

Computer Professionals and their Health issues and Managements

Sudharshini S.¹, Anantha Raman V.V.^{2*}, Mathew Arumai M.³

DOI: <https://doi.org/10.17511/ijphr.2018.i3.03>


¹ Sudharshini S., Assistant Professor, Community Medicine Department, Madras Medical College, Chennai, Tamil Nadu, India.

^{2*} Anantha Raman V.V., Associate Professor, Community Medicine Department, SRM Medical College and Research Centre, Chennai, Tamil Nadu, India.

³ Mathew Arumai M., Medical Social Worker, Community Medicine Department, SRM Medical College and Research Centre, Chennai, Tamil Nadu, India.

Background: The professionals using computers for more than four hours a day are susceptible to develop problems like computer vision syndrome (CVS), eye strain, shoulder problems, Musculoskeletal disorder, Carpal tunnel syndrome, stress, and neck and shoulder problem and back pain, etc. The current study has proposed to unearth these problems and associated factors with their working environment conditions and pave way for pursuing further researches in this area and bringing policy level changes to for their health betterment. **Objectives:** study has intended to explore the knowledge of health problems pertaining to exposure of computer work and their management among the computer professionals working in Chennai. **Methods:** Convenience sampling was adopted and implemented to collect data from 300 study subjects working in IT companies in Chennai, Tamilnadu, South India. **Results:** 71% of the study subjects had one or many problems like head ache, dry eyes, back ache, low back pain, etc., and 43% of them were aware of computer related problems. **Conclusion:** Over three-fourth of the study subjects have suffered one or more health problems due to the invariable use of computers in their day-to-day work places and nearly half of them had an average knowledge on health issues. These problems need to be addressed through application of measures.

Keywords: Computer Professionals, Computer Vision Syndrome, Exposure, Health Issues, Knowledge and Health Management

Corresponding Author	How to Cite this Article	To Browse
Anantha Raman V.V., Associate Professor, Community Medicine Department, SRM Medical College and Research Centre, Chennai, Tamil Nadu, India. Email: mathewarumai@gmail.com	Sudharshini S, Anantha Raman VV, Mathew Arumai M. Computer Professionals and their Health issues and Managements. Public Health Rev Int J Public Health Res. 2018;5(3):117-122. Available From https://publichealth.medresearch.in/index.php/ijphr/article/view/92	

Manuscript Received
2018-09-10

Review Round 1
2018-09-20

Review Round 2
2018-09-25

Review Round 3

Accepted
2018-09-30

Conflict of Interest
No

Funding
Nil

Ethical Approval
Yes

Plagiarism X-checker
5%

Note



© 2018 by Sudharshini S., Anantha Raman V.V., Mathew Arumai M. and Published by Siddharth Health Research and Social Welfare Society. This is an Open Access article licensed under a Creative Commons Attribution 4.0 International License <https://creativecommons.org/licenses/by/4.0/> unported [CC BY 4.0].



Introduction

Health problems are rampant among the computer professionals across Globe. The professional using computers for more than four hours a day are susceptible to develop problems like computer vision syndrome (CVS), eye strain, shoulder problems, Musculoskeletal disorders Carpal tunnel syndrome (CTS), stress, and neck and shoulder problems [1]. Over 143 million people living in USA work with computer on a daily basis [2].

India has emerged as major service provider in the cyber world with information technology. More than 120 million people here are engaged with computer work and the number of people using computer has been progressively increasing every day [3].

A Study was carried out in Jamnagar in India to ascertain whether computer professionals had Computer Vision Syndrome, in which of the 1205 professionals surveyed, nearly half of them had it owing to the computer usage.

It also revealed that 70% of the computer professionals working in metropolitan cities across India had CVS [4]. In yet another study conducted in Chennai, It was found that the prevalence of CVS among engineering students was 81.9%, while it was 78.6% among the medical students. The higher proportion of engineering students was more frequently using computers than medical students.

However, there is uniformity that the students using computers for 4-6 days in a week are more susceptible of developing symptoms like redness of eye, burning sensation, blurred vision, neck and shoulder pain and dry eyes [5]. 200 computer professionals working in Mumbai in various firms were assessed for health problems due to usage of computers in their daily works.

76% of them have developed visual and musculoskeletal problems. It was unearthed that the increase in the number of hours of work by them on computers has increased their visual complaints drastically. Similarly, they also developed musculoskeletal problems for the same reasons. However, problems were found to be very less among the persons who were using antiglare screen and cushioned chairs while working in rooms with adequate lights [6].

Among the 648 computer professionals from 21 companies assessed for Carpal Tunnel Syndrome in Chennai, 13.1% were diagnosed to have CTS.

Of them, the professional with over 8 years of work experience with over 12 hours of work per day were found to be at the greater risk of developing CTS. The higher risk for CTS was found with higher exposure to computer work. [7].

The present study has intended to explore the knowledge of health problems pertaining to exposure of computer work and their management among the computer professionals working in the heart of Chennai city.

It would shed light on the above problems and associated factors with their working environment conditions and pave way for pursuing further researches in this area and bringing policy level changes to for their health betterment.

Materials and Methods

The research design adopted methodically in the study was descriptive design. It aimed at studying the knowledge and skills of the computer personnel in managing their health issues caused due to the exposure of computers at their daily work.

The establishments identified for the study were Collab Net Software Private Limited and Essentia Soft Solution, which are located in the heart of the city, Anna Nagar and Mylapore. 300 computer personnel were working as fulltime staff in these two establishments.

Convenience sampling technique was logically employed to recruit the 100 samples from them (the sampling unit), who fulfilled the criterion of completing one year of working experience there.

The tool deployed to collect data from the respondents was self constructed and semi-structured questionnaire, which comprised of three domains namely demographic profiles, knowledge and skills of managing the health issues due to exposure to computer at work and precautionary measures and methods.

The scoring pattern was positively Effects of dual monitor computer work versus laptop work on cervical muscular and prospective characteristics of males and females.

Human Factors: The Journal of the Human Factors and Ergonomics Society administered to determine their level of knowledge over the health problems and administration.

Questions in B & C sections carried one mark each.

The respondents who have secured above 60% by filling correct answers in the questionnaire were considered as good, the respondents with the score between 40% and 60% were regarded as fair and the respondents with the score below 40% were treated as poor.

The content validity of the tool was done with five experts working in the field of community medicine, Information technology and mental health professionals.

Its reliability was established by using split half method. Its upshot show caused co-efficient and correlation of about $r=0.84$ and thus the tool was regarded as highly reliable for the study. Prior to data collection, the CEOs of the establishments were apparently and profoundly explained of the purpose of the study and they had accorded permission to carry out study among their employees.

Results

The study has included 100 subjects on the basis of inclusion criteria, of whom 51% were men. Age wise, 48% were in the age group of 21-25 years, while nearly 52% were in the age group of 26-30 years. 52% have hailed from Hinduism followed by 29% from Christianity and 19% from Islam respectively.

Educationally, 40% have studied undergraduation in computer and 29% have studied postgraduation in computer. In regards to their montly income, 37% have earned between Rs. 10000 and Rs. 20000. In contrast, 31% have earned between Rs. 20000 and 30000.

Their marital status revealed that 52% were leading a marital life and 45% were yet to settle in their marital life. Further, 51% had a nuclear family sytem where as 49% had a joint family system. With regards to their personal habits, 58% had a habit of eating non vegetarian, 72% had a habit of drinking coffee and 38% were fond of watching movies in cinema theatre during their leisure time.

In relation to their professional work, 57% have had 1-3 years of working experience and 28% have worked for 3-6 years in the same field. Of them, 65% have worked for 8-12 hours a day. Owing to their regular work pressure, 71% have developed health problems. Among them, 30% were reported to have head ache and vision problems. Their knowledge oncomputer vision syndrome were assesed with 10 relevant questions.

Only 44.1% were aware of what is computer vision eye strain, type of eye problems,causes of CVS, its treatment, complication of CVS, preventable measures to be taken, vitamins required to protect eyes, and sources of vitamin- A. Similarely, their knowledge on Carpal Tunnel Syndrome, Low back pain, Repetitive stress injury, and psychological approach in work place were appraised with 20 standadised questions.

The knowledge level of the professionals on health problems varied from one problem to others. 43% were reported to have good knowledge on what is low back pain and its causes, signs and symptoms, treatment and treatment aspects. 40% had adequate information on repitive stress injury, its causes, signs and symptoms and preventive measures.

45% were stated to possess true facets of stress at job, whom to discuss with about stress, how to relax the mindand how to lead a peaceful life. 43% possesed the details of Carpal Tunnel Syndrome, its causative factors, signs and symtoms and its treatment.

On the whole, 43% of them were stated to have good knowledge on the above health problems with mean score of 12.86 and standard deviation value of 4.40. When compared the knowledge between males and females on the same health problems, females (43.4%) had secured higher knowledge than their counterparts (42%).

Table 1: Association between Demographic Variables and Health Problems.

Variables		N	Score		Significance
			Mean	SD	
Age	21-25 yrs	48	14.05	4.66	F=3.05 P<0.05 df:2 Significant
	26-30 yrs	36	16.16	5.33	
	31-35 yrs	16	17.81	4.67	
Sex	Male	52	15.44	4.68	F=0.38 P= 0.69df:1 Not Significant
	Female	48	15.83	5.41	

Religion	Hindu	54	16.48	5.05	F=3.20 P<0.04 df:2 Not Significant
	Christian	27	14.85	5.30	
	Muslim	19	14.31	4.23	
Education	Dip. in Computer	22	16.77	4.24	F=1.23 P=0.30 df:3 Not Significant
	UG in Computer	40	15.50	4.79	
	PG in Computer	29	14.45	5.87	
	Any other course	9	17.22	4.58	
Income		19	15.89	3.60	F=1.52 P=0.21 df:3 Not Significant
	Rs. 10,000-20,000	37	16.78	4.82	
	Rs. 20,000-30,000	31	14.87	5.54	
	>Rs. 30,000	13	13.77	5.73	
Marital Status	Unmarried	45	16.69	5.43	F=1.88 P=0.57 df:2 Not Significant
	Married	52	14.81	4.65	
	Divorce	3	14.00	1.73	
Family System	Nuclear Family	51	17.02	4.61	F=2.92 P<0.01
	Joint Family	49	14.18	5.07	

The computer professionals were also assessed on how to take precautionary measures when they are prone to computer health related problems and its management. Its upshots showed that 55.4% had good knowledge on temperature level of computer room, type and position of chair to work with computer, comfortable position of the shoulder

To work with computer, and maintenance of key board level. There was a statistical significant association (P<0.01) between demographic variables like age & family system and precautionary measures they take when they are prone to health related problems.

Table 2: Association between daily exposure and different aspects of health problems and Management

Health Problems and Management	Daily Exposure Hours				Student Independent t-test
	8-12 hrs		12-24 hrs		
	Mean	SD	Mean	SD	
Computer Vision Syndrome	4.68	1.99	3.91	2.13	t=3.48 P<0.05 Significant
Carpal Tunnel Syndrome	2.37	1.19	1.74	1.17	t=6.34 P<0.01 Significant
Low Back Pain	1.98	1.17	2.23	1.54	t=0.79 P=0.38 Not Significant
Repetitive Stress Injury	2.05	1.26	1.91	1.52	t=0.22 P=0.64 Not Significant
Psychological Approach in Work Place	2.35	1.22	2.00	1.33	t=1.80 P=0.18 Not Significant
Pre-cautionary Measures and Management	2.94	1.18	2.46	1.46	t=3.18 P=0.07 Not Significant

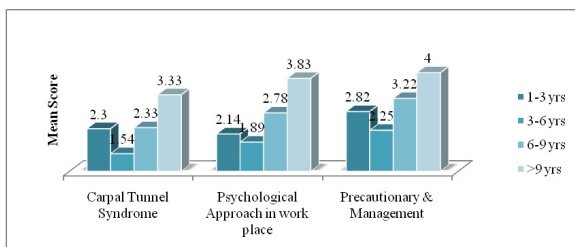


Fig 1: Association between Years of Experience and Health Problems and Pre-cautionary Measures

Discussion

The present study results reveals that the mean age of the participants was 26 years. This coincides with the study done by Bhandari D et al, in which the mean age of the participants was 25.04 years (7). In the present study the majority of the participants were in the age group of 25-30 years. This is in accordance with the study done by Sharma AK et al, in which the majority of the study participants were in the age group of 21-30 years. the professionals and the mean age of the participants was 29 years (8).

In the current study, the participants had an average level of knowledge about the computer related diseases. 71% of the professionals constantly gazing the computer monitors were more likely to get computer vision syndrome. Similarly, the other study revealed that the same percentage of the subjects suffered with the same problem due to the continued exposure to computers [9].

In the present study more than half of the computer professionals (57%) had experiences of 1-3 years. The exposure to computer between 8-12 hours is 65% and 46% of the availed a rest break between 30 minutes to 1 hour. A study carried out in Punjab showed that a majority of the participants had 3 to 4 years experience in operating computers and given one hour rest while constantly working with it (10).

It is observed from the current study that women professionals are equally competent with men and have more knowledge than men in computer related problems. It is all due to technology advancement and education they receive on par with men counterpart.

Higher proportion of females have more knowledge on carpal tunnel syndrome (44%) than males (41%). Similarly 41% of the women professionals are aware of repetitive stress caused due to working for long hours, which is slightly higher than male counterparts (39%).

A similar association were found in the study conducted among the computer software professionals working in New Delhi [11]. It is noticeable from the current study that the number of years of experience, type of health problems and daily exposure to computers has significant effect on the knowledge of computer related health problems.

A similar study carried out in Ethiopia depicts that the attributes of regular computer professionals who are taking regular breakups from the work with many years of experiences have significant effect on knowledge of problems related computers. It is now clear that there is potential association between the professionals with regards to their attributes and knowledge on computer related problems (12).

Yet another study portrayed 40% of the participants were aware of CVS; of whom 27% had knowledge of the disorder. CVS was treated as common among the employees, 74% of the respondents encountered minimum of one symptom of CVS.

Headache and eyestrain were the most common symptoms of CVS among the studied population [13]. It is obvious that there was potential association between current and previous studies on how to tackle health problems and lead a positive life style [14].

Conclusion

The study has brought to lime light on the fact that over three-fourth of the study subjects have suffered one or more health problems due to the invariable use of computers in their day-to-day work places and nearly half of them had an average knowledge on health issues. It is obvious that their work environment has a direct adverse upshots on their wellbeing and there is a wider gap between their knowledge on health problems and their management. They are required to be addressed by organising health checkups at regular intervals, undertaking many research projects on their health issues and managements, and conducting sensitization programs to both employers and employees. An appropriate ergonomic can be applied in all working places and it could facilitate enabling environment that will enhance the quality of the works of IT professionals and minimize their health problems.

The employees should be motivated to practice the knowledge of ergonomic principles. Constant monitoring and evaluation of the employees' health is very crucial to alliviate is these problems at root level (15).

Reference

01. Amanda M, Zuniga F, Cote JN. Effects of dual monitor computer work versus laptop work on cervical muscular and proprioceptive characteristics of males and females. Human Factors- The Journal of the Human Factors and Ergonomics Society. 2017 January;13(1)339-47. [Crossref]
02. Hayes JR, Sheedy JE, Stelmack JA, Heaney CA, et al. Computer use, symptoms, and quality of life. *Optom Vis Sci.* 2007 Aug;84(8)738-44. [Crossref]
03. Talwar R, Kapoor R, Puri K, Bansal K, Singh S. A study of visual and musculoskeletal health disorders among computer professionals in NCR Delhi. *Indian Journal of Community Medicine.* 2009 Dec;34(4)326-328. [Crossref]

04. Sharma G, Srivastava V, Singh PK. Computer vision syndrome- A holistic approach through Trataka yoga. *International Journal of Green Pharmacy*. 2017 Jan-Mar;11(1)p-7-10. [Crossref]
05. Logaraj M, Madhupriya V, Hegde S. Computer vision syndrome and associated factors among medical and engineering students in chennai. *Ann Med Health Sci Res*. 2014 Mar;4(2)179-85. doi: 10.4103/2141-9248.129028 [Crossref]
06. Shrivastava SR, Bobhate PS. Computer related health problems among software professionals in Mumbai- A cross-sectional study. *International Journal of Health & Allied Sciences*. 2012 Apr-Jun;1(2)74-78. [Crossref]
07. Bhanderi D, Choudhary SK, Parmar L, Doshi V. Influence of psychosocial workplace factors on occurrence of musculoskeletal discomfort in computer operators. *Indian Journal of Community Medicine*. 2007 Jul-1;32(3)225. [Crossref]
08. Ali KM, Sathiyasekaran BW. Computer professionals and Carpal Tunnel Syndrome (CTS). *Int J Occup Saf Ergon*. 2006;12(3)319-25. DOI: 10.1080/10803548.2006.11076691 [Crossref]
09. Sharma AK, Khera S, Khandekar J. Computer related health problems among information technology professionals in Delhi. *Indian Journal of Community Medicine*. 2006 Jan1;31(1)36. [Crossref]
10. Mallik D, Gahlot A, Maini A, Garg S. Prevalence of dry eye amongst computer workers in Kanpur. *International Journal of Community Medicine and Public Health*. 2017 July;4(7)p-2308-2311. [Crossref]
11. Bisht D, Bakhshi R. Knowledge of computer ergonomics and incidence of musculoskeletal disorders among students of Punjab Agricultural University, Ludhiana, India. *Journal of Applied and Natural Science*. 2018 Mar;10(1)323-329. [Crossref]
12. Sharma AK, Khera S, Khandekar J. Computer related health problems among information technology professionals in Delhi. *Indian Journal of Community Medicine*. 2006 Aug;31(1)36-38. [Crossref]
13. Dessi A, Adane F, Nega A, Wami SD, Chercos DH. Computer Vision Syndrome and Associated Factors among Computer Users in Debre Tabor Town, North west Ethiopia. *Journal of Environmental and Public Health*. 2018 Sept;1-8. [Crossref]
14. Saleem M, Priya S, Govindarajan R, Balaji E, Divahar Anguraj A, Shylendra Babu PG, et al. A cross sectional study on work related musculoskeletal disorders among software professionals. *International Journal of Community Medicine and Public Health*. 2015 Nov;2(4)367-372. [Crossref]
15. Prasad MA, Wagh V, Mudey A. Study of prevalence of health problems among computer professionals in selected information technology (IT) company in Nagpur district of central India. *Innovative Journal of Medical and Health Science*. 2014 May-June;4(3)96-98. [Crossref]