

Musculoskeletal problems in frequent computer and internet users

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ABSTRACT

Aim: This study was carried out to see the frequency of musculoskeletal problems in frequent Computer and Internet Users. **Methods:** This was a Cross Sectional Study performed in the community and we chose Office workers and students aged 18 to 50 years using Computers and Internet for not less than 3 hours per day. After a verbal consent, they were given a questionnaire in English. People having prior diagnosed musculoskeletal problems were excluded. **Results:** Total number of participants were 150, out of which 80% were males, and 67 (44.7%) suffered from musculoskeletal problems, affecting at least one of the four anatomical sites (low back, neck, shoulder, wrist/hand). Common symptoms were Headache, which was seen in 46% and neck pain in 41.3% of subjects. Whereas wrist pain was least commonly seen in 16% of subjects. Independent t test was used to compare the musculoskeletal problems with duration of computer use which has a significant value i.e. less than 0.05. **Conclusion:** Musculoskeletal symptoms are quite common, headache and back pain being most common symptoms. These symptoms are associated with prolonged use of computer and internet and often left unreported and unrelated.

Keywords: Back pain, computer, cross sectional, internet, wrist

Introduction

Computer and internet use has been increased recently over the past decades and has been linked with various musculoskeletal disorders.^[1] With the advents of recent technology and affordable prices its use is very common among all age groups either at workplace or at home and this will increase in future. It is observed that video display terminals (VDTs) are also erupting at workplaces worldwide, causing health issues for individuals operating them.^[2] Poorly designed ergonomics for computers, is another important contributing factor in causing not only musculoskeletal problems but also visual problems. Globally, the number of people suffering from musculoskeletal conditions has increased by 25 percent over the past decade^[2] and these conditions make up 2% of the global disease burden.^[3] In addition musculoskeletal complications were

present in 22% of the patients and are also called cumulative trauma disorders (CTD) or repetitive strain injuries (RSI),^[4] and included headache, neck and wrist pain and backache. Major contributing factors include duration of computer use and amount of work which led to increased working stress. Since most common users of computers are office workers and students, we decided to evaluate musculoskeletal complications in these specific groups of population. The purpose of our study was to find out how increased use of computer, mobile and internet devices affect our musculature and measures to prevent it as in this era of digitalization its importance is untold. This will also enlighten the community about the hazards of its prolonged use and will help organizations to design better computer ergonomics for the benefits of their employees and students.

Methodology

A descriptive cross sectional study was conducted in 2015 in 150 participants after obtaining verbal consent. All of them

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were 17 years and above and included students and office workers who were using internet, mobiles and computers for more than 3 hours. Evaluation was made regarding common musculoskeletal problems like backache, wrist pain and neck and muscle tenderness. Each subject was given a self administered questionnaire in English and the data collected was assessed based on the working hours with computers, laptops and mobile along with duration of sleep. Level of Education ranging from Primary to post graduate was kept as a factor to evaluate the application of knowledge in life. Risk factors like Hypertension, smoking and lack of exercise were included. People who suffered from more than one symptom were marked as having musculoskeletal problem whereas those with less than one symptom were labeled as not having any musculoskeletal problems. Frequencies of categorical variables were calculated and Cross tabulation was performed to see the association between various factors and musculoskeletal symptoms.

Results

200 participants comprising of students and office workers of 17 years and above were given a self administered questionnaire out of which 150 responded. Participants were predominantly males 80%, ages ranging from (17 to 60) yrs. Level of education was assessed and it was found that 48% of our subjects were graduates. Out of the 150 17% were smokers, 27% did regular exercise and 19% had hypertension. Frequency of computer, laptop and internet use on mobile devices was evaluated and it was found that majority used them for more than 6 hours that is 58.7%

It was observed that out of 150 participants 67 (44.7%) suffered from Musculoskeletal problems. affecting at least one of the four anatomical sites (low back, neck, shoulder, wrist/hand). Headache, lower back and neck were the most common sites of pain [Table 1].

Independent t test was used to compare the musculoskeletal problems with duration of computer use which has a significant o value i.e. less than 0.05. Exposure to risk factors such as prolonged continuous use without breaks, bad lightening and posture and poorly designed ergonomics in offices can act as risk factors for these symptoms.

Discussion

In this study it was observed that out of 150 participants 47% experienced the symptoms of musculoskeletal problems which may not be very significant as compared to a study that was done in Estonian university students who reported 77% prevalence,^[1] reasons of difference being a large sample size as compared to ours. Another responsible factor could be lack of awareness among students and office workers about poor ergonomics and also inability to report the problem to concerned authorities.^[2]

Duration of computer and internet use

The significant finding in our study was that those who had the

Table 1: Demographic detail of patients

Variables	Frequency (%)
Mean age (SD)	32.9±10.3
Minimum	17
Maximum	50
Gender	
Males	120 (80)
Females	30 (20)
Occupation	
Student	32 (21)
Employee	118 (79)
Level of education	
Secondary	23 (15)
Graduate	72 (48)
Postgraduate	55 (37)
Exercise	40 (27)
Smoking	25 (17)
Hypertension	28 (19)
Duration of computer work (h)	
3-4	28 (19)
4-6	34 (22)
More than 6	88 (59)
Headache	69 (46)
Neck/shoulder pain	62 (41.3)
Back pain	63 (42)
Wrist pain	24 (16)
Musculoskeletal problems	67 (44.7)

SD: Standard deviation

symptoms of musculoskeletal problems in different anatomical sites like neck, shoulder, wrist and headache were the ones who used computers for more than 6 hours which was similar in two studies, one among Iranian students^[3] and another among research students and employees of multinational companies^[4] with comparable results.

Back pain

Prolonged sitting with poor work ergonomics are shown to be a risk factor for various musculoskeletal problems including Back pain. Khan and Siddiqui evaluated computer user for low back pain in patients 12-65 years. According to their results, low back pain was reported in 44% of VDU user which developed after four hours and in 35% after three hours. This is also similar to the present study result (47%)^[5]. Prolonged sitting may also cause prolonged static contraction of muscles; increased pressure on the inter vertebral discs and tension on ligaments and muscles.^[6]

Neck and shoulder pain

Similar study was done in Kolkata in a software company which showed musculoskeletal symptoms in 90% of population which were highest in upper extremities as compared to lower limbs and back, an interesting finding indeed.^[7] We noticed increase neck and shoulder pain and backache but fewer people had wrist pain and a positive association was seen in people with increased working stress noticed similarly in a study done in China^[8] which related upper body pain to psychological stress and backache to increased workload. Work related Musculo

skeletal disorders are also sometimes associated with intense physical work, wrong posture, repetitive movements and psychosocial stressors.^[9]

Our Research is important in the aspect that while using computers and internet in this era of technology and digitalization, we often forget that our body needs care regarding appropriate posture and timings to use these devices, hence it will create awareness in community and will also help organization to design appropriate work ergonomics. Improved education and training regarding internet and computer use has significant impact on posture care in computer users.^[10] Replacing a sedentary life with activities involving good physical activities and proper diet plays an important part in reducing these problems.^[11]

There are some limitations in our study one being a small sample size which can only reflect fewer population and narrow age spectrum but it is always open for future projects and can benefit society. We recommend, setting up of training programs, motivational workshops and annual medical checkup for workers, for evaluation and management for their current health issues related to their work.^[12] Considering the importance of complications of working with computers and internet, more extensive studies evaluating these complications in both genders, in different age groups and in different occupations are recommended. It is also important to include other symptoms like behavior impact and sleep deprivation as its frequency also affects lifestyle of our study subjects.

Conclusion

We conclude our study by saying that musculoskeletal symptoms are associated with prolonged use of computer and internet and often left unreported and unrelated. It is important to ask about internet use and then advise accordingly for better outcomes.

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Conflicts of interest

There are no conflicts of interest.

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