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Prevalence and Knowledge of Computer related Ocular Syndrome among Bank Employees in Thiruvananthapuram Corporation

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ABSTRACT

Computer related Ocular Syndrome (CROS) is a group of visual symptoms experienced in relation to the use of computers. Early identification of risk factors of CROS will be helpful in preventing the occurrence of CROS among computer users. The study aimed at assessing the Prevalence and Knowledge of computer related ocular syndrome among Bank employees. The objectives of the study were to estimate the prevalence and knowledge of computer related ocular syndrome, to assess the practice regarding prevention of CROS, and to find out the association between CROS and selected Socio demographic variables. The research approach adopted for the study was quantitative and data was collected from 220 participants. The research design was Cross- sectional design. The setting of the study was Kerala Banks of Thiruvananthapuram Corporation. Participants were selected through cluster sampling. The tool used for assessing socio demographic variables, prevalence of CROS and knowledge regarding CROS was interview schedule. Check-list was used to assess the practice for the prevention of CROS. Data analysis was carried out using both descriptive and inferential statistics. The prevalence of Computer related Ocular syndrome among Bank employees were, eye strain 67.30%, headache 60.50%, redness 29.10%, watering eye 27.7% and blurred vision 25.0%. Results showed the knowledge regarding computer related ocular syndrome, 41.4% of participants had good knowledge and 31.4% had poor knowledge. Practice regarding prevention of CROS, 41.4% had good practice and 31.4% had poor practice. The findings revealed that knowledge and visual problems are significantly associated with CROS.

Keywords: Computer related ocular syndrome; Bank employees; Thiruvananthapuram Corporation.

Introduction

Technological advancement has made an impact in almost every aspect of our lives especially since the availability of computers. They are everywhere here, from the kitchen to the concreate mixture and from planes to pockets. From the primitive tools of stone age, today we have entered a new era, of computers an age which owes everything to the inventors of computers and smartphones, creating a brand new environment. Computer have become the back bone of the modern world.[1]

In today's age, computer has become a common item, and there has become an integral part of daily life. Appreciably, computers have been changing the working environment, simplifying and speeding up numerous tasks across many work areas. It has increased the work efficiency and communications and has

opened access to information like never before. It makes the life style of users too much relaxed. Huge numbers of people use Computers excessively and intensively, starting from official work to playing video games.[2]

In the present era of prolonged and rampant computer usage, there has been a rapid upsurge in computer -related health problems. A computer screen is commonly known as Video Display Terminal (VDT) computers, Tablets, E-readers, smartphones and other electronic devices are included in it. Prolonged exposure to VDTs has been the cause of a visual and ergonomic disorder called Computer related Ocular Syndrome.[3]

The American Optometric association describes the Computer vision syndrome as a group of eye and vision -related problems that result from prolonged Computer use, tablet, and cell phone use.[4]

Computer vision Syndrome affects 75% of people who work on computers, most markedly among those who work on computers for more than 3-6 hours. This includes all professions that uses computers (information technology, business processes, out sourcing, accounting and Banking**).[**5]

An epidemiological study on Impact of Digitalization on the Eye strain during covid 19 lock down period was conducted in Kerala in 2021, A total of 584 people were participated in the study, and more than 86% reported at least one symptom of Computer related Ocular symptoms.[6]

A Cross sectional study conducted in Kerala on 'Awareness and Symptoms of Computer Vision Syndrome among computer users' reported 79% of the Prevalence of Computer related Ocular Symptoms and showed that, the effect of prolonged use of computer leads to headache, lack of concentration, stress during work and a shorter attention span among computer users. Among Bank employees, Prolonged working hours, inadequate rest breaks and constantly staring at a single source are some of the important causes of Computer related Ocular symptoms. Extended Computer work and viewing of a computer screen (over 2 hours), especially at a constant depth field, is the primary cause of computer related ocular symptoms , leading to feelings of tiredness and fatigue in the eyes after long hours of work. This may cause a reduction in work accuracy and can reduce productivity by 40%. The Most common symptoms was headache (37.35 and the other symptoms were eye strain (29.88%),dryness (15.51%)and redness of the eyes (5.2%)[7]

Problem Statement

A study to assess the Prevalence and Knowledge of Computer related Ocular Syndrome among Bank Employees in Thiruvananthapuram Corporation.

Objectives of the study

Primary Objectives

1. To estimate the prevalence of Computer related Ocular Syndrome among Bank employees in Thiruvananthapuram Corporation.
2. To assess the knowledge of Computer related Ocular Syndrome among Bank employees in Thiruvananthapuram Corporation.

Secondary objectives

1. Assess the practice regarding prevention of Computer related Ocular Syndrome among Bank employees in Thiruvananthapuram Corporation.
2. Find out the association between Computer related Ocular Syndrome and selected Socio demographic variables among Bank employees in Thiruvananthapuram Corporation.

Operational definitions

Prevalence

In this study, the Prevalence refers to Proportion of Bank employees having Computer related Ocular Syndrome such as eye strain, redness, blurred vision, headache and watering eye. It was assessed by using interview schedule.

Knowledge

In this study knowledge refers to the awareness of Bank employees regarding Computer related Ocular Syndrome. It was assessed by using interview schedule

Reported Practice

In this study, Reported practice refers to Practice by Bank employees on following one hand distance from monitor, follow 20/20/20 rule (every 20 minutes look at a screen 20 feet away for 20 seconds) regular eye exercise, reduce glare while using Computer, take break in between work and it was measured by using self-prepared check list.

Computer related Ocular Syndrome

Eye strain, redness, blurred vision, head ache and watering eye are collectively referred to as Computer Vision Syndrome[26]. In this study Computer related Ocular Syndrome include any one of the above symptoms experienced by the Kerala Bank employees using Computers for more than 6 months, for 3 hours per day for 5 days in a week and was assessed by using interview schedule.

Bank Employee

In this study Bank employee refers to, employees who are working in Kerala Bank, Thiruvananthapuram Corporation, using Computers for more than 6 months, 3 hours per day, for 5 days a week.

Thiruvananthapuram Corporation

Thiruvananthapuram Corporation is the oldest and the largest city Corporation in the state of Kerala**,** researcher selected Kerala Banks coming under the regions of Thiruvananthapuram Corporation.

Assumptions

- Bank employees may develop Computer related Ocular Syndrome
- Bank employees are having varying levels of knowledge regarding Computer related Ocular Syndrome.
- Bank employees are having varying levels of practice regarding Computer related Ocular Syndrome.

Conceptual frame work

Betty Neuman's System model

Conceptual framework presents logically constructed concepts to provide general explanation of the relationship between the concepts of the research study, without using a single existing theory. The conceptual framework for this study is based on Betty Neuman's System model developed by Betty Neuman.[8]

Neuman used a total person approach incorporating the holistic concept and an open system approach. She developed this health care system to provide a unifying focus for nursing problem and for better understanding of the client in interaction within the environment.

METHODOLOGY

Research Approach: The research approach used in the study was quantitative approach.

Research Design: The investigator used descriptive research design for this study.

Variables: Study variables: Socio demographic factors Age, Gender, Marital status, Monthly income of the family, Education, level of Computer education, Designation, working experience, history of eye problems and Computer related factors (Duration of computer use, improper distance from screen, inappropriate monitor position and poor seating posture)

Outcome variable: Computer related Ocular syndrome and its knowledge.

Setting of the study: The setting of the study was Kerala Bank, Thiruvananthapuram Corporation.

Population: In this study population refers to , all Employees working in Kerala Bank

Sample And Sampling Technique:

Sample

The sample for the present study was Bank employees who are working in Kerala bank Thiruvananthapuram Corporation for more than 6 months, using Computer more than 3 hours per day, for 5 days in a week. Sample size was calculated using the formula $N= 4Pq / d^2$.

Sampling technique: In this study Cluster sampling technique is used.

Inclusion Criteria

Bank Employees who are

• Working in Kerala Bank for more than 6 months

• Using computer for more than 3 hours per day, for 5 days in a week.

Exclusion criteria. Bank employees of Kerala Bank who are not willing to participate in the Study.

Tool and Technique

Tool is an instrument or formally written document used to collect and record information. It is a device used to measure the concept of interest in a research study.

Development of the tool

The research tool was prepared on the basis of extensive review of literature, discussion with the expert and the investigator's personal and professional experience.

Description of the tool

Tool 1- To estimate the Prevalence and knowledge of Computer related Ocular Syndrome among Kerala Bank employees in Thiruvananthapuram Corporation

The Tool 1 has four sections,

Section -A

Interview schedule to assess Socio demographic data including age, sex, marital status, religion, educational qualification, monthly income of family, Computer education, Designation, Working experience in Kerala Bank and previous history of Visual problems.

Section -B

Prevalence of Computer related Ocular Syndrome among Kerala Bank employees in Thiruvananthapuram Corporation

Section -C

Knowledge of Computer related Ocular Syndrome among Kerala Bank employees in Thiruvananthapuram Corporation.

Score interpretation

Each right answer was given a score of one and the wrong answer was given a score of zero. The maximum score is 17 and the minimum score is zero

Distribution of Knowledge score

Knowledge	Score percentile	Score
Good	>66.6 percentile	≥12
Average	33.3-66.6percentile	5-11
Poor	<33.3 percentile	<5

Technique - Interview

Tool 2: Check list was used to assess the reported practice for the Prevention of Computer related Ocular Syndrome among Kerala Bank employees.

Check list consist of 10 items if the answer is Yes , score was one and if the answer is No , there was zero score. The maximum score is 10 and the minimum score is zero.

Distribution of Practice score

Practice	Score percentile	Score
Good	>66.6 percentile	≥6.67
Average	33.3-66.6percentile	5-3
Poor	<33.3 percentile	<3

Technique- self report

Validity

To ensure the content validity of the tool, it was submitted to experts in the field of Community health Nursing ,Ophthalmology, department of Community medicine Medical Surgical Nursing and Department of Computer Education . Based on their suggestion's necessary modifications were made and the tool was finalized with the help of the guide.

Reliability

The reliability is the overall consistency of a measure. A measure is said to be have a high reliability if it produces similar result under consistent conditions. There are different methods to estimate the reliability. In this study reliability of the tool was analysed by using chronbach's alpha. The estimated reliability of the tool was 0.7 Practicability of the tool was tested through pilot study and found that it can be used for the main study.

Data Collection Process

Formal permission for data collection were obtained from Research Committee, Institutional Ethics Committee, Kerala University of Health Sciences and Kerala Bank head office Thiruvananthapuram. The

participants who met the eligibility criteria were selected. The data collection period was commenced from 1/06/2023-7/7/2023.

The Researcher introduced herself to the participants and maintained a good rapport. The objectives of the study were explained and written informed consent obtained from the participants after a brief self explanation session.220 participants were selected for the study. 22 Kerala Bank branches selected from Thiruvananthapuram Corporation. From each branches 10 participants who fulfilled the eligibility criteria were selected. A structured interview schedule was used for collecting data regarding Socio demographic data, Prevalence and Knowledge of Computer related Ocular Syndrome and Check list was used for collecting reported Practice regarding Prevention of Computer related Ocular Syndrome. Data collection were lasted for about 15-20 minutes per participants.

DATA ANALYSIS

Data from Bank employees entered in using Microsoft excel worksheet and analysed using statistical package for social sciences (SPSS) soft ware version 22. Prevalence and Knowledge of Computer related Ocular Syndrome are expressed in Percentage. Reported Practice regarding Prevention of Computer related Ocular Syndrome are expressed in Percentage. The factors associated with Computer related Ocular Syndrome were identified using Chi-square test.

Result

The present study carried out among 220 Bank employees, belonged to the age group of 50-58 years (41.8%) and 15.5% belonged to <40 years of age group. Among 220 participants 51.8% were males and 48.2% were females. In this study 92.3% were married,5.9% were Unmarried,0.9% were Separated,0.5% were divorced. It was identified that 77.3% were Hindus, 15.9%were Christian, 6.8% belonged to Muslim. In the present study 74.5% were Graduates and 24.5% were Post graduates. In this present study 40.0% were completed DCA, 37.3% were completed PGDCA 14.5% were completed Data entry course and 8.2% were completed Diploma in DTP. It was identified that 36.8% were Accountants, 26.8% were UD clerks,17.3% were Managers ,12.3% were Assistant managers and 6.8% were LD clerks.

In the present study 31.4% had 10-14 years of working experience and 23.2% had <10years of working experiences. In the present study 70.5% of Bank employees reported that they had no Visual problems and 29.50% of Bank employees reported that they had Visual problems.

The study revealed that 69.23% of Bank employees had Shortsightedness, 18.46% had Presbyopia and 12.3% had Farsightedness. In the present study 54.1% were used computer for 40-49 hours,30.9% were used computer for 30-39 hours ,9.1% were used computer ≥50 hours. It was identified that 53.2% used Smart phone for10-19 hrs, 33.2% used Smart phone <10 hrs and 13.65% Used Smart phone for ≥20 hrs.

In the present study regarding Prevalence of Computer related Ocular Syndrome, 67.30% had eye strain 60.50% of Bank employees had headache,29.10% had redness ,27.7% had watering eye and 25.0% had blurred Vision.

In the present study 62.3% had 0-2 Ocular symptoms and 37.7% had 3-5 Ocular symptoms.

In the present study 41.4% of Bank employees had Good Knowledge ,27.3% had Average Knowledge and 31.4% had Poor Knowledge. The study findings showed that there was a statistically significant association between Knowledge and Computer related Ocular Syndrome**.** It was identified that there was a statistically significant association between Visual problems and Computer related Ocular Syndrome. In the present study 41.4% had Good Practice, 27.3% had Average Practice and 31.4% had Poor Practice.

DISCUSSION

The present study revealed that 15.5% of the participants were in the age group of <40 years. The findings was congruent with other study conducted in Kerala, department of ophthalmology Sree Gokulam Medical College Thiruvananthapuram in 2020, Among 220 Computer users 14.6% of the participants were in the age group of 36-40 years.[7]

Prevalence of Computer related Ocular Syndrome

In the present study 27.70% had watering eye and 25% had blurred vision. The Present study findings were congruent with another study conducted in Kozhikode among white collar employees regarding Computer related Health Problems revealed that watering eye 24.1% and blurred vision 24.7% respectively.[9]

Knowledge regarding Computer related Ocular Syndrome

The Present study showed that 41.40% had good Knowledge and 27.3% had poor Knowledge regarding Computer related Ocular Syndrome. This findings was non congruent with another Cross sectional study conducted in Malaysian Public University, 51.2% of the respondents had good Knowledge and 48.8% had poor Knowledge.[10]

Practice regarding Prevention of Computer related Ocular Syndrome

The Present study results showed that 21.40% had poor Practice regarding prevention of Computer related Ocular Syndrome. This findings were agreement with another study Conducted in Malaysian public university practice reported that 19.8% respondents had poor Practice.[10]

It was observed that in the present study there was significant association between Computer related Ocular Syndrome and Visual problems, Similar findings were found in other study conducted on Computer vision syndrome among computer office workers in a developing country: an evaluation of prevalence and risk factors in Sri Lanka revealed that a significant association between Computer related Ocular Syndrome and Visual problems .[11]

Summary

The Present study was conducted to assess the Prevalence and Knowledge of Computer related Ocular Syndrome among Bank employees in Thiruvananthapuram Corporation. The primary objectives of the study were to estimate the Prevalence of Computer related Ocular Syndrome among Bank employees and to assess the Knowledge of Computer related Ocular Syndrome among Bank employees. The secondary objectives of the study were to assess the reported practice regarding Computer related Ocular Syndrome among Bank employees and to find out the association between Computer related Ocular Syndrome and Selected Socio demographic variables among Bank employees. A broad review of literature on related studies helped the investigator to design the research methodology, theoretical frame work and the development of the tool. The theoretical frame work used for the study was Betty Neuman's system model. Quantitative approach was used and the research design adopted was Cross sectional design. A Pilot study was conducted among 22 Kerala Bank employees. The study was conducted among 220 Kerala Bank employees who satisfied Sampling criteria. The Tools used were interview schedule to assess Socio-demographic data and Knowledge regarding Computer related Ocular Syndrome among Bank employees of Thiruvananthapuram, Corporation. Check list was used to assess reported Practice among Kerala Bank

employees. The data obtained were analyzed using descriptive and inferential statistics and it was found that majority of Bank employees (67.30%) had Eye strain,60.50% had Headache, 29.10% had Redness, 27.70% had watering eye and 25.0% had Blurred vision. Regarding Knowledge 41.40% had good Knowledge and 27.30% had poor Knowledge. Practice regarding prevention of Computer related Ocular Syndrome among Bank employees, (41.40%) had good practice.

Conclusion

The Present study revealed that there was statistically significant association between Visual Problems and Knowledge with Computer related Ocular Syndrome. There was no statistically significant association between Socio demographic variables of the Bank employees like Age, Gender, Education, Level of Computer education, Designation and Years of Working experience.

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