A Comparative Study of Computer Vision Syndrome between Bank Employees and Other Employees

Shahid Ramzan [1], Mohammad Irfan [2]

M.C.A, Desh Bhagat Institute of Management & Computer Science, Mandi Gobindgarh, Punjab, India[1]

Associate Professor &Head, Department of Psychology, Government College, Malerkotla, Punjab, India[2]

ABSTRACT: Computers are being used by increasingly larger number of people today. This has led to an increase in the number of patients complaining about ocular and non ocular symptoms related to computer use. The aim to investigate the awareness and knowledge about computer vision syndrome between bank employees and other employees whom used the computer. The sample consisted 100 employees (50 bank employees and 50 other employees). Both employees from private and public sector were selected. The sample was randomly selected. Self prepared questionnaire, expert review and pilot were used to access the objective. Results indicated that both employees were used the computers last 3-8years.both employees were aware about CVS as equally. More or less both employees were tired and suffered from neck pain Eyestrain and Headache from computer usages and both employees used relief techniques and consulted the eye doctors.

KEYWORDS: Computer vision syndrome (CVS); Awareness; Relief techniques; Bank employees; other employees;

I. INTRODUCTION

In India, first computer was used in Indian Statistical Institute in Calcutta in 1956. INS survey was conducted in December 2013 which says total number of computer users in India was 150,000,000. We cannot think the modern world without computers. The dependence on the computer is rising with time. This will lead to numerous disorders in human beings out of which ocular manifestations play a prominent role. Healthy eyes can easily maintain focus on the printed page. Characters on a computer screen however don't have this contrast or well-defined edges. These characters (pixels) are brightest at the center and diminished in intensity towards their edges. This makes it very difficult for our eyes to maintain focus and remain fixed on these images. Instead, our eyes drift out to a point called the "resting point of accommodation" that is approximately 30" and grows as we get older. Computer Vision Syndrome (CVS) is defined as a group of eye and vision-related problems that result from prolonged computer use (American Optometric Association, 2007). According to the National Institute of Occupational Safety and Health, computer vision syndrome affects some 90% of the people who work on computers for three hours or more a day.The use of computers has become universal. Computer technology plays an integral role in our personal, professional and educational lives.(Lai,1999) Recent studies have reported the most frequently occurring health problem among computer users are Computer Vision Syndrome (CVS)(Dainoff,1981and Sen,2007) ,wrist and shoulder pain and overuse syndrome to musculoskeletal injuries.(Laeser,1998 and Atencio,1996)

II. REVIEW OF LITERATURE

75% of young Software professionals and college students in India's IT capital of Bangalore are reportedly face the Computer Vision Syndrome (Dumesh, 2010). CVS remains an underestimated and poorly understood condition at the workplace (Izquierdo et al., 2004; Izquierdo, 2010). About 70% of computer workers worldwide report having vision problems and there is an alarming increase in the number of people affected (Blehm et al., 2005). Poor publicity and utilisation of preventive measures however, have hampered the effectiveness of computers due to the overwhelming symptoms experienced by some users (Ihemedu and Omolase, 2010). Some researchers (Divjak and Bischof, 2009;

Mvungi et al., 2009) have explained that CVS can be avoided by suitable preventive actions, but majority of the sufferers are ignorant of this. In the basis of this, some eye care professionals have referred to CVS as the number one occupational epidemic of the 21st century (Graney, 2011; Torrey, 2003).

Computer users are generally encouraged; this is to keep up with the fast moving world of technology, research and science. Researchers have come to an agreement that this could actually be harmful, if not properly managed for future generation (Nunoo M. 1996).According to Izequardo (2010), the prevalence of CVS worldwide ranges from 25% to 93%. In Malaysia, a study done by the by National Institute of Occupational Safety and Health (NIOSH) showed that 61.4% of workers who used computers in their workplace complained of lower back pain, shoulder and neck pain, while 70.6% of them complained of eyestrain which are all related to CVS (Loh et al., 2008). Decreasing the amount of time spent in front of the computer will have a significant impact on symptoms associated with computer vision syndrome. It is suggested to follow the 20/20/20 rule, in which the computer user after working on a computer for 20 minutes must look away at 20 ft for at least 20 seconds (Tribleya et al.,2011).

Tornq Vist Wigaeus, Hagman Maud And Others(2002) found in their study that A cross-sectional study among 498 males and 785 females' professional computer users to describe prevalence of work related health problems among professional computer users reported that women have a higher proportion of symptoms. According to Abida Ellahia, M. Shahid Khalilb, Fouzia Akrama(2011) that Computer users at risk: Health disorders associated with prolonged computer use this research aims to assess the prolonged use of computers and their effects on human health. 25.9% are facing all health disorders. The other respondents who are of age more than 30 years, majority (74.1%) reported all problems, 73.3% have shown stress, 43.8% have shown carpal tunnel syndrome and musculoskeletal disorders and only 25% have computer vision syndrome. Raja AM, Janti S, Matheen A, Chendilnathan C, Ramalingam P. (2015) found that During this study period, 300 patients were randomly selected from various IT companies. In which, 186 (62%) males and 114 (38%) females were participated. They were having ocular complaints in descending order such as eye strain (69%), headache (56%), dryness (49%), irritation (47%), burning sensation (41%), blurred vision (39%), itching (32%), watering (29%), redness (21%), and double vision (16%) Interpretation: The data were analyzed using SPSS software.

III. OBJECTIVE

The main Objectives of the study are as follows:
1   Discover the computer usage during in the year between bank employees and other employees
2   Discover the Awareness of Computer Vision Syndrome between bank employees and other employees.
3   Discover the Knowledge of Computer Vision Syndrome between bank employees and other employees.
4   Discover the Tiredness after usage of computer between bank employees and other employees.
5   Discover the wearing glasses while using computer between bank employees and other employees.
6   To investigate the combination of Headache, Eyestrain and blur vision that occurs as a Result of Prolonged computer use between bank employees and other employees
7   Identify eye related problem or pain away from computer between bank employees and other employees.
8   Examine the history of eye check up between bank employees and other employees.
9   Examine effects of eye related problem between bank employees and other employees.
10 Discover the consultation of ophthalmologist/eye doctor between bank employees and other employees.
11 Examine the remedy about computer vision syndrome between bank employees and other employees
12 Discover the source of Knowledge about Computer Vision Syndrome between bank employees and other employees.

IV. METHOD

Sample: The Sample consisted of fifty Bank employees and fifty other employees of whom were working in Malerkotla, District Sangrur, Punjab. Both males and females bank employees and other employees from private and public sector were selected. The Sample was randomly selected. The age of Employees were 26 to 48.This population was taken for purposive sampling .All these employees used the computer in the Bank and other office.
Tools: Self Prepared Questionnaire, Expert Reviewed and Pilot was used to access the objective.

V. RESULTS AND DISCUSSION

The collected data were analyzed, classified and tabulated.

Table.1: Response of computer usage during year wise between Bank employees and other employees.

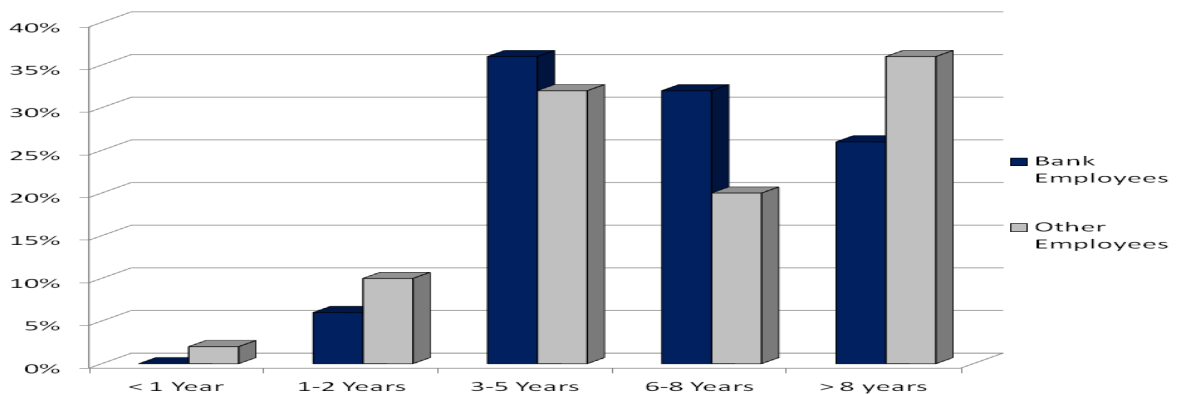| Sr no	Period of Computer usage	Total no. of Bank Emp.*	Response of Bank Emp.*	Percentage of Bank Emp.*	Total no. of other Emp.*	Response of other Emp.*	Percentage of other Emp.*
1	<1 year	50	0	0%	50	1	2%
2	1-2 Years	50	3	6%	50	5	10%
3	3-5 Years	50	18	36%	50	16	32%
4	6-8 Years	50	16	32%	50	10	20%
5	>8 Years	50	13	26%	50	18	36%

* Emp. =Employees

Figure: 1

The results of this table depicted that Bank employees used the computer maximum 36% in their office from 3-5 years where as others than bank employees used maximum 36% from years and above 8 years. The results further showed that bank employees were used minimum 0% computer from less than one year and other employees also used computer minimum 2% from less than one year.

Table: 2 The Knowledge of computer Vision Syndrome (CVS) between Bank employees and other employees

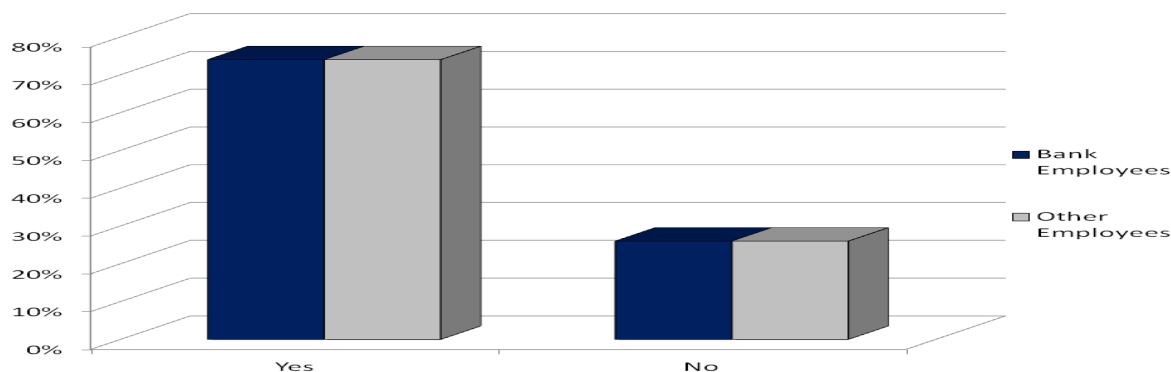| Sr. no	Total no of Bank Emp.*	No of Bank Emp.*	Percentage Of Bank Emp.*	No of other Emp.*	No of other Emp.*	Percentage of Other Emp.*	Response
1	50	37	74%	37	50	74%	Yes
2	50	13	26%	13	50	26%	No

*Emp. =Employees

Figure: 2

This table showed that both bank employees and other employees have equally knowledge of computer vision syndrome.Out of 50 employees,74 % both employees have knowledge of computer vision syndrome and 26% both employees have not knowledge of computer vision.

Table 3: The Awareness of Computer Vision Syndrome (CVS) between Bank Employees and Other Employees

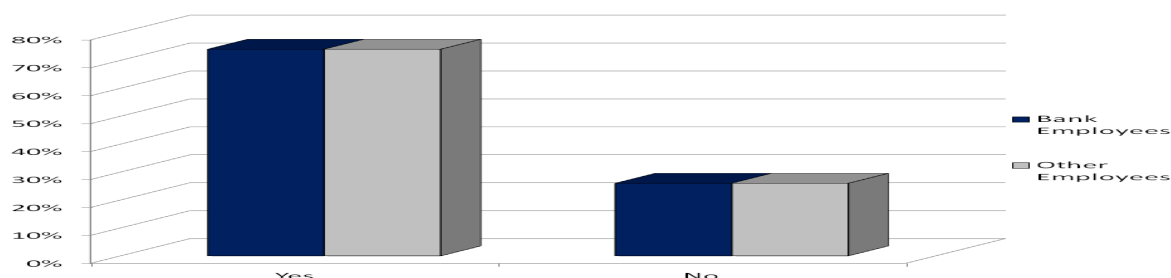| Sr. no	Total no of Bank Emp.*	No of Bank Emp.*	Percentage Of Bank Emp.*	No of other Emp.*	No of other Emp.*	Percentage of Other Emp.*	Response
1	50	37	74%	37	50	74%	Yes
2	50	13	26%	13	50	26%	No

* Emp. =Employees

Figure: 3

From the above table,depicated their all employees of both categories equal response.out of 50 employees 74% both bank employees and other employees were confessed to aware of computer vision syndrome and 26% both employees did not confess to aware of computer vision syndrome.

Table 4: Tiredness during Computer Usage between Bank employees and other employees.

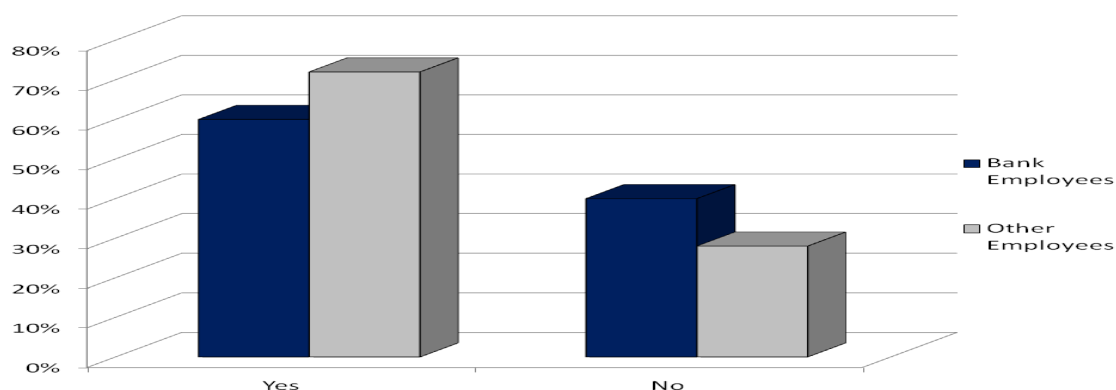| Sr no	Total no. of Emp.*	No of Bank Empl.*	Percentage Of Bank Emp.*	Total no of Emp.*	No of other Emp.*	Percentage of Other Emp.*	Response
1	50	30	60%	50	36	72%	Yes
2	50	20	40%	50	14	28%	No

* Emp. =Employees

Figure: 4

This table clearly mentioned the results that maximum other employees as compare to bank employees were tired from computer usage.72% other employees were tired from computer usage and 60% bank employees were tired from computer usage. 40% bank employees confess that did not tire from computer usage and 28% other employees confess that did not tire from computer usage.It means bank employees were not felt tire during computer usage.

Table 5: The Wearing Glasses While Usage of Computer between Banks and other employees in their office.

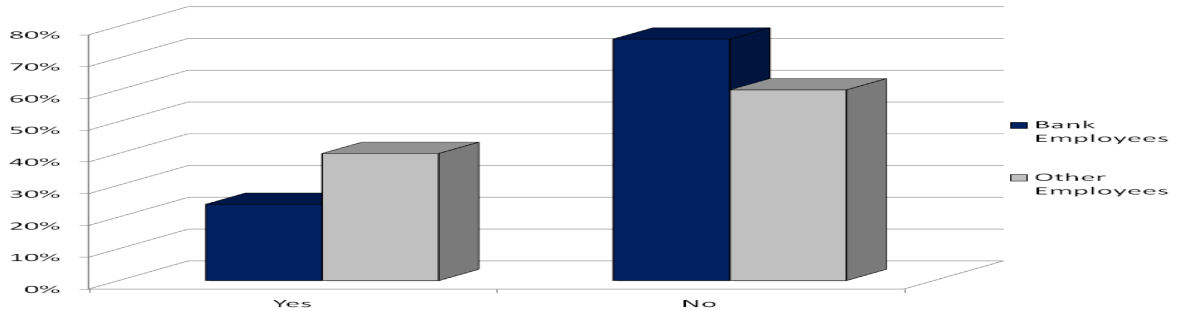| Sr.no	Total no of Bank Emp.*	No of Bank Emp.*	Percentage Of Bank Emp.*	Total no of Other Emp.*	No of Other Emp.*	Percentage of Other Emp.*	Response
1	50	12	24%	50	20	40%	Yes
2	50	38	76%	50	30	60%	No

* Emp. =Employees

Figure: 5

The investigator found that the maximum bank employees were not wearing glasses during computer usage. So it clearly showed that 76% bank employees were not wearing glasses during computer usage. 60% other employees were not wearing glasses during computer usage.On the other side, 24% bank employees were wearing glasses during computer usage and 40% other employees were wearing glasses.It means less percentage of both employees were wearing glasses during computer usage.

Table 6: Combination of Headache, Eyestrain and blur Vision that Occur as a Result of Prolonged Computer between Bank Employees and Other Employees.

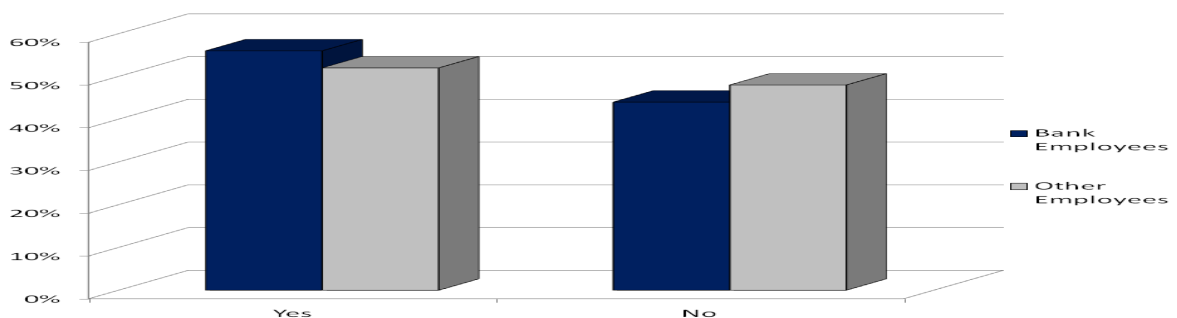| Srn o	Total no Of Bank Emp.*	No of Bank Emp.*	Percentage of Bank Emp.*	Total no of other Emp.*	No of other Emp.*	Percentage of Other Emp.*	Response
1	50	28	56%	50	26	52%	Yes
2	50	22	44%	50	24	48%	No

* Emp. =Employees

Figure: 6

This table showed that more bank employees as compare to other employees were confessed the problem of Combination of Headache, Eyestrain and blur Vision that Occur as a Result of Prolonged Computer usage. 56% bank employees and 52% other employees were confessed the problem of Combination of Headache, Eyestrain and blur Vision that Occur as a Result of Prolonged Computer usage. On the other side, 48% other employees and 44% bank employees did not confess that Combination of Headache, Eyestrain and blur Vision that Occur as a Result of Prolonged Computer usage.

Table 7: Experience of Health Problems when were not work on computer between bank employees and other employees.

| Srno	Health Problems	Total no Of bank Emp.*	Response of Bank Emp.*	Percentage of Bank Emp.*	Total no of other Emp.*	Response of Other Emp.*	Percentage of Other Emp.*
1	Headache	50	15	30%	50	14	28%
2	Eyestrain	50	15	30%	50	16	32%
3	Double Vision	50	06	12%	50	06	12%
4	Redness	50	08	16%	50	05	10%
5	Watery Eyes	50	05	10%	50	14	28%
6	Dryness Eyes	50	08	16%	50	05	10%
7	Neck Pain	50	22	44%	50	17	34%
8	No Problem	50	15	30%	50	13	26%

* Emp. =Employees
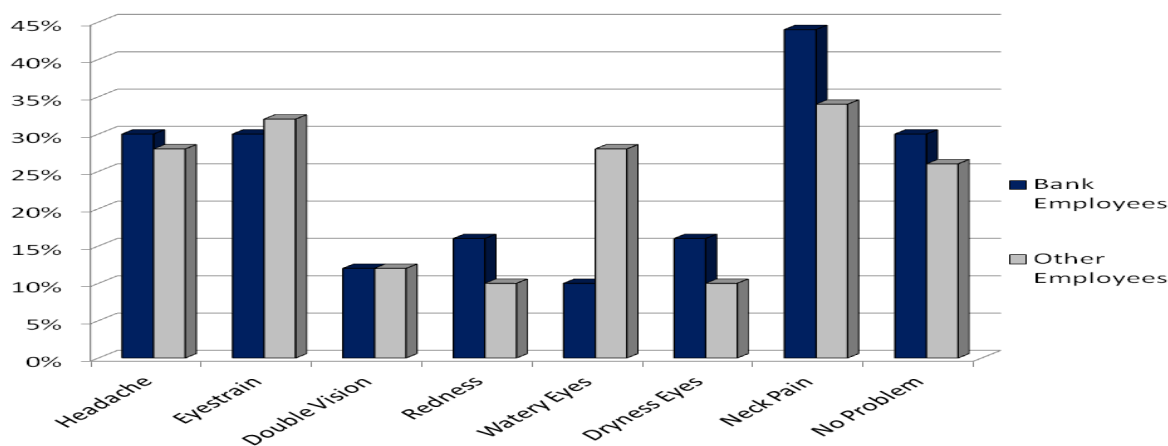
Figure: 7

In the table no.7,the investigator found that the maximum bank employees were affected from Neck pain, Headache and Eyestrain.on the other hand, maximum other employees were affected from Neck pain Eyestain Headache and watery Eyes.30% bank employees and 28% other employees were affected from Heahache.It means that more than bank employees were suffered the Heahache. 30% bank employees and 32% other employees were affected from Eyestrain. It means that other employees were suffered the eyestrain.12% both bank employees and other employees were affected from Double Vision.It means that both were affected same from Double Vision. 16% bank employees and 10% other employees were affected from Redness.It means that bank employees as compare other employees were more affected from Redness.28% other employees and 10% other employees were affected from Watery Eyes.It means that other employees were more affected from watery Eyes. 16% bank employees and 10% other employees were affected from Dryness Eyes.It means that bank employees were more affected from Dryness Eyes. 44% bank employees and 34% other employees were affected from Neck pain.It means that bank employees were more affected from Neck pain. 30% bank employees and 26% other employees were not any problem like as Headache, Eyestrain, Double vision, Redness, Watery Eyes and Neck pain. .It means that bank employees as compare to other employees were not any problem.

Table 8: History of Eye check up between bank Employees and other employees.

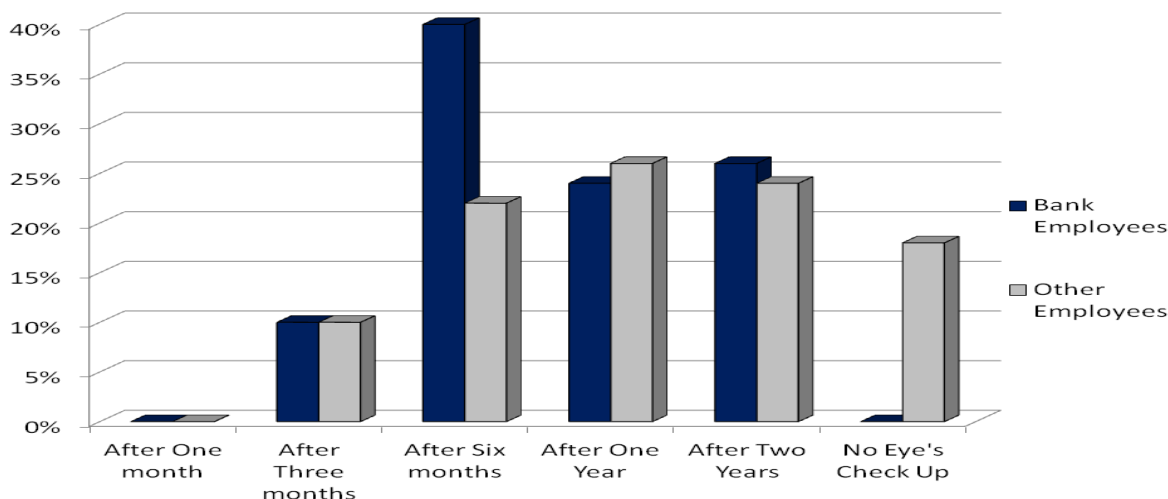| Sr. no	Period Of Eye Check up	Total no Of bank Emp.*	Response Of Bank Emp.*	Percentage Of Bank Emp.*	Total no. Of other Emp.*	Response Of Other Emp.*	Percentage of Other Emp.*
1	After one month	50	00	0%	50	00	0%
2	After Three month	50	05	10%	50	05	10%
3	After Six month	50	20	40%	50	11	22%
4	After One Year	50	12	24%	50	13	26%
5	After Two year	50	13	26%	50	12	24%
6	No Eye check up	50	00	0%	50	09	18%

* Emp. =Employees

Figure: 8

In the table no.8, the investigator found that maximum bank employees were checked up the eyes after six month. On the other hand, maximum other employees were checked up after one year. There were no employees checked up after one month.10% both employees were checked up the eyes after three months.40% bank employees and 22% other employees were checked up after a six months. It means that more bank employees in compare to other employees were more checked up after six months. 24%bank employees and 26% other employees were checked up after one year. It means that more other employees in compare with bank employees were checked up after six months. 26%bank employees and 24% other employees were checked up after two years. It means that more bank employees in compare to other employees were little bit more checked up after two years.18% other employees were never checked up eye.

Table 9: Total number of employees in Eye Problem between bank employees and other employees.

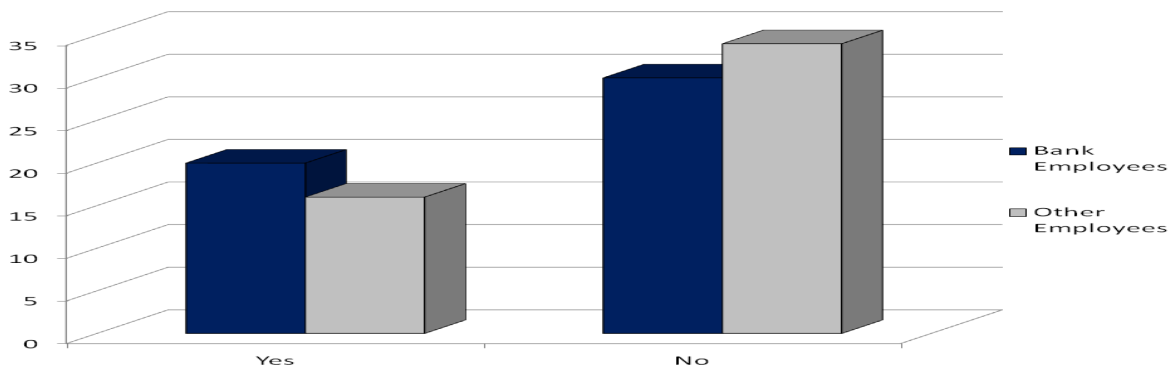| Sr. no	Total no. of Bank Emp.*	No. of Bank Emp.*'s Eye Problem	Percentage of Bank Emp.*	Total No. of Other Emp.*	No.of Other Emp.*'s Eye Problem	Percentage of Other Emp.*	Response
1	50	20	40%	50	16	32%	Yes
2	50	30	60%	50	34	68%	No

* Emp. =Employees

Figure: 9

This table depicted that 40% bank employees and 32% other employees were affected from eye problem.It means bank employees as compare to other employees were more affected from eye problem. 60% bank employees and 68% other employees were not affected from eye problem.It means that more other employees were not more affected from eye problem.

Table 10: The consultation ophthalmologist/doctor of Employees between Bank Employees and Other Employees.

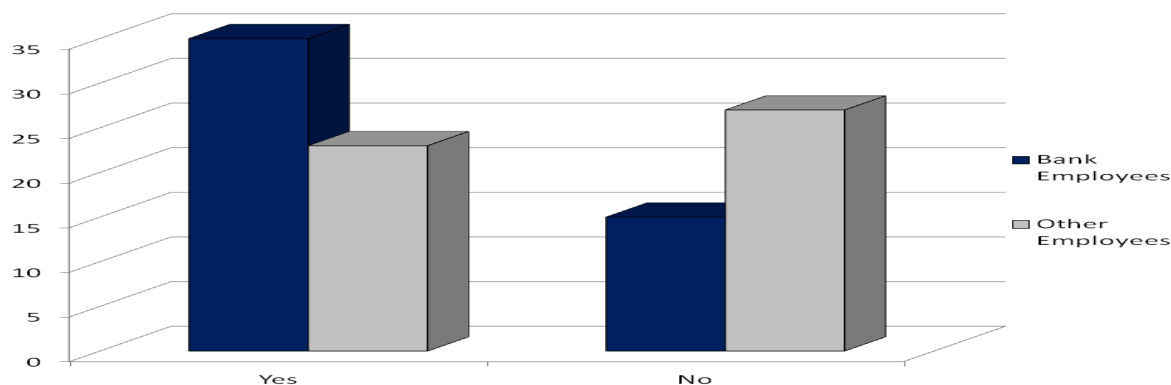| Sr.no	Total no of Bank Emp.*	No of Bank Emp.*	Percentage of Bank Emp.*	Total no of other Emp.*	No of Other Emp.*	Percentage of Other Emp.*	Response
1	50	35	70%	50	23	46%	Yes
2	50	15	30%	50	27	54%	No

* Emp. =Employees

Figure: 10

This table depicted that maximum bank employees as compare to other employees were consulted a doctor or eye specialist for an eye problem.70% bank employees and 46% other employees were consulted a doctor or eye specialist for an eye problem.It means that bank employees were more aware to consult a doctor or eye specialist.54% other employees and 30% bank employees were not consulted a doctor or eye specialist for an eye problem.It means that other employees as compare to bank employees were not aware consult a doctor or eye specialist for an eye problem.

Table 11: The Remedy/Relief from computer vision syndrome between Bank Employees and other Employees.

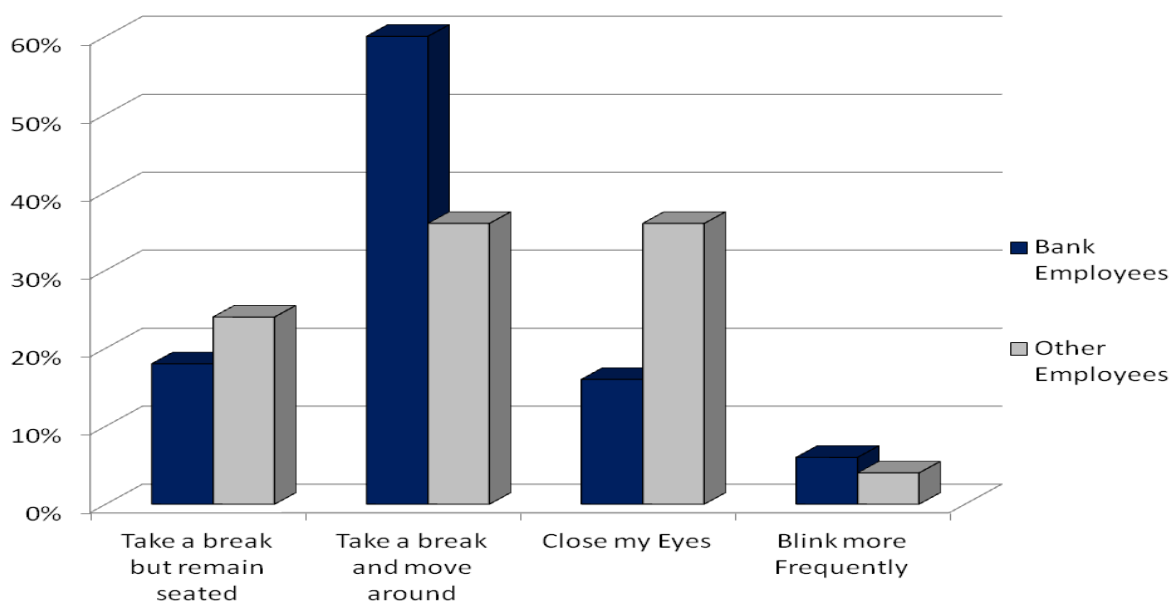| Sr. no	Remedy/ Get Relief	Totalno of Bank Emp.*	No of Bank Emp.* Response	Percentage of Bank Emp.* Response	Total no of other Emp.*	No of Other Emp.* Response	Percentage of Other Emp.* Response
1	Take a break but remain Seated	50	09	18%	50	12	24%
2	Take a break and move around	50	30	60%	50	18	36%
3	Close my Eyes	50	08	16%	50	18	36%
4	Blink more Frequently	50	03	6%	50	02	4%

* Emp. =Employees

Figure: 11

In the Table no.11 the investigator found that four categories of remedy/ get relief in the above table between Bank Employees and other Employees.18% bank employees and 24% other employees were got relief to take a break but remain seated. It means that more other employee's response to get relief to take a break but remain seated.60% bank employees and 36% other employees was got relief to take a break and move around. It means that more bank employees were got relief to take break and move around.16% bank employees and 36% other employees take remedy from computer vision syndrome to close the eyes. It means that more other employees were more take remedy from CVS to close the eyes.6% bank employees and 4% other employees were to take exercise for getting relief to blink eye more frequently. It means that more bank employees were took exercise for getting relief to blink eye more frequently.

Table12: The source of knowledge about vision syndrome between Bank employees and other employees.

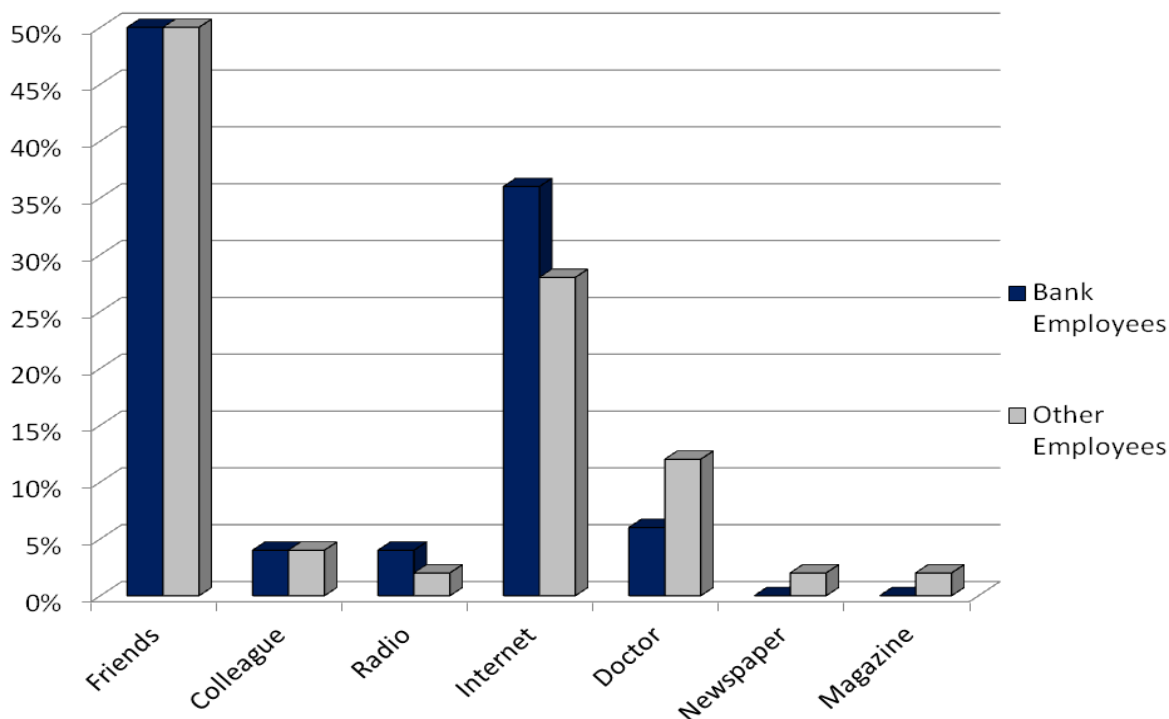| Sr. no	Source of knowledge about CVS	Total no of Bank Emp.*	No of Bank Emp.*	Percentage of Bank Emp.*	Total no of other Emp.*	No of Other Emp.*	Percentage of Other Emp.*
1	Friends	50	25	50%	50	25	50%
2	Colleague	50	02	4%	50	02	4%
3	Radio	50	02	4%	50	01	2%
4	Internet	50	18	36%	50	14	28%
5	Doctor	50	03	6%	50	06	12%
6	Newspaper	50	00	0%	50	01	2%
7	Magazine	50	00	0%	50	01	2%

* Emp. =Employees

Figure: 12

In the table no.12, the results showed that the maximum both were bank employees and other employees got to know about computer vision syndrome from friends. Both 50% bank employees and other employees were got to know about computer vision syndrome from friends. 36% bank employees and 28% other employees were got to know about computer vision syndrome from Internet. It means that more bank employees were got to know about computer vision syndrome from Internet. 6% bank employees and 12% other employees were got to know about computer vision syndrome from doctor. It means that more other employees were got to know about computer vision syndrome from doctor. 4% bank employees and 2% other employees were get to know about computer vision syndrome from Radio.

VI. CONCLUSION

In nutshell both employees were aware and have knowledge about CVS and they also were suffered Neck pain, Eyestrain, Headache. and supported by Raja AM, Janti S, Matheen A, Chendilnathan C, Ramalingam P. (2015) and Tornq Vist Wigaeus, Hagman Maud and Others (2002).

REFERENCES

1. Atencio, R. (1996) Eyestrain: the number one complaint of computer users, Computers in Libraries.16(8):40-43
2. Blehm, C., Vishnu, S., Khattak A, Mitra S, Yee R.W. (2005). Computer vision syndrome: a review. Survey Ophthalmol. 50(3):253-262, Elsevier Inc
3. Dumesh (2010). Computer vision syndrome. August.13.2010, Available from: www.expresslayout.com/.
4. Divjak, M. , Bischof, H. (2009). Eye blink-based fatigue detection for prevention of Computer vision syndrome. *MVA 2009, IAPR conference on machine vision applications*, May 20-22, Yokohama, Japan Libraries. 16(8): 40-43
5. Dainoff, M.J., Happ, A., Crane, P.Visual, K. (1981). Fatigue and occupational stress in VDT operators. Human Factors; 23: 421-438
6. Graney, M.C. (2011). Computer vision syndrome: a growing occupational health problem, viewed 31 May <http://www.computervisionsyndrome.aspx.htm>.
7. Izquierdo, N.J. (2010). Computer Vision Syndrome, viewed 21 December 2011 <http://www.emedicine.medscape.com/article/1229 >.

8. Izquierdo, J.C., Garcia, M., Buxo C., Izquierdo, N. (2004). Factors leading to the computer Vision syndrome: an issue at the contemporary workplace. Bol. Assoc. Med. P.R.96 (2): 103-110.
9. Ihemedu, C.O., Omolase, C.O. (2010). The level of awareness and utilization of computer Shields among computer users in a Nigerian community. Asian J. Med. Sci.1:49-52
10. Lai, K.W. (1999). Teaching, Learning and Professional Development: the teacher matters   most, in K. W. Lai (Ed.) Net-Working: teaching, learning, and professional   development, pp. 7-23. Dunedin:University of Otago Press.
11. Laeser, K., Maxwell L., Hedge, A. (1998) The Effect of Computer Workstation Design on Student Posture, Journal of Research on Computing in Education.31: 173188.
12. Mvungi, V.P., Mcharo, J., Mmbuji, M.E., Mgonja, L.E., Kitua, A.Y. (2008).Health hazards related to computer use: experience of the national institute for medical research in Tanzania. World Academy of Science, Eng. Technol. 48:474-479.
13. Nunoo, M.(1996) A sight for sore eyes: Computer displays can be hazardous to your vision *Black enterprise*, 28(3):44-45.
14. Raja AM, Janti S, Matheen A, Chendilnathan C, Ramalingam P. (2015).Cross-sectional questionnaire study of ocular effects among IT professionals who use computers. Int J Med Public Health [serial online] 5:63-6. Available from: http://www.ijmedph.org/text.asp?2015/5/1/63/151264
15. Sen A, (2007) Stanley Richardson. A study of computer-related upper limb discomfort and computer vision syndrome J. Human Ergol. 36: 45-50.
16. Shahid, R., Irfan, M. (2016). *Journal of computer science and Engineering,* Impact of computer vision syndrome on health of computer usage bank employees. , vol 2, Issue 6.
17. Torrey, J. (2003). Understanding Computer Vision Syndrome. Employ Relat Today. 30 (1): pp. 45-51.
18. Tribleya. J and et al (2011).IE 2011, Tips for computer vision syndrome relief and prevention, vol 39, Issue 1.
19. zquierdo, N.J. (2010). Computer Vision Syndrome, viewed 21 December 2011 <http://www emedicine.medscape.com/article/1229 >.