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Prevalence of Neck Pain and Back Pain in Computer Users Working from Home during COVID-19 Pandemic: A Web-Based Survey

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ABSTRACT

A survey of 129 participants between the ages of 18-65 years was conducted to find out prevalence and measure functional disability of neck pain and back pain in computer users working from home during COVID-19 Pandemic. In our study 70.5% participants had pain or discomfort in body out of which 42.9% had pain in neck and upper back region, 36.3% had pain in the lower back region and legs whereas 16.5% had pain or discomfort in both region. Those who had pain were asked to fill NDI and /or ODI questionnaire and we found 41.9 %, 24.8 % and 3.1% participants had mild, moderate and severe functional limitation due to neck pain and 67.4%, 31.8% and 0.8% participants had mild, moderate and severe functional limitation due to low back pain. We also found that only 30 participants (23.2%) were following ergonomic advices. Thus, it is important to spread more awareness among young working professionals regarding the correct work ergonomics while working on computer at home and workplace.

Keywords: work from home, computer users, MSDs, ergonomics.

INTRODUCTION

Ever since COVID-19 was declared a pandemic by WHO (World health organization), leading to a nationwide lockdown, a majority of people in India have faced changes in work pattern and lifestyle both, which we had never experienced before.

On March 24, 2020, the prime minister of India called for a nationwide lockdown to ensure the safety of people, which was supposed to last for 21 days, but owing to increase in number of cases it was extended in various phases till May 31, 2020. During lockdown all companies, businesses, schools, colleges, parks, malls, public transports etc. were forced to shut down. Gradually in unlock phase some of the sectors opened up with many rules and norms to be followed. Every sector has found new ways to keep their work going on during lockdown and even after that.

However, the numbers of new cases and deaths have been continuously increasing. In India most of the corporates, IT companies, software companies and many businesses offices have shifted to work from home (WHF). [1, 2] Even education sector is still not allowed to have off line mode of learning till date for all. Owing to this many people in India are using many electronic gadgets (like, laptop, desk tops, mobile phones etc.) for video conferencing, meetings and attending lectures.

The work from home culture may be followed not only during pandemic but might be even after till the security of all will be ensured.

Many studies have already found that laptop, mobile phones and tablets have

replaced the desktops in last decade. So, portable gadgets like laptop allow people to assume any posture they want ranging from sitting in a chair to lying in a bed. These are going to put stress on spine and other areas of body if proper posture for long work duration is not maintained. [3, 4, 5, 6, 7]

So, this study is aimed to find out prevalence and measure functional disability of neck pain and back pain in computer users working from home during COVID-19 Pandemic.

Need of study:

Many studies have found use of computer for long working hours in faulty posture may lead to neck and back pain in adults and elderly. During COVID-19 pandemic need of work from home has increased all over the world for computer users. In India work from home culture is new and it is necessary to find out prevalence and reasons for neck and back pain in computer users who are working from home to maintain their work efficiency and health.

METHODOLOGY

An observational study was carried out on computer users working from home during COVID-19 pandemic using random sampling method. Out of 137 participants total 129 males and females working from home on computer due to COVID-19 pandemic were included in this study.

8 participants were excluded who had pain and / or any medical conditions affecting cervical and lumbar spine. (For example, Ankylosing spondylitis, arthritis, disc degeneration etc…) before covid-19 pandemic. Those who were working from home for more than 8 months were also excluded.

Methods:

A Google Survey form was generated and circulated among computer users working from home in November 2020. The form was a self-generated form with questions about their demographics, working hours, working place, knowledge about ergonomics etc. and also included neck disability index and Oswestry low back pain questionnaire. In the beginning of questionnaire consent was taken from participants. It was given to different IT company heads and HR department. They approved the content of questionnaire with few modifications. Then that form was distributed to employees working from home during COVID-19 Pandemic through digital platform. The data was collected by 3 weeks and analyzed using SPSS version 20.

Data analysis:

Using SPSS version 20 the data was managed and analyzed. Continuous variables were expressed as mean and SD whereas categorical variables were expressed in the form of frequency table and percentages. The histogram was also used to see the normality of quantitative data.

RESULT

Table 1. Showing Gender distribution.

Gender	Frequency	Percent
Female	34	26.4
Male	95	73.6
Total	129	100.0

Table 2. Showing age distribution.

Age Group	Frequency	Percent
18-30	48	37.2
31-40	72	55.8
>40	9	7.0
Total	129	100.0

Table 3. Showing distribution of occupation of participants

Occupation	Frequency	Percent
IT/ SOFTWARE	83	64.3
STUDENTS/TEACHERS	11	8.5
OTHERS	35	27.1
Total	129	100.0

Table 4. Showing distribution of place for working on technology during work from home.

Category	At which place do you prefer to work at home?	Frequency	Percent
A	office table/ study table/ dining table	63	48.8
B	bed/ sofa/ comfort chair	55	42.6
C	A +B	11	8.5
	Total	129	100.0

Table 5: showing interpretation of NDI

NDI score	Frequency	Percent
No Disability	39	30.2
mild	54	41.9
Moderate	32	24.8
Severe	4	3.1
Total	129	100.0

Table 6: showing interpretation of ODI

ODI SCORE	Frequency	Percent
Minimal Disability	87	67.4
Moderate Disability	41	31.8
Severe Disability	1	.8
Total	129	100.0

Chart 1: Showing presence of pain or discomfort in body.

Out of 129 participants 95 were male (73.6%) and 34 were female (26.4%) (See table 1). Their age was between 18-65 years and age distribution of the study is shown in table.2. In our findings we divided our participants in 3 categories according to their profession, IT/ Software professionals (n=83), academicians (n=11) and others (n=35) (like CA, Businessmen, Self Employed, Manager, Advocate, Private Sector Job, Housewife , data scientist , MNC worker etc…) and shown in table 3. Working hours of participants was found minimum 4 hours per day and maximum 12 hours per day. We found that the technologies more frequently used during work from home were laptop, mobile phones, desktop and tablets. The place which they prefer to work at home was categorized in 3, and shown in table 4. Presence of pain or discomfort in body, region affected and knowledge of ergonomics of participants are shown in chart 1, 2 and 3 respectively. We also found that 30 participants (23.2%) were following ergonomic advices.

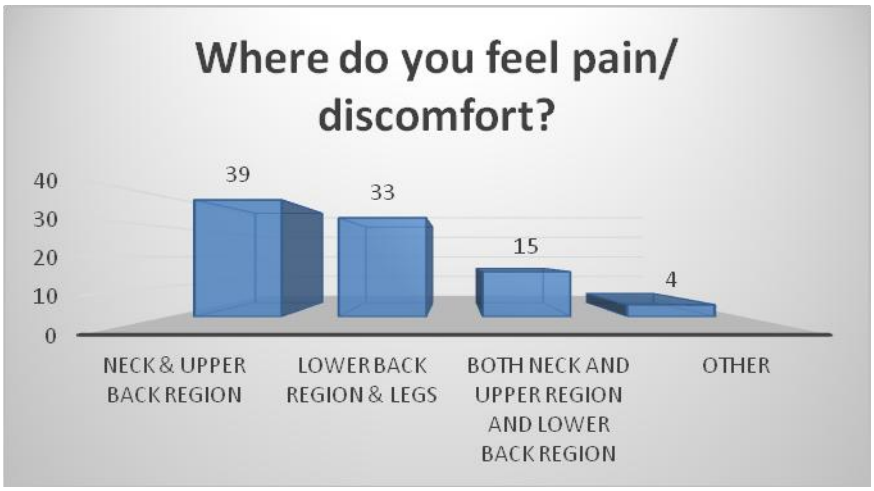

Chart 2: showing region of pain/ discomfort in body.

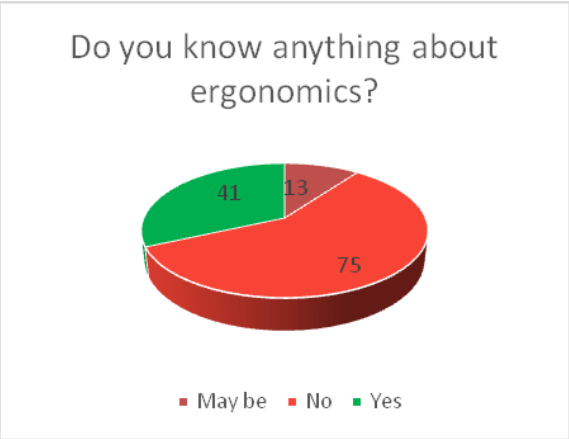

Chart 3: showing knowledge of ergonomics of participants.

Neck Disability Index (NDI): the NDI score which was used to assess their function showed that 41.9 %, 24.8 % and 3.1% participants had mild, moderate and severe functional limitation due to neck pain. Shown in table 5 and chart 4.

Oswestry Low Back Pain Disability Index (ODI): the ODI score which was used to assess their function showed that 67.4%, 31.8% and 0.8% participants had mild, moderate and severe functional limitation due to low back pain. Shown in table 6 and chart 5.

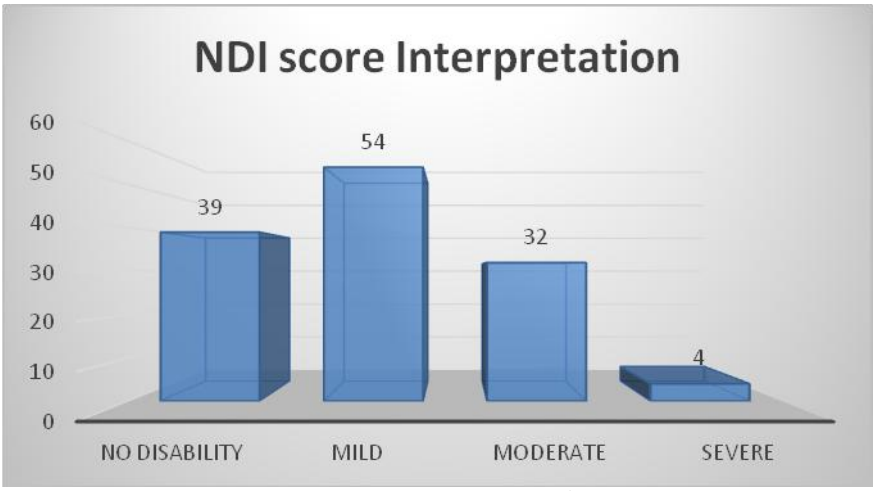

Chart 4: showing interpretation of NDI

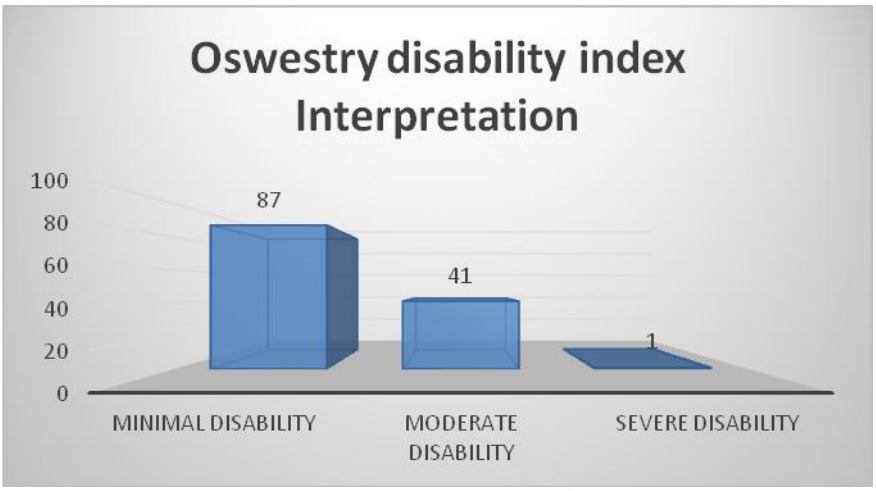

Chart 5: showing interpretation of ODI

DISCUSSION

The study was cross-sectional survey which was conducted to find out prevalence and functional disability of neck pain and back pain in computer users working from home during COVID-19 Pandemic. A questionnaire was given to computer users working from home which included questions about their demographics, working hours, working place, knowledge about ergonomics etc. and also included neck disability index and Oswestry low back pain questionnaire. From which we found out statistical information regarding the occurrence of neck and low back ache. Score were interpreted and analyzed and showed that neck and back pain can cause mild disability in computer users during work from home.

The study showed that most of the participant were male (73.6%) and 55.8% participants were between 31-40 years of age group. 64.3% participants were IT/Software professionals and 75.19 % of participants were working for ≥8 hours/day on computer. Study also showed that 48.8% and 42.6 % participants were using office table / study table / dining table and bed / sofa / comfort chair respectively for working at home. We found that 58.1% participants were not aware about ergonomics to be followed while working on computer.

In our study 70.5% participants had pain or discomfort in body out of which 42.9% had pain in neck and upper back region, 36.3% had pain in the lower back region and legs whereas 16.5% had pain or discomfort in both region. Those who had pain were asked to fill NDI and /or ODI questionnaire and we found 41.9 %, 24.8 % and 3.1% participants had mild, moderate

and severe functional limitation due to neck pain and 67.4%, 31.8% and 0.8% participants had mild, moderate and severe functional limitation due to low back pain.

It has already been reported in the past literature that even small postural changes increase the load on the musculoskeletal system. As seen in our study most of our participants worked for long hours, sitting on a chair or bed without desk while working on computer at home by which we can assume that their faulty posture is giving raise to pain in neck and upper back or lower back region.[3]

Many studies have found significant relationship between level of disability and intensity of pain as well as working hours in computer professionals with neck pain and back pain. [7, 8, 9, 17] Geetha Suresh had suggested in her study that need for proper workspace and ergonomic guidelines for computer users working from home to prevent MSDs or postural pain in future. [10] Some studies also suggested that frequency of breaks during use of computer for long duration can help reduce stress on cervical and lumbar spine. [11] In past many studies have found beneficial effects of long term ergonomic intervention in prevention and reduction of symptoms in neck and back pain. [12, 13, 15, 16] recently Lubkowska et.al suggested the use of computer software program is to help configure computer workstation correctly and adopt the correct body position during work, which reduces the risk of health problem. [14]

CONCLUSION

For any individual the degree of discomfort, ache and pain experienced is highly subjective but it can still be related to external factors like work environment and ergonomics assumed while working on computer. With this study we have found that neck and upper/lower back pain is common MSDs in computer users during this pandemic and as work from home may remain for longer duration everyone must follow ergonomics at home as well as at work place to prevent MSDs which will help to reduce the absenteeism and to increase productivity and efficiency of the work. Thus, it is important to spread more awareness among young working professionals regarding the correct work ergonomics while working on computer at home and workplace.

Limitations

1. Due to COVID – 19 pandemic situations we were not able to conduct one on one data collection from the participants.

Future recommendation

1. Further studies can be done with large population
2. Objective measures for assessment of posture during computer use at home can be further analyzed.

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