABSTRACT

Over the previous two decades, computer use has increased the occurrence of musculoskeletal problems and other disorders. Frequent computer use is to blame for a slew of MSDs that can cause fatigue, pain, and even impairment. Tendons, ligaments, joints, nerves, blood muscles, and veins are all affected by these conditions. **Methods**: This is a cross-sectional study, sample size was 413 participants. The data was gathered from IT Professionals of 4 different software houses of Lahore. Nordic musculoskeletal disorder questionnaire was used. **Results**: The most affected body regions were neck (63.9%), lower back (58.6%), and upper back (42.9%). Other affected regions were: Right shoulder (39.2%), Left shoulder (33.7%), both shoulders (31.2%), one or both hips/thighs (26.2%), right wrist/hand (23.2%), one or both knees (22.8%), left wrist/hand (20.8%), one or both ankles/feet (19.4%), right elbow (15.3%), left elbow (12.6%), both wrist/hand (12.3%) and both elbows (8.2%) respectively. **Conclusion**: There is high prevalence of musculoskeletal disorders seen in the IT Professionals.

INTRODUCTION

Muscle, ligament, tendon, nerve, blood vessel, bone, and joint injuries that produce pain in the neck, shoulder, arm, wrist, hands, upper and lower back, hips, knees, and foot are referred to as MSD [1-3]. Tendon inflammation and related conditions (tenosynovitis, epicondylitis, bursitis), nerve compression disorders (carpal tunnel syndrome, sciatica), and osteoarthritis are among them, as are less well-defined conditions like myalgia, low back pain, and other regional pain syndromes not attributable to known pathology[4]. According to a report, MSD is a common problem, accounting for around 40% of the costs associated with work-related injuries treatment [5]. Musculoskeletal illnesses are deemed work-related when they are considerably induced and exacerbated by working activities and environments, according to a world health organization (WHO) statement [6].Work-related musculoskeletal diseases (WRMDs) are extremely common among workers in a number of manufacturing and non-manufacturing environments. Furthermore, in industrialized countries, WRMDs are a primary cause of work-related impairment and productivity loss. Losses in potential productivity, at work or at home, associated with morbidity or early mortality, and impairments in health-related quality of life are examples of indirect costs that WRMDs may agree with [7]. There are individual risk variables related to each individual's sensitivity, as well as organizational/psychosocial risk factors (although these occupational risk factors are generally addressed separately), which must be controlled in addition to the physical risk factors associated with work duties [8]. Pain, discomfort, and movement limitations were the most common symptoms of WMSDs, which manifested in the lower back, shoulder, neck, forearm, and hands. Nonspecific low back pain (LBP), neck-shoulder-wrist-

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hand syndrome, and carpal tunnel syndrome have been the most commonly reported complaints thus far [9]. Work-related musculoskeletal diseases (WMSDs) are a leading cause of morbidity in many working populations and have been recognized as a severe occupational problem, resulting in higher compensation and health-care expenditures, decreased productivity, and a worse quality of life. WMSDs are thought to have a greater impact on quality of life than any other category of diseases, causing missed work time or absenteeism, increasing work limitation, transfer to another job, or disability, and they impose a significant economic toll on individuals, organizations, and society as a whole.[10] Most musculoskeletal disorders (MSDs) are multifactorial in origin, as opposed to many occupational illnesses that are caused by exposure to specific harmful substances. As a consequence of scientific study results WMSDs, physical, psychosocial/organizational, and individual occupational 'risk factors' for the development of work-related musculoskeletal disorders have been identified [11]. Epidemiologists and ergonomists doing research have emphasized the need of precisely monitoring employees' exposure to components that may result in the development of WMSDs (12). Professionals have a very high risk of experiencing musculoskeletal pain as a result of their employment [13]. IT Professional practice, like any other workplace, can have negative consequences for IT Professionals, which are referred to as occupational health hazards (OHHs) [14]. MSD, which is produced by stretched posture (both while standing and sitting, finally leads to overstress of the spine and limbs, is a major occupational health hazard found in IT Professionals. This refers to the 37.7% of time spent at work. The musculoskeletal system and the peripheral nervous system are both negatively affected by excessive stress [15]. According to one study, the key ergonomic characteristics associated with the development of musculoskeletal issues include inappropriate body posture and lack of body mobility among IT professionals. Long durations of computer work in uncomfortable and immobile positions with repeated motions of the arms and hands, along with postural pressures of the upper back and head, as well as psychological stress [16] MSD's are a common problem among IT professionals mainly due to postural risks, so knowing its prevalence in IT professionals is necessary as prevalence is often useful in reflecting the morbidity, quality of life and burden of a disease in a specific population and determining prevalence is also the first step in prevention, diagnosis, and treatment of any disorder.

METHODS

In this study, the Nordic musculoskeletal questionnaire

The cross-sectional study was conducted at Shalimar School of Allied Health Sciences, after approval from the institutional review board of Shalimar Medical and Dental College, Lahore. Non-Probability, Convenience Sampling technique was used. This study recruited 45 participants of both genders, aged between 18 to 24 years and with normal BMI. Handgrip strength of the dominant hand is measured in different testing postures (standing, sitting, supine, side-lying, and prone) with the shoulder in abduction and neutrally rotated, elbow flexed 90° forearm in mid-prone and wrist in neutral to 30° extension by using a handheld dynamometer. The data were analyzed by using SPSS version 25. Mean and standard deviation tables were used to present the socio-demographic data and a One-way repeated measure analysis of variance (ANOVA) is used to compare HGS values. Correlation between dependent and independent variables is measured by Pearson Correlation Coefficient®.

Demographic characteristic	Maximum	Minimum	Mean	SD
Age	18	50	30.33	9.54
Weight (Kg)	37	135	69.15	14.728
Height (Ft & inchs)	4.9	6.4	5.55	0.33
Gender	**Male**		**Female**	
	271		142	

Table 1: Descriptive Statistics for Age, Weight and Height

Professionals worked for 22 hours and maximum was 90 hours, with a mean and standard deviation was 42.41±7.74. Table 4 shows 12 months prevalence of musculoskeletal disorders among male and female IT professionals. Highest was in neck (63.9%), lower back (58.6%), and upper back (42.9%).There was no significant difference between various regions of the body when compared among genders, though a statistical difference was seen in right shoulder pain. Table 4 shows 7 days prevalence of musculoskeletal disorders among male and female IT professionals. Highest was in neck (40.4%), lower back (38.5%), and shoulder back (32.7%). For 7 days, there was significant difference in prevalence among male and female related to neck, shoulder and lower back.

Working duration (Hours/day)	Frequency	Percentage
4 to 5	35	8.5
6 to 7	90	21.8
7 to 8	288	69.7
Total	413	100.0

Table 2: Total daily working duration for IT professionals

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Study variable	Total duration of job (Months)	Amount of Work per week
Mean	5.84	42.41
Std. Deviation	4.460	7.74
Minimum	1	22
Maximum	25	78

Table 3: Total duration of job and weekly work for IT professionals

Area of body		12 Months prevalence			
		Male	Female	Total	Chi^2
Neck		99	68	167	
		36.5%	47.9%	40.4%	0.02*
Shoulder	**One or Both**	74	61	135	
		27.3%	43.0%	32.7%	0.001*
Elbow	**One or both**	32	17	49	
		11.8%	12.0%	11.9%	0.96
Wrist/ Hand	**One or Both**	44	34	78	
		16.2%	23.9%	18.9%	0.06
Upper back	**One or Both**	74	40	114	
		27.3%	28.2%	27.6%	0.85

Table 4: Total 7 day's prevalence of musculoskeletal disorders among IT professionals

DISCUSSION

The computer usage has become an essential part of our lives and it can cause symptoms of MSDs. So the objective of this study was to find out the frequency of MSDs and workstation conditions of the IT professionals as determining prevalence and pattern of the MSD's and pain is the first step in prevention, diagnosis, and treatment of these disorders. For this purpose, IT professionals were selected in this study, and participants reported MSD's in all regions as neck (63.9%), right shoulder (39.2%), left shoulder (33.7%), both shoulders (31.2%), right elbow (15.3%), left elbow (12.6%), both elbows (8.2%), right wrist/hand (23.2%), left wrist/hand (20.8%), both wrist/hand(12.3%), upper back(42.9%), lower back(56.8%), one or both hips/thighs(26.2%), one of both knees(22.8%), one or both ankles/feet (19.4%) being most frequent in neck, shoulders, wrists, upper back and lower back. Regarding 12 months prevalence, no significant difference between various regions of the body, when compared among genders, was observed. But statistical difference was seen in right shoulder pain. According to previous studies, MSD's are the most common problems among computers users making it consistent with this study [17]. A study conducted by Juul-Kristensen, also concluded the highest prevalence of MSD's among computer users with being highest in the shoulder region 73% and neck region 71%, which is also consistent with the current study as the reported prevalence for neck was highest being 63.9% [18]. This study is also consistent with the study of Eltayeb et al. on the computer users of an office, which also concluded MSD's are a common problem with most common musculoskeletal discomfort in the neck 63% and shoulder 56%. This matches the results of this study where reported neck pain prevalence was 63.9% and shoulder was 39.2 % [19]. In general, according to findings of this study and its comparison with the other studies, it can be concluded that there is high prevalence of musculoskeletal disorders seen in the IT professionals, and this high prevalence can be a serious warning (i.e. if not prevented), it can lead to more problems and complications for IT professionals in the coming years, resulting in reduced performance and efficiency.

CONCLUSION

It conclusion, that there is high prevalence of musculoskeletal disorders seen in the IT Professionals, and this high prevalence can be a serious warning (i.e. if not prevented), it can lead to more problems and complications in the coming years, resulting in reduced performance and efficiency.

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