

## Study to assess the Physical Discomfort among Computer users at Selected IT office in Coimbatore

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### Abstract

This study entitled “study to assess the physical discomfort among computer users at selected IT office in Coimbatore” submitted in the year 2023.

**Aims:** The objectives are to assess the level of physical discomforts among computer users in selected IT office at Coimbatore; to determine the association between the levels of physical discomfort with their selected socio demographic variables.

**Hypothesis:** There is a significant association between the levels of physical discomforts with their selected socio demographic variables.

**Design and setting:** Quantitative approach descriptive design was used. Total 40 IT workers were selected from selected IT Company at Coimbatore.

**Methods and Materials:** Purposive sampling technique was used to select 40 participants in IT company at Coimbatore. By using Rapid Upper Limb Assessment scale level of physical discomfort was assessed. The findings of this study revealed that most of workers have some and more risk injury and also there was no significant association between levels of physical discomfort with selected demographic variables of computer users.

**Conclusion:** The study findings showed that there is a need of ergonomic intervention in decreasing the physical discomfort among computer users.

**Keywords:** Physical discomfort; Computer users; IT workers.

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## INTRODUCTION

Information technology has a huge impact on business. It aids all company sectors in automating their systems and processes to meet goals, make money, and lessen inefficiencies in their job. Business information technology is becoming more and more valuable every day in areas including commercial transactions, meeting



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client requests, and complying with regulations. Approximately 179,494,282 computers are used worldwide, and it's possible that two individuals use each one on average. There are an estimated 223,810,000 personal computer users in the United States, and that figure has been rising recently. After all, Japan spearheaded the digital revolution. India is a rapidly expanding global market for information technology services. Business information technology exists to meet the ever-increasing needs of various industries as well as the ever increasing expectations of consumers across all industries. Approximately 179,494,282 computers are used worldwide, and it's possible that two individuals use each one on average. There are an estimated 223,810,000 personal computer users in the United States, and that figure has been rising recently. After all, Japan spearheaded the digital revolution. India is a rapidly expanding global market for information technology services. Business information technology exists to meet the ever-increasing needs of various industries as well as the ever-increasing expectations of consumers across all industries.

An essential component of a business's efficient and effective operation is the health and safety of its workforce. It guarantees an industrial setting free from mishaps. Achieving great performance in occupational health and safety must be given the same priority by businesses as the other main goals of their operations.

Many people believe that using computers increases the risk of musculoskeletal disorders (MSD), which are now the most common occupational disease in India. Oha's study revealed that the prevalence rates of musculoskeletal pain during a 12-month period were 31–54% for the lower back, 15–52% for the upper limbs, and 55–69% for the neck. The neck, shoulders, and lower back have been identified as the most vulnerable regions for WMSDs.<sup>1</sup>

Fifty percent of participants in another Italian trial reported that their neck pain got worse. Prior to the lockdown, females who experienced wrist or hand pain were more likely to be working from home, to be stressed from sitting, to be stressed from staring at a screen, to be stressed from both work and the epidemic. Hip and thigh pain is more common in those who do not take regular breaks. Knee discomfort is more common in women who have eyestrain from prolonged screen staring, mental stress from work, and a lack of work-life balance. The female also experienced pain in her ankles. In a similar vein, all bodily areas' MSD is

associated with the following factors.<sup>2</sup>

Martin Varkey, Fr Muller (2013). Using a pre-tested 37 item questionnaire and in-person interviews, a cross-sectional study was carried out in India to ascertain the prevalence of eyestrain among computer operators and its correlation with other epidemiological parameters among 419 respondents. Based on the results, 194 (46.3%) people reported having eyestrain either while or after using a computer. There was a somewhat greater percentage of eyestrain in females than in males. The age at which a person first used a computer, the existence of refractive error, the viewing distance, the level of the computer screen with respect to the eyes, the usage of an antiglare screen, and the contrast and brightness of the monitor screen were all strongly linked to the occurrence of eyestrain.<sup>3</sup>

Deepak Sharan, *et al.*, (2011) done a retrospective study in India to determine whether work style characteristics were predictive of discomfort and decreased productivity, as well as to look at the incidence of unfavourable work styles among 4,500 computer professionals. Both the short-form work style and pain questionnaires were employed. The relationships between the variables were investigated using correlation analysis. The 4,500 participants completed the work style and pain questionnaire, according to the results. An undesirable work style was assessed to be highly likely to occur in 22% of the participants. Among the individuals, 63% reported having pain. Work style variables and the amount of time spent using a computer each day were found to be significant predictors of discomfort by regression analysis.<sup>4</sup>

### **Problem Statement**

“A study to assess the physical discomfort among computer users at selected IT office in Coimbatore”.

### **OBJECTIVES OF STUDY**

1. To assess the level of physical discomforts among computer users in selected IT office at Coimbatore.
2. To determine the association between the levels of physical discomfort with their selected socio demographic variables.

### **Hypothesis**

**H<sub>1</sub>:** There is a significant association between the levels of physical discomforts with their selected

socio demographic variables.

**Assumptions**

Computer users may have physical discomfort due to improper use of body mechanics while operating computer.

**MATERIAL METHOD**

Sample size

Sample size consisted of 40 IT workers.

**Sampling Technique**

Nonprobability purposive sampling technique was adopted.

Criteria for sample selection

**Inclusion criteria:**

1. Subject using the computers continuously more than 4 hours a day.
2. Subjects those who are facing physical discomforts due to computer use.
3. Both male and female are included.

**Exclusion Criteria:**

1. Subjects those who are not willing to participate.
2. Subjects those who are having severe risk of injury.

**Description of tool**

**Section-A:**

This includes 10 items like age, sex, educational status, Number of hours spent on a computer per day, without taking break, number of hours working in front of computer.

**Section-B:**

This Consists of RULA (Rapid Upper Limb

Assessment) scale. The data was collected from all subjects by observation method.

Scores were calculated by summing the scores for the given items. The scores of each respondent over the scales are then evaluated as per the severity rating index below.

- 1 - 2 - No risk of injury
- 3 - 4 - some risk of Injury
- 5 - 6 - More risk of Injury
- 7 - Severe risk of Injury

**TECHNIQUE: OBSERVATION METHOD**

**Content validity:**

In order to measure, the content was validated and finalized by 4 experts in the field of preventive and social medicine, physiotherapy, community health nursing. This same tool was used for the pilot study in this same setting to assess the feasibility of the study. The result of the pilot study evidenced that, there was a feasibility to conduct a main study in same setting.

**Reliability of the tool:** The reliability of a measuring instrument is a major criterion for assessing its quality and adequacy. Reliability is the consistency with which it measures the target attribute. The reliability of the tool was done by test retest method.(r = 0.9). Hence it shows that the tool was considered highly reliable for producing with the main study.

**Procedure for data collection:**

The data was collected from IT workers in Coimbatore. The sample selected from adolescents through purposive sampling technique. The test was done for about 35-40 minutes. Giving thanks to the respondents and the authority, the data collection procedure was completed.

**RESULTS AND INTERPRETATION**

**Table 1:** Frequency and percentage distribution of socio demographic variables of computer users. (n=40)

S. No	Demographic Variables	Frequency	Percentage
1	Age		
	21-30 years	18	45
	31-40 years	17	43
	> 40 years	5	12

table cont...

2	Gender	Male	28	70
		Female	12	30
3	Education	Graduation	28	70
		Post-graduation	4	10
		Diploma	8	20
4	Number of years using the Computer	<1 yr	8	20
		1-5 yrs	4	10
		5-10 yrs	25	63
		>10 yrs	3	7
5	Duration of work in a day in front of computer	4-5 hours	4	10
		5-6 hours	5	12
		6-7 hours	16	40
		7 hours above	15	38
6	Without taking break, duration of work in front of computer	0-1 hour	2	5
		1-2 hour	10	25
		2-4 hour	14	35
		>4 hour	14	35

The above table reveals that most of the employees age group between 21-40 years, majority were males and 28 (70%) had graduation, Regarding number of years using Computer, majority 25 (63%) subjects were using computer 5 to 10 years. Based on duration of work in a day, majority 15 (38%) subjects were working in front of computer between 7 hours and above, With regard of without taking break, most of them 28 (70%) were working without taking break more than 2 hours.

**Table 2:** Frequency and percentage distribution of physical discomfort level among IT workers

Level of discomfort	f	%
No risk injury	0	0
Some risk injury	21	53
More risk injury	19	47

The above table shows the level of discomfort among IT workers that is 21 (53%) had some risk of injury, 19 (47%) had more risk of injury.

## DISCUSSION

The findings of this study explained that most of workers have some and more risk injury. It also explained that there were no significant association between level of discomfort and selected socio demographic variable of computer users. The calculated  $\chi^2$  value for the selected Socio demographic variables were lower than the table value at 0.05 level of significance, hence it concluded that selected socio demographic variable among computer users were not associated with the levels

of physical discomfort.

Similar study was conducted from Turkey, which was done during a lockdown, discovered that people who worked from home had much worsening lower back pain than others who went on to their usual employment. However, our participants who operate on computer peripherals and whose jobs require frequent computer use show a higher prevalence of deteriorating lower back pain than the Turkish research participants who worked from home (teachers, academics, and students).<sup>5</sup>

## CONCLUSION

This study shows the incidence work-related injuries among computer users. Effective computer user interventions should be designed to minimize these disorders. The findings also demonstrated that, when ergonomics is correctly used by the computer users, visual and musculoskeletal discomfort and fatigue are reduced significantly. Ergonomic intervention is one of the most effective ways of reducing muscle fatigue and the possibility of injury occurrence when using the computer. The management authority should organize effective ergonomic interventions including preventive measures.

## Limitations

- Assessment takes more time because of observation method.

- The study only assesses the level of physical discomfort among continuous computer users.

## RECOMMENDATIONS

- A study can be conducted to find out the effectiveness of ergonomic intervention in reducing physical discomfort among IT employees.
- To provide more awareness on work related physical discomfort and work related musculoskeletal disorders.
- To provide the information regarding the prevention of physical discomfort among office workers through mass media.
- Similar study can be conducted with the more samples in IT office.
- The study can be conducted as a true experimental design and as comparative study with other instructional modules.

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