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Effect of video assisted teaching on knowledge, attitude and practice regarding ergonomics among secretaries at selected tertiary care center, Puducherry

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Abstract

Background: The computer is vital tool in many different jobs and activities; longer periods of using a computer can increase chance of developing a musculoskeletal injury. The movement of body and limbs is inescapable in human-computer interaction. These continuous movements cause repetitive strain injury.

Objectives: To assess the level of Knowledge, Attitude & Practice regarding ergonomics among secretaries before video assisted teaching, To determine the effect of video assisted teaching on the level of Knowledge, Attitude & Practice regarding ergonomics among secretaries and To determine the association between pre-test level of Knowledge, Attitude& Practice regarding ergonomics among secretaries with the selected Socio-Demographic Variables.

Methodology: Quantitative research approach, quasi experimental one group pre and post test design was adopted. Descriptive and inferential statistics was used. Simple random sampling technique by lottery method was used. The tool used for collection of data which consist of socio demographical variables, self-structured knowledge and practice questionnaires, 5 point likert scale for attitude was used to assess the level of knowledge, attitude and practice regarding ergonomics.

Result and Discussion: 22% had average knowledge, and 78% had a poor knowledge in pre-test. In post-test 6% had average knowledge, 94% had good knowledge. Regard to the overall attitude, 24% had poor attitude, 76% had average attitude in pre-test. In post-test 12% had average attitude and 88% had good attitude. Regard to the overall practice, 26% had average practice and 74% had poor practice in pre-test. In post-test 2% had poor practice, 72% had average practice and 26% had good practice. There is a significant association found between level of attitude with the socio demographical variable like number of hours using computer ($p<0.003$) and mode of travel ($p<0.017$)

Conclusion: The study findings revealed that there was a significant improvement in the level of knowledge, attitude and practice regarding Ergonomics among secretaries followed by video assisted teaching.

Keywords: Ergonomics, secretaries, P2IMS

1. Introduction

The computer is a vital tool in many different jobs and activities; longer periods of using a computer can increase chance of developing a musculoskeletal injury. Computers are one of the greatest scientific inventions to the world. In modern society computer is playing a integral part in many occupation. Therefore number of people working in computer is steadily increasing. Consequently sitting in front of systems for a long time may lead to many health issues [1]. Safety at any workplace cannot be ignored We cannot imagine our life without computers and its networking, now a days the fact is that they have become so important that nothing can replace them [1].

For most of the past 20 years, employment in computer systems design and related services has grown rapidly. Computer use is widespread in workplace and at home, with up to 25% of people reported to use a computer for more than 50% of their work in a day. In the view of hospital settings secretaries are widely using computers. The movement of body and limbs is inescapable in human- computer interaction. Whether browsing the web or intensively entering and editing text in a document, our arms, wrists, and fingers are at work on the keyboard, mouse, and desktop. These continuous movements cause Repetitive Strain Injury.

Reports of studies have suggested clearly the likelihood of pupils or staff suffering health problems linked to computer use is related to the amount of time spent using them and also lack of knowledge related to computer ergonomics. There is need of ergonomics in current society [2].

Ergonomics is the study of people in their workplace and is the process in which workplaces, products and systems are designed or rearranged so that they fit the people who use them. It aims to improve workspaces and environments to reduce the risk of injury. Ergonomics is a science- based discipline. It brings together knowledge from anatomy and physiology, psychology, engineering and statistics and ensures that the designs complement the strengths and abilities of people who use it [3].

Ergonomics is the study of the relationship between the workers and the working environment. It is vital for the workers to concern and realizes the potential ergonomics risk factors around their workplace as the consequences are fatal like death and disability. The lack of a lertness by the workers on the existence of the potential ergonomics risk factors at their surroundings might endanger their safety and health [7].

At Global level, in 2020 the worldwide sales of computers are projected to reach almost 275 million units.4.8% increases from the year of 2019. It is the highest growth in overall ten years and India has 32.5 crores computer users [4].

At national level India has the potential to build United States dollars of 100 billion computer product industry by 2025, according to Indian Software Product Industry Roundtable [5].

At State Level The Tamil Nadu is in the 2nd position in internet usage informed by central government from the period of September 2015-2021. Tamil Nadu won 2nd place in India with 2.68 computer users [6].

As the solution to the raised issues, it is important to have ergonomics assessment on the workers at different work fields. The potential risk of ergonomics can be determined by going through appropriate ergonomics assessment with different kinds of approaches and devices. Several types of ergonomics assessment methods are reviewed and compared to reveal their strengths and weaknesses [7].

From the various studies conducted among computer users, it is so evident that anybody using a computer in their work setting for a longer period can develop computer-related health problems, which is preventable to a great extent through proper ergonomics interventions. However, there is no formal education or orientation on computer ergonomics for office workers [2]. So the present study will help the investigator to explore the knowledge, attitude and practice of ergonomics among secretaries, followed by the video assisted teaching. This computer ergonomics which is based on their current knowledge will create an awareness on computer ergonomics and aid the computer users mainly secretaries for the identification and prevention of risk factors that cause musculoskeletal disorders [2].

Hence the researcher felt it is important to assess the knowledge, attitude and practice and to create awareness regarding ergonomics to avoid further complications.

2. Materials and Methods
2.1 Research approach: Quantitative approach was used.

2.2 Research design: Quasi experimental- one group pre test and posttest design was used in this study.

2.3 Setting of the study: This study was conducted at Pims, puducherry.

2.4 Variables
Independent variables
- In the present study, it refers to video assisted teaching program regarding ergonomics.

Dependent variables
- In the present study, it refers to the knowledge, attitude and practice regarding ergonomics.

2.5 Population of the study: population is a group whose members possess specific attributes that a researcher is interested in studying. In this study the population includes secretaries working at selected tertiary care hospital, puducherry.

2.6 Sample: sample is a representative units of target population selected for experiment and analysis. In this study sample consists of secretaries working at selected tertiary care hospital, puducherry.

2.7 Sample size: sample size: based on previous study findings with pre-test mean 3.92 and standard deviation 2.44 and post-test mean 4.81 and standard deviation 0.87, with power 90%,significant level 5% with attrition 10%. Sample size calculated is 43.the sample size taken was 50.

2.8 Sampling technique: simple random sampling technique was used. Samples were selected based on Inclusion and Exclusion criteria

2.9 Data collection procedure
The study was conducted after obtaining approval from Institutional Review Board and formal administrative permission was obtained from Director Principal, Human resource department. The data collected from 20-06-2022 to 20-07-2022 for a period of 4 weeks at Pondicherry institute of medical sciences, Pondicherry.50 subject participants 'secretaries' who fulfill the inclusion criteria were selected by using simple random sampling method (lottery method).Study participants were informed about the nature and purpose of the study. Written informed consent5was taken from the participants after explaining the purpose of the study. Data was collected in their respective work place by the investigator. During the pre- test, the questionnaire was given to the participants and they were instructed to fill the questionnaire. 30 minutes were given for the participants to fill the questionnaire on level of knowledge, attitude and practice regarding Ergonomics. After the pre-test, subjects were divided into two groups. For each group with 25 participants video-assisted teaching was given regarding ergonomics by using laptop and speakers for 30 minutes. Post-test was on 15th day conducted. Confidentiality of information was maintained by utilizing code number for the study participants

2.10 Validity and reliability of the tool
The method adopted for testing the reliability of self-structured questionnaire (Self report method) to assess level of knowledge and practice, 5 point likert scale to assess

level of attitude, was test-retest method and Spearman correlation coefficient formula and the r value for knowledge questionnaire is 0.876, attitude questionnaire is 0.952, practice questionnaire is 0.950.Content validity index for knowledge and practice questionnaire was 0.96 and attitude question was 0.92 respectively.

2.11 Ethical considerations
▪ The researcher had undertaken formal permission from director-principal, principal-incharge of college of nursing, human resource department, ISC (institutional scientific committee) with ISC No: RC/2021/65-11.07.2022 and ethical clearance obtained from IEC (internal ethical committee), Pondicherry institute of medical sciences.
▪ All participants was explained in the language comprehensible to them, the details of the study and level of risk/ benefit associated with it. Freedom to

withdraw at any time, without giving any explanation.

3. Results and Discussion
The data were analyzed on the basis of the study objectives, using both descriptive and inferential statistics. Findings are organized in the following headings.

Findings related to socio demographical variables
With regard to the socio demographical variab6les, majority 22 (44%) of them were belongs to age group 31-40 years. Most of them 39(78%) were females. More than two third of them 35 (70%) were graduated. Majority of them 23 (46%) were using mobiles 1-2 hours per day. In view of number of years using computer 32 (64%) of them were using 11 years and above. Majority of them 23(46%) were 6-7 hours and >7 hours working in computer per day. Majority 18(36%) were working more than 4 hrs without taking any break. Majority 29(58%) of them travelling by bus to reach office
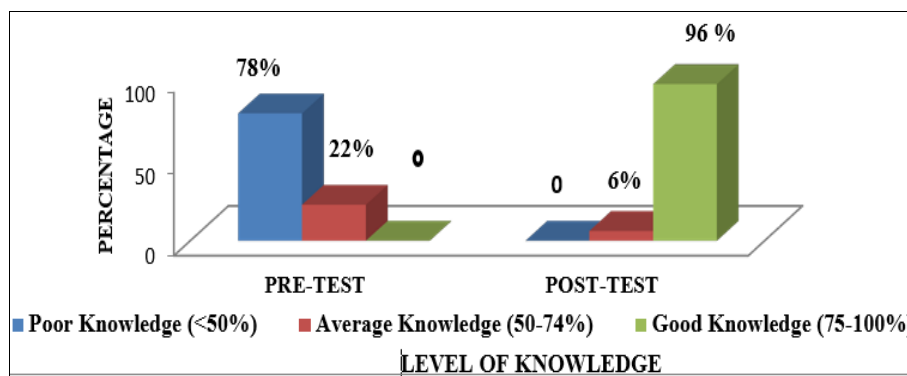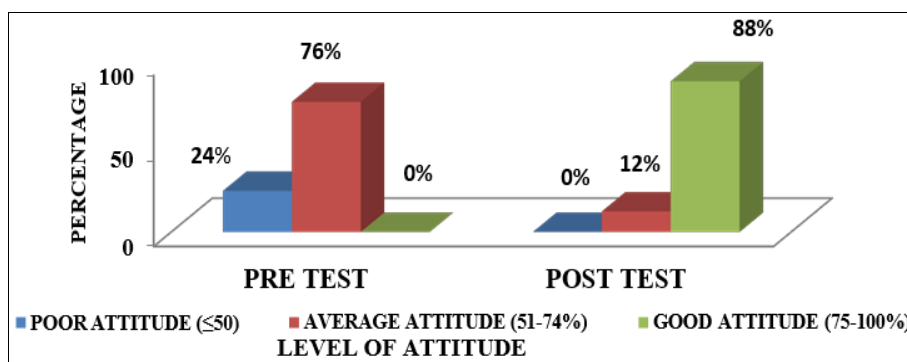

Fig 1: Distribution of pre-test and post-test level of knowledge regarding ergonomics among secretaries n=50

Figure 1 shows that the pre-test and post-test level of secretaries on knowledge regarding ergonomics. With regard to the overall knowledge on ergonomics none of them had good knowledge, 11(22%) of them had average knowledge, and 39(78%) of them had a poor knowledge in pre-test. In post-test 3(6%) of them had average knowledge, 47(94%) of them had good knowledge and none of them

had poor knowledge.
The pre-test and post-test mean, standard deviation and mean percentage of knowledge score of the study participants. Mean ± SD, mean percentage score of pre-test and post-test knowledge are 8.08 ± 2.1, 40.4 and 17.38 ± 1.60, 86.9 respectively.
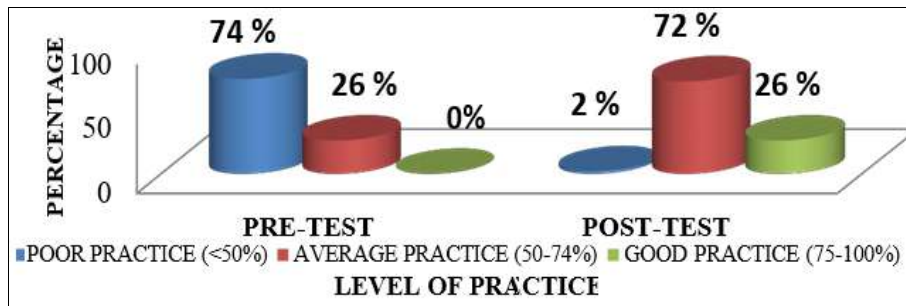

Fig 2: Distribution of Pre-test and Post-test level of attitude regarding ergonomics among secretaries. n=50

Above Figure 2 shows the pre-test and post-test level of secretaries on attitude regarding ergonomics. With regard to the overall attitude on ergonomics none of them had good attitude, 12(24%) of them had poor attitude, 38(76%) of them had average attitude in pre-test. In post-test 6(12%) of them had average attitude and 44(88%) of them had good

attitude and none of them had poor attitude.
The pre-test and post-test mean, standard deviation and mean percentage of attitude score of the study participants. Mean ± SD of pre-test and post-test attitude are 27.32, ± 2.58, 41.52 ± 3.05 respectively. The mean percentage score are 54.64, 83.04 in pre-test and post-test respectively.

Fig 3: Distribution of pre-test and post-test level of Practice on ergonomics among secretaries n=50

Above figure 3 shows the pre-test and post-test level of secretaries on practice regarding ergonomics. With regard to the overall practice on ergonomics none of them had good practice, 13(26%) of them had average practice, 37(74%) of them had poor practice in pre-test. In post-test participants 1(2%) of them had poor practice, 36(72%) had average practice and 13(26%) of them had good practice.

The pre-test and post-test mean, standard deviation and mean percentage of practice score of the study participants. Mean ± SD of pre-test and post-test practice are 7.26 ± 2.53, 13.30±1.57 and the mean percentage score are 36.3 and 66.5 respectively.

Comparison of pre-test and post-test level of knowledge, attitude and practice score of study participants

Table 1: Comparison of pre-test and post-test level of knowledge regarding ergonomics among secretaries n=50

Variables	Mean Score	Standard Deviation	Median	Interquartile Range	Z-Value	P-Value
Pre-test score	8.08	2.01	8.00	7.0-9.0	-6.167	<0.001 S
Post-test score	17.38	1.60	17.00	16.0-19.0		

S-statistically significant

The above table shows the post-test mean knowledge score of the study participants was higher (17.38) than the pre-test (8.08). The difference in the mean score knowledge was highly statistically significant at $p<0.001$ level.

Table 2: Comparison of pre-test and post-test level of attitude regarding ergonomics among secretaries n=50

Variables	Mean score	Standard deviation	Median	Inter Quartile range	Z-value	P value
Pre-test score	27.32	2.58	27	25-29	-6.160	<0.001 S
Post-test score	41.52	3.05	42	39-43		

S-Statistically significant

The above table shows the post-test mean attitude score of the study participants was higher (41.52) than the pre-test (27.32). The difference in the mean score attitude was highly statistically significant at p=0.001 level.

Table 3: Comparison of pre-test and post-test level of practice regarding ergonomics among secretaries n=50

Variables	Mean score	Standard deviation	Median	Inter Quartile range	Z-value	P value
Pre-test score	7.26	2.53	7.0	5.0-10.0	-6.168b	<0.001 S
Post test score	13.30	1.57	13.0	12.0-15.0		

S-Statistically significant

The above table shows the post-test mean practice score of the study participants was higher (13.30) than the pre-test (7.26). The difference in the mean score practice was highly statistically significant at $p<0.001$ level.

Association between pre-test level of knowledge, attitude and practice regarding ergnomics among secreteries with the selected demographic variables
There is no significant association between levels of knowledge and practice with demographic variables like age, gender, educational qualification, number of hours using mobile phone per day, number of years using computer, duration of hours working in computer per day and duration of continuous work without taking break.There is no significant association between levels of attitude with demographic variables like age, gender, educational qualification, number of hours using mobile phone, number of years using computer and duration of continuous work

hours without taking break.
There is a significant association found between level of attitude with the selected demographic variables like number of hours working in computer per day and mode of travel.

4. Conclusion
The study was conducted at Pondicherry Institute of Medical Sciences, Puducherry. Simple random sampling technique was used to select the samples. The data was collected from 50 secretaries. The main aim of the present study was to assess the knowledge attitude and practice regarding ergonomics among secretaries. Collected data was analyzed by using descriptive and inferential statistics and was presented in forms of tables and graphs.
Hence it was concluded that video assisted teaching program has been an effective method to increase the knowledge attitude and practice of secretaries regarding

ergonomics.

6. Conflict of Interest
Not available

7. Financial Support
Not available

8. Reference
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