



ijcrr

Vol 04 issue 09
Category: Research
Received on:06/03/12
Revised on:17/03/12
Accepted on:28/03/12

PREVALENCE OF NECK PAIN AMONG DESKTOP AND LAPTOP COMPUTER USERS IN UNIVERSITY STAFF AND STUDENTS

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ABSTRACT

The usage of computers is increasingly prevalent in the current generation, especially in student population. Work-related musculoskeletal disorders (WRMSDs) are common problems in people who spend a substantial amount of time using computers. Among various WRMSDs, neck pain is one of the commonest problems faced. The main objective of this study is to find out the prevalence of neck pain among desktop and laptop computer users in both university staff and students. The study was conducted by distributing questionnaires to a total of 328 computer users between 19 and 50 years of age of which 110 are desktop users and 218 were laptop users. The ergonomical evaluation on site of the participants was also done for the desktop users and various positions used by laptop users were evaluated. The data obtained was analyzed using descriptive statistics. The prevalence rate and the percentage of various positions used by computer users were also assessed. It can be concluded that the prevalence of neck pain among laptop computer users is higher than desktop computer users in this cross sectional study.

Keywords: Neck pain, Desktop, Laptop, prevalence

INTRODUCTION

The use of desktop and laptop computers is common in the current generations. Although the desktop and laptop computers are used both at the office and at home, desktops are more often used in the office, while laptops are more often used at home.

However, the use of laptop computers is increasingly prevalent in educational environments. Their size and portability make them practical devices for both teaching staff and students. The laptop computer was originally created for military and business executives, but now almost anyone can have an

access to a laptop. Laptop computers are becoming so fast and powerful nowadays, that they are replacing desktop computers even in educational environments^[1].

A person who uses a desk that is too low and a seat that is too high will have to lean forward adapting an awkward posture. This will result in negative effects on his or her physical workload, health and overall performance. Besides this, there is reduction in nutritional exchanges at inter-vertebral discs which is an effect of postural fixity while sitting continuously for long hours and in the long run may promote their degeneration^[2].

Most laptops have its screen hinged to the keyboard and it is not detachable, which may also result in awkward body postures, especially

to the neck when in use. Because of its portability, the laptop can be used in various sitting and lying positions. There is an increase in neck discomfort and cervical spine torque when laptop computer users were compared to laptop station users^[3].

Problems that occur are pain & discomfort over neck, shoulder, elbow, forearms, wrist, fingers, upper and lower back as well as eye irritation and headaches. Neck pain is the pain from the base of the skull (occiput) to the upper part of the back and extending laterally to the outer and superior bounds of the scapula. Pain in the lower cervical spine is commonly referred to the upper extremity. Pathology in this region leads to neck pain alone, arm pain alone, or both neck and arm pain. Symptoms include neck and/or arm pain, headaches, restricted range of motion, paresthesia and radicular signs. In the United Kingdom, the one year incidence of neck pain is 17.9% in the 18-75 year old general population. The one year prevalence of neck pain among adults ranges from 12.1% to 71.5%. However, the point prevalence of neck pain ranges from 12% to 34%^[4].

Most studies look at the prevalence and contributing musculoskeletal risk factors of desktop users or laptop users alone, but none of them compare both. Among various musculoskeletal disorders seen in computer users, highest prevalence is neck pain and back pain. Studies show that 66% of male and 70% of female computer workers suffer from neck pain^[5].

MATERIAL AND METHODS

A cross sectional study was performed in Manipal university campus, India by distributing questionnaires to 328 computer users aged between 19 and 50 years. The desktop computers were mostly the clerical staff of

constituent colleges of the university and the laptop users were the students of engineering and medical colleges. 110 of them are desktop users and the remaining 218 are laptop users. The desktop users included in the study were those who use the desktop for more than 30 hours per week and have been working in the computer set up for at least 3 months. The laptop users included in the study were those who use the laptop for at least 12 hours per week and have been using the laptop for at least 3 months. All individuals with any previous history of diagnosed neck disorders were excluded from the study. The informed consent has been obtained from all the participants and the questionnaires were distributed. The questionnaire given to the subjects had simple questions in English and the queries related to the questionnaire were answered by the investigators. The data obtained from all the participants was analyzed using descriptive statistics.

STATISTICAL METHODS

Descriptive statistics, mean and standard deviation were tabulated using SPSS 16.0 software.

RESULTS

18 out of the 110 desktop users presented with neck pain and 72 out of the 218 laptop users presented with neck pain.

Table 1: Comparison of mean values between desktop users and laptop users with neck pain

	DESKTOP USERS	LAPTOP USERS
	Mean ± SD	Mean ± SD
AGE (Years)	33.50 ± 11.10	22.06 ± 3.44
DURATION (Hours/Day)	6.94 ± 1.21	4.32 ± 2.30
DURATION (Hours/Week)	42.50 ± 6.54	26.69 ± 16.23

Table 2: Various positions used by laptop computer users

POSITIONS USED BY LAPTOP USERS	WITH PAIN	WITHOUT PAIN	TOTAL
More than one position used	24	50	74
Sitting on chair with back support, laptop on table	15	62	77
Lying down on tummy	10	6	16
Lying down on back	6	7	13
Lying down side ways	5	2	7
Sitting on stool/chair with laptop on the lap	5	9	14
Sitting on stool/chair without support, laptop on table	4	7	11
Sitting on the floor with legs crossed	2	1	3
Sitting on the floor with legs straight	1	2	3
	72	146	218

DISCUSSION

The results show that prevalence of neck pain is high in laptop users compared to desktop users. This is observed, despite the fact that the duration spent by desktop users on the computer is more than on laptop users. Most common position used by laptop users is sitting on chair with back support, laptop on table. Prevalence among laptop users is highest in positions; sitting on chair with back support, lying on tummy and lying on back.

The desktop users were mostly older individuals with a mean age of 35 as compared to laptop users with mean age of 22.06. But, the prevalence was comparatively higher in young

laptop users. This shows that the neck pain is a most common work related musculoskeletal disorder in younger individuals these days. Even though, the duration of usage was less among laptop users in comparison with desktop users, the prevalence of neck pain was more among laptop users. This could be mainly attributed to awkward postures used by the laptop users and poor ergonomical designs.

As there is increased prevalence of neck pain among computer users, ergonomic evaluation and further management to prevent and treat these problems and the effect of the interventions have to be studied in further research. Majority of the desktop users are of

age group 19-29 years, while majority of laptop users are of age group 19-24 years. Majority of the desktop users are of the female gender, while majority of the laptop users are of the male gender. Further research can be focused on the effect of ergonomical advices and modifications at the worksite to reduce the risk of neck pain in computer users.

CONCLUSION

The prevalence of neck pain is more in laptop users at the very young age, the reasons being use of awkward positions or postures.

ACKNOWLEDGEMENTS

We wish to thank the staff of Manipal University for their guidance throughout the study and for allowing us to conduct the study. Authors acknowledge the immense help received from the scholars whose articles are cited and included in references of this manuscript. The authors are also grateful to authors / editors / publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.

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FIGURE 1: NECK PAIN AMONG DESKTOP COMPUTER USERS IN DIFFERENT AGE GROUPS

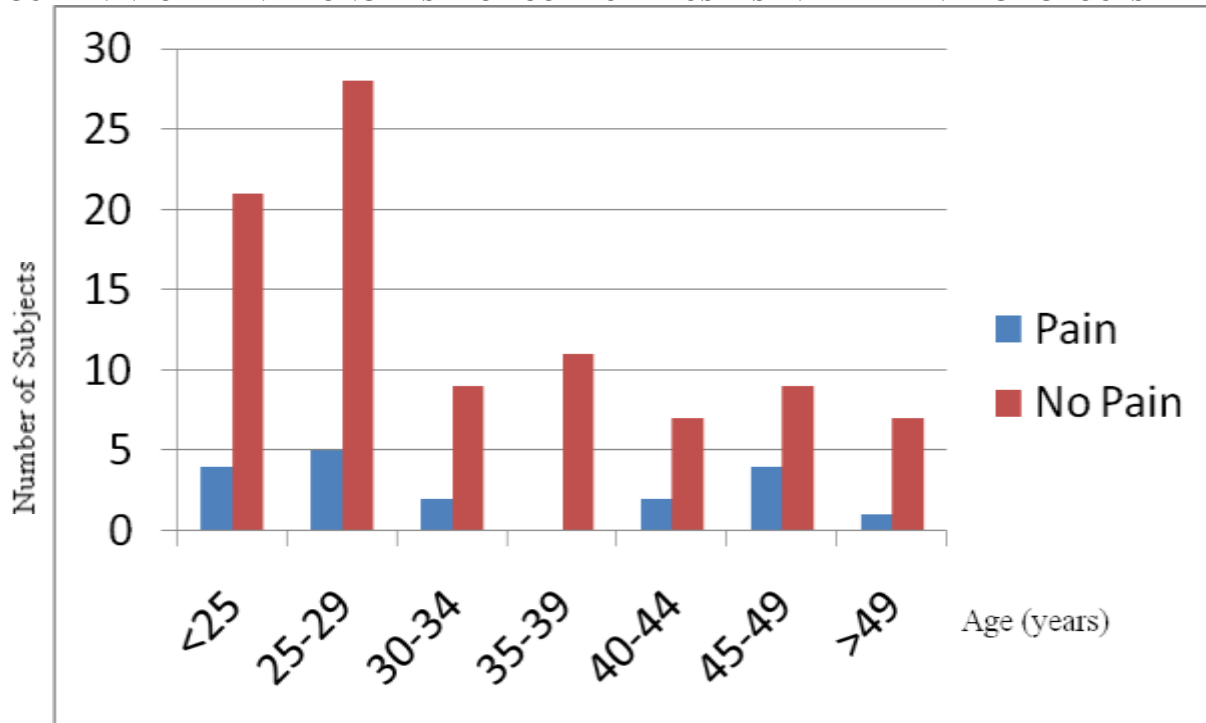


FIGURE 2: NECK PAIN AMONG LAPTOP COMPUTER USERS IN DIFFERENT AGE GROUPS

