The Impact of Computer And Laptop on Musculoskeletal System Among College Going Students

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Abstract- *Musculoskeletal problem has become the most common problem among the students who continuously do the work either on computer or on laptops without changing their posture or without taking proper rest. The problem becomes worst when the students avoid the symptoms knowingly. They suffer pain in various problems such as Shoulder, neck and back, Tingling or aching, Numbness or a burning sensation in the hand, Stiffness or swelling in the joint, Pain in wrist, forearms, elbows, neck or back, Muscles weakness, Fatigue, Decreased grip strength in the hand, Blurred or double vision, Cramping, Tension stress etc. to reduce these ailments the students are required to take rest or some kind of medical treatment. Because of this reason specifically this area had been taken for research purpose to make the students aware about the ill effects of musculoskeletal disorders when they don't change their position or don't take rest. For the present study 100 students from different colleges of Nagpur University were selected randomly. Descriptive research design was used for the present study. Purposive sampling procedure was followed to select the sample and data was gathered by interview method.*

Keywords- Musculoskeletal disorders, Repetitive stress injury, Vision Problem, Lateral epicondylitis, Spinal Disk Problem.

I. INTRODUCTION

Computers and laptops are widely used by the college going students for academic and leisure activities. However, there is limited research that identifies risk factors for musculoskeletal disorders during computers and laptops use in population. College going students commonly use computers, laptops and internet these days. Among computer users the most common area of complaint are neck, shoulder and back. College going students are increasingly engaged in activities that stimulate work demands that cause repetitive strain injuries. Among students using a computer or laptops is thought to be associated with musculoskeletal disorders and clinical symptoms in the upper extremities, neck and upper back. (Bernard, 1997, National Research Council and Institute of Medicine, 2001). Posture, duration, frequency and force are the exposure parameters of concern. College students using computers and laptops may well adopt the kind of sustained and awkward postures that are associated with musculoskeletal disorders in working adults. The physical demands of extensive use could lead to a wide range of adverse effects on students including visual, neurological and physical changes. Some researcher have studied that computers and laptops encourage more awkward postures or intense concentration in students than T.V. watching or college work, indicating that student's risk of musculoskeletal disorders may be greater than in other sedentary activity. (Gunzburg, et al., 1999, Szpalski, et al., 2002).

In the last decades, computer use has shifted from desktops to laptops, especially among college going students. Students, even those in an allied health science university, are often unaware of the negative consequences that can result from lack of ergonomic knowledge. Previous studies established that preventive education is a possible solution for minimizing the occurrence of such musculoskeletal disorders in accordance with computers and laptops use. However, while some researchers have studied the effect of ergonomic education on desktop computer use, research is lacking on the efficacy of this type of instruction on laptop use. Research on the ergonomic effect of computer and laptop use is essential because of their popularity. Musculoskeletal complaints in the neck and upper extremity and computer work are common in modern society. Computer users spend hours of a day for using computers. Computer users are as same as all of the job surf to musculoskeletal disorders. Because most of the computer users sit on the table, their upper body has more risk for muscles disorders. These disorders can be including neck, shoulder, elbow, forearm, finger, upper back, lower back etc.

The numbers of students who use computers as a study are increasing every day. Growing industrial technology caused to human need to use of computer more and more. The most commonly noticed signs and symptoms while using computer are as follows:

- Shoulder, neck and back
- Tingling or aching
- Numbness or a burning sensation in the hand

- Stiffness or swelling in the joint
- Pain in wrist, forearms, elbows, neck or back
- Muscles weakness
- Fatigue
- Decreased grip strength in the hand
- Blurred or double vision
- Cramping
- Tension stress

The most commonly occupation health complaints among computer and laptop users are visual symptoms such as eye discomfort and musculoskeletal disorders including sustained pain in the neck and upper extremities. The purpose of this study is to investigate the efficacy and effect of computer and laptop on ergonomic education on student's knowledge and behaviour regarding proper use of it.

Therefore, the present study is designed with following objectives:-

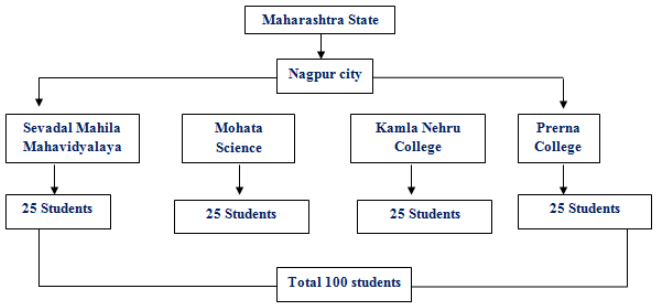
1. To identify health disorders associated with prolonged computer and laptop work.
2. To determine the prevalence of musculoskeletal disorder pain/discomfort among the computer and laptop users.

Limitation

1. The study was limited to Nagpur city only.
2. The sample size was limited to 100 only.
3. The study was limited to the college going students only.

II. METHODOLOGY

The methodology is usually a guideline system for solving a problem, with specific components, task methods, techniques and tools. The research design is the specification of methods and procedure used for acquiring the information needed for the study; descriptive research design was used to find out the relationship between musculoskeletal impact of computers and laptops on college going students. Self administered interview schedule was used to gather information of the musculoskeletal impact. A precautionary guideline was also developed in relation to risk involvement in task performance and related activities among students. The purposive-cum-random sampling technique was used. A total of 100 college going students were selected for the present research study. Descriptive data was collected personally by using the interview schedule method. The study protocol is presented in the figure 1.



III. RESULTS AND DISCUSSION

The results are presented under the following section:-

Health disorders associated with the computer use

Back and neck pain, headache and shoulder and arm pain are common computer related injuries. such muscles and joint problems can be caused or made worse by poor workstation design, bad posture and sitting for long period of time.

Table 1: Distribution of the respondents on the basis of health problem (N=100)

Health disorders	Frequency	Percentage
Musculoskeletal disorders	96	96
Repetitive stress injury	98	98
Vision problem	60	60
Obesity	55	55
Stress disorders	45	45

Table 1 depicted the distribution of the respondents on the basis of health disorders. it was found that 96 percent of the college going students were suffering from musculoskeletal disorders, 98 percent of the students were having the stress due to repetitive work on computer or laptops. It was also observed that 60 percent of the respondents were suffering from vision problem. The data envisaged that nearly half of the population were suffering from either the problem of obesity or stress disorders.

Table 2: distribution of the respondents on the basis of musculoskeletal disorders (N=100)

Musculoskeletal disorders	Frequency	Percentage
Carpal tunnel syndrome	55	55
Tendinitis	40	40
Lateral epicondylitis	35	35
Spinal disk problem	69	69
Radial Tunnel syndrome	60	60
Ligament Pains	73	73
Hernias	15	15

Table 2 shows the distribution of the respondents on the basis of musculoskeletal disorders. The data revealed that 55 percent of the students were suffering from carpal tunnel syndrome that is a painful condition of the hand and fingers caused by compression of a major nerve where it passes over

the carpal bones through a passage at the front of the wrist. It may be caused by continual repetitive movement or by fluid retention. About 40 percent of the respondents were suffering from tendinitis, where there is inflammation of a tendon, most commonly from overuse but also from inflection or rheumatic disease. it was observed that about 35 percent of the respondents were having the problem of lateral epicondilitis which is a condition in which the outer part of the elbow becomes sore and tender at the lateral epicondyle. The forearm muscle and tendons become damaged from repetitive overuse. The data envisaged that 69 percent of the subjects were suffering from spinal disk problems and 60 percent from radial tunnel syndrome. In radial tunnel syndrome there is a fatigue or a dull, aching pain at the top of the forearm with use. it was found that 73 percent of the respondents were having the ligament pains and very few that is only 15 percent were having the problem of hernias.

IV. CONCLUSION

Computers and laptops are widely used by college going students for academic and leisure activities. However, there is limited research that identifies risk factors for musculoskeletal disorders during computer and laptop use in this population. It can be concluded from the present research study that most of the students were suffering from musculoskeletal disorders, repetitive stress injury, vision problem, obesity, stress disorders, carpal tunnel syndrome, tendinitis, epicondilitis, spinal disk problem and many more. If the working area is properly designed or the health problem related to computer use can be reduced or avoided with the correct furniture, better posture and good habits such as taking rest breaks and restricting time spent playing computer games.

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